The Effects of Observable Parent Alcohol Consequences and Parent Alcohol Disorder on Adolescent Alcohol Expectancies

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Abstract

Background: Parental drinking and parent Alcohol Use Disorder (AUD) are known predictors of adolescent positive alcohol expectancies, but their link to negative expectancies is unclear. Research suggests that parent drinking may indirectly predict adolescent expectancies through exposure to parental drinking events. However, exposure to parent negative alcohol consequences may be more relevant to adolescents' expectancies. The present study tested the mediating effect of parent observable negative alcohol consequences in the association between parent AUD and adolescent expectancies.

Methods: This study used parent and adolescent data from the Adult and Family Development Project (AFDP). A total of 581 adolescents reported on their alcohol expectancies across two waves of data, and their parents reported on potentially observable alcohol-related negative consequences during the first wave. Past-year and lifetime Parent AUD were assessed with diagnostic interviews across six waves of data.

Results.—Mothers' observable consequences mediated the effect of her past-year AUD on adolescent negative expectancies in adolescence, but this effect did not hold at a 1.5-year follow-up. Mothers' lifetime AUD was the only prospective predictor of later adolescent negative expectancies. No Father drinking variables predicted expectancies, and all models were invariant across child biological sex. Finally, older adolescent age prospectively predicted higher positive expectancies whereas the adolescents' own drinking predicted lower negative expectancies.

Conclusions: These findings, in line with other recent studies, suggest that exposure to mothers' negative experiences with alcohol may counterintuitively normalize negative alcohol effects. This may paradoxically increase risk for adolescents rather than buffering the effects of a family history of parental AUD.

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Introduction

Alcohol expectancies, defined as the anticipated positive and negative effects of alcohol (Jones et al., 2001), are a particularly well-studied risk factor for alcohol use and problems. Decades of research indicate that stronger positive alcohol expectancies are associated with a variety of drinking indices (e.g., initiation, quantity, problems, dependence) during adolescence and young adulthood (e.g., Aas et al., 1998; Fromme & D'Amico, 2000; Jones et al., 2001; Kilbey, Downey, & Breslau, 1998; Lewis & O'Neil, 2000, Morean et al., 2012; 2015; Turrisi et al., 2000). In contrast, the effects of negative alcohol expectancies are less frequently studied, and findings are varied. Some studies show associations between negative expectancies and less drinking, some show associations with more drinking, and some show no associations with drinking (Fromme et al., 1993; Lee et al., 1999; McMahon & Jones, 1993; McMahon et al., 1994; Morean et al., 2012; 2015). Research has suggested that expectancies start disproportionately negative but become more positive with time and drinking experience (Dunn & Goldman, 1996; Wiers et al., 1998). Further understanding the developmental antecedents of positive and negative alcohol expectancies, particularly from parents during early stages of alcohol use, provides an opportunity to guide early-age prevention efforts. Therefore, the present study examined whether parental observable alcohol consequences predict adolescent alcohol expectancies in a sample that enriched for high-risk adolescents (i.e., those with a family history of AUD).

Alcohol expectancies are typically conceptualized within Social Learning Theory, which posits that expectancies are learned responses to alcohol that are developed through direct and indirect experience (Bandura, 1977; Rotter et al., 1972). Alcohol use initiation and continued use provide direct experiences through which alcohol expectancies are formed and strengthened (e.g., Aas et al., 1998; Smith et al., 1995). Research suggests that there are reciprocal effects of expectancies and drinking (Aas et al., 1998; Smith et al., 1995), justifying expectancies as both a predictor and outcome variable. However, research also shows that initial expectancies are formed early in development, before drinking typically occurs (Dunn & Goldman, 1996; Dunn & Goldman, 1998). Thus, although drinking serves as a predictor of expectancies in mid- to late- adolescence, indirect experiences that occur before drinking initiation may be important in the formation of expectancies.

Social Learning Theory also posits that proximal socializing agents model behavior and attitudes during development, which are then internalized by children and adolescents. Accordingly, both parent and peer alcohol use provide proximal indirect experiences through which expectancies may be formed. Research suggests that associating with peers who drink (or perceiving that peers drink) is a substantial predictor of both childhood/adolescent alcohol use (e.g., Curran, Stice, & Chassin, 1997; Samek et al., 2013) and alcohol expectancies (e.g., Boyd et al., 2018; Cumsille et al., 2000; Martino et al., 2006). However, drinking rates during childhood and early adolescence are typically lower than in mid-to-late adolescence (Boyd et al., 2018; Dawson et al., 2008). Thus, (perceived) peer use may predict adolescent expectancies, whereas other socializing agents (e.g., parents) may predict earlier development of expectancies.

Within the parenting literature, many studies show that higher levels of parental drinking predict more positive alcohol expectancies in children and adolescents (e.g., Donovan et al., 2009; Epstein et al., 2009; Martino et al., 2006). However, some findings in young children are inconsistent (Kuntsche & Kuntsche, 2018). While these studies test the effects of parent drinking on expectancies, only one recent study has attempted to look at mechanisms of this association. Smit et al. (2019) found that more exposure to paternal alcohol use (e.g., observing alcohol use at a family party, at dinner) mediated the effect of father drinking on childhood alcohol expectancies (Smit et al., 2019), predicting fewer negative expectancies among boys and greater positive expectancies among girls. However, when assessing the same question in adolescents, Smit et al. (2019) found that exposure to paternal drinking mediated the effect of paternal drinking on a variety of positive but not negative alcohol expectancies. Taken together, these findings suggest that exposure to parent alcohol use may be more important in predicting negative expectancies in childhood but to positive expectancies in adolescence, when drinking initiates.

Although parent drinking may be an important predictor of alcohol expectancies, there is reason to think that parent alcohol use disorder (AUD) may also predict expectancies. Studies of high-risk populations show that children of parents with AUD have more positive expectancies than children of parents without AUD (Brown et al., 1987; 1999; Colder et al., 1997; Handley & Chassin, 2009; Sher et al., 1991; Mann et al., 1987; Shen, 2001). However, the literature on parent AUD and negative expectancies is understudied. Wiers et al. (1998) tested the effects of parent AUD on both negative and positive expectancies, finding that elementary-aged children of parents with AUD had stronger negative expectancies compared to children of parents without AUD. This suggests that young children of parents with AUD might see the negative effects of their parents' high-risk drinking, and thus may develop negative expectancies in childhood, when personal experiences with alcohol are limited. Therefore, it is possible that observing parental negative alcohol consequences during childhood and early adolescence could lead to beliefs and attitudes about the effects of alcohol use. These observable alcohol effects can provide specific, visible information that may affect childrens' alcohol-related cognitions. Observable consequences may provide unique information above and beyond parental AUD, because some symptoms of AUD are difficult for children to observe or recognize (e.g., tolerance). Thus, parental negative alcohol consequences may predict negative expectancies through observational learning that alcohol causes negative consequences. Later in development, after personal and peer drinking initiates, expectancies may then shift from predominantly negative to positive. Thus, parental modeling of negative alcohol effects could serve as an antecedent to negative expectancies, whereas personal drinking and age could serve as an antecedent to the shift toward more positive expectancies. However, no studies to date have directly tested this hypothesis or identified mechanisms through which parental AUD confers risk for child/adolescent expectancies.

Although no prior research has examined the impact of maternal versus paternal negative alcohol consequences on child alcohol expectancies, a number of studies have revealed disparate effects of mothers' and fathers' drinking on other adolescent alcohol outcomes. For example, maternal and paternal drinking displayed effects on different types of drinking motives (Van Demme et al., 2015). Additionally, a review by Rossow and colleagues (2016)

reported conflicting findings about whether children's alcohol use is predicted by maternal drinking only (e.g., Poelen et al., 2007) paternal drinking only (e.g., Mares et al., 2011), or both parents' drinking (e.g., Donovan et al., 2011). Most relevant to the present study, a prior study within this sample found that only maternal disclosure of alcohol consequences was associated with later adolescent alcohol use (Handley & Chassin, 2013). Thus, it is important to separately test the mediating effects of maternal and paternal observable consequences on adolescent alcohol expectancies.

Therefore, the primary aim of the present study was to test whether mothers' and fathers' observable alcohol consequences mediated the effect of parental AUD on adolescent alcohol expectancies. We hypothesized that more parent observable negative consequences from alcohol would mediate the effect of parent AUD, such that more observable consequences would predict more negative expectancies and less positive expectancies. Past research suggests that parental AUD leads to more positive expectancies, however our hypotheses are based upon overt, observable problems, which we anticipated would interrupt the link between parent AUD and adolescent expectancies. Additionally, our hypotheses on negative expectancies were exploratory, due to the lack of research linking parent AUD to negative expectancies. We also anticipated that perceptions of peer drinking and personal drinking frequency would predict more positive expectancies. We did not have specific hypotheses for peer and personal drinking predicting negative expectancies.

Materials and Methods

Participants

Participants were part of a three-generation longitudinal study of family AUD (Chassin et al., 1992). The original (Wave 1) sample was comprised of 454 adolescents (generation 2; "G2s") and their parents (generation 1; "G1s"). Of these adolescents, 246 had at least one parent with AUD and 208 adolescents were from demographically matched comparison families with no parental AUD. At Wave 4, G2 biological siblings within the same age range as the original G2s entered the study. At Waves 5 and 6, interviews were conducted with spouses/partners of G2s and their children ("G3s"). Data were collected again from G3s approximately 5 years later at Wave 6 and again via a web survey approximately 1 ½ years later (Wave 7).

The present study used G2 data from Waves 4, 5, and 6 and G3 data collected at Wave 6 (W6) and Wave 7 (W7). Inclusion criteria were valid parent past-year and lifetime AUD diagnosis data and valid expectancy scores for adolescents at Wave 6. This yielded a sample of 581 G3s clustered within 298 mothers and 247 fathers. Excluded participants had significantly more males than did included participants, but no other differences were found between included and excluded participants. Included participants were 52.2% Female, with an average age of 12.24 (SD= 1.78) at W6. A full list of descriptive statistics for included G3s is shown in Table 1.

Recruitment

Complete information about recruitment is reported in Chassin et al. (1992). G1 parents and G2 children in high-risk families were recruited through health maintenance organization (HMO) wellness questionnaires, court reports, hospital referrals, and community telephone screening. Parents qualified for the study if they lived in Arizona, reported Hispanic or non-Hispanic Caucasian ethnicity, had children between 10.5 and 15.5 years old, and were born between 1926 and 1960. Demographically-matched families with no parental AUD were recruited through directories to identify families living in the same neighborhoods as the high-risk families. Adult participants gave consent to participate, and adolescents gave assent. The Arizona State University Institutional Review Board approved of all study protocols.

Measures

Demographics.—Adolescents reported on their biological sex and age at W6.

Alcohol Use.—Adolescents reported on their frequency of alcohol use over the past year at W6. Reponses ranged from (0) "Never" to (7) "Everyday". Adolescents endorsed very little drinking at W6 and W7 (See Table 1).

Peer Alcohol Use.—Perceptions of peer alcohol use were assessed via two questions adapted from the Monitoring the Future study (Johnston et al., 1988). Adolescents were asked how many of their friends drank alcohol "occasionally" and "regularly" at W6. Responses ranged from (1) "None" to (6) "All". The two items were averaged to create a perceived peer use variable. Perceived peer use was low at W6 (Mean= 1.38) and increased by W7 (Mean= 2.35). A mean of 1.38 roughly corresponds to between "none" and "a few" peers whereas a mean of 2.35 roughly corresponds to between "a few" and "some" peers on the scale of perceived use.

Alcohol Expectancies.—Adolescents reported on positive and negative alcohol expectancy items at W6 and W7. Adolescents received in-person interviews in which trained personnel read items aloud to minimize literacy demands. Items were derived from past questionnaires (Christiansen et al., 1982; Donovan et al., 2009; Fromme et al., 1993) with three additional items written by project staff focusing on future concerns about alcohol. Adolescents who had not used alcohol were asked to respond based on what they thought would happen if they did. Responses ranged from (1) "Strongly disagree" to (5) "Strongly agree". There was a total of 18 positive items (e.g., "I would have more fun at a party,") and 20 negative items (e.g., "I would lose my temper more quickly"). Composite scores were computed by averaging all items from each expectancy subscale, with higher scores indicating stronger expectancies towards alcohol use. Both negative and positive expectancy subscales had excellent reliability (a = .91-.92) (See Supplementary Table 1 for expectancy items). There was a small but significant increase in positive expectancies from W6 to W7 (W6 Mean= 2.67, W7 Mean= 2.7; F= 2.05, p < .001). Negative expectancies showed a small but significant decline from W6 to W7 (W6 Mean=3.67, W7 Mean= 3.55; F=2.48, p < .001).

Parent Alcohol Use Disorder.—Parent diagnoses of DSM-IV alcohol dependence and abuse were assessed with the Diagnostic Interview Schedule (C-DIS; Robins et al., 1981) or Family History-Research Diagnostic Criteria (FH-RDC; Andreason et al., 1977) from Waves 4, 5, and 6 of the current study. We coded two different parent AUD variables: one for past-year AUD and a second for lifetime AUD diagnoses. Each variable was coded as 0=no history/past-year diagnosis or 1=history of/past-year diagnosis. Nearly half of mothers and fathers had lifetime AUD diagnoses (44.3% of mothers, 47.7% of fathers) and less than 1/5 had past-year AUD diagnoses (8.3% of mothers, 20.1% of fathers).

Parent Observable Consequences.—Parents reported on their own past-year consequences from alcohol use (e.g., I drank and drove, see Supplemental Table 1) at W6. These items were adapted from the *Diagnostic Interview Schedule* (Robins et al., 1981) and the Alcohol, Health, and Behavior Study (Sher, 1993). Of the 20 consequences assessed, 11 consequences were likely not observable to children (e.g., risky sexual behavior, problems at work) and were excluded. This yielded a total of 9 observable consequences (Supplementary Table 1), which were summed to indicate the total number of parent observable consequences in the past year. Average observable consequences were low for mothers (M= .15) and fathers (M= .35), however match other studies on typical zero-inflated means of alcohol consequences data (e.g., Merrill et al., 2014). To validate how "observable" these consequences were, we looked at correlations between the mother and father summary score of observable consequences and adolescent reports of seeing their parent drunk or taking care of their parent when drunk (using two items from the Children of Alcoholics Life Events Scale; Roosa et al., 1988). Specifically, adolescents were asked "In the past year… Have you seen your mom or dad drunk?" and "Have you had to take care of your mom or dad while drunk?". Correlations were significant (r = .10-.25) and stronger when selecting only children who had past-year parent AUD diagnoses, suggesting that the variable tells more than just a diagnosed AUD.

Data Analysis

We tested models via path analysis in Mplus version 7.7 (Muthen & Muthen, 2017). We used Hu & Bentler (1999)'s guidelines to assess model fit, which suggest RMSEA values near .06, SRMR values near .08, and both CFI and TLI values near .95 indicate good fit. All variables were within reasonable skewness and kurtosis ranges, and we used Maximum Likelihood Estimation with robust standard errors (MLR) to address any further non-normality. Because adolescents were nested within parents, we accounted for clustering at the family level by adjusting standard errors to fit a multilevel data structure. Missing values were casewise deleted.

We estimated a series of mediation models predicting adolescent alcohol expectancies from past-year and lifetime parent AUD and past-year parent observable consequences. We tested separate mother and father models, in which past-year and lifetime parent AUD indirectly predicted adolescent expectancies at W6 through past-year observable consequences (Past-Year Models). Models summing across both parents and testing invariance for adolescent biological sex are in supplementary material. Each model included W6 adolescent biological sex, age, alcohol use, and perceived peer alcohol use as covariates. Because parent

consequences occurred in the past-year, they were used to predict current adolescent expectancies.

We also tested a series of models prospectively predicting expectancies at a 1.5-year follow-up (W7). All previous covariates were retained, and we added W6 positive and negative expectancies to test the model prospectively. All indirect effects were tested using RMediation (Tofighi & MacKinnon, 2011).

Results

Bivariate Correlations.

Bivariate correlations (see Table 2) show that mother's lifetime and past-year AUD were associated with more W6 positive expectancies, whereas only mother's lifetime AUD was associated with less W7 negative expectancies. Father's past-year AUD was associated with less W7 negative expectancies. Mother's observable consequences were associated with less W6 and W7 negative expectancies.

Mother Models.

The past-year mother model (Table 3) showed good fit to the data (X^2=4.66, p=.32, RMSEA=.02 (.00, .07), CFI=1.00, TLI=.99, SRMR=.01). Older adolescents and males had significantly more positive expectancies. More adolescent drinking was significantly related to lower negative expectancies for younger adolescents, and increased perceptions of peer use were marginally related to lower negative expectancies. When accounting for all covariates, both lifetime and past-year mother AUD were related to higher positive expectancies but not negative expectancies (the association between past-year AUD and expectancies was marginal). However, past-year observable problems were robustly related to negative but not positive expectancies. Mother observable consequences mediated the effect of past-year mother AUD on negative expectancies (b=−.06, SE=.03, 95% CI (−.11, −.01), such that past-year mother AUD predicted more past-year consequences (accounting for the effect of lifetime AUD diagnoses), which in turn predicted lower negative expectancies (Figure 1). There were no significant indirect effects predicting positive expectancies.

The results of the model predicting W7 expectancies controlling for W6 expectancies (Table 3) also provided good fit to the data (X^2=5.58, p=.47, RMSEA=.00 (.00, .06), CFI=1.0, TLI=1.01, SRMR=.02). Higher levels of W6 drinking were related to fewer negative expectancies and being older at W6 was associated with higher positive expectancies. When accounting for all mother AUD and consequence variables, only lifetime mother AUD was related to W7 negative expectancies, such that maternal lifetime AUD predicted lower negative expectancies. There were no significant effects of observable consequences on either positive or negative expectancies nor any significant indirect effects.

Father Models.

The past-year father model (Table 3) showed adequate fit to the data (X^2=.7.01, p=.14, RMSEA=.04 (.00, .09), CFI=.98, TLI=.91, SRMR=.01). Older adolescents and boys had

marginally stronger positive expectancies compared to younger adolescents and girls. Increased perceptions of peer use was significantly related to lower negative expectancies and marginally related to higher positive expectancies. Additionally, higher levels of adolescent drinking were related to lower negative expectancies. There were no significant effects of any father AUD or consequences variable on expectancies and no indirect effects from father AUD to expectancies through consequences.

The results of a model predicting W7 expectancies controlling for W6 expectancies (Table 3) also provided good fit to the data (X^2=6.05, p=.42, RMSEA=.01 (.00, .07), CFI=.1.0, TLI=1.0, SRMR=.01). In this model, more drinking at W6 was marginally related to lower negative expectancies and being older at W6 was related to higher positive expectancies. Neither past-year nor lifetime father AUD were related to expectancies, nor was past-year observable consequences. Accordingly, there were no significant indirect effects.

Sensitivity Analyses.

All models were also estimated without perceived peer alcohol use in the models to test if parent AUD and observable problems variables were obscured by including perceived peer use. Removing perceived peer use produced minimal changes to findings. Adolescent age became significantly associated with higher positive expectancies (past-year father model; b = .06, p < .01), and adolescent drinking frequency became significantly associated with lower negative expectancies (prospective father model; b = −.16, p < .01).

Discussion

The current study tested the mediating role of parent observable negative alcohol consequences in the relation between parent AUD and adolescent alcohol expectancies. We hypothesized that more negative consequences would be associated with lower positive and higher negative expectancies during adolescence at both time points. However, we found support for an alternative model, in which past-year mother observable consequences were associated with lower negative expectancies and not associated with positive expectancies. Additionally, the link between maternal consequences and adolescent negative expectancies faded with time, and mother lifetime AUD diagnosis became the only maternal variable to predict negative expectancies at follow up. We saw no effect of any of the three paternal drinking variables on positive or negative expectancies at either time point.

These findings add several contributions to the literature. First, our hypotheses were grounded in the idea that observing parents' negative drinking consequences would result in less favorable (i.e., more negative) perceived alcohol effects. However, we found the opposite for mothers. One possible interpretation is that mothers' observable consequences may not paint drinking in a negative light. Instead, observable consequences may normalize the negative effects of alcohol, since they are experienced by a maternal figure. Because children may view their parents as positive authority figures, negative consequences may not be seen as so negative. Thus, seeing negative maternal consequences of drinking could lead an adolescent to believe that these effects are not so bad or out of the ordinary. Interestingly, similar findings have also been reported in studies of parental substance-specific communication about alcohol and cannabis (Handley & Chassin, 2013; Sternberg et al.,

2019). Specifically, Handley & Chassin (2013) found that maternal sharing of her own negative experiences with alcohol were associated with greater alcohol use initiation in a sample of high-risk adolescents. Handley & Chassin (2013) suggested that mothers discussing their negative experiences with alcohol may actually be enticing rather than a warning against alcohol use, which may decrease negative views and increase positive views of alcohol. Sternberg et al. (2019) reported similar findings concerning disclosure of cannabis-specific negative experiences, with more parental disclosure predicting more cannabis use in adolescents. Thus, discussing parents' discussing their negative experiences with alcohol and cannabis did not deter adolescents from drinking or using cannabis.

Additionally, some studies suggest that general parent alcohol-communication itself can be a risk factor for adolescent drinking (e.g., Ennett et al., 2001, Van der Vorst et al., 2010), and that parental rules against alcohol may be more effective than discussing the dangers of alcohol itself (Van Der Zwaluw et al., 2009; Van Zundert et al., 2007). Other studies suggest that exposure to non-risky parental drinking at family and social events (Smit et al., 2019) is also a risk factor. Taken together, these findings suggest that parents discussing their negative experiences with alcohol, observing one's parents drinking, and seeing parental alcohol consequences (i.e., maternal, specifically) could represent risk factors, rather than protective factors, for alcohol use and related cognitions (i.e., expectancies). Rather than informing children about potential negative effects, these experiences may provide a medium through which children develop permissive attitudes about alcohol and related consequences and thus do not perceive them negatively. However, when interpreting these results, it is important to recognize that other variables may affect the link between mother consequences and adolescent expectancies. For instance, maternal closeness could play a moderating role, with children reacting differently to disclosures from a mother with a closer rather than a more distant relationship. Further examination of the contribution of parental closeness to the effects of parental disclosure is warranted.

Although past-year mother consequences were related to less negative expectancies at W6 above and beyond all other variables, only mothers' lifetime AUD diagnosis continued to predict lower negative expectancies prospectively. One explanation for this could be that risk associated with parental AUD may not be confined to environmental exposure but also influenced by genetic risk. For example, parental AUD is associated with adolescents' elevated impulsivity and sensation seeking (e.g., Sher et al., 1991), and thus adolescents with these personality characteristics may view alcohol more positively regardless of current environmental exposure to parent alcohol use or consequences. Alternatively, insufficient power may explain differential effects from lifetime vs. past year AUD diagnosis. As such, it is imperative to further delineate the specific mechanisms through which lifetime AUD diagnoses relate to expectancies over time.

Our study findings fit into the broader literature suggesting that exposure to parent drinking and parent AUD predict risky alcohol expectancies. Although we found no effects for higher positive expectancies, we did find evidence for lower negative expectancies, which also may predict risk for drinking. The lack of findings for positive expectancies could be due to our measurement of expectancies (i.e., combining several questionnaires) or due to the inclusion of both positive and negative expectancies in the same model. Bivariate correlations suggest

a relationship between Mother AUD and more positive expectancies, and thus it also may be that Mother AUD predicts unique variance in negative expectancies when including all model covariates. Nevertheless, our findings fit into the larger profile of "risky" early age expectancies conferred by maternal AUD.

It is also worth noting that none of the father AUD or consequence variables predicted adolescent expectancies. This contradicts some past literature that suggests that overall family history of AUD (e.g., Brown et al., 1999; Colder et al., 1997), a father AUD diagnosis (Handley & Chassin, 2009), and overall father drinking (Smit et al., 2019) are associated with more positive expectancies. There are a variety of explanations for this. First, this could be due to our stringent inclusion of covariates (e.g., peer use, age, drinking), which most studies do not include. There were significant bivariate correlations between Father AUD and more positive and less negative expectancies, suggesting that two are related when not accounting for such covariates. Moreover, we see larger bivariate correlations between Mother AUD and expectancies compared to Father AUD, and thus Father AUD may not account for as much variance in expectancies as Mother AUD does. Second, these results may be explained by gender norms in drinking, alcohol-related consequences, and attitudes about drinking. Pettersson et al. (2009) found that men have more nonrestrictive attitudes toward alcohol-related behaviors, and it is widely accepted that men drink more than women. Therefore, it is possible that paternal drinking and observable consequences may be more common and societally accepted, making these observable consequences less remarkable or noteworthy to adolescents. Finally, it is possible that fathers' observable consequences may not have been as "observable." Fathers may be less likely to be involved in day to day childrearing (e.g., Carlson, 2006) and more likely to drink outside the home (Paradis, 2011). Therefore, there may be fewer opportunities for the child to observe paternal negative alcohol consequences than to observe maternal negative alcohol consequences. Future research should continue to investigate the unique effects of Father and Mother AUD, particularly to delineate how fathers confer risk.

Although not the main foci of the present analyses, there were also interesting trends for peer alcohol use, age, and alcohol use frequency in predicting expectancies. Peer alcohol use was linked concurrently to less negative expectancies and marginally more positive expectancies, but this association did not hold over time. This may be due to a change in peer groups from W6 to W7, when adolescents reported a higher number of friends who drank. Interestingly, age was associated with more positive expectancies in all models, such that older adolescents had more positive expectancies. This is line with models of change toward positive expectancies as more indirect and direct experience with alcohol is obtained (e.g., Wiers et al., 1998). These findings also fit within a media cultivation framework, which argues that exposure to biased, positive alcohol content will likely lead to more positive associations of alcohol (Morgan & Shanahan, 2010), and media exposure increases with age (Grube & Wallack, 1994; Primack et al., 2009). Therefore, when children are younger, parents may be the primary socializing agents around alcohol use, but during the transition to adolescence, perceptions of peer drinking and media may play more prominent socializing roles. As such, positive framing of alcohol use via the media and peers may explain the prospective association between age and positive expectancies. However, age did not predict negative expectancies. While positive expectations of alcohol may increase over

the course of development, this pattern does not necessarily correspond to a decrease in negative alcohol expectancies. In contrast, adolescents' own alcohol use frequency was related to less negative expectancies in the past-year models, and marginally less negative expectancies prospectively. Since the current sample exhibited low levels of drinking at both time points, the association between adolescents' alcohol use frequency and lower negative expectancies may be due to a lack of adolescents' experiencing the negative impacts of alcohol.

The present study focused on parental, peer, and individual predictors of adolescent alcohol expectancies and explored the unique effect of parent observable negative consequences. Although this study provides new insight into mechanisms of risk, it must be interpreted within the context of several limitations. First, we have no way to determine whether observable parent consequences were actually observed by children. This limitation is somewhat mitigated by our finding that both mother and father observable consequences were related to adolescent report of exposure to parental drunkenness, as expected. Future research should include adolescent reports of parent negative alcohol consequences to validate these findings. Second, the relatively low number of observable consequences may have reduced our power to detect findings, particularly for fathers. Future research should test this pattern of findings in a sample of parents who are displaying higher levels of problems observable to children. Relatedly, another limitation is that our consequences variable only encompassed negative consequences, despite some evidence suggesting that positive consequences may also impact child and adolescent thoughts and attitudes about alcohol (Patrick and Maggs, 2008).

In addition, although our expectancy subscales were formed based on valence, newer conceptualizations focus on both valence and arousal of expectancies (Morean et al., 2012; 2015). Thus, there is reason to believe that highly arousing negative expectancies (e.g., aggressive, demanding, rude) may show a different pattern of results compared to an overall scale of high and low arousing negative expectancies. Since several of the observable consequences focus on risky/aggressive behaviors (e.g., being arrested, getting into a fight), observable consequences may differentially predict different negative expectancies based on arousal. Future research should examine the effects of family history and parent observable consequences on the full range of expectancies spanning across arousal and valence. The present study also sampled for Hispanic and Non-Hispanic Caucasian participants, and thus future research should test these questions in more diverse samples.

Overall, the present study is the first to focus on parent observable consequences as a predictor of expectancies within a high-risk sample. Past research has suggested this mechanism in explaining the link between parent AUD and adolescent expectancies (Colder et al., 1997; Wiers et al., 1998) but this mechanism has never been directly tested. Our findings suggest that mothers' observable consequences predicted less negative expectancies, above and beyond other focal predictors of expectancies. These findings shed light on the potential harmful effects of children observing mothers' negative alcohol consequences, suggesting that exposure to maternal alcohol consequences may confer risk rather than protection in the development of expectancies and future drinking behavior.

Supplementary Material

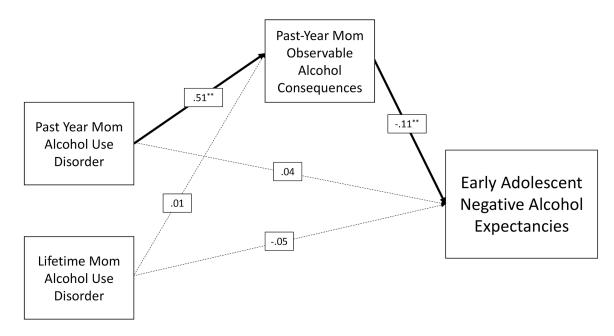Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Figure 1: Mediation Model For Past-Year Mother Observable Problems.
Note: Covariates include child age, biological sex, drinking frequency, and perceived peer use. ** p < .01, * p < .05

Table 1:

Descriptive Statistics

| | Adolescent Variables | | Parent Variables | |
| | Wave 6 | Follow-Up | Mother | Father |
Variable	% or M (SD)	% or M (SD)	M (SD)	M (SD)
Biological Sex				
Male	47.8%	--		
Female	52.2%	--		
Age	12.24 (1.78)	13.85 (2.21)		
Drinking Frequency	.17 (.68)	.28 (.88)		
Peer Drinking	1.38 (.81)	2.35 (1.48)		
Positive Expectancies	2.67 (.77)	2.70 (.87)		
Negative Expectancies	3.67 (.73)	3.55 (.83)		
Lifetime AUD			44.3%	47.7%
Past-Year AUD			8.3%	20.1%
Observable Consequences			.15 (.60)	.35 (.90)

Note: Drinking frequency was measured on a scale from 0 (Never) to 7 (Everyday), Perceptions of Peer Drinking was measured a scale from 1 (None) to 6 (All), Positive and Negative Expectancies were measured on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree), and Observable Consequences were summed from parent reports ranging from 0 to 8 total consequences.

Table 2:

Bivariate Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Mom Lifetime AUD		.31**	.17**	.21**	.15**	.14**	−.09*	.07	.04	.01	.13**	−.05	.02	−.12**
2. Mom Past-Year AUD			.52**	.09*	.09^r	.13*	.07*	.01	.09*	.01	.10*	−.05	−.01	−.08^r
3. Mom Consequences				−.05	.02	.08^r	.04	−.03	.05	.03	−.01	−.11*	−.02	−.10*
4. Dad Lifetime AUD					.41*	.26**	−.04	.04	.06	.11*	.07^r	−.02	.07	.01
5. Dad Past-Year AUD						.47**	.02	.00	.07	.09	.01	−.09^r	.02	−.07
6. Dad Consequences							.06	.03	.10*	.05	.01	−.03	.03	−.01
Wave 6 Variables:														
7. Biological sex								−.03	−.03	−.01	.05	.06	−.02	.01
8. Age									.39**	.59**	.18**	−.04	.21**	−.01
9. Drinking										.60**	.15**	−.22**	.09*	−.16**
10. Peer Drinking											.17**	−.16**	.14**	−.12**
11. Pos Expectancies												.32**	.22**	−.04
12. Neg Expectancies													−.02	.30**
Follow-Up Variables:														
13. Pos Expectancies														.47**
14. Neg Expectancies														

Note: Biological sex is coded as 1=female, 2=male, AUD variables are coded as 1=diagnosis, 0= no diagnosis.

**
p < .01,

*
p < .05,

r
p < .10

Table 3:

Model Parameters for Mother and Father Models

Past-Year Mother Model

	Negative Expectancies				Positive Expectancies			
	B	SE	95% CI.	Sig.	B	SE	95% CI	Sig
Life AUD	-.08	.07	(-.20, .05)	.23	.18	.07	(.05, .31)	< .01
1 YR AUD	.11	.10	(-.09, .31)	.29	.25	.14	(-.02, .53)	.07
Consequences	-.13	.05	(-.24, -.03)	< .01	-.10	.07	(-.24, .04)	.17
Biological Sex	.07	.06	(-.05, .19)	.26	.12	.06	(-.01, .25)	< .06
W6 Age	.03	.02	(-.01, .08)	.11	.06	.02	(.02, .11)	< .01
W6 Freq	-.19	.05	(-.29, -.10)	< .001	.05	.05	(-.05, .14)	.36
W6 Peer	-.09	.05	(-.19, .01)	.09	.08	.05	(-.02, .18)	.13

Prospective Mother Model

	Negative Expectancies				Positive Expectancies			
	B	SE	95% CI	Sig.	B	SE	95% CI	Sig.
Life AUD	-.17	.07	(-.31, -.03)	.02	-.04	.09	(-.21, .13)	.65
1 YR AUD	-.01	.20	(-.41, .39)	.96	-.05	.23	(-.50, .40)	.82
Consequences	-.06	.08	(-.21, .10)	.47	-.04	.07	(-.18, .10)	.59
Biological Sex	.01	.07	(-.14, .15)	.94	-.02	.08	(-.17, .13)	.76
W6 Age	.03	.02	(-.02, .08)	.22	.08	.03	(.02, .13)	< .01
W6 Freq	-.09	.05	(-.19, -.01)	< .05	-.01	.06	(-.12, .11)	.96
W6 Peer	-.05	.06	(-.16, .06)	.36	-.01	.07	(-.15, .12)	.84
W6 Neg Expect	.36	.06	(.24, .48)	< .001	-.12	.06	(-.25, .01)	.06
W6 Pos Expect	-.10	.06	(-.22, .02)	< .09	.30	.06	(.17, .42)	< .001

Past-Year Father Model

	Negative Expectancies				Positive Expectancies			
	B	SE	95% CI	Sig.	B	SE	95% CI	Sig.
Life AUD	-.11	.07	(-.25, .03)	.13	.03	.08	(-.12, .19)	.68
1 YR AUD	-.02	.09	(-.20, .17)	.87	-.03	.10	(-.22, .16)	.73
Consequences	.01	.04	(-.07, .09)	.78	-.01	.05	(-.11, .10)	.88
Biological Sex	.07	.07	(-.06, .19)	.31	.13	.07	(-.01, .26)	.07
W6 Age	.01	.02	(-.04, .04)	.85	.04	.02	(-.01, .09)	< .07
W6 Freq	-.15	.06	(-.25, -.04)	< .01	.04	.06	(-.08, .17)	.50
W6 Peer	-.15	.06	(-.25, -.04)	< .01	.11	.06	(-.01, .23)	.06

Prospective Father Model

	Negative Expectancies				Positive Expectancies			
	B	SE	95% CI	Sig.	B	SE	95% CI	Sig
Life AUD	.03	.09	(-.14, .19)	.77	.14	.10	(-.11, .32)	.15
1 YR AUD	-.11	.11	(-.32, .11)	.34	-.02	.13	(-.27, .23)	.87
Consequences	.03	.05	(-.08, .13)	.63	.02	.05	(-.09, .12)	.75
Biological Sex	-.01	.08	(-.16, .14)	.90	-.07	.08	(-.22, .09)	.41
W6 Age	.02	.03	(-.04, .07)	.60	.07	.03	(.02, .13)	.01
W6 Freq	-.12	.06	(-.24, .001)	.05	-.07	.07	(-.19, -.06)	.31
W6 Peer	-.07	.08	(-.22, .09)	.41	-.01	.08	(-.17, .15)	.90
W6 Neg Expect	.28	.08	(.13, .43)	< .001	-.15	.08	(-.30, .000)	< .05
W6 Pos Expect	-.10	.06	(-.22, .02)	.09	.30	.07	(.17, .43)	< .001

Note: Multivariate models were run with negative and positive expectancies for each adolescent, resulting in four separate models. AUD = Alcohol Use Disorder, Consequences = Summed Observable Parent Consequences, Freq = Frequency of alcohol use, Peer = perceived peer alcohol use.