Alcohol-Specific Parenting in a High-Risk Sample: Measurement, Determinants, and Association with Nondrinking Adolescents' Attitudes about Alcohol Use

by

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ABSTRACT

Research shows that general parenting practices (e.g., support and discipline), influence adolescent substance use. However, socialization theory suggests that parental socialization occurs not only through general parenting practices, but also through parents' attempts to influence specific behaviors and values. A growing literature supports links between substance-specific parenting and adolescent substance use. For adolescent alcohol use, there are considerable limitations and gaps within this literature. To address these limitations, the present study examined the factor structure of alcohol-specific parenting, investigated the determinants of alcohol-specific parenting, and explored its association with nondrinking adolescents' attitudes about alcohol use.

Using a high-risk sample of nondrinking adolescents and their parents, the current study found three dimensions of alcohol-specific parenting using both adolescent and parent reports, but also found evidence of non-invariance across reporters. Results also revealed complex roles of parental alcohol use disorder (AUD; including recovered and current AUD), family history of AUD, and current drinking as determinants of the three dimensions of anti-alcohol parenting behaviors. Moreover, the current study showed that the effects of these determinants varied by the reporter of the parenting behavior. Finally, the current study found the dimensions of alcohol-specific parenting to be unique and significant predictors of nondrinking adolescents' attitudes about alcohol, over and above general parenting practices, parent AUD, and parent current drinking. Given its demonstrated distinctness from general parenting practices, its link with

adolescent alcohol attitudes, and its potential malleability, alcohol-specific parenting may be an important complement to interventions targeting parents of adolescents.

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Introduction

Adolescence is a developmental period marked by risk taking, sensation seeking, and alcohol use initiation and escalation (Brown et al., 2008; Spear, 2000). According to the 2008 Monitoring the Future study, 38.9% of 8th graders and 71.9% of 12th graders reported ever drinking alcohol, and 18.0% and 54.7% respectively reported ever being drunk (Johnston, O'Malley, Bachman, & Schulenberg, 2009). Drinking among adolescents is a serious public health concern given that it is associated with accidents, injuries, academic failure, risky sexual behavior, and changes in the developing brain, among other serious consequences (Masten, Faden, Zucker, & Spear, 2008; USDHHS, 2007).

Although adolescence is characterized by increased time spent outside the home with peers and decreased time spent with family (Spear, 2000), parents continue to play an instrumental role in adolescent development in general (Galambos, Barker, & Almeida, 2003), and substance use behavior specifically (Wood, Read, Mitchell, & Brand, 2004). It has been posited that parent socialization occurs not only through general parenting behaviors (i.e., support and control), but also as a result of more specific attempts by parents to influence particular behaviors and/or values (Darling & Steinberg, 1993; Grusec, 2002; Grusec & Goodnow, 1994). For instance, a parenting style marked by high levels of warmth combined with consistent discipline has been associated with lowered levels of adolescent substance use (i.e., Baumrind, 1991; Hawkins, Catalano, & Miller, 1992), as has an appropriate level of general parental monitoring (Chassin, Pillow, Curran, Molina, Barrera, 1993). Importantly, however, parents may also

engage in specific behaviors designed to deter adolescent substance use. These include engaging their children in discussions about substance use, and setting specific rules, expectations, and consequences for adolescents' substance use behavior. Moreover, parents may hold certain values and attitudes about their children's substance use behavior and beliefs about their obligations as a parent to regulate their children's use. These attempts to specifically influence adolescents' substance use have been termed "substance-specific parenting practices" and have been the topic of some research over the past decade. This is an important area of study given its theoretical importance to processes of adolescent socialization, its documented links with adolescent substance use (e.g., Jackson, Henriksen, & Dickinson, 1999), and its demonstrated malleability (Ennett, Bauman, Pemberton, Foshee, Chuang, King, & Koch, 2001; Jackson & Dickinson, 2003). Furthermore, because substance-specific parenting has been hypothesized to be more malleable than general parenting practices (Koutakis, Stattin, & Kerr, 2008), it may be a particularly useful target for family-based preventive intervention programs.

In spite of the theoretical and practical importance of substance-specific parenting practices, this is an area of research that is relatively young and without systematic examination. Therefore, the purpose of the present study was to determine the appropriate structure of alcohol-specific parenting, examine the determinants of alcohol-specific parenting, and explore its association with nondrinking adolescent attitudes about alcohol use. This review of the literature will begin with a discussion of measurement issues and the factor structure of

substance-specific parenting. Next, the research on the determinants of substance-specific parenting will be critically reviewed. Finally, this will be followed by a discussion of the adolescent outcomes associated with substance-specific parenting.

Measurement of Substance-Specific Parenting

Perhaps because this is a relatively new literature, it is not surprising that there are inconsistencies in what has been thought to constitute substance-specific parenting. First, it remains unclear whether or not multiple parenting behaviors, attitudes and values are best represented as one unitary construct or as a number of specific dimensions. Should substance-specific parenting be best conceptualized as a number of distinct dimensions, it is plausible that certain dimensions may be particularly influential in adolescent substance use. This information would be particularly useful for designing family-based interventions.

Researchers have handled the issue of classifying these behaviors, beliefs, and attitudes in a number of divergent ways, making synthesizing of results across studies somewhat challenging. For example, a common approach is to treat each individual item as a unique predictor of child outcomes (Andersen, Leroux, Bricker, Rajan, & Peterson, 2004; Ditre, Coraggio, & Herzong, 2008; Huver, Engels, & de Vries, 2006; Jackson & Henriksen, 1997; Jackson, et al., 1999). For example, Huver and colleagues (2006) examined the unique predictive ability of items such as "house rules for smoking in the living room and outside" and "house rules for smoking outside" within the same regression analysis. Similarly, Andersen and colleagues (2004) examined the unique effects of the following

items on adolescents' smoking: allowed to smoke in the home; ask to sit in nonsmoking sections in public establishments; and ask smokers not to smoke in his or her presence. Although this approach allows for specificity in item-level prediction, collinearity concerns, alpha inflation, and the lack of parsimony are notable weakness.

Alternatively, a number of researchers have created dimensions of substance-specific parenting without employing statistical measurement modeling to examine the empirical dimensionality of the construct (i.e., Van der Vorst, Engels, Meeus, Dekovic, & Van Leeuwe, 2005). For instance, Van der Vorst and colleagues (2005) created 4 manifest variables under the umbrella of substance-specific parenting: communication about alcohol; parents' reactions to adolescents' drunkenness; rules about alcohol; and parent confidence in preventing adolescent drinking. Although this approach is more parsimonious, correlations among manifest variables often reveal modest to moderate associations among them (i.e., Chassin, Presson, Rose, Sherman, & Prost, 2002; Yu, 2003) leading to questions about their uniqueness.

Few studies have employed measurement modeling techniques such as exploratory and confirmatory factor analysis to examine the factor structure of substance-specific parenting and results of these studies are mixed. For example, Van Zundert and colleagues (2006) conducted exploratory and confirmatory factor analyses on 12 items designed to tap the following facets of smoking cession-specific parenting practices: parental support, rule setting, communication and pressure. After dropping 4 items due to low factor loadings, the authors

found some support for a 1 factor model (RMSEA=.081; CF1=.958). Alternatively, Chassin and colleagues (1998) employed exploratory factor analysis and extracted 2 factors which they labeled as discussion and punishment from 15 smoking-specific parenting strategies items. Finally, Otten and colleagues (2007) were unable to fit a single latent factor using the 5 items from Jackson and Henriksen's (1997) measure of adolescents' perception of different aspects of parent antismoking socialization. Items were as follows: Do your parents allow smoking inside the house; Do you believe your parents would know if you were smoking cigarettes; Would you expect negative consequences if your parents found out; and Would you disregard explicit requests not to smoke? These findings suggest that a unitary construct may mask dimensions associated with parent socialization about smoking.

Because researchers have used multiple measures of various aspects of substance-specific parenting, and because few have utilized measurement modeling to examine the appropriate factor structure, the dimensionality of this phenomenon remains unclear. Further complicating the issue are studies that report low and/or non-significant correlations among parent and child report of these behaviors (Chassin et al., 1998; Chassin et al., 2005; Van der Vorst et al., 2005; Van der Vorst et al., 2007) suggesting that measurement non-invariance may exist between parents and adolescents. For example, Van der Vorst and colleagues (2005; 2007) found significant mean differences between parents' and adolescents' perceptions of alcohol-specific house rules and communication about alcohol. It is possible that parents and adolescents have different ideas of the

dimensionality and/or meaning of the parents' attempts to socialize their children about substances. That is, it is unclear whether parents and adolescents perceive the same dimensionality of substance-specific parenting. More work is needed to study the factor structure of substance-specific parenting among both parents and adolescents.

Therefore, the first goal of the present study was to systemically examine the dimensionality of alcohol-specific parenting practices. Specifically, this study tested the factor structure of 12 items related to alcohol-specific parenting that were adapted from *The Indiana Smoking Survey* (PIs: Steven Sherman, Laurie Chassin, and Clark Presson). Because this was the first study to test the factor structure of these items, and because of the inconsistencies in previous literature on the factor structure of related constructs, this was exploratory in nature. Additionally, measurement invariance was conducted to determine whether the factor structure, item loadings, and error variances varied by parent gender and reporter (parent versus adolescent). This was the first study to systematically test the factor structure of alcohol-specific parenting among a high-risk alcoholic sample. Additionally, this study was the first to test measurement invariance in alcohol-specific parenting practices. Once the appropriate factor structure of alcohol-specific parenting was determined, the present study then examined the influence of various determinants on these dimensions of alcohol-specific parenting.

Theory of the Determinants of Alcohol-Specific Parenting

According to Belsky's (1984; 2006) social-contextual model of the determinants of parenting, parenting is multi-determined, resulting from individual, historical, and social factors, as well as child characteristics. Individual factors include parents' personality and psychopathology, historical influences refer to parents' developmental histories, social factors encompass marital relations, social support, and work stress, and child characteristics refer to the aspects of the child (i.e. temperament and psychopathology) that may elicit or shape parenting behaviors. In accordance with the developmental psychopathology framework (Cicchetti, 1984), Belsky proposed that parenting results from complex interactions among these determinants. Moreover, Belsky theorized that characteristics of the parent are of primary importance given their likely influence not only on parenting, but also on other factors hypothesized to influence parenting (i.e. marital relations, work stress, social support). Therefore, from this perspective, potentially important determinants of alcohol-specific parenting are parents' own alcohol use behavior, (both alcohol use disorder and alcohol use) and parents' family history of alcoholism. The theory and literature of each of these determinants are discussed in turn below.

Parent alcohol use disorder.

In support of Belsky's (1984)'s theory of parent psychopathology as a determinant of parenting behavior (see Belsky & Jaffee, 2006 for a review), research on parenting among individuals with an alcohol use disorder clearly demonstrates that alcoholic parents engage in suboptimal parenting practices (see

Zahn-Waxler, Duggal, & Gruber, 2002 for a review). Alcoholic parents tend to engage in lower levels of monitoring and inconsistent discipline, (Chassin, Pillow, Curran, Molina, & Barrera, 1993), demonstrate lower levels of positivity (Jacob, Krahn, & Leonard, 1991) and emotional warmth (Barnow, Schuckit, Lucht, John & Freyberger, 2002). Moreover, theories of the intergenerational transmission of alcohol use disorders often include impaired parenting practices as a mechanism by which alcoholism risk is conferred (see Sher, 1991 for a review).

There are numerous possible mechanisms explaining the association between parent alcohol use disorder (AUD) and poor parenting. For instance, alcohol intoxication may result in inconsistent and inattentive parenting (Lang, Pelham, Atkeson, & Murphy, 1999). Also, children of alcoholics are at risk for a behaviorally undercontrolled temperament style (Sher, 1991) which may elicit maladaptive parenting practices that may in turn elicit increases in non-compliance, and so on (i.e. Patterson's coercive cycle; 1982). Finally, parent alcohol use disorder tends to co-occur with other forms of psychopathology as well as with negative life events (Wong, Zucker, Puttler, & Fitzgerald, 1999; i.e. antisocial personality disorder, drug use disorder, depression, arrests, and unemployment), therefore the observed relation between parent alcohol use disorder and maladaptive parenting may be due to other associated risk factors. Regardless of the pathways from parent AUD to maladaptive parenting practices, it is clear that parents with an AUD are at heightened risk for engaging in maladaptive parenting practices.

Although not as widely studied, there is evidence to suggest that parents' substance use behavior may also influence the ways that parents socialize their children about substances as well as the effectiveness of these parental strategies. To date, two studies have examined the influence of parent drinking on anti-alcohol strategies and beliefs. Results from these studies indicated that adolescents perceived problem drinking parents as more permissive about alcohol and having less alcohol-specific behavioral control than non-problem drinking parents (Van der Zwaluw et al., 2008) and that problem drinking parents viewed themselves as communicating more often with their children about alcohol (Mares, Van der Vorst, Engels, & Lichwarck-Aschoff, in press). Therefore these studies extend previous literature to suggest that problem alcohol use among parents may not only affect general parenting strategies, but also alcohol-specific parenting practices. Research from the tobacco literature corroborates this finding. For instance, families of smoking parents have more permissive house rules about smoking and greater availability of cigarettes (Engels et al., 2004; Fearnow et al., 1998). Moreover, smoking mothers tend to engage in less smoking-specific discussions and punishment (Chassin et al., 1998). In addition to the direct effect of parent smoking on antismoking socialization, parent smoking also influences the effectiveness of antismoking parenting practices such that strategies are less effective at delaying or reducing adolescent smoking when the parent is a smoker (Chassin et al., 2005; Otten et al., 2007; Van Zundert et al., 2007) or when the parent is an ex-smoker but the parent's spouse is a current smoker (Chassin et al., 2002).

Therefore, previous research indicates that parent substance use may influence the way in which parents socialize their children about substances. Although this research provides important groundwork for the field, much more work is needed to understand the role of AUDs on alcohol-specific parenting. First, previous researchers have yet to examine the effect of alcohol use disorder on alcohol-specific parenting. Instead, the two studies to test the effect of alcoholism on alcohol-specific parenting used a continuous measure of self-reported problems associated with alcohol (Mares et al., in press; Van der Zwaluw et al., 2008), thus perhaps yielded a lower-risk sample than a clinically diagnosed sample of alcoholics. Testing the effects of parents' clinical alcohol disorder among a high-risk clinically diagnosed sample may be important for understanding yet another mechanism by which alcoholics confer risk to their children.

Second, whether a parent is a recovered alcoholic, rather than a current alcoholic may have implications for alcohol-specific parenting practices. Specifically, recovered alcoholics might engage in particularly strong anti-drinking parenting practices. For instance, recovered alcoholic parents may engage in more frequent discussions about the negative consequences of drinking, they may share their own negative experiences with alcohol, and they may implement particularly strict rules and expectations for their children's drinking. On the other hand, recovered alcoholic parents may perceive themselves as lacking the authority or ability to regulate their children's alcohol use, given their own history of alcohol problems. It is possible that parents who perceive

themselves as less efficacious in curbing or preventing their children's drinking may be more permissive and engage in fewer alcohol-specific strategies as a result. The notion that recovery is an important determinant of substance-specific parenting has been tested by Chassin and colleagues (2002) among a sample of ex-smoking parents. Results indicated that ex-smoking parents perceived themselves as engaging in high levels of anti-smoking parenting. Whether or not recovered alcoholic parents also engage in strict anti-alcohol parenting has yet to be tested.

Finally, to fully understand the influence of parent alcohol use behavior on alcohol-specific parenting, it is important to not only examine the effects of pathological alcohol use behavior, as evidenced by a clinical disorder, but also the effects of general parent alcohol use. In doing so, the present study tested whether any parental alcohol use, regardless of its severity, influences alcohol-specific parenting, or whether effects on socialization about alcohol occur only in the presence of pathological drinking. Thus, the present study sought to test the influence of parent AUD and current drinking on alcohol-specific parenting practices as well as to explore the anti-alcohol parenting practices of recovered alcoholic parents.

Interestingly, there is some evidence that the effect of smoking or drinking on substance-specific parenting may vary by the gender of the parent (Chassin et al., 2002; Van der Zwaluw et al., 2008) as well as the reporter of the parenting (Chassin et al., 2002). For instance, Chassin and colleagues (2002) found that, according to mothers' report, the smoking status of the mother predicted

differences in beliefs about adolescent smoking, legitimacy in regulating adolescent smoking, and antismoking behaviors. Conversely, according to fathers' report, fathers' smoking status was unrelated to these three aspects of smoking-specific parenting. Furthermore, adolescent report of mother and father smoking effects on antismoking parenting also yielded differences across parent gender. Specifically, adolescents' perceived differences in antismoking behaviors between smoking and non-smoking mothers but did not perceive these differences for fathers. Studies of parental depression have documented a similar pattern of results such that mothers' parenting appears to be more affected by depression than fathers' parenting (Belsky & Jaffee, 2006). Although researchers have yet to examine the reasons for this difference, it is possible that mothers' parenting is more susceptible to substance use because mothers tend to have a greater socialization impact in general than fathers (see Grusec, 2002 for review). Because fathers typically spend less time with children than do mothers (Grusec & Goodnow, 1994), perhaps any influences due to substance use are less noticeable to children. These results highlight the need to carefully examine parents separately and also to examine both parents' and adolescents' perspectives on parenting. Therefore, the current study sought to examine the effect of AUD on alcohol-specific parenting practices separately for mothers and fathers and also to examine differences in perspectives of these practices between adolescents and parents.

Finally, given research demonstrating that parent alcoholism tends to co-occur with other psychopathology (Grant et al., 2004) it is important to examine

the unique effect of parent alcoholism over and above risks associated with other, often associated, psychopathology. Specifically, parent antisocial personality disorder (ASPD) is diagnosed in approximately 20% of alcoholics and is associated with more severe familial and parenting impairments than parent alcoholism without ASPD (Jacob & Johnson, 1997; Wong et al., 1999). Moreover, other forms of psychopathology such as parent depression and anxiety, which co-occur with alcoholism, have also been shown to influence general parenting practices (see Zahn-Waxler et al., 2002 for a review). Including not only parent AUD in a model of the determinants of substance-specific parenting, but also other associated forms of psychopathology such as ASPD, depression, and anxiety, allows for an examination of what may be common effects across disorders and what may be specific to the influence of AUD on alcohol-specific parenting practices. To date, no studies have examined other forms of psychopathology as determinants of substance-specific parenting. Therefore, the present study was the first to test the effect of AUD on alcohol-specific parenting, over and above the effects of associated psychopathology (ASPD, depression, and anxiety).

In sum, the present study sought to examine parent AUD as a determinant of alcohol-specific socialization. As such, it was the first to examine the effect of AUD on anti-alcohol parenting. Moreover, this study was the first to test differences in alcohol-specific parenting between recovered alcoholic parents, currently alcoholic parents, and non-alcoholic parents. These effects were tested

over and above the effect of other psychopathology. Finally, careful attention was paid to issues such as parent gender and reporter of parenting.

As previously described, Belsky's (1984) theory on the determinants of parenting included not only individual factors such as personality and psychopathology, but also included historical factors, such as childhood experiences, as important determinants. Therefore, in addition to examining parents' AUD, psychopathology, and gender, the present study also tested the influence of parents' family history of alcoholism on parents' alcohol-specific parenting.

Parent family history of alcoholism.

A relevant historical factor that has received very little attention within the parent alcoholism literature is the effect of the parents' own family history of alcoholism on general parenting as well as alcohol-specific parenting. This is a particularly important determinant of parenting given its implications for intergenerational transmission of alcoholism. It is plausible that growing up with an alcoholic parent may influence the way in which you, yourself, parent your children. For example, children of alcoholics may perceive themselves as less efficacious in regulating their own children's alcohol use given their childhood exposure to familial alcoholism. Alternatively, it may also be the case that children of alcoholics who have witnessed negative consequences associated with their parents' alcoholism may engage in more strict rules and frequent discussions about alcohol use with the goal of protecting their children from developing a problem with alcohol. The present study, therefore, included family history of

alcoholism as a possible determinant of alcohol-specific parenting to clarify this issue. In doing so, it was the first study to test the effect of a relevant historical factor, family history of alcoholism, on alcohol-specific parenting.

The second goal of the current study, therefore, was to examine determinants of alcohol-specific parenting among a high-risk sample. Specifically, the effects of parent alcohol use disorder and alcohol use on alcohol-specific parenting were tested. Parent AUD was coded such that comparisons between never diagnosed, recovered, and current alcoholic parents could be examined. Furthermore, parent "other" psychopathology was included to examine the unique effect of alcoholism. Finally, the effect of family history of alcoholism was also examined.

Alcohol-Specific Parenting and Adolescent Drinking

To this point, we have focused on measurement issues and determinants of substance-specific parenting. Another important question concerns the outcomes associated with substance-specific parenting. Understanding the role of substance-specific parenting in influencing adolescent substance-related beliefs, attitudes, and behaviors is also important for informing theories of parent socialization about substances as well as preventive intervention design. As previously described, a diverse host of behaviors, attitudes, values, and beliefs have been considered under the broad umbrella of substance-specific parenting. For ease of organization, this review will discuss the ways in which the following aspects of substance-specific parenting have been linked with adolescent substance use-related behavior and/or beliefs and attitudes: communication/discussions,

rules/consequences, beliefs/attitudes/values. It is important to note, however, that the structure underlying these facets of substance-specific parenting has not been empirically tested.

The first aspect of substance-specific parenting that has received considerable attention in relation to adolescent substance use is parent-child communication about substance use and discussions about reasons not to use. Although results indicate clear links between discussions about substances and adolescent substance use, the nature of the relation is unclear. For example, a number of studies found that the more parents talk with their children about substance use, the less likely children are to actually use (Chassin et al., 1998; Huver et al., 2006). Conversely, studies have also shown that communication about substances is related to greater substance use or initiation of use in children (Ennett et al., 2001; Harakeh, Scholte, de Vries, & Engels, 2005; Van der Vorst et al., 2005; Van der Vorst, Burk, & Engels, 2010). A longitudinal study of the bi-directional relations among anti-smoking discussions and adolescent smoking indicated that adolescent smoking was a stronger predictor of communication than vice versa. Moreover, over and above baseline levels of communication, adolescent smoking predicted increases in communication, such that the more adolescents smoke, the more their parents attempt to engage them in discussions about smoking (Huver, Engels, Vermulst, & de Vries, 2007). It is possible that parents of non-smoking adolescents do not engage in as frequent conversations about smoking because they do not perceive these conversations as necessary. Alternatively, once parents notice their children are smokers, they may respond to

this by engaging in more frequent discussions about the negative consequences of smoking.

In addition to discussions about substances, parents may also establish rules about, and consequences, for adolescent substance use. More restrictive rules against substance use at home have been associated both concurrently and prospectively with less adolescent use (Huver et al., 2007; Jackson et al., 1999; Proescholdbell, Chassin, MacKinnon, 2000). Also, general rules prohibiting substance use have also been linked with less adolescent use (Andersen, Leroux, Bricker, Rajan, & Peterson, 2004; Ditre, Coraggio, & Herzog, 2008; Koning, Engels, Verdurmen, & Vollebergh, 2010; Van der Vorst, et al., 2005; Van der Vorst et al., 2007; Van Zundert et al., 2006; Van der Zwaluw et al., 2008). Interestingly, parents may impose stricter rules on younger children than older children (Van der Vorst et al., 2005) and rules about substance use may be more effective at preventing initiation of use rather than curbing current use (Proescholdbell et al., 2000). Furthermore, children who believe that they may be punished for substance use are less likely to use (Chassin et al., 1998; Foley, Altman, Durant, & Wolfson, 2004) as are children who believe that their parents would find out if they had been drinking (Jackson et al., 1999). Finally, consistent with research on parent-child communication, studies of rules also indicate prospective bidirectional relations between rules and adolescent substance use (Huver et al., 2007; Van der Zwaluw et al., 2008). For instance, although anti-smoking house rules predict less adolescent smoking over time,

anti-smoking house rules have also been shown to decrease as a result of adolescent smoking (Huver et al., 2007).

In addition to overt parenting behaviors, parents may also hold beliefs, attitudes, or values that influence the socialization of their children. Studies on these constructs indicate that parents' approval of children's substance use and parents' approval of media portrayals of substance use are concurrently related to children's own approval of use, intentions to use, expectancies, and actual use (Austin, Pinkleton, & Fujioka, 2000; Brody, Ge, Katz, & Arias, 2000; Donovan & Molina, 2008; Engels & Willemsen, 2004; Sargent & Dalton, 2001; Yu, 2003). Additionally, parents' perception of their efficacy in regulating their children's substance use is also related to children's actual use, such that parents with higher self-efficacy have children who engage in less substance use (Harakeh et al., 2005; Van der Vorst et al., 2005). Moreover, above and beyond parents' actual smoking behavior, mothers' implicit attitudes about smoking are significantly related to their children's implicit attitudes (Sherman, Chassin, Presson, Seo, & Macy, 2009), indicating that even when parents' overt behaviors are taken into account, parental attitudes remained influential in socializing children about smoking.

Together the present literature provides evidence for links between various aspects of substance-specific parenting practices and adolescent substance use. However, there are three important limitations to this body of research. First, there is evidence to suggest that the effect of substance-specific parenting on adolescent substance use may be limited to adolescent report (e.g., Chassin et al.,

1998; Chassin et al., 2005; Van der Vorst et al., 2005). These findings suggest that parents' attempts to socialize their adolescents about substance use may not be effective unless adolescents actually perceive these behaviors, beliefs, or intended consequences. It is also plausible that these findings are a result of shared method variance that artificially inflates the magnitude of the association between substance-specific parenting and adolescent outcomes. More work is needed to understand whether parents' perceptions of their substance-specific socialization matter to adolescents' actual use.

The second notable limitation of much previous research is the lack of consideration of general parenting practices (i.e. support and control). Because of the robust and well-documented relation between general parenting practices and adolescent substance use (e.g., Hawkins et al., 1992), understanding the unique effect of substance-specific parenting is important. Should substance-specific parenting practices uniquely predict adolescent substance use, over and above general parenting practices, then this type of parenting may be an important addition or complement to preventive intervention programs, particularly given their demonstrated malleability (Ennett et al., 2001; Jackson & Dickinson, 2003; Koutakis et al., 2008). Few of the studies discussed above also included general parenting practices in models of the effects of substance-specific parenting. However, of those that did examine the unique effect of anti-substance use parenting, all three found evidence that substance-specific parenting is not a mere marker of general parenting, but rather confers unique prediction of adolescent substance use (Chassin et al., 2005, Jackson et al., 1999; Otten et al., 2007). It's

important to note, however, that these three studies found support for substance-specific parenting effects, over and above general parenting, for adolescent reported parenting.

Finally, although the majority of the previous literature focused on the main effects of parent socialization about substance use, there may be certain subgroups of adolescents for whom substance-specific parenting is more or less effective at deterring substance use. For instance, anti-smoking discussions have been shown to effectively deter adolescent smoking among adolescents of nonsmoking parents, but not among adolescents of smoking parents (Chassin et al., 2005; Otten et al., 2007). To date, only one study has examined the moderating effect of parent alcohol use on the effectiveness of anti-drinking socialization. Koning and colleagues (2010) found the effect of parental rules about alcohol use not to depend on parent drinking status. The present study sought to extend previous research by exploring the effectiveness of anti-alcohol socialization among alcoholic and non-alcoholic parents, as well as among currently drinking and abstaining parents. It was hypothesized that alcohol-specific parenting would be more influential when the parent was non-alcoholic.

In addition to parents' own substance use behavior, it is also possible that the effectiveness of parents' substance-specific parenting may depend on other aspects of the parenting environment. According to Grusec and Goodnow (1994; 2000), children are more likely to internalize their parents' values and messages if they have a supportive relationship with the parent. Few studies have examined this issue and results have been mixed. Chassin and colleagues (2005), for

example, did not find the effects of smoking-specific parenting to depend on general parenting style. However, Brody and colleagues (2000) found stronger associations between fathers' and children's attitudes about alcohol in the context of a high quality father-child relationship. More research is needed to understand whether or not the effects of substance-specific parenting depend on other aspects of the parenting environment. Therefore, the present study sought to determine whether the influence of parents' strategies to regulate adolescent drinking might depend on the adolescents' perception of the parents' legitimacy to regulate adolescent drinking. It was hypothesized that alcohol-specific strategies would be more effective if the adolescent viewed his or her parent as having legitimate authority to regulate adolescent drinking.

In summary, the broad third aim of the present study was to investigate the effects of alcohol-specific parenting on adolescent attitudes about alcohol. To address relevant gaps and limitations within the present literature, this study sought to determine not only the direct effect of alcohol-specific parenting, but also to explore its unique effect over and above general parenting practices, examine reporter effects, and investigate subgroups of adolescents who may be more or less influenced by alcohol-specific parenting.

Present Study

The purpose of the present study was to understand the dimensions of alcohol-specific parenting, the determinants of this type of parenting, and its association with nondrinking adolescent attitudes about alcohol use. Specifically there were three aims of the current study:

1. **The structure of alcohol-specific parenting:** The present study examined the factor structure of alcohol-specific parenting practices and tested measurement invariance across reporters. Because of the lack of theory and precedence, this first aim was exploratory and no a priori predictions were offered.
2. **Determinants of alcohol-specific parenting:** The present study also examined the effects of parent alcohol use disorder (AUD; recovered vs. current vs. never diagnosed), current alcohol use, other psychopathology, and family history of alcoholism on alcohol-specific parenting. See Figure 1 for a graphical representation of this aim. It was hypothesized that parent AUD and family history of alcoholism would influence alcohol-specific parenting, over and above the effect of other psychopathology. Furthermore, it was hypothesized that the effect of parent AUD on alcohol-specific parenting would depend on the recency of the alcoholism diagnosis and the gender of the parent.
3. **Alcohol-specific parenting and nondrinking adolescent attitudes about alcohol:** The present study also tested whether alcohol-specific parenting predicted nondrinking adolescent attitudes about alcohol use over and above the effects of general parenting (support and control). It was hypothesized that alcohol-specific parenting would have a unique effect on adolescent attitudes, over and above the effects of general parenting, and that this effect would be limited to adolescent-reported parenting. See Figure 2 for a graphical representation of this

aim. Finally, the present study also examined whether alcohol-specific parenting was less effective at influencing nondrinking adolescent alcohol attitudes among certain subgroups of adolescents (i.e., adolescents of alcoholic parents, adolescents of drinking parents, and adolescents who perceive their parents as lacking the authority to regulate adolescent drinking).

Given these aims, this study contributes to the existing literature in a number of important ways. First, the present study was the first to systematically test the factor structure of alcohol-specific parenting and also to test measurement invariance across parents and children. Second, the current study was the first to examine familial alcoholism effects on alcohol-specific parenting, and to distinguish the effects of recovered as opposed to current alcoholism as well as the effects of current parenting drinking.

Method

The Original Study

Participants.

Participants were from a larger ongoing multigenerational longitudinal study of familial alcoholism (e.g., Chassin et al., 1991; 1993). The total sample at Wave 1 consisted of 454 adolescents and their parents. Children of alcoholics had at least one biological alcoholic parent who was also a custodial parent whereas demographically matched controls had no biological or custodial alcoholic parents. Adolescents and their parents were interviewed at three annual assessments (Waves 1-3) and three five year follow-up assessments (Waves 4-6). Wave 6 data collection is still ongoing. Data collection is projected to be complete within the next two months.

At Waves 4-6 full biological siblings of the original target participants who were within the same 7 year age band were invited to participate in the study. These "age eligible" siblings did not differ significantly in age from original participants. A total of 376 age-eligible siblings were interviewed at least once; 327 siblings were interviewed at Wave 4 and 350 siblings were interviewed at Wave 5. At Waves 5 and 6, additional full biological siblings were invited to participate if they had biological children between ages 5 and 11 (Wave 5) or between ages 11-16 (Wave 6). These will be referred to as "age ineligible" siblings. A total of 50 of these siblings were interviewed at Wave 5. To date, a total of 816 participants (original targets, age-eligible, and ineligible siblings) have been interviewed at Wave 6 (approximately 87% of the total projected

sample). Henceforth these participants (targets, age-eligible and age in-eligible siblings will be referred to as original study participants because distinctions among them are not relevant for this study.

At Wave 6, the children of the original study participants (i.e. 3rd generation or G3s) were recruited to participate if they were aged 11-17. At the time of these analyses, 475 children of the original study participants have been interviewed. Additionally, the other parents of these children were also recruited into the study. To date, other parents (i.e. significant others to the original participants) have been interviewed for 84% of the children. These parents were only interviewed if they reported contact with the child at least once a month. This study employed a subsample of these families as described in detail below.

Recruitment.

COA families were originally recruited via court records, health maintenance organization (HMO) wellness questionnaires, and community telephone screenings. Alcoholic participants convicted of driving while intoxicated between 1984 and 1988 were identified by reviewing records from seven court systems. The participants that were chosen were either non-Hispanic Caucasian or Hispanic, lived in the state of Arizona, and were born between 1927 and 1960. Potential indicators of alcoholism were noted from records, varying by court system, including blood alcohol content of at least .15 at the time of arrest, prior alcohol-related arrests, scores of seven or higher on the Michigan Alcohol Screening Test (Selzer, 1971), or diagnosis of probable alcoholism by a court

substance abuse screening center. From these court records, 103 alcoholic families were obtained for the study.

In addition to court sources, 22 COA families were obtained through HMO wellness questionnaire responses. New members (joining between 1986 and 1988) of a large HMO were screened for the same demographic information stated above, as well as for alcoholism indicators (e.g., consumption of 26 or more alcoholic drinks per week, reporting three or more alcohol-related social consequences, or self-labeling as an alcoholic).

Community telephone surveys produced an additional 120 COA families. Families located by questionnaires and telephone surveys were screened using the previously listed demographic information and alcoholism indicators. These indicators included attending an Alcoholics Anonymous meeting, hospitalization for a drinking problem, or reporting that one's spouse had been alcoholic. One family was located through the Veteran's Administration outpatient alcohol treatment program.

Methods of screening began with archival data, then proceeded to telephone interviews (38.3% of the court and HMO potential subjects were contacted). COA families that were included in the study had a biological child between the ages of 11 and 15 of non-Hispanic Caucasian or Hispanic ethnicity who had at least one parent willing to participate in the project, and who had no severe cognitive limitations such as mental retardation or psychosis that would preclude an interview. Participants were English-speaking. In all, 327 families met these criteria, and 238 of them agreed to participate.

Direct verification of parental alcoholism was ascertained in a face-to-face interview using the DIS, version III (Robins, Helzer, Croughan, & Ratcliff, 1981) to obtain a DSM-III diagnosis of lifetime alcohol abuse or dependence. Interviews were conducted with the alcoholic parent unless they refused to participate, in which case he or she was diagnosed alcoholic by spousal report using the Family History-Research Diagnostic Criteria (10% of biological mothers, 24% of biological fathers; FH-RDC, Endicott, Andreason, & Spitzer, 1975). Based on these final criteria, 219 biological fathers and 59 biological mothers met alcoholism criteria.

Matched control families were recruited via telephone interview using reverse directories to find families living in the same neighborhood area as the COA families. Control families were matched according to child's age (within one year), family composition (one-parent or two-parent), ethnicity, and socioeconomic status (based on property value codes or reports of parental income). The final criterion was that neither biological nor custodial parent met DSM-III or FH-RDC lifetime diagnosis of alcohol abuse or dependence. Seventeen families who reported indicators of alcohol problems, which were close to the diagnostic threshold, during this face-to-face interview were eliminated from the study in order to decrease the chance of being diagnosed alcoholic later in the project.

Recruitment biases.

Two main sources of potential recruitment bias for the longitudinal study were selective contact with COA participants and subject refusal to participate.

The impact of not contacting all potential participants (i.e. selective contact) was assessed by comparing available archival records of participants who were and were not contacted. This procedure was done for court records and HMO wellness questionnaires. (No archival data were available for other participants.) No differences between contacted and non-contacted participants were found with respect to blood alcohol level at time of arrest, number of prior alcohol-related arrests, self-labeling as alcoholic, or MAST scores (t-test and chi square comparisons). However, non-contacted potential participants were more likely to be younger (37 versus 39), from court sources (90% versus 87%), of Hispanic ethnicity (22% versus 18%), unmarried (64% versus 48%), and were more likely to have a lower SES rating associated with their residence (t-test or chi-square comparisons significant at $p < .05$). These analyses indicate that recruitment procedures were less likely to reach Hispanic and lower SES participants, although the magnitude of the bias was slight and the groups did not differ significantly on alcoholism indicators.

Refusal to participate comprised a second source of recruitment bias. Out of families screened by telephone contacts, 73% of COA families participated and 77% of control families participated. Participants and persons who refused to participate did not differ on alcoholism indicators, age, gender, or SES ratings of their residence. However, persons who refused to participate were more likely to be Hispanic (24% versus 18%) and married (69% versus 50%) at the time of their arrest (chi-square comparisons significant at $p < .05$).

For the control sample, refusal bias was estimated on the basis of a sample of 91 families who refused participation in the study but who provided demographic information during phone screening. No differences were found in family composition or SES ratings of their residence. However, both mothers and fathers who refused to participate were more likely to be Hispanic (41% versus 18% for mothers and 40% versus 22% for fathers) than were those who agreed to be interviewed. For more information on possible bias in contact and recruitment samples, see Chassin, Barrera, Bech, & Kossak-Fuller (1992).

The Current Study

Participants.

The current study used data collected at Wave 6 from the original participants that had children in our study between the ages of 11 and 17 and their significant others. This resulted in a possible sample of 312 mothers, 277 fathers, and 475 adolescent children. Parents were excluded from the present study if they had subclinical levels of alcohol or drug problems ($n_{mothers}$=23; $n_{fathers}$=23) [1] or if they did not live at least part time[2] with the adolescent ($n_{mothers}$=10; $n_{fathers}$=39). Adolescents were excluded if they endorsed drinking more than a sip of alcohol in

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[1] Because parent alcohol use disorder is an important predictor in this study, those parents who did not meet DSM-IV criteria for alcohol abuse or dependence but evidenced subclinical alcohol problems (4+ lifetime alcohol consequences, or 1+ past year alcohol consequences, or 2+ lifetime alcohol dependence symptoms, or 1+ past year alcohol dependence symptom) were dropped from the analyses. The same process was used to drop those parents with subclinical drug problems.

[2] "Part time" living status was not quantified for the participants but rather left to their interpretation.

their lifetime (n=60).[3] Therefore, the final sample consisted of 279 mothers, 215 fathers, and 415 adolescents. 411 adolescents provided data on their mothers and 308 adolescents provided data on their fathers.

Included participants were compared to excluded participants on all study variables using t-tests and chi-square comparisons. Four sets of analyses were tested to determine differences between included and excluded mothers and fathers and adolescents included versus excluded in the adolescent-report of mother model and adolescents included versus excluded in the adolescent-report of father model.

Consistent with the decision to include only adolescents without drinking experience, significant differences were found between included and excluded adolescents. Specifically, adolescents included in the adolescent-report of parenting models were significantly younger (t_{mother}=7.31, t_{father}=6.09, *ps*<.001) and more likely to live in a two-parent home than those who were excluded (χ^2_{mother}=26.09, χ^2_{father}=75.95, *ps*<.001). Moreover, adolescents included in the mother model were more likely to have non-drinking mothers (χ^2=11.77, *p*<.001). Adolescents included in the adolescent-report of parenting models were more likely to have a parent without other psychopathology (χ^2_{mother}=9.25, χ^2_{father}=4.62,

[3] Including only adolescents who had not yet experimented with alcohol addressed the problem of potential child alcohol-related effects on parenting behavior. With a sample of only adolescents who had yet to try alcohol, any documented association between adolescent attitudes about alcohol and alcohol-specific parenting can be more confidently interpreted as parenting influencing adolescent attitudes.

ps<.05). Furthermore, adolescents included in the adolescent-report of parenting models reported that their parents had more legitimate authority to regulate drinking (t_{mother}=-5.16, t_{father}=-4.19, *ps*<.001), were warmer (t_{mother}=-.49, t_{father}=-3.98, *p*<.001), and had more parental control (t_{mother}=-4.96, t_{father}=-3.98, *p*<.001). Included adolescents reported stronger negative attitudes about alcohol (t_{mother}=-.8.73, t_{father}=-7.45, *p*<.001). Included and excluded adolescents did not differ on parents' alcohol use disorder, fathers' current alcohol use status, parents' education or ethnicity, or adolescent report of parents' strategies to regulate drinking or disclosure of negative experiences.

Included parents reported disclosing negative experiences with alcohol less often than did excluded parents (t_{mother}=2.31, t_{father}=-3.30, *p*<.05). Included mothers indicated using fewer strategies to regulate adolescent drinking than did excluded mothers (*t*=3.18, *p*<.001). Included and excluded parents did not differ on self-reported parental support or control or perceived legitimacy in regulating adolescent drinking. Included and excluded fathers did not differ on self-reported use of strategies to regulate adolescent drinking.

Mothers were, on average, 34.75 years old [SD=4.57] and had completed at least some college. 65.4% of mothers were non-Hispanic Caucasian, 31.2% were Hispanic, 0.4% American Indian, and 3.0% reported another race/ethnicity. 25.2% of mothers met DSM-IV criteria for lifetime alcohol use disorder (abuse or dependence), 7.6% met criteria for abuse or dependence in the past year (i.e. current alcoholism), and 67.7% reported drinking alcohol in the past year. Fathers were, on average, 36.27 years old [SD=4.53] and completed at least some

college. 66.5% of fathers were non-Hispanic Caucasian, 30.2% were Hispanic, 1.4% were African-American, and 1.9% reported another racial/ethnic group. 45.3% of fathers met DSM-IV criteria for lifetime alcohol use disorder (abuse or dependence), 22.9% met criteria for abuse or dependence in the past year, and 73.1% reported drinking alcohol in the past year.

The average age of the adolescents was 12.57 [SD=1.78; range=10-18] and approximately half were male (53.5%). The majority of the adolescents lived with both biological parents (57.5%). 18.2% lived with a biological and step-parent, 19.0% lived in single parent homes and 3.7% lived with a grandparent. The majority of adolescents were non-Hispanic Caucasian (60.4%), 26.2% were Hispanic, 0.2% Asian American, 1.7% American Indian, 1.9% African American, and 9.7% identified themselves as "other."

Procedure.

The Adolescent and Family Development Project was explained to families as a study supported by the National Institute on Alcohol Abuse and Alcoholism that was designed to explore the reasons why certain adolescents develop problems while others do not. All participants were informed that they would be asked questions pertaining to drug and alcohol use, but parental alcoholism was not mentioned as a selection criterion.

Interviews were conducted either at the family's residence or at the Arizona State University campus. Trained project personnel used laptop computers to enter data. Interviewers read items aloud and participants had the options either to enter responses themselves or to respond verbally to questions.

In most cases, family members were interviewed simultaneously but in different rooms to avoid threats of contamination and to increase privacy of response. Interviews lasted approximately one to two hours and families were paid up to $65 for their participation. To encourage honesty, we reinforced confidentiality with a Department of Health and Human Services Certificate of Confidentiality.

Measures

Alcohol-specific parenting. At Wave 6, parents and their adolescent children reported on alcohol-specific parenting using 12 items adapted from The Indiana Smoking Study (PIs: Steven Sherman, Laurie Chassin, and Clark Presson). See Tables 1 and 2 for items and descriptive statistics of items. The first eight items concerned strategies parents use to prevent adolescent alcohol use and response options ranged from (1) "Almost Never/Never" to (5) "Almost Always/Always." The remaining four items concerned parents' legitimacy to regulate their child's alcohol use and response options ranged from (1) "Strongly Agree" to (5) "Strongly Disagree. Therefore, high scores on these items indicated higher levels of the construct (i.e. more frequent use of strategies and more legitimacy). For all 12 items, adolescents responded separately for their mother and father.[4] Parents did not provide "child-specific" responses to these items but rather indicated how they parent in general.

[4] 91.3% of adolescents responded to parenting items about their biological father and 8.7% responded to items about their step father. 99.3% responded to parenting items about their biological mother and 0.7% responded to items about their step mother.

Parental support. Parents and adolescents reported on the level of social support the parent provided to the child using 7 items adapted from the Network of Relations Inventory (Furman & Burmeister, 1985). For all items, response options ranged from (1) "Little or none" to (5) "The most possible." Adolescents responded separately for their mother and father and parents provided "child-specific" responses to these items. Items were averaged to create a composite score such that high scores indicated greater support. Reliabilities (alphas) ranged from .76-.89 across reporters. See Table 4 for descriptive statistics.

Consistency of parental discipline. Parents and adolescents also reported on parents' consistency of discipline using 10 items taken from the Children's Report of Parental Behavior Inventory (CRPBI; Schaefer, 1965). Two subscales were taken from the CRPBI: rule enforcement (5 items) and discipline (5 items). For all items, response values ranged from (1) "Strongly Disagree" to (5) "Strongly agree." Items were averaged to create a composite score such that high scores indicated higher levels of consistency. Adolescents responded separately for their mother and father and parents provided "child-specific" responses to these items. Reliabilities (alphas) ranged from .84-.88 across reporters. See Table 4 for descriptive statistics.

Confirmatory factor analyses were conducted to verify that parental support and consistency of parental discipline were best represented by a 2 factor structure, rather than a 1 factor, general parenting, structure. Indeed, in all 4 tests (mother report, father report, adolescent report of mother, and adolescent report of

father) the 2 factor model was a significantly better fit to the data than a 1 factor model.[5]

Parent alcohol use disorder. Parents' lifetime and past year DSM-IV diagnoses of alcohol use disorder (abuse or dependence) were obtained with a computerized version of the DIS, version IV, (Robins et al., 2000) administered by lay interviewers at Wave 6. 45.3% of fathers met DSM-IV criteria for lifetime alcohol use disorder (abuse or dependence) and 22.9% met criteria for abuse or dependence in the past year. 25.2% of mothers met DSM-IV criteria for lifetime alcohol use disorder (abuse or dependence) and 7.6% met criteria for abuse or dependence in the past year (i.e. current alcoholism). As expected in a study that oversamples individuals at high risk, these prevalences are higher than national data. For example, according to the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; Grant, Dawson, Stinson, Chou, Dufour, & Pickering, 2004), 8.64% of men aged 30-44 and 3.31% of women meet criteria for past year alcohol abuse and 4.98% and 3.61% respectively meet criteria for past year alcohol dependence.

Orthogonal contrast codes were created to examine differences among currently alcoholic parents (DSM-IV alcohol abuse or dependence in the past

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[5] 2 Factor Mother model: χ^2 (108) = 184.39, CFI=.96, RMSEA=.04 (Satorra-Bentler $\Delta\chi^2$ (1)=94.90, p<.001). 2 Factor Father Model: χ^2 (108) = 156.145, CFI=.96, RMSEA=.04 (Satorra-Bentler $\Delta\chi^2$ (1)=88.76, p<.001). 2 Factor Child Report of Mother Model: χ^2 (115) = 183.87, CFI=.97, RMSEA=.04 (Satorra-Bentler $\Delta\chi^2$ (1)=193.06, p<.001). 2 Factor Child Report of Father Model: χ^2 (113) = 156.62, CFI=.98, RMSEA=.03 (Satorra-Bentler $\Delta\chi^2$ (1)=170.19, p<.001).

year), recovered alcoholic parents (DSM-IV lifetime alcohol abuse or dependence but no diagnosis in the past year), and never diagnosed parents. The first contrast code compared currently alcoholic parents to others (recovered and never diagnosed) and was coded as follows: current AUD (-2), recovered AUD (1), never diagnosed (1). The second contrast code compared recovered alcoholic parents to never diagnosed parents and was coded as follows: current AUD (0), recovered AUD (-1), never diagnosed (1).

Parent alcohol use. Parents' past year alcohol consumption was assessed using two items. The first item asked parents to report on the frequency of their consumption of wine, beer or wine coolers in the past year and the second item asked parents to report on the frequency of hard liquor consumption in the past year. Response options ranged from (0) "Never" to (7) "Everyday". Parents who reported any alcohol use in the past year were coded '1' and those who abstained were coded '0.' 67.7% of mothers and 73.1% of fathers reported alcohol use in the past year.

Parent other psychopathology. Parents' other psychopathology was assessed using the CDIS (DIS-IV; Robins et al., 2000). 25.9% of the mothers and 11.3% of fathers met criteria for a lifetime major depressive episode, 10.0% of mothers and 6.1% of fathers met criteria for lifetime generalized anxiety disorder; and 2.9% of mothers and 8.5% of fathers endorsed antisocial behavior[6]. 18.6% of

[6] Because we did not assess conduct problems before the age of 15, parent ASP was calculating using a symptom count of endorsed behaviors since age 15. Parents who endorsed 5 or more symptoms were given a diagnosis. To select a

mothers and 25.9% of fathers met criteria for a drug disorder (lifetime abuse or dependence). A variable was created such that a parent with at least one of these diagnoses was coded '1' and a parent without any of these 4 diagnoses was coded '0.' 38.5% of mothers and 35.0% of fathers were coded as having other psychopathology.

Parent family history density of alcohol use disorder. For spouses of original study participants, diagnoses of their biological parents' alcoholism were established using Family History–Research Diagnostic Criteria (FH-RDC, Endicott et al., 1975) assessed at Wave 6. The variable was calculated such that those with 2 biological alcoholic parents were coded 2, one alcoholic and one non-alcoholic parent were coded 1, and 2 non-alcoholic parents were coded as 0.

Because of the longitudinal nature of the study, for original study participants, more information was available to calculate an enriched measure of family history of alcoholism. Family history density (FHD) scores were calculated for each original study participant based upon the lifetime alcohol use disorder (AUD; alcohol abuse or dependence) history of their biological parents

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cut-off of 5 symptoms, we examined early conduct problems among our original target participants at wave 3. Those with externalizing symptoms 1 standard deviation above the mean were considered to have conduct problems before age 15. Using this cut-off, 7.8% of original target participants were classified as demonstrating antisocial behavior at wave 6. We then determined that a CDIS cut-off of 5 ASP symptoms yielded approximately the same prevalence of antisocial behavior in the larger sample. Because the gender and family history of alcoholism of original target participants, their siblings, and spouses are relatively similar, we deemed this an appropriate cut-off for the sample.

and grandparents. Original study participants' parents' lifetime AUD was calculated from combining information from that parent's self-report C-DIS at Wave 1 or FH-RDC from that parent's spouse at Wave 1. A parent of the original participant was considered to be alcoholic if any of these reports indicated a diagnosis. Original study participants' grandparents' lifetime AUD were calculated using FH-RDC reports from original study participants' parents at Waves 2 and 4. Grandparents were considered alcoholic if any of those reports indicated a diagnosis. Original study participants' parents' and grandparents' AUD variables were weighted and summed to calculate each participant's FHD summary score. AUD variables from the parents of original study participants were weighted by multiplying them by .5, grandparent AUD variables were weighted by multiplying them by .25. The final FHD score was calculated by first adding the nonmissing AUD variables for the participants' parents and grandparents, with AUD variables weighted as described above. The weighted sum was then divided by the maximum possible sum for the nonmissing AUD variables. This method was adapted from Stoltenberg and colleagues (1998) and Zucker, Ellis, and Fitzgerald (1994). The resulting proportion was multiplied by 2 to put this summary score on the same 0 to 2 scale as the FHD score for spouses.[7] See Table 4 for descriptive statistics.

[7] For original study participants, FHD was also calculated in the same way as for the spouses (i.e. using only FH-RDC reports at Wave 6 of biological parents). This new score was highly correlated with the more enriched variable ($r = .639$, $p<.001$). For this reason, it was determined that the more enriched score would be

Parent educational attainment. Parents reported on their educational attainment using one item with the following response options: 1 = 8th grade or less; 2 = some high school; 3 = high school graduate; 4 = GED; 5 = some vocational/technical school; 6 = completed vocational/technical school; 7 = some college; 8 = AA degree; 9 = BA or BS; 10 = some graduate/professional school; 11 = completed graduate/professional school. Parent educational attainment was collapsed into a variable coded '0' for no college and '1' for some college or higher. See Table 3 for descriptive statistics.

Parent ethnicity. Parents indicated their ethnicity using an item adapted from Marin and colleagues (1987) acculturation scale. Response options ranged from 1 = Caucasian but not Hispanic; 2 = Hispanic; 3 = Asian, Oriental, or Pacific Islander; 4 = American Indian; 5 = Black, African-American; 6 = other. 65.4% of mothers were Caucasian, 31.2% were Hispanic, 0.4% were American Indian, and 3.0% indicated "other." 66.5% of fathers were Caucasian, 30.2% were Hispanic, 1.4% were African American, and 1.9% indicated "other." This variable was collapsed into a binary variable such that Caucasian, non-Hispanic was coded '0' and other ethnicities were coded '1.' See Table 3 for descriptive statistics.

Adolescent attitudes about alcohol use. Adolescents reported on their attitudes about alcohol use using 4 items adapted from the *Tween to Teen Study* (Donovan & Molina, 2008). Adolescents were asked to indicate how wrong they

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used for original study participants and the more limited score would be used for their spouses.

thought it was for adolescents their age to 1) take a sip of an adult's drink; 2) take a whole drink offered by a family member; 3) take a whole drink offered by a friend; 4) get drunk. Response options ranged from 1='not at all wrong' to 4 ='very wrong'. Reliability (alpha) was .789 and a mean score of these items was created. An 18 month follow-up study of these adolescents is currently underway. Of those interviewed so far (n=250), stronger positive attitudes about alcohol at baseline are correlated with drinking onset at follow-up (r=.28, p<.001). See Table 4 for descriptive statistics.

Adolescent cigarette use. Adolescents reported on their cigarette smoking status using one item derived from the *Indiana University Smoking Survey* (PIs: Steven Sherman, Laurie Chassin, and Clark Presson). The item asked adolescents to select the option that best described their cigarette smoking. Options ranged from (1) "I have never smoked, not even a few puffs" to (7) "I smoke every day." 89.7% of the entire sample (i.e. the complete sample of both drinking and non-drinking adolescents, n=475) reported never smoking, 8.3% reported trying smoking once or twice, but not in the past month, and 2.0% indicated more frequent smoking.

Results

Zero-Order Correlations Among Study Variables

Correlations among study variables are presented in Tables 5 and 6. As expected parents' alcohol-related variables (i.e., past year alcohol use, AUD contrast codes, and family history of AUD) demonstrated small to medium-size intercorrelations (see Table 5). However, because correlations did not exceed r=-.34, multicollinearity among alcohol-related variables was not a concern. Also as expected, fathers with a lifetime AUD diagnosis were perceived by both fathers and adolescents as disclosing more negative alcohol-related experiences to their adolescents and as having less legitimacy to regulate adolescent drinking. However, according to both fathers and adolescents, fathers with a lifetime AUD did not use fewer strategies to regulate adolescent drinking or provide less parental support or control. Mothers with a lifetime AUD diagnosis were perceived by both mothers and adolescents as disclosing more negative alcohol-related experiences to their adolescents. Lifetime AUD mothers perceived themselves as providing less parental control whereas adolescents' perceptions of maternal control were unrelated to mothers' lifetime AUD. Adolescents, however, viewed mothers with lifetime AUD as having less legitimacy to regulate alcohol use whereas mothers did not. Interestingly, adolescents perceived currently drinking parents as having less legitimate authority to regulate drinking, whereas parents did not have this perception.

High levels of nondrinking adolescents' positive attitudes about alcohol were related to greater parents' past year drinking but not related to parents'

lifetime AUD. Nondrinking adolescents' high levels of positive attitudes about alcohol were also related to adolescent reported lower levels of maternal and paternal strategies to regulate drinking. Moreover, according to all reports, the more parents disclose negative alcohol-related experiences to their adolescents, the more positive the adolescents' attitudes about alcohol.

Table 6 provides some evidence for the specificity of alcohol-specific parenting effects on adolescents' alcohol attitudes, rather than their cigarette smoking. For instance, adolescent-reported high levels of parents' strategies to regulate drinking were related to less positive nondrinking adolescent attitudes about alcohol but unrelated to adolescent cigarette smoking. Moreover, adolescent and parental perception of more parental disclosure were related to stronger adolescent positive alcohol attitudes but not related to adolescent smoking. However, adolescent report of higher levels of parental legitimacy in regulating adolescent drinking was related to both stronger negative adolescent alcohol attitudes and less adolescent tobacco use. Moreover, there is evidence to suggest that general parenting practices were related to both adolescent alcohol attitudes and cigarette use. For example, the more adolescents' perceived their mothers as providing high levels of support and control, the less positive were adolescents' attitudes about alcohol and the less likely the adolescent was to have smoked cigarettes.

Measurement Modeling

Exploratory and confirmatory factor analyses were conducted to determine the appropriate factor structure of alcohol-specific parenting. First, exploratory

factor analyses (EFA) by reporter (i.e. mother-report of mother parenting, father-report of father parenting, adolescent report of mother parenting, and adolescent report of father parenting) were used to extract a factor structure (see Tables 7-10). Promax rotation was used because it allows factors to be correlated. All EFAs were indicative of a 3 factor structure such that items 1-6 loaded on 1 factor, items 6 and 7 evidenced complex cross-loadings on both factors 1 and 2, and items 9-12 loaded on factor 3. Therefore, items 6 and 7 were dropped and a 2 factor model was tested using confirmatory factor analyses (CFA). Items 6 and 7 were averaged to create a mean score such that high scores indicated more disclosure of negative alcohol experiences.

CFAs were conducted using Mplus version 5.0 (Muthén & Muthén, 1998-2006). Because participants were nested within families, standard errors were adjusted for non-independence of observations using the complex function in MPlus. Specifically, non-independence of observations for mother and father CFAs was handled at the level of the 1st generation family (G1) because these models were separate for mother and father and therefore may have included mother-mother sibling pairs or father-father sibling pairs, but not spouses from the same 2nd generation family (G2). Non-independence of observations for the adolescent report CFAs was handled at the level of the G2 family because some

of the adolescents were siblings.[8] Full-information maximum likelihood (FIML) was used to handle missing data.

Confirmatory factor analyses confirmed a 2 factor structure (see Table 11 for results by reporter). Data from mother report of alcohol-specific parenting fit a 2 factor model well (χ^2 (30) = 40.39, *p*=n.s., CFI=.99; RMSEA=.03; SRMR= .03) with uncorrelated factors (*r*=-.03; *p*=n.s.). Father report of alcohol-specific parenting also fit a 2 factor model well (χ^2 (30) = 40.39, *p*= n.s, CFI=.99; RMSEA=.03; SRMR= .03) with uncorrelated factors (*r*=.05; *p*=.45). Similarly, data from adolescent report of mothers' alcohol-specific parenting also fit a 2 factor model (χ^2 (29) = 56.62, p<.01, CFI=.98; RMSEA=.05; SRMR= .04) with correlated factors (*r*= .21; *p*<.001), as did adolescent report of fathers' alcohol-specific parenting (χ^2 (29) = 33.17, *p*= n.s, CFI=.99; RMSEA=.02; SRMR= .04. These latent variables were also significantly correlated (*r*=.21; *p*<.001).

Measurement invariance testing was also conducted to determine whether the factor structure, item loadings, and error variances varied by parent gender and reporter (parent versus adolescent). Testing measurement invariance of factor loadings allowed for an examination of whether the indicators measured the latent factors in similar ways across groups. Testing invariance of indicator intercepts examined whether the predicted value of the indicator, when the latent variable is zero, was similar across groups. Finally, testing invariance of unique variances

[8] CFAs were estimated without accounting for the non-independence of observations and the pattern of results did not differ.

allowed for an examination of whether the variance in the indicator that was not accounted for by the latent factor was similar across groups. The general strategy to measurement invariance testing was to first test a fully unconstrained model and then use this model to compare to models with various parameter constraints to determine whether a fully unconstrained model (i.e. the nested model) was a better fit to the data than a constrained model (i.e., the comparison model).

The first series of tests examined measurement invariance across parent gender (see Table 12). Results indicated that a fully unconstrained model fit the data well (χ^2 (60) = 82.83, CFI=.99; RMSEA=.03; SRMR= .03). A model which constrained factor loadings across gender also fit the data well (χ^2 (68) = 90.85, CFI=.99; RMSEA=.03; SRMR= .03). Results of a Satorra-Bentler chi-square difference test[9] indicated that the fully unconstrained model was not a significantly better fit to the data than the factor loading invariant model (Satorra-Bentler χ^2diff (8) = 7.23, p=n.s.). Next a factor loading and intercept invariance model was tested and found fit the data well (χ^2 (76) = 105.55, CFI=.99; RMSEA=.03; SRMR= .04). The fully unconstrained model was not a significantly better fit than the factor loading and intercept invariance model (Satorra-Bentler χ^2diff (16) = 22.88, p=n.s.). Finally, a factor loading, intercept, and error variance invariant model was tested and found to fit the data well (χ^2 (86) = 120.62, CFI=.99; RMSEA=.03; SRMR= .05). The fully unconstrained

[9] Satorra-Bentler chi-square difference tests were used because traditional chi-square difference tests cannot be used when the MLR estimator is used.

model was not a significantly better fit than the factor loading, intercept, and error variance invariance model (Satorra-Bentler χ^2diff (26) = 37.44, p=n.s.).[10] Therefore, results indicate measurement invariance across parent gender.

The second series of tests examined measurement invariance across mother self-report of parenting and adolescent-report of mother parenting (see Table 13). Results indicated that a fully unconstrained model fit the data well (χ^2 (58) = 96.21, CFI=.99; RMSEA=.04; SRMR= .04). A model which constrained factor loadings across reporter also fit the data well (χ^2 (66) = 128.77, CFI=.98; RMSEA=.05; SRMR= .06). Results of a Satorra-Bentler chi-square difference test indicated that the fully unconstrained model was a significantly better fit to the data than the factor loading invariant model (Satorra-Bentler χ^2diff (8) = 30.59, p<.001). Next a factor loading and intercept invariance model was tested and found to fit the data adequately (χ^2 (74) = 224.45, CFI=.95; RMSEA=.07; SRMR= .06). The fully unconstrained model was a significantly better fit than the factor loading and intercept invariance model (Satorra-Bentler χ^2diff (16) = 125.41, p<.001). Finally, a factor loading, intercept, and error variance invariant model was tested and indicated fair fit to the data (χ^2 (84) = 231.82, CFI=.96; RMSEA=.06; SRMR= .07). The fully unconstrained model was also a significantly better fit than the factor loading, intercept, and error variance

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[10] Non-independence of observations was accounted for at the level of the G1-family given that there were mother-mother sibling pairs and father-father sibling pairs. However, when these tests were conducted without accounting for the clustering, the pattern of results remained the same.

invariance model (Satorra-Bentler χ^2diff (26) = 111.67, p<.001).[11] Therefore, results suggested that the best fitting model was one that relaxed factor loading, intercept, and error variance constraints across mother self-report and adolescent report of mother.

The third series of tests examined measurement invariance across father self-report of parenting and adolescent-report of father parenting (see Table 14). Results indicated that a fully unconstrained model fit the data well (χ^2 (58) = 69.81, CFI=.99; RMSEA=.02; SRMR= .04). A model which constrained factor loadings across reporter also fit the data well (χ^2 (66) = 95.79, CFI=.99; RMSEA=.03; SRMR= .06). Results of a Satorra-Bentler chi-square difference test indicated that the fully unconstrained model was a significantly better fit to the data than the factor loading invariant model (Satorra-Bentler χ^2diff (8) = 27.04, p<.001). Next a factor loading and intercept invariance model was tested and found to fit the data well (χ^2 (74) = 159.58, CFI=.95; RMSEA=.05; SRMR= .06). The fully unconstrained model was a significantly better fit than the factor loading and intercept invariance model (Satorra-Bentler χ^2diff (16) = 101.98, p<.001.). Finally, a factor loading, intercept, and error variance invariant model was tested and indicated good fit to the data (χ^2 (84) = 162.87, CFI=.97; RMSEA=.05; SRMR= .06). The fully unconstrained model was also a

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[11] Clustering was accounted for at the level of the G2-family for these analyses given that there were adolescent siblings and mothers and adolescents may be from the same family. When the nestedness of the data was not taken into consideration the pattern of results did not differ. Similarly, when the nestedness of the data was handled at the level of the G1-family, results did not differ.

significantly better fit than the factor loading, intercept, and error variance invariance model (Satorra-Bentler χ^2diff (26) = 84.06, p<.001).[12] Therefore, similar to series 2 results, these results suggested that the best fitting model was one that relaxed factor loading, intercept, and error variance constraints across father self-report and adolescent report of father.

Structural Equation Modeling of Determinants of Alcohol-Specific Parenting

To examine the determinants of alcohol-specific parenting as well as moderation by reporter, sets of multiple group structural equation models were tested using Mplus version 5.0 (Muthén & Muthén, 1998-2006). Three sets of multiple group SEMs were tested using the follow multiple groups: 1) parent gender; 2) mother self-report of parenting vs. adolescent report of mother parenting; 3) father self-report of parenting vs. adolescent report of father parenting. The model specification strategy included running preliminary models for each of the 3 sets of models to determine the appropriate inclusion of covariates, covariate by covariate interactions, and covariate by predictor interactions. Missing data on endogenous variables were estimated as a function of the observed exogenous variables under the missingness at random assumption (Schafer & Graham, 2002).

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[12] Clustering was accounted for at the level of the G2-family for these analyses given that there were adolescent siblings. When the nestedness of the data was not taken into consideration the pattern of results did not differ. Similarly, when the nestedness of the data was handled at the level of the G1-family, results did not differ.

Parent self-report of parenting.

The first multiple group SEM tested a determinants of self-reported alcohol-specific parenting model moderated by parent gender. Potential covariates were parent education, ethnicity, and age and adolescent age and gender. Predictors included parent other psychopathology, 2 contrast coded parent AUD variables comparing currently AUD parents to recovered and non-diagnosed and comparing recovered AUD parents to non-diagnosed parents, parent family history density of AUD and parent current drinking status. Alcohol-specific parenting outcomes included strategies to regulate adolescent drinking (latent variable), legitimacy in regulating adolescent drinking (latent variable), and disclosing negative experiences (manifest variable). Outcome variables were correlated. See figure 1 for a heuristic model.

Separate preliminary models for mother (*n*=279) and father (*n*=215) report of parenting were tested to determine which covariates, covariate by covariate interactions, and covariate by predictor interactions to include in the final model. Paths from covariates and covariate interactions to outcomes were retained if they significantly uniquely predicted any alcohol-specific parenting outcomes.[13] The only interaction that was maintained was the cross-product of parent education and other psychopathology in predicting disclosing negative experiences.

[13] Because of the high number of interactions tested and the possibility of Type I error, interactions were considered statistically significant if they uniquely predicted an outcome at $p<.01$.

Next a multiple group model constraining all parameters to be equal across parent gender was tested. This model fit the data well (χ^2 (272) = 383.80, p<.001; CFI=.96; RMSEA=.04; SRMR=.05). A partially constrained model was also tested which maintained constraints across parent gender for the measurement portion of the model but relaxed all other parameters. The decision was made to constrain the measurement portion of the model to be equal across parent gender because the measurement invariance testing indicated that this was appropriate. The partially constrained model also fit the data well (χ^2 (244) = 350.31, p<.001; CFI=.96; RMSEA=.04; SRMR=.04) but was not a significantly better fit to the data than the fully constrained model (Satorra-Bentler χ^2diff (28) = 33.25, p=.n.s). Because of the lack of moderation by gender, a structural equation model was tested using data from both mothers and fathers (*n*=494 parents) with parent gender as a covariate. However, parent gender did not uniquely predict any of the outcomes and was therefore trimmed from the final model. This final model fit the data well (χ^2 (112) = 188.17, p<.001; CFI=.96; RMSEA=.04; SRMR=.03). Because in the final model parents were nested within families (i.e. spouses and siblings), the non-independence of the observations was handled at the level of the 2nd generation family using the maximum likelihood robust estimator and the complex function in Mplus. See Table 15 for results of the final determinants of parenting model for parent-report of parenting.

Results indicated that highly educated parents and Caucasian parents employed fewer strategies to regulate adolescent drinking and currently drinking parents viewed themselves as having less legitimate authority to regulate

adolescent drinking. Moreover, Caucasian parents, parents with other psychopathology, parents with a high familial alcohol use disorder, and currently drinking parents disclosed more negative experiences with alcohol. Finally, recovered alcoholic parents disclosed more negative experiences than did never diagnosed parents. An examination of standardized betas revealed that all significant effects were small (Cohen, 1992).

The interaction of parent education and parent other psychopathology significantly predicted disclosure such that, among parents without college experience, other psychopathology was related to disclosing more negative experiences (b=.77; p<.001). However, among parents with at least some college education, other psychopathology was unrelated to disclosing negative experiences (b=.12; p=n.s.).

Mothers' alcohol-specific parenting determinants (self and adolescent report).

The second multiple group SEM tested a model of the determinants of mothers' alcohol-specific parenting moderated by reporter (mother self-report of parenting vs. adolescent report of mothers' parenting). Potential covariates were parent education, ethnicity, and age and adolescent age and gender. Predictors included mother other psychopathology, 2 contrast coded mother AUD variables comparing currently AUD mothers to recovered and non-diagnosed and comparing recovered AUD mothers to non-diagnosed mothers, mother family history density of AUD and mother current drinking status. Alcohol-specific parenting outcomes included strategies to regulate adolescent drinking (latent

variable), legitimacy in regulating adolescent drinking (latent variable), and disclosing negative experiences (manifest variable).

Separate preliminary models for mother self-report (*n*=279 mothers) and adolescent report of mother (*n*=411 adolescents) were tested to determine which covariates, covariate by covariate interactions, and covariate by predictor interactions to include in the final model. Paths from covariates and covariate interactions to outcomes were retained if they significantly uniquely predicted any alcohol-specific parenting outcomes. Two interactions were maintained: 1) the cross-product of parent education and alcohol use in predicting legitimacy; 2) the cross-product of parent education and other psychopathology in predicting disclosure.

Next a multiple group model was tested and because adolescents were nested within families (i.e. siblings), the non-independence of the observations was handled at the level of the 2nd generation family using the maximum likelihood robust estimator and the complex function in Mplus. First a partially constrained model was tested that constrained all parameters from exogenous to endogenous variables to be equal across reporter and freed constraints within the measurement model across reporter. A partially constrained model was tested, rather than a fully constrained model, based on the results of the measurement invariance tests which indicated measurement variance among mothers and adolescents on these items. The partially constrained model demonstrated fair model fit (χ^2 (262) = 483.54, p<.001; CFI=.93; RMSEA=.05; SRMR=.05). The fully unconstrained model was tested next and demonstrated good fit to the data

(χ^2 (236) = 401.46, p<.001; CFI=.95; RMSEA=.05; SRMR=.04). The fully unconstrained model was a significantly better fit to the data than the partially constrained model (Satorra-Bentler χ^2diff (26) = 82.74, p<.001) indicating moderation by reporter. See Table 16 for results of the final determinants of mothers' parenting model moderated by reporter.

Consistent with the parent report model, both adolescents and mothers perceived less highly educated mothers as engaging in more strategies to regulate drinking. Moreover, mothers of older adolescents perceived themselves as engaging in more strategies to regulate drinking whereas there was no relation in the adolescent report model. Adolescents perceived mothers with other psychopathology as using fewer strategies, whereas mothers did not perceive this difference. Finally, adolescents viewed drinking mothers as engaging in fewer strategies to regulate adolescent drinking compared to non-drinking mothers.

With regards to determinants of legitimacy, none of the covariates or predictors significantly predicted maternal legitimacy to regulate adolescent drinking according to adolescent reported mothers' parenting. However, according to mothers, those with higher levels of educational experience and younger adolescents perceived themselves as more legitimate. Interestingly, recovered alcoholic mothers viewed themselves as having more legitimate authority to regulate drinking than did never diagnosed mothers. Finally, the interaction of mother education and alcohol use also significantly predicted legitimacy, according to mother report of legitimacy only. Among mothers without some college education, current alcohol use marginally predicted feelings

of greater legitimacy (b=.35; p<.10). However, among mothers with at least some college education, current alcohol use was related to feelings of less legitimacy (b=-.48, p<.001).

In terms of determinants of disclosure of negative alcohol experiences, adolescents perceived less educated mothers and mothers of older adolescents as disclosing more often. Mothers did not perceive these differences. Moreover, although both adolescents and mothers viewed mothers with high density family history of alcoholism as disclosing more often, mothers also reported that recovered mothers, mothers with other psychopathology, and drinking mothers disclosed more often. Finally, similar to the parent-report model, the interaction of mother education and other psychopathology significantly predicted disclosure. Probing the interaction revealed a similar pattern of results. Specifically, among mothers without college education, other psychopathology was related to more disclosure (b=1.08; p<.001). However, among mothers with at least some college experience, other psychopathology was unrelated to disclosing (b=.10; p=n.s.). This interaction was non-significant for adolescent-reported maternal disclosure. Finally, an examination of the standardized betas revealed that all significant main and interactive effects were small (Cohen, 1992).

Fathers' alcohol-specific parenting determinants (self and adolescent report).

The third multiple group SEM tested a model of the determinants of fathers' alcohol-specific parenting moderated by reporter (father self-report of parenting vs. adolescent report of fathers' parenting). Potential covariates were

parent education, ethnicity, and age and adolescent age and gender. Predictors included father other psychopathology, 2 contrast coded father AUD variables comparing currently AUD fathers to recovered and non-diagnosed and comparing recovered AUD fathers to non-diagnosed fathers, father family history density of AUD and father current drinking status. Alcohol-specific parenting outcomes included strategies to regulate adolescent drinking (latent variable), legitimacy in regulating adolescent drinking (latent variable), and disclosing negative experiences (manifest variable).

Separate preliminary models for father self-report (*n*=215 fathers) and adolescent report of father (*n*=308 adolescents) were tested to determine which covariates, covariate by covariate interactions, and covariate by predictor interactions to include in the final model. Paths from covariates and covariate interactions to outcomes were retained if they significantly uniquely predicted any alcohol-specific parenting outcomes. None of the interactions significantly predicted the outcomes as $p<.01$ and therefore they were all trimmed from the final model.

Next a multiple group model was tested that constrained all parameters from exogenous to endogenous variables to be equal across reporter and freed constraints within the measurement model across reporter. Because adolescents were nested within families (i.e. siblings), the non-independence of the observations was handled at the level of the 2nd generation family using the maximum likelihood robust estimator and the complex function in Mplus. A partially constrained model was tested, rather than a fully constrained model,

based on the results of the measurement invariance tests which indicated measurement variance among fathers and adolescents on these items. The partially constrained model demonstrated good model fit (χ^2 (220) = 342.69, p<.001; CFI=.95; RMSEA=.05; SRMR=.05). The fully unconstrained model was tested next and also demonstrated good fit to the data fit (χ^2 (196) = 308.70, p<.001; CFI=.95; RMSEA=.05; SRMR=.04). The fully unconstrained model was not a significantly better fit to the data than the partially constrained model (Satorra-Bentler χ^2diff (24) = 33.53, p=n.s.) indicating the lack of moderation by reporter. See Table 17 for results of the partially constrained model.

Results of the partially constrained model indicated that fathers without college education and fathers without other psychopathology engaged in more strategies to regulate adolescent drinking. Moreover, drinking fathers were perceived as having less legitimacy to regulate adolescent drinking. Finally, less highly educated fathers and those with older adolescents disclosed more negative experiences with alcohol. Consistent with previous models, an examination of standardized betas revealed that all significant effects were small in size (Cohen, 1992).

The Effect of Alcohol-Specific Parenting on Nondrinking Adolescent Alcohol Attitudes

To examine the effect of alcohol-specific parenting on adolescent attitudes about alcohol, as well as moderation by reporter, sets of multiple group structural equation models were tested using Mplus version 5.0 (Muthén & Muthén, 1998-2006). Two sets of multiple group SEMs were tested using the follow multiple

groups: 1) mother self-report of parenting vs. adolescent report of mother parenting; 2) father self-report of parenting vs. adolescent report of father parenting. The model specification strategy included running preliminary models for each of the 2 sets of models to determine the appropriate inclusion of covariates, covariate by covariate interactions, and covariate by predictor interactions.

The effect of mothers' alcohol-specific parenting.

The first set of structural equation models examined the effect of mothers' alcohol-specific parenting, moderated by reporter of parenting (i.e. mother self-report vs. adolescent report of mother parenting). Potential covariates included parent education, ethnicity, family history of AUD, and age, as well as adolescent age and gender. Predictors included mothers' lifetime AUD[14], mothers' current alcohol use, strategies to regulate adolescent drinking (latent variable), legitimacy in regulating adolescent drinking (latent variable), disclosing negative experiences (manifest variable), parental support (manifest variable), and parental control (manifest variable). See Figure 2 for a heuristic model.

Separate preliminary models for mother self-report (*n*=279 mothers) and adolescent report of mother (*n*=411 adolescents) were tested to determine which

[14] Originally, the two contrast coded variables for mothers' alcohol use disorder categories (current, recovered, never diagnosed) were used rather than lifetime AUD. Because the contrast codes did not uniquely predict adolescent alcohol attitudes, they were replaced with mothers' lifetime AUD. This was done to decrease parameters estimated in the model and to create a more parsimonious model.

covariates, covariate by covariate interactions, and covariate by predictor interactions to include in the final model. Paths from covariates and covariate interactions to outcomes were retained if they significantly uniquely predicted any alcohol-specific parenting outcomes. None of the interactions significantly predicted the outcomes as $p<.01$ and therefore they were all trimmed from the final model.

Because adolescents were nested within families (i.e. siblings), for these models, the non-independence of the observations was handled at the level of the 2nd generation family using the maximum likelihood robust estimator and the complex function in Mplus. First, a multiple group model was tested that constrained all parameters from exogenous to endogenous variables to be equal across reporter and freed constraints within the measurement model across reporter. A partially constrained model was tested, rather than a fully constrained model, based on the results of the measurement invariance tests which indicated measurement variance among mothers and adolescents on these items. The partially constrained model demonstrated good model fit (χ^2 (205) = 374.33, $p<.001$; CFI=.95; RMSEA=.05; SRMR=.04). The fully unconstrained model was tested next and also demonstrated good fit to the data (χ^2 (200) = 364.85, $p<.001$; CFI=.95; RMSEA=.05; SRMR=.04). The fully unconstrained model was not a significantly better fit to the data than the partially constrained model (Satorra-Bentler χ^2diff (5) = 9.55, p=n.s.) indicating the lack of moderation of the effects of alcohol-specific parenting on adolescent alcohol attitudes by reporter. See Table 18 for results of the partially constrained model.

Results indicated that older adolescents and those with a mother with other psychopathology held stronger positive attitudes about alcohol. Moreover, mothers' current alcohol use rather than lifetime AUD, predicted adolescent alcohol attitudes such that adolescents with drinking mothers held stronger positive attitudes about alcohol use. In terms of alcohol-specific parenting, more alcohol-specific parenting strategies, and less disclosure were related to stronger negative attitudes about alcohol. Maternal legitimacy to regulate adolescent drinking was unrelated to adolescent attitudes. An examination of standardized betas revealed that all significant effects were small (Cohen, 1992).

The effect of fathers' alcohol-specific parenting.

The next set of structural equation models examined the effect of fathers' alcohol-specific parenting, moderated by reporter of parenting (i.e. father self-report vs. adolescent report of father parenting). Potential covariates included parent education, ethnicity, family history of AUD, and age, as well as adolescent age and gender. Predictors included fathers' lifetime AUD[15], fathers' current alcohol use, strategies to regulate adolescent drinking (latent variable), legitimacy in regulating adolescent drinking (latent variable), disclosing negative experiences

[15] Originally, the two contrast coded variables for fathers' alcohol use disorder categories (current, recovered, never diagnosed) were used rather than lifetime AUD. Because the contrast codes did not uniquely predict adolescent alcohol attitudes, they were replaced with fathers' lifetime AUD. This was done to decrease parameters estimated in the model and to create a more parsimonious model.

(manifest variable), fathers' support (manifest variable), and fathers' control (manifest variable).

Separate preliminary models for father self-report (*n*=215 fathers) and adolescent report of father (*n*=308 adolescents) were tested to determine which covariates, covariate by covariate interactions, and covariate by predictor interactions to include in the final model. Paths from covariates and covariate interactions to outcomes were retained if they significantly uniquely predicted any alcohol-specific parenting outcomes. None of the interactions significantly predicted the outcomes as $p<.01$ and therefore they were all trimmed from the final model.

Because adolescents were nested within families (i.e. siblings), for these models, the non-independence of the observations was handled at the level of the 2nd generation family using the maximum likelihood robust estimator and the complex function in Mplus. First, a multiple group model was tested that constrained all parameters from exogenous to endogenous variables to be equal across reporter and freed constraints within the measurement model across reporter. A partially constrained model was tested, rather than a fully constrained model, based on the results of the measurement invariance tests which indicated measurement variance among fathers and adolescents on these items. The partially constrained model demonstrated good model fit (χ^2 (205) = 347.43, $p<.001$; CFI=.94; RMSEA=.05; SRMR=.04). The fully unconstrained model was tested next and also demonstrated good fit to the data (χ^2 (200) = 346.32, $p<.001$; CFI=.94; RMSEA=.05; SRMR=.04). However, the fully unconstrained model

was not a significantly better fit to the data than the partially constrained model (Satorra-Bentler χ^2diff (5) = 0.80, p=n.s.) indicating the lack of moderation of the effects of father alcohol-specific parenting on adolescent alcohol attitudes by reporter. See Table 19 for results of the partially constrained model.

Similar to the maternal alcohol-specific parenting effects model, results indicated that older adolescents held stronger positive attitudes about alcohol, and also similar to the maternal model, this effect was small in size (Cohen, 1992). However, unlike the maternal model, fathers' other psychopathology was unrelated to adolescent alcohol attitudes. Fathers' current alcohol use, rather than lifetime AUD, predicted adolescent alcohol attitudes such that adolescents with drinking fathers held stronger positive attitudes about alcohol use. With regards to the influence of alcohol-specific parenting, again similar to the results of the maternal model, higher levels of fathers' alcohol-specific parenting strategies, and less disclosure were related to stronger adolescent negative attitudes about alcohol. Moreover, fathers' legitimacy to regulate adolescent drinking was unrelated to adolescent attitudes. In terms of general parenting practices, higher levels of paternal support predicted stronger negative attitudes about alcohol, whereas higher levels of control did not.

The effect of alcohol-specific parenting: Moderation by parent alcohol use.

To investigate whether the effect of alcohol-specific parenting on adolescent alcohol attitudes depended on parents' current alcohol use, two sets of multiple group models were tested. The adolescent-report model of the effect of

mothers' alcohol-specific parenting on adolescent alcohol attitudes was tested in a multiple-group format using mothers' current drinking status (i.e., drinker vs. non-drinker) as the grouping variable. Covariates included adolescent age and mother other psychopathology and predictors included mother lifetime AUD, strategies to regulate adolescent drinking (latent variable), legitimacy in regulating adolescent drinking (latent variable), disclosing negative experiences with alcohol (manifest variable), and maternal support (manifest variable) and control (manifest variable). All alcohol-specific parenting and general parenting variables were adolescent-report. Because adolescents were nested within families (i.e. siblings), for these models, the non-independence of the observations was handled at the level of the 2nd generation family using the maximum likelihood robust estimator and the complex function in Mplus.

First a fully constrained model was tested which constrained all model parameters to be equal across groups. Groups were 1) adolescents of non-drinking mothers (*n*=158) and 2) adolescents of drinking mothers (*n*=253). This model fit the data well (χ^2 (200) = 249.29, p<.001; CFI=.96; RMSEA=.04; SRMR=.07). Next a partially unconstrained model was tested (measurement model was constrained across groups and all other parameters were relaxed) and also evidenced good fit to the data (χ^2 (192) = 261.48, p<.001; CFI=.96; RMSEA=.04; SRMR=.05). Results of a Satorra-Bentler chi-square difference test indicated that the partially unconstrained model was a significantly better fit to the data than the fully constrained model (Satorra-Bentler χ^2diff (8) = 17.66,

p=.02); therefore results supported a model that was moderated by maternal alcohol use.

See Table 20 for results of the partially unconstrained multiple group SEM. Results indicated that among adolescents of non-drinking mothers, adolescent perception of high levels of mothers' alcohol-specific parenting strategies significantly predicted stronger negative adolescent attitudes about alcohol. Among adolescents of drinking mothers, younger adolescents and those with a mother without other psychopathology held stronger negative alcohol use attitudes. Interestingly, mothers' disclosure of negative experiences with alcohol significantly predicted more positive attitudes about alcohol for those adolescents with drinking mothers. An examination of standardized betas indicated that all significant effects in both groups were small (Cohen, 1992).

This procedure was repeated to examine whether the effect of fathers' alcohol-specific parenting on adolescent alcohol attitudes depended on fathers' current alcohol use. Similar to the maternal model, covariates included adolescent age and father other psychopathology. Predictors included father lifetime AUD, strategies to regulate adolescent drinking (latent variable), legitimacy in regulating adolescent drinking (latent variable), disclosing negative experiences with alcohol (manifest variable), and paternal support (manifest variable) and control (manifest variable) and all alcohol-specific parenting and general parenting variables were adolescent-report. Again, clustering was handled at the level of the G2-family using the complex function in Mplus.

A fully constrained model was tested which constrained all model parameters to be equal across groups. Groups were 1) adolescents of non-drinking fathers (*n*=103) and 2) adolescents of drinking fathers (*n*=205). This model fit the data well (χ^2 (200) = 257.60, p<.001; CFI=.97; RMSEA=.04; SRMR=.07). Next a partially unconstrained model was tested (measurement model was constrained across groups and all other parameters were relaxed) and also evidenced good fit to the data (χ^2 (192) = 250.54, p<.001; CFI=.96; RMSEA=.04; SRMR=.06). Results indicated that the partially unconstrained model was not a significantly better fit to the data than the fully constrained model (Satorra-Bentler χ^2diff (8) = 7.68, p=n.s.). Therefore, the effect of fathers' alcohol-specific parenting on adolescent alcohol attitudes did not depend on fathers' current alcohol use status.

The effect of alcohol-specific parenting: Moderation by parent alcohol use disorder.

Next a series of multiple group structural equation models were tested to determine whether the effects of alcohol-specific parenting on adolescent attitudes about alcohol were moderated by parental lifetime alcohol use disorder. There were 314 adolescents with non-AUD mothers and 96 adolescents with AUD mothers.[16] Covariates included adolescent age and mother other psychopathology and predictors included mother past year alcohol use (binary variable), strategies

[16] One adolescent was missing data on his/her mother's AUD and was therefore dropped from these analyses.

to regulate adolescent drinking (latent variable), legitimacy in regulating adolescent drinking (latent variable), disclosing negative experiences with alcohol (manifest variable), and maternal support (manifest variable) and control (manifest variable). All alcohol-specific parenting and general parenting variables were adolescent-report. Because adolescents were nested within families (i.e. siblings), for these models, the non-independence of the observations was handled at the level of the 2nd generation family using the maximum likelihood robust estimator and the complex function in Mplus.

A fully constrained model was tested which constrained all model parameters to be equal across groups. This model fit the data well (χ^2 (200) = 247.69, p<.001; CFI=.97; RMSEA=.03; SRMR=.06). Next a partially unconstrained model was tested (measurement model was constrained across groups and all other parameters were relaxed) and also evidenced good fit to the data (χ^2 (192) = 240.05, p<.001; CFI=.97; RMSEA=.04; SRMR=.06). Results indicated that the partially unconstrained model was not a significantly better fit to the data than the fully constrained model (Satorra-Bentler χ^2diff (8) = 7.40, p=n.s.); therefore results did not support a model that was moderated by maternal alcohol use disorder.

This procedure was repeated to examine whether paternal AUD moderated the effects of fathers' alcohol-specific parenting on adolescent attitudes about alcohol. Covariates included adolescent age and father other psychopathology and predictors included father past year alcohol use (binary variable), strategies to regulate adolescent drinking (latent variable), legitimacy in regulating adolescent

drinking (latent variable), disclosing negative experiences with alcohol (manifest variable), and paternal support (manifest variable) and control (manifest variable). All alcohol-specific parenting and general parenting variables were adolescent-report. Because adolescents were nested within families (i.e. siblings), for these models, the non-independence of the observations was handled at the level of the 2nd generation family using the maximum likelihood robust estimator and the complex function in Mplus.

A fully constrained model was tested which constrained all model parameters to be equal across groups. Groups were 1) adolescents of non-AUD fathers (*n*=182) and 2) adolescents of AUD fathers (*n*=124).[17] This model fit the data adequately (χ^2 (200) = 306.46, p<.001; CFI=.94; RMSEA=.06; SRMR=.07). Next a partially unconstrained model was tested (measurement model was constrained across groups and all other parameters were relaxed) and also evidenced fair fit to the data (χ^2 (192) = 291.73, p<.001; CFI=.94; RMSEA=.06; SRMR=.07). Results indicated that the partially unconstrained model was not a significantly better fit to the data than the fully constrained model (Satorra-Bentler χ^2diff (8) = 15.00, p=n.s.). Therefore results did not support moderation by fathers' alcohol use disorder.

[17] Data on 2 adolescents' fathers' AUD were missing and therefore these 2 adolescents were dropped from these analyses.

The effect of alcohol-specific parenting: Moderation by adolescent perception of parental legitimacy in regulating adolescent drinking.

Finally, to determine whether the effect of alcohol-specific parenting on adolescent attitudes about alcohol use depended on adolescent perception of parental legitimacy to regulate drinking, another series of multiple group SEMs were conducted. To create a grouping variable, a mean score was calculated from the 4 adolescent-reported legitimacy items (see Table 1, items 9-12). Two manifest variables were created (maternal legitimacy and paternal legitimacy). Mean scores for mother legitimacy ranged from 1-5 with a mean of 4.50 (SD=0.63) and mean scores for father legitimacy also ranged from 1-5 with a mean of 4.44 (SD=0.71). Scores were then split at the mean resulting in the following mother model groups 1) adolescents of "legitimate" mothers (*n*=229); 2) adolescents of "non-legitimate" mothers (*n*=181); [18] and father model groups 1) adolescents of "legitimate" fathers (*n*=188); 2) adolescents of "non-legitimate" fathers (*n*=117).[19]

The mother model was specified as follows: covariates included adolescent age and mother other psychopathology and predictors included mother lifetime AUD, strategies to regulate adolescent drinking (latent variable), disclosing negative experiences with alcohol (manifest variable), and maternal

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[18] One adolescent was missing data on adolescent-reported mothers' legitimacy items and was therefore dropped from these analyses.

[19] Three adolescents were missing data on adolescent perception of fathers' legitimacy and were therefore dropped from these analyses.

support (manifest variable) and control (manifest variable). All alcohol-specific parenting and general parenting variables were adolescent-report. Clustering was handled at the level of the G2-family using the complex function in Mplus.

A fully constrained model was tested which constrained all model parameters to be equal across groups. This model fit the data well (χ^2 (102) = 143.29, p<.001; CFI=.97; RMSEA=.04; SRMR=.04). A partially unconstrained model was then tested (measurement model was constrained across groups and all other parameters were relaxed) and also evidenced good fit to the data (χ^2 (95) = 133.64, p<.001; CFI=.97; RMSEA=.05; SRMR=.05). Results indicated that the partially unconstrained model was not a significantly better fit to the data than the fully constrained model (Satorra-Bentler χ^2diff (7) = 9.65, p=n.s.); therefore results did not support a model that was moderated by adolescent perception of mothers' legitimacy to regulate adolescent drinking.

The same procedure was followed for the father model. Covariates included adolescent age and father other psychopathology and predictors included father lifetime AUD, strategies to regulate adolescent drinking (latent variable), disclosing negative experiences with alcohol (manifest variable), and paternal support (manifest variable) and control (manifest variable). All alcohol-specific parenting and general parenting variables were adolescent-report. Because adolescents were nested within families (i.e. siblings), for these models, the non-independence of the observations was handled at the level of the 2nd generation family using the maximum likelihood robust estimator and the complex function in Mplus.

A fully constrained model was tested which constrained all model parameters to be equal across groups. This model fit the data adequately (χ^2 (102) = 168.67, p<.001; CFI=.95; RMSEA=.07; SRMR=.08). A partially unconstrained model was then tested (measurement model was constrained across groups and all other parameters were relaxed) and evidenced fair fit to the data (χ^2 (95) = 155.20, p<.001; CFI=.95; RMSEA=.06; SRMR=.05). Results indicated that the partially unconstrained model was not a significantly better fit to the data than the fully constrained model (Satorra-Bentler χ^2diff (7) = 13.38, p=n.s.); therefore results did not support a model that was moderated by adolescent perception of fathers' legitimacy to regulate adolescent drinking.

Discussion

The aims of the present study were to examine the factor structure of alcohol-specific parenting, investigate the determinants of alcohol-specific parenting, and explore its association with nondrinking adolescents' attitudes about alcohol use. Using a high-risk sample of adolescents and their parents, the current study found three dimensions of alcohol-specific parenting in both adolescent and parent reports, but also showed evidence of non-invariance across reporters. Results also revealed complex roles of parental alcohol use disorder (AUD; including recovered and current AUD), family history of AUD, and current drinking as determinants of the three dimensions of anti-alcohol parenting behaviors. Moreover, the current study showed that the effects of these determinants varied by the reporter of the parenting behavior. Finally, the current study found the dimensions of alcohol-specific parenting to be unique and significant predictors of nondrinking adolescents' attitudes about alcohol, over and above general parenting practices and parent alcohol use disorder and current drinking.

Measurement of Alcohol-Specific Parenting

The current study extended previous research by systematically examining the factor structure of alcohol-specific parenting. Results indicated that alcohol-specific parenting, as measured by 12 items adapted from the *Indiana Smoking Study*, was best represented not as one unitary construct, but instead as three dimensions. Specifically, according to all reports of these items (mother self-report, father self-report, adolescent report of mother, and adolescent report

of father), extracted factors were 1) strategies to regulate adolescent drinking; 2) parental legitimacy in regulating adolescent drinking; and 3) parental disclosure of negative experiences with alcohol. The "strategies" dimension reflects parents' behavioral attempts to regulate their children's drinking and includes actions such as discussing the dangers of drinking and asking children if their friends drink alcohol. The "legitimacy" dimension captures perceptions of parents' authority to regulate adolescent drinking. Finally, the "disclosure" dimension of alcohol-specific parenting reflects parents' discussing their own negative experiences with alcohol, or those of their friends and family.

That substance-specific parenting may be best represented, not as a unitary construct, but rather as a number of dimensions, is consistent with the few previous studies that have employed measurement modeling techniques to determine the factor structure of substance-specific parenting (Chassin et al., 1998; Jackson et al 1997). For example, Chassin and colleagues (1998) extracted two dimensions of smoking-specific parenting, namely parental discussions about smoking and punishment related to smoking. Additionally, the present results call into question the appropriateness of modeling individual substance-specific parenting items separately. For instance, Huver and colleagues (2006) tested the unique predictive ability of items such as "house rules for smoking in the living room and outside" and "house rules for smoking outside" within the same regression analysis. This method may be misguided because modeling a high number of predictors can lead to alpha inflation, collinearity concerns, and a lack of parsimony. Therefore, the present findings suggest that collapsing all

substance-specific parenting items into a unitary construct may mask important dimensions of this phenomenon, but also indicate that item-level prediction may be an over-specification of the phenomenon.

The current study further extended previous research by examining differences between parents and adolescents on alcohol-specific parenting items. Both parents and adolescents reported that strategies to regulate adolescent drinking and parental legitimacy in doing so were distinct factors. Interestingly, for parents, strategies to regulate adolescent drinking and their authority to do so were unrelated constructs whereas among adolescents these constructs were more highly correlated. It is possible that although parents may view nuances and distinctions in their parenting intentions and behavior, these nuances are either not actually occurring to the extent parents' report, or they are not as perceptible to adolescents. Moreover, factor loading non-invariance across parents and adolescents indicated that certain items loaded more strongly on alcohol-specific parenting factors for parent versus adolescent report of items, and vice versa, thus suggesting varying ideas about what constitutes these alcohol-specific parenting dimensions. Although the present study did not find evidence that the effect of alcohol-specific parenting on nondrinking adolescent alcohol attitudes varied by reporter of the parenting, previous studies have found that the effect of substance-specific parenting was limited to adolescent report of substance-specific parenting (e.g., Chassin et al., 1998; Chassin et al., 2005; Van der Vorst et al., 2005). The current results suggest that one possible explanation for this reporter effect may be differences in perceived behaviors and actions that constitute alcohol-specific

parenting (i.e. item loading non-invariance) across parents and adolescents. Therefore, the current study illustrates the importance of not collapsing across reporter and highlights the need for multiple reports of parenting behavior.

Determinants of Alcohol-Specific Parenting

The second aim of the present study was to explore the determinants of alcohol-specific parenting. Of particular interest were the unique effects of parent alcohol use disorder (distinguishing between current and recovered disorder) and parent current alcohol use on alcohol-specific parenting, over and above the effect of other forms of psychopathology such as anxiety, depression, and antisocial behavior. A complex pattern of results emerged that showed that recovered alcoholic parents disclosed more negative experiences with alcohol and that recovered alcoholic mothers felt more legitimate in regulating adolescent drinking as compared to never diagnosed parents. Moreover, current drinking parents also disclosed more negative alcohol experiences, but reported feeling less legitimate in regulating adolescent drinking and were perceived by adolescents as using fewer strategies to do so.

This study was the first to use a high-risk sample of adolescents of alcoholic parents to explore the effect of parent AUD on the ways in which parents socialize their children about alcohol use, as well as the first to examine effects of recovery from alcoholism on alcohol-specific parenting. It is important to note that the effects of parent recovered AUD on alcohol-specific parenting were found above and beyond the effects of parent other psychopathology, thus providing a stringent test of parent AUD influences. Although parents with a

history of alcohol use disorder are at heightened risk for other forms of psychopathology, these findings indicate that recovery from an alcohol disorder specifically influences anti-alcohol socialization, rather than being attributable to general mental health problems among these recovered alcoholic parents.

Results of the present study clearly indicated that recovered alcoholic parents differed from those who never had an alcohol problem in terms of their alcohol-specific parenting. Recovered alcoholic parents self-reported disclosing more negative alcohol-related experiences to their adolescent children than did never diagnosed parents. Moreover, recovered mothers felt more legitimate in regulating adolescent drinking than did non-alcoholic mothers. Recovered alcoholic mothers may feel as though they are entitled, or obligated, to deter their adolescents from drinking because of their own histories of alcohol problems whereas mothers who have never experienced alcohol problems may feel less passionate about the subject and therefore view the task of regulating adolescent drinking as less central to their parental authority.

Although recovered alcoholic parents differed from non-alcoholic parents with regards to their perceived legitimacy to regulate adolescent drinking and their perception of the amount of disclosure of negative alcohol experiences, recovered alcoholic parents did not perceive themselves as taking more, or less, action to deter adolescent drinking than did non-alcoholic parents. This was somewhat surprising because previous research found ex-smoking parents to engage in particularly strong anti-smoking socialization (Chassin et al., 2002). Perhaps recovered alcoholic parents attempt to deter adolescent drinking by

disclosing their own negative experiences with alcohol, rather than engaging in other strategies to prevent adolescent drinking. Possibly because of their own history of alcohol-related problems, recovered alcoholic parents may be uncertain of strategies, besides discussing their own experiences, that may be effective in preventing their children from also developing drinking problems.

Interestingly, adolescents did not perceive any differences between never diagnosed parents and recovered alcoholic parents on any dimensions of alcohol-specific parenting. This implies that although recovered alcoholic parents feel as though they discuss their own negative experiences with alcohol, and recovered alcoholic mothers feel as though they have more legitimate authority to regulate adolescent drinking than do never diagnosed parents, adolescents do not recognize these differences. Perhaps because of their alcohol use disorder histories, recovered alcoholic parents perceive any discussion of their histories to be particularly salient to their children, whereas they are not particularly salient to the adolescent. It is also possible that recovered alcoholic parents are biased in reporting their own behavior because they wish to portray themselves as strong anti-alcohol role models for their children.

In addition to an examination of the effects of recovered alcoholism on alcohol-specific parenting, the present study also tested the effects of parental current AUD. Unexpectedly, no differences were found between currently alcoholic parents and never diagnosed or recovered parents on any dimensions of alcohol-specific parenting according to all reporters. Although it is possible that actively alcoholic parents may not engage in suboptimal alcohol-specific

parenting, this is unlikely given previous research on maladaptive general parenting practices of alcoholic parents (e.g., Chassin et al., 1993; King & Chassin, 2004; Lang at al., 1999), and maladaptive substance-specific parenting practices of substance using parents (Engels et al., 2004; Mares, Van der Vorst, Engels, & Lichtwarck-Aschoff, in press; Van der Zwaluw et al., 2008).

It is plausible, however, that these null findings may actually be due to statistical limitations of the present study. For example, given the small sample size of currently alcoholic mothers, it is possible that there was insufficient power to detect small effects of current AUD on alcohol-specific parenting. Also, this study included a number of alcohol-related predictors (i.e., two contrast coded AUD variables, family history of AUD, and current drinking). Therefore it may have been difficult to predict the unique effect of current AUD on the three dimensions of alcohol-specific parenting, over and above the effects of the other alcohol-related variables in the models. Indeed, zero-order correlations indicate that currently alcoholic fathers were perceived by their adolescents as disclosing more negative experiences and having less legitimate authority than were never diagnosed and recovered AUD fathers. Similarly, currently alcoholic mothers were viewed by both mothers and adolescents as having less legitimacy in preventing adolescent drinking as compared to never diagnosed and recovered AUD mothers. Therefore, the zero-order relations support the notion that currently alcoholic parents socialize their children differently than do never diagnosed or recovered alcoholic parents; however, this relation did not appear in

the structural equation models, potentially because of insufficient power to detect small unique effects.

Although differences on the three dimensions of alcohol-specific parenting were not found for currently alcoholic parents compared to other parents, findings indicated differences between currently drinking parents and alcohol-abstaining parents. Specifically, drinking parents self-reported feeling less legitimate in regulating adolescent drinking and reported disclosing negative experiences with alcohol more often than did non-drinking parents. Moreover, adolescents perceived drinking mothers as employing fewer strategies to regulate adolescent drinking compared to non-drinking mothers. Parents who themselves drink may feel as though they lack the authority to regulate adolescent drinking because of their own behavior and may therefore take less action to deter their children from drinking. Results are consistent with previous research indicating that parent substance use influences substance-specific parenting (Engels et al., 2004; Fearnow et al., 1998; Van der Zwaluw et al., 2008) and extends this work to demonstrate that over and above the effects of clinically diagnosed alcohol use disorder, parent current drinking exerts a unique effect on the ways in which parents socialize their children about drinking. Perhaps adolescents are able to perceive effects of parent drinking, but less apt to perceive effects of parent current alcohol use disorder because adolescents may readily observe their parents' drinking, whereas pathological drinking may be kept more secret or not as frequently done in the presence of the child. In general, gradations among

different forms of drinking behavior may be less easily observable by children than is the distinction between drinking and non-drinking.

Furthermore, the present study also examined parents' family history of alcohol use disorder as another potential determinant of anti-alcohol socialization. Not only did parents with a high density of familial alcoholism view themselves as disclosing more negative alcohol experiences with their children, but adolescents also perceived these effects among their mothers. In accordance with Belsky's (1984) theory of the determinants of parenting, these findings illustrate that not only current individual factors, but also historical factors, such as familial AUD, are important determinants of parenting behavior. In this case, growing up with alcoholic parents or grandparents influences the ways in which parents engage in alcohol-specific socialization as adults. Parents may discuss with their children the consequences of drinking that they witnessed among friends and family in an effort to prevent their children from similar problems.

Effects of Alcohol-Specific Parenting on Nondrinking Adolescent Attitudes

The third and final aim of the present study was to examine the effects of alcohol-specific parenting on adolescent attitudes about drinking among a sample of high-risk adolescents without drinking experience. Particular attention was paid to the unique effects of anti-alcohol socialization over and above general parenting practices (i.e., support and discipline), reporter effects, and subgroups of adolescents who may be more or less influenced by alcohol-specific parenting.

First, as expected, results supported previous work demonstrating the link between substance-specific parenting and adolescent substance use (e.g., Chassin

et al., 1998; Huver et al., 2006; Koning et al., 2010; Van der Vorst et al., 2010), and extended that work to suggest that alcohol-specific parenting was also influential in shaping nondrinking adolescents' attitudes about alcohol use. The first dimension of anti-alcohol parenting was parental strategies such as asking adolescents if their friends drink and discussing reasons not to drink. These strategies, as reported by both parents and adolescents, were related to nondrinking adolescents' stronger anti-drinking attitudes. Given that nondrinking adolescent attitudes are predictive of later drinking onset, these findings suggest that even before adolescents have initiated alcohol use, parents can be influential in deterring adolescent alcohol use.

Unexpectedly, the link between alcohol-specific parenting and nondrinking adolescent alcohol attitudes was not moderated by the reporter of the parenting behavior. This was surprising because previous studies found the effects of substance-specific parenting on adolescent substance use to be limited to adolescent reported parenting (e.g., Chassin et al., 1998; Chassin et al., 2005; Van der Vorst et al., 2005). It is possible that the present study lacked sufficient power to detect these complex reporter interactions. However, it may also be the case that both parents' and adolescents' perception of anti-alcohol parenting function to shape nondrinking adolescents' alcohol attitudes.

Interestingly however, the association between alcohol-specific parenting and nondrinking adolescent alcohol attitudes was qualified for mothers such that adolescent perceived maternal strategies to deter adolescent drinking were only effective in shaping adolescent alcohol attitudes if the mother was herself a non-

drinker. This implies that mothers' drinking behavior may function to override, or negate, anti-drinking socialization attempts. Adolescents who hear their mothers' discuss the dangers of drinking alcohol, for example, but then observe their mothers' drinking, may perceive their mothers as lacking legitimacy or authority to deter adolescent drinking. Indeed, results of the present study found that drinking parents viewed themselves as having less authority to regulate adolescent drinking. That alcohol-specific strategies by drinking mothers did not influence adolescents' attitudes about alcohol use is consistent with the smoking literature which has shown that parental smoking can undermine anti-smoking parenting (i.e. Chassin et al., 2005; Otten et al., 2007) and also with socialization theory that suggests that clear, redundant, and consistent parental messages are more readily internalized than are inconsistent or unclear messages (Grusec & Goodnow, 1994). It appears as though mothers' own alcohol use may send a conflicting message to her anti-alcohol strategies, thus making it less likely that adolescents may internalize these strategies.

Moreover, the present study extends previous work to suggest that current maternal drinking, rather than lifetime alcohol use disorder, moderates the effectiveness of alcohol-specific parenting strategies. In other words, the effectiveness of maternal strategies to deter adolescent drinking, according to adolescents, depended not on whether mothers' met lifetime criteria for an alcohol use disorder, but rather on whether mothers were currently drinking alcohol. The lack of moderation by maternal AUD may be due to the low prevalence of current AUD among mothers in this sample. Specifically, only 7.6% of mothers were

currently alcoholic; therefore, the majority of mothers who met lifetime criteria for AUD were actually recovered alcoholics. It is possible that mothers' AUD may have occurred when their children were young or even before they were born, thus making it less likely that adolescents would perceive their mothers' past alcohol problems as influencing the effectiveness of current anti-alcohol parenting. Moreover, as discussed previously, it is also possible that mothers' drinking may be more influential in determining the effectiveness of anti-drinking strategies, as opposed to mothers' AUD, because drinking may be more readily observable to adolescents.

Interestingly, neither fathers' current drinking, nor fathers' lifetime alcohol use disorder, moderated the effects of paternal alcohol-specific parenting on adolescent drinking attitudes. Although somewhat unexpected, it may be that fathers' parenting is less influenced by alcohol use, than is mothers' parenting. For instance, previous research has indicated that mothers' parenting may be more affected by depression than is fathers' parenting (Belsky & Jaffee, 2006). Also, because mothers typically spend more time with children than do fathers (Grusec & Goodnow, 1994), and because mothers may have a greater socialization impact than do fathers (see Grusec, 2002 for review), it is possible that the effectiveness of mothers' alcohol-specific parenting may be more influenced by mothers' drinking.

The second dimension of alcohol-specific parenting that was explored in association to nondrinking adolescent alcohol attitudes was parental disclosure about negative experiences with alcohol. Surprisingly, results showed that high

levels of parental disclosure were related to nondrinking adolescents' stronger pro-drinking attitudes. In other words, the more often parents discussed their negative experiences with alcohol with their children, the stronger the children's positive beliefs about drinking. This finding is particularly striking because the effect of parental disclosure on adolescent alcohol attitudes was over and above the effects of parent AUD and current drinking, thus indicating that the amount of parental disclosure was not merely a marker of parent alcoholism risk, but rather a distinct and influential variable. Also, the effect was over and above adolescents' age, suggesting that the effect is not merely a reflection of parents sharing more with older adolescents. Although these findings are somewhat counterintuitive, it is possible that rather than perceiving parental disclosure as a warning against alcohol use, adolescents found these drinking stories to be somewhat enticing or interesting and, therefore, rather than discouraging adolescents from drinking, these conversations actually functioned to enhance adolescents' positives views of drinking. Moreover, these conversations may also function to normalize problem drinking (because their parents engaged in these behaviors) rather than serve to warn against the dangers of drinking.

Although the present study was the first to examine parental communication specifically about personal experiences with alcohol (i.e., negative alcohol experiences of the individual and/or friends and family), previous studies have examined general parent-child communication about substances and although some have found protective effects of parent-child discussions (i.e. Chassin et al., 1998), a few longitudinal studies have shown that

frequent parent-child communication about substance use may escalate substance use among adolescents who already drink or smoke (Ennett et al., 2001; Van der Vorst et al., 2010). Perhaps the content of these conversations or adolescents' receptiveness to the conversations may be influential in determining their effectiveness at preventing adolescent drinking. More work is needed to fully understand not only the content of these conversations, but also the quality of the discussions and adolescents' receptiveness to the conversations.

The third dimension of alcohol-specific parenting that was examined as a predictor of nondrinking adolescent alcohol attitudes was parents' legitimacy in regulating adolescent drinking. Both parents' self-perceived authority, and adolescents' perception of their parents' authority were unrelated to nondrinking adolescent attitudes about drinking. Furthermore, adolescent perception of parental legitimacy did not moderate the effect of parental strategies to regulate adolescent drinking. This is unexpected given socialization theory which suggests that children are more likely to respond to a parent's request if they view the parent as having proper authority (Grusec & Goodnow, 1994). The lack of significant moderation may be due to statistical limitations of the present study. For example, it is well known that dichotomizing a continuous variable results in a decrease in statistical power (e.g., MacCallum, Zhang, Preacher, & Rucker, 2002) and therefore, it is possible that creating a mean split on parental legitimacy reduced the power to detect an already small interaction effect. Moreover, it is also likely that the reduced variability in the four items designed to tap this construct may also have hindered its predictive ability. In spite of these important

statistical considerations, it is also worth noting that the only other study to explore the influence of parental legitimacy to regulate adolescent substance use, using the same four items, also did not find a link between this construct and adolescent behavior (Chassin et al., 2002).

It is important to note that the effects of the three facets of alcohol-specific parenting on nondrinking adolescents' alcohol attitudes were over and above general parenting practices. In other words, ways parents attempt to socialize their children about alcohol use are distinctly influential in shaping nondrinking adolescent's attitudes about alcohol, and not better accounted for by general broad parenting dimensions such as support and control. These findings are consistent with those of Chassin and colleagues (2005) who demonstrated that smoking-specific parenting exerted unique effects on adolescent smoking, above and beyond general parenting practices, and further support the theorized distinction between broad general parenting styles and specific attempts by parents to influence their offspring's behavior (Darling & Steinberg, 1993).

Although general parenting behaviors did not exert consistent unique effects on adolescent alcohol attitudes, general parenting remains an important construct for the study of development of adolescent alcohol use because it likely provides a context for alcohol-specific parenting to take place (Darling et al., 1993). According to socialization theory, children are more likely to internalize parents' messages and values if they feel emotionally close to that parent (Grusec 2002). Therefore, it is possible that supportive and consistent parenting provides a foundation with which effective anti-alcohol parenting strategies and messages

may be received and internalized. Although beyond the scope of the current study, future research that examines the interaction of general parenting and alcohol-specific parenting may illustrate the ways in which general parenting provides a context for effective anti-alcohol socialization.

Summary and Conclusions

In summary, the purpose of the present study was threefold: 1) to understand the dimensions of alcohol-specific parenting; 2) to examine the determinants of anti-alcohol socialization; and 3) to explore the association of alcohol-specific parenting with nondrinking adolescent attitudes about alcohol use. Results of measurement modeling indicated three factors of alcohol-specific parenting and demonstrated differences in parents' and adolescents' perception of these facets. An examination of the determinants of these three alcohol-specific parenting dimensions revealed that historical influences, such as recovered alcohol use disorder and a family history of alcoholism, are influential in shaping parents' current anti-alcohol socialization such that recovered alcoholic parents and parents with a family history of AUD disclosed more negative experiences with alcohol than did never diagnosed parents and parents without a family history. Moreover, parents' current drinking also affected the ways in which parents' attempt to deter their children from drinking. Finally, the three facets of alcohol-specific parenting were found to exert unique effects on nondrinking adolescents' alcohol attitudes, over and above the effects of general parenting practices. Specifically, the present study clearly indicated that frequent conversations about parents' own negative experiences with alcohol are not

protective against adolescent drinking. Instead, the more often parents' disclosed their negative experiences with alcohol, the stronger the nondrinking adolescents' pro-drinking attitudes. On the other hand, results indicated that adolescents with parents who frequently engaged in anti-drinking strategies were more likely to hold strong anti-drinking attitudes. Interestingly, this relation was qualified for mothers such that the protective effect of maternal strategies to regulate adolescent drinking held only for adolescents of non-drinking mothers.

Although the effects of alcohol-specific parenting on adolescent behavior have been previously investigated, the present study expanded on this work in a number of important ways. First, this study employed a sample of adolescents without drinking experience. This selection criterion allowed for strong inferences regarding the direction of these relations in spite of the cross-sectional design of the study. For instance, because adolescents lacked drinking experience, it is not possible that adolescents' own drinking behavior elicited more parental strategies to regulate drinking or more frequent disclosure of parents' negative alcohol experiences. This is a common weakness of the available studies on this topic. Second, the current study was the first to systematically test the factor structure and measurement invariance of alcohol-specific parenting. Third, the effects of parent AUD and current drinking on dimensions of alcohol-specific parenting were found while controlling for other forms of parent psychopathology (i.e. depression, anxiety, drug disorder, antisocial behavior), thus demonstrating that effects were not due to commonly co-occurring psychopathology. Fourth, the alcohol-specific parenting effects on

nondrinking adolescent alcohol attitudes were found over and above parent alcohol use behavior, a well-documented and robust predictor of adolescent drinking (e.g., Chassin, Curran, Hussong, & Colder, 1996; Hussong, Curran, & Chassin, 1998). In this way, the present study provided a stringent test of the unique effects of alcohol-specific parenting. Finally, the associations between alcohol-specific parenting and adolescent alcohol attitudes were found over and above general parenting practices, such as parental support and control, thus showing that this type of parenting is not only distinct from general parenting practices, but also that it is influential in alcohol socialization.

Despite these strengths, it is also important to note the limitations of the current study. First, this study was cross-sectional and although using a sample of nondrinking adolescents made conclusions regarding the directionality more feasible, longitudinal designs would allow for prospective prediction of actual drinking behavior rather than attitudes as a marker for drinking behavior. Second, the relatively small number of currently alcoholic mothers may have reduced the statistical power to detect differences among currently alcoholic mothers and other mothers. Finally, the sample size of the present study precluded a thorough examination of the complex effects that occur when both parents' parenting and behavior are taken into consideration. For instance, future research is needed to understand how anti-alcohol socialization by one non-alcoholic parent may function to buffer risk associated with the alcoholism risk of the other parent.

Moreover, results of the present study argue for future research that provides an intensive examination of actual parental disclosure about negative

alcohol experiences. Specifically, observational research designed to examine the content of actual parent-child discussions, the quality of the conversation, and the receptiveness of the adolescent would be useful in understanding the role of parental disclosure and alcohol-specific discussions in shaping adolescents attitudes about alcohol and drinking behavior. Additionally, this study provides clear recommendations with regards to modeling substance-specific parenting. Because of the diversity of items used to tap substance-specific parenting, future research on this topic would benefit from continued measurement modeling, rather than assuming a unitary construct or utilizing individual items as predictors. Also, this study corroborates previous work in demonstrating the importance of multiple reporters of substance-specific parenting by illustrating measurement non-invariance across parents and adolescents.

Finally, this study focused primarily on parent characteristics as determinants of alcohol-specific parenting (i.e. parental AUD, family history of AUD, and psychopathology). According to Belsky's theory of the multiple determinants of parenting (1984; 2006), child characteristics also influence parenting behavior. Indeed, there is evidence that adolescent substance use shapes substance-specific parenting such that parents may respond to adolescent substance use by engaging in more conversations about substances (Huver et al., 2007). Additionally, the present study demonstrated that parents adapt their alcohol-specific parenting behavior to the age of their offspring such that parents may use more strategies or disclose negative alcohol experiences more often with older adolescents. It is also plausible that variations in adolescent temperament

may affect alcohol-specific parenting such that parents of highly disinhibited or sensation seeking adolescents may engage in stricter alcohol-specific parenting. Therefore, an important next step for research in this area is to investigate the role of child characteristics, namely temperament, in shaping the ways in which parents socialize their children about substance use.

Taken together, these results have important implications for family-based adolescent substance use preventive intervention programs. For example, given its demonstrated distinctness from general parenting practices, its link with adolescent alcohol attitudes, and its potential malleability (Ennett et al., 2001; Jackson et al., 2003), alcohol-specific parenting may be an important complement to interventions targeting parents of adolescents. Parents may be encouraged to engage in effective strategies to deter adolescent drinking and discouraged from disclosing their own negative alcohol experiences. As discussed above, further research is needed to clarify which aspects of parent-child communication about drinking should be fostered and which should be discouraged. Furthermore, the present study also has implications for the treatment of alcoholic parents. Although parents with a history of alcohol problems may be inclined to disclose their own negative drinking consequences to their children as a strategy for preventing their children from developing a drinking problem, parents may benefit from education on the potential iatrogenic effect of this approach.

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Figure 1. Heuristic Model of Determinants of Alcohol-Specific Parenting

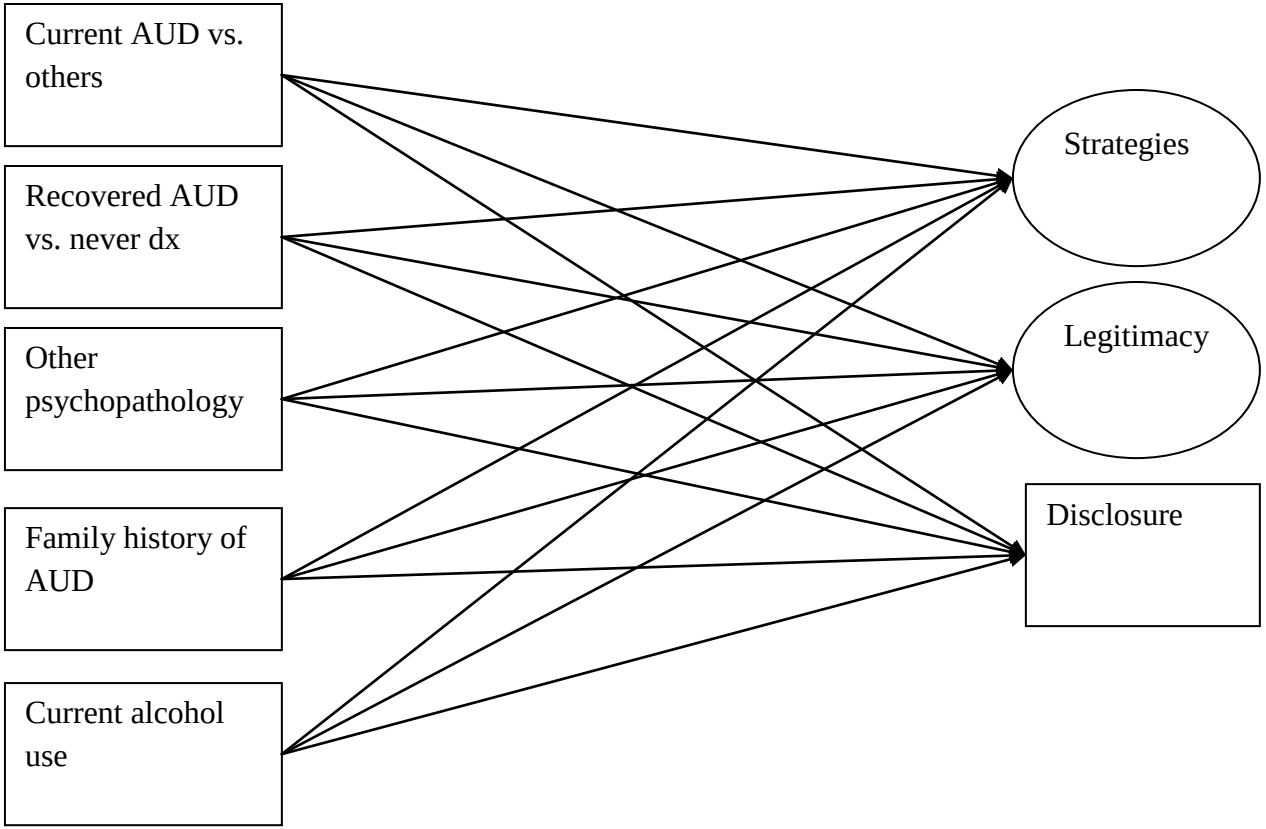

Figure 2. Heuristic Model of Effects of Parenting on Adolescent Alcohol Attitudes

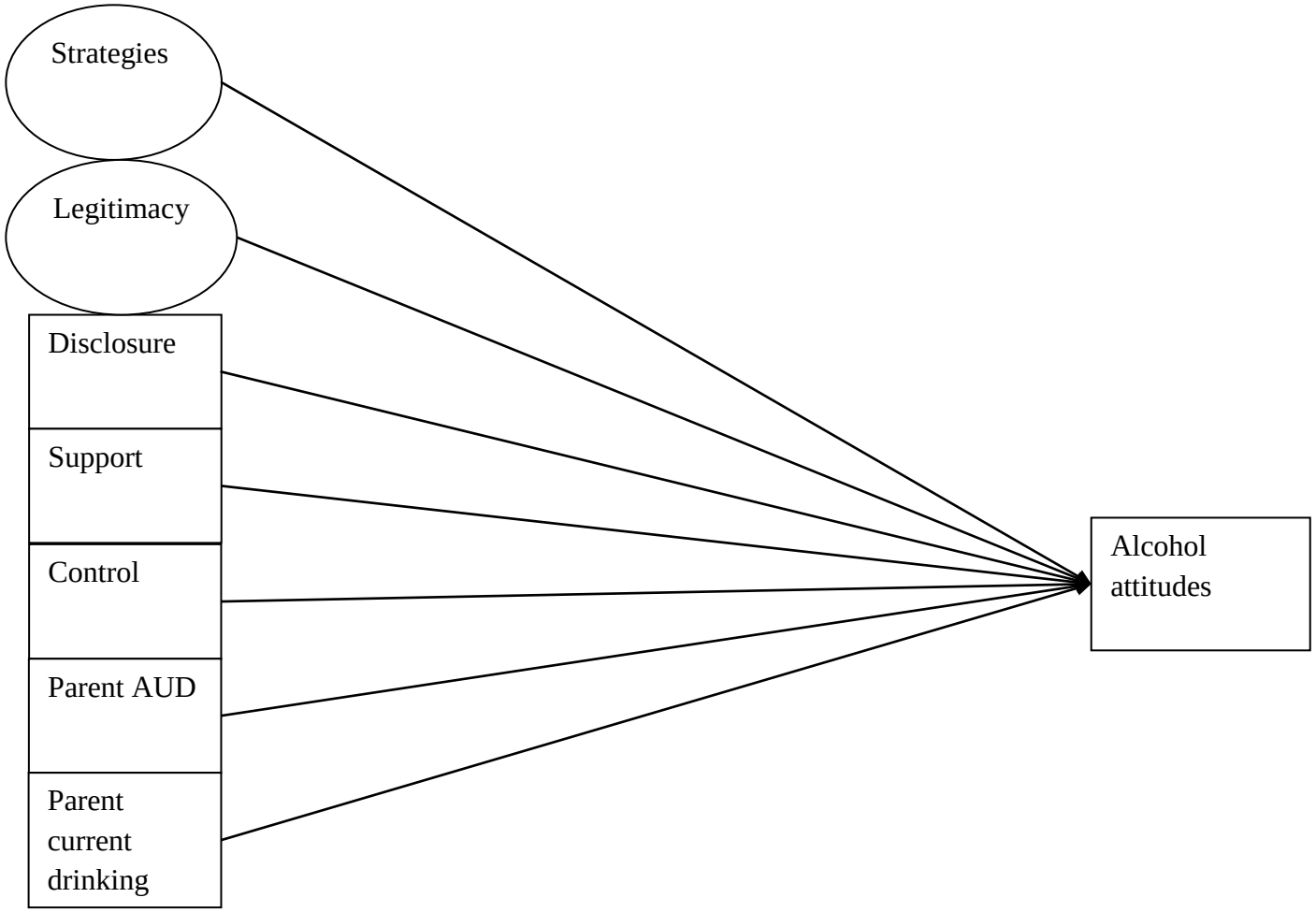

Table 1. Means and Standard Deviations for Alcohol-Specific Parenting Items-Parent Report

Items	Mother report				Father report			
	Mean	SD	Skew	Kurtosis	Mean	SD	Skew	Kurtosis
1. Talk to your children about dangers of drinking	3.34	1.11	-.01	-.93	3.05	1.19	.06	-.91
2. Take action to stop your children from drinking	3.03	1.77	-.09	-1.78	2.83	1.72	.12	-1.72
3. Tell your children you would be upset	3.41	1.43	-.38	-1.17	3.12	1.48	-.12	-1.40
4. Discuss reasons not to drink alcohol	3.65	1.16	-.33	-.96	3.35	1.24	-.21	-.92
5. Ask your children if they drink alcohol	2.47	1.55	.51	-1.27	2.43	1.47	.54	-1.15
6. Ask your children if their friends drink alcohol	2.61	1.48	.40	-1.23	2.50	1.35	.45	-1.17
7. Share your own negative experiences with alcohol	2.16	1.48	.89	-.72	2.08	1.35	.94	-.41
8. Share friends/family negative experiences	2.72	1.48	.30	-1.29	2.30	1.28	.66	-.53
9. I drink alcohol so I have no right to tell my children not to drink alcohol	4.23	0.96	-1.48	1.94	4.12	1.02	-1.33	1.43
10. Most kids experiment with drinking alcohol so there is no need for me to try to stop my children from doing it	4.41	0.91	-2.08	4.67	4.31	0.83	-1.59	3.56
11. I drank alcohol as a teenager so I have no right to tell my children not to drink	4.43	0.89	-2.12	4.84	4.32	0.86	-1.58	3.07
12. Experimenting with alcohol is harmless so there is no need for me to intervene	4.50	0.85	-2.42	6.60	4.44	0.78	-1.86	4.76

Note: All alcohol-specific parenting items are coded such that high scores indicate more of the construct.

Table 2. Means and Standard Deviations for Alcohol-Specific Parenting Items-Adolescent Report of Parent

Items	Adolescent report of mother				Adolescent report of father			
	Mean	SD	Skew	Kurtosis	Mean	SD	Skew	Kurtosis
1. Talk to you about the dangers of drinking alcohol	3.18	1.26	-.15	-1.01	3.00	1.28	-.02	-1.03
2. Take action to stop you from drinking alcohol	3.34	1.73	-.39	-1.61	3.21	1.65	-.26	-1.58
3. Tell you he/she would be upset if you drink alcohol	3.77	1.35	-.77	-.69	3.44	1.48	-.47	-1.20
4. Discuss reasons not to drink alcohol	3.38	1.36	-.42	-1.03	3.16	1.42	-.16	-1.25
5. Ask you if they drink alcohol	2.58	1.60	.40	-1.41	2.43	1.58	.54	-1.33
6. Ask you if your friends drink alcohol	2.36	1.48	.64	-1.03	2.21	1.47	.79	-1.38
7. Share his/her negative experiences with alcohol	1.63	1.14	1.74	1.90	1.72	1.19	1.53	1.24
8. Share his/her negative experiences associated with family/friend alcohol use	1.86	1.27	1.30	.45	1.81	1.20	1.27	.46
9. My parent drinks alcohol so he/she has no right to tell me not to drink alcohol	4.44	0.93	-1.90	3.30	4.33	1.00	-1.71	2.41
10. Most kids experiment with drinking alcohol so there is no need for my parent to try to stop me from doing it	4.52	0.78	-2.31	6.66	4.50	0.77	-2.15	5.89
11. My parent drank alcohol as a teenager so he/she has no right to tell me not to drink	4.49	0.77	-1.88	4.35	4.48	0.83	-2.06	4.89
12. Experimenting with alcohol is harmless so there is no need for my parent to intervene	4.55	0.71	-2.12	6.14	4.48	0.83	-2.28	6.35

Note: All alcohol-specific parenting items are coded such that high scores indicate more of the construct.

Table 3. Descriptive Statistics of Categorical and Binary Study Variables

	Reporter		
Covariates:	Mother	Father	Adolescent
Parent ethnicity	Caucasian: 65.4% (n=174)	Caucasian: 66.5% (n=141)	--
	Hispanic/other: 34.6% (n=92)	Hispanic/other: 33.5% (n=71)	
Parent educational attainment	No college: 42.9% (n=114)	No college: 39.2% (n=83)	--
	Some college or more: 57.1% (n=152)	Some college or more: 60.8% (n=129)	
Adolescent gender	--	--	Female: 46.5% (n=191)
			Male: 53.5% (n=220)
Predictors:	Mother	Father	
Alcohol use disorder	Current: 7.6 % (n=21)	Current: 22.9% (n=49)	
	Recovered: 17.6% (n=49)	Recovered: 22.4% (n=48)	
	Never: 74.8 % (n=208)	Never: 54.7 % (n=117)	
Current alcohol use	Drinker: 67.7% (n=189)	Drinker: 73.1% (n=158)	
	Non-drinker: 32.3% (n=90)	Non-drinker: 26.9% (n=58)	
Other Psychopathology	Undiagnosed: 61.5% (n=171)	Undiagnosed: 65.0% (n=139)	
	Diagnosed: 38.5% (n=107)	Diagnosed: 35.0% (n=75)	

Table 4. Descriptive Statistics of Continuous Study Variables

Covariates:	Mother	Father	Adolescent	
Age				
Mean	34.75	36.27	12.57	
SD	4.57	4.53	1.78	
Skew	1.12	1.01	-0.23	
Kurtosis	1.87	2.29	4.68	
Predictors:	Mother	Father	Adolescent report of mother	Adolescent report of father
FHD (range 0-2)				
Mean	0.48	0.40	--	--
SD	0.44	0.45		
Skew	0.91	0.95		
Kurtosis	0.42	0.12		
Disclosure				
Mean	2.44	2.19	1.75	1.76
SD	1.35	1.18	1.08	1.05
Skew	0.67	0.92	1.49	1.30
Kurtosis	-0.84	0.10	1.33	0.85
Social support				
Mean	4.26	4.04	4.00	3.79
SD	0.58	0.68	0.75	0.89
Skew	-0.82	-0.65	-0.81	-0.78
Kurtosis	0.14	-0.19	0.44	0.22
Consistency				
Mean	4.05	4.05	4.12	4.20
SD	0.59	0.55	0.58	0.62
Skew	-0.82	-0.40	-0.27	-0.64
Kurtosis	0.14	0.42	-0.49	0.94
Outcome:			Adolescent	
Alcohol attitudes				--
Mean	--	--	3.72	
SD			0.41	
Skew			-1.66	
Kurtosis			2.86	

Note: All parenting items are coded such that high scores indicate more of the construct. Alcohol attitudes are coded such that high scores indicate strong negative attitudes about alcohol.

Table 5. Correlations Among Study Variables

	1	2	3	4	5	6	7	8	9	10
1. Parent education	-	-.27*	.09	-.14*	-.04	.12*	.01	-.08	-.13*	.18*
2. Parent ethnicity	-.16*	-	-.14*	.19*	-.10	-.01	.08	.13*	.13*	.13*
3. Parent age	.14*	-.19*	-	-.27*	-.02	.06	-.01	.01	-.14*	.08
4. Parent current alcohol use	-.19*	.29*	-.19*	-	.19*	-.22*	-.14*	.08	.28*	-.14*
5. Parent lifetime AUD	-.28*	.11	-.07	.27*	-	-.51*	-.95*	.36*	.36*	-.10*
6. Current AUD vs. others	.22*	-.08	.14*	-.34*	-.59*	-	.23*	-.33*	-.24*	.20*
7. Recovered AUD vs. never	.24*	-.09	.02	-.16*	-.92*	.23*	-	-.29*	-.34*	.05
8. Parent psychopathology	-.11	-.08	-.07	.11	.42*	-.30*	-.36*	-	.17*	-.16*
9. Parent FHD- AUD	-.19*	.06	-.13*	.29*	.27*	-.24*	-.21*	.09	-	-.13*
10. PR parental control	.22*	-.11	.08	.03	-.01	.18*	-.083	-.04	-.01	-
11. PR parental support	.20*	.10	-.06	.08	.11	.02	-.14*	-.01	-.04	.30*
12. PR disclosure	-.17*	.13*	-.12*	.13*	.16*	-.07	-.16*	.07	.15*	.11
13. PR strategies	-.06	.21*	-.13*	.06	-.07	.06	.05	-.11	.05	.09
14. PR legitimacy	.19*	-.09	-.15*	-.11	-.13*	.10	.11	-.03	.04	.07
15. AR parental control	.03	-.02	.12*	-.11	-.03	.03	.03	-.10	-.11	.17*
16. AR parental support	.04	.02	.01	-.12*	-.03	-.02	.05	-.02	-.08	.07
17. AR disclosure	-.21*	.11	-.09	.17*	.20*	-.23*	-.13*	.17*	.15*	-.01
18. AR strategies	-.03	.18*	-.11	.02	-.03	-.05	.06	-.04	-.04	.04
19. AR legitimacy	.11	-.12*	.15*	-.20*	-.17*	.19*	.11	-.06	-.13*	.07
20. Adolescent age	-.12*	.04	.21*	.04	-.01	.05	-.013	-.01	.01	-.02
21. Adolescent alc attitudes	.18*	-.01	-.04	-.26*	-.11	.09	.08	-.05	-.11	-.02

Note: PR=parent report variable; AR=adolescent report variable. Mother variables are above the diagonal and father variables are below the diagonal. Current AUD vs. others is contrast coded "recovered AUD" = 1, "current AUD"=-2, "never diagnosed"=1. Recovered vs. Never is contrast coded "recovered AUD" = -1, "current AUD"=0, "never diagnosed" = 1. Adolescent alcohol attitudes are coded such that high scores indicate stronger negative attitudes about alcohol use. $p<.05$

Table 5. Correlations Among Study Variables Continued

	11	12	13	14	15	16	17	18	19	20	21
1. Parent education	.01	-.16*	-.23*	.13*	.16*	.07	-.19*	-.09	.10*	-.06	.09
2. Parent ethnicity	.18*	.23*	-.07	-.09	-.01	.17*	.16	-.17*	.02	.15*	-.14*
3. Parent age	-.02	-.08	-.03	-.19*	.05	.01	-.13*	-.06	.01	.19*	-.02
4. Parent current alcohol use	.14*	.31*	.16*	-.03	-.19*	-.13*	.14*	.01	-.14*	-.03	-.21*
5. Parent lifetime AUD	.01	.28*	.02	.03	-.07	-.03	.14*	.02	-.14*	-.04	-.08
6. Current AUD vs. others	.05	-.09	.06	.11*	.14*	.14*	-.05	-.03	.11*	.04	.03
7. Recovered AUD vs. never	-.02	-.29*	-.04	-.08	.02	-.01	-.13*	-.01	.11*	.03	.08
8. Parent psychopathology	-.04	.25*	.05	-.03	-.11*	-.07	.11*	-.02	-.02	.01	-.14*
9. Parent FHD- AUD	.03	.31*	.08	-.02	-.05	-.12*	.22*	.08	-.05	.12*	-.15*
10. PR parental control	.38*	-.13*	.02	.06	.22*	.17*	-.09	-.06	.07	-.04	.13*
11. PR parental support	-	.08	.17*	.11*	.13*	.12*	-.03	.01	.05	-.14*	.01
12. PR disclosure	.02	-	.53*	.05	-.20*	-.05	.33*	.14*	-.19*	.09	-.18*
13. PR strategies	.13*	.48*	-	.06	-.16*	.01	.33*	.14*	-.15*	.16*	-.14*
14. PR legitimacy	.01	.03	.14*	-	.04	.01	-.06	-.08	-.01	-.16*	.06
15. AR parental control	.13*	-.01	.01	.01	-	.40*	-.11*	.19*	.37*	-.11*	.22*
16. AR parental support	.25*	.04	.07	.03	.43*	-	.11*	.26*	.24*	.01	.16*
17. AR disclosure	.10	.26*	.17*	-.14*	-.09	.14*	-	.28*	-.13*	.14*	-.18*
18. AR strategies	.19*	.05	.15*	.06	.19*	.40*	.36*	-	.06	-.02	.12*
19. AR legitimacy	.02	-.09	-.08	.09	.37*	.37*	-.09	.12*	-	.01	.17*
20. Adolescent age	-.20*	.13*	.05	-.08	-.10	-.05	.16*	-.06	.03	-	-.31*
21. Adolescent alc attitudes	.13*	-.15*	-.03	.06	.16*	.23*	-.14*	.16*	.12*	-.25*	-

Note: PR=parent report variable; AR=adolescent report variable. Mother variables are above the diagonal and father variables are below the diagonal. Current AUD vs. others is contrast coded "recovered AUD" = 1, "current AUD"=-2, "never diagnosed"=1. Recovered vs. Never is contrast coded "recovered AUD" = -1, "current AUD"=0, "never diagnosed" = 1. Adolescent alcohol attitudes are coded such that high scores indicate stronger negative attitudes about alcohol use. $p<.05$

Table 6. Correlations Among Parenting Variables and Adolescent Alcohol Attitudes and Cigarette Use

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. PR strategies	-	.06	.53*	.02	.17*	.14*	-.15*	.33*	-.16*	.01	-.14*	.07
2. PR legitimacy	.14*	-	.05	.06	.11*	-.06	-.01	-.06	.04	.01	.06	-.03
3. PR disclosure	.48*	.03	-	-.13*	.08	.14*	-.19*	.33*	-.20*	-.05	-.13*	.03
4. PR control	.08	.07	.11	-	.38*	-.06	.07	-.09	.22*	.17*	.38*	-.06
5. PR support	.13*	.00	.02	.30*	-	.01	.05	-.03	.13*	.12*	.01	-.05
6. AR strategies	.15*	.06	.05	.04	.19*	-	.06	.28*	.19*	.26*	.12*	-.09
7. AR legitimacy	-.08	.09	-.09	.07	.02	.12*	-	-.13*	.37*	.24*	.17*	-.18*
8. AR disclosure	.17*	-.14*	.26*	-.01	.10	.36*	-.09	-	-.11*	.11*	-.18*	.09
9. AR control	.01	.01	.01	.17*	.13*	.19*	.37*	-.09	-	.40*	.22*	-.13*
10. AR support	.07	.03	.04	.07	.25*	.40*	.37*	.14*	.43*	-	.16*	-.14*
11. Alcohol attitudes	-.03	.06	-.15*	-.02	.13*	.16*	.12*	-.14*	.16*	.23*	-	-.33*
12. Tobacco use	-.01	-.07	.10	-.08	-.11*	-.06	-.12*	.01	-.07	-.09*	-.33*	-

Note: Mother parenting variables are above the diagonal and father parenting variables are below the diagonal. The sample for correlations between various parenting variables and the sample for correlations between parenting variables and adolescent alcohol attitudes includes only families of non-drinking adolescents. The entire sample (families of drinking and non-drinking adolescents) was used for the correlations among adolescent tobacco use all other variables. All parenting variables are coded such that high scores indicate more of the construct. The alcohol attitudes variable is correlated such that high scores indicate strong *negative attitudes* about alcohol and tobacco use is coded such that low scores indicate *less tobacco* experience. *p<.05

Table 7. Exploratory Factor Analysis of Mother-Reported Items

	Components		
Item	1	2	3
1. Talk to your children about the dangers of drinking alcohol	.772	.007	.457
2. Take action to stop your children from drinking alcohol	.759	-.082	.310
3. Tell your children you would be upset if they drink alcohol	.797	.026	.346
4. Discuss reasons not to drink alcohol	.860	.030	.458
5. Ask your children if they drink alcohol	.776	-.085	.676
6. Ask your children if their friends drink alcohol	.774	-.057	.684
7. Share your own negative experiences with alcohol	.398	-.067	.876
8. Share your negative experiences associated with friend/family drinking	.492	.019	.858
9. I drink alcohol so I have no right to tell my children not to drink alcohol	.021	.820	-.055
10. Most kids experiment with drinking alcohol so there is no need for me to try to stop my children from doing it	-.020	.926	-.036
11. I drank alcohol as a teenager so I have no right to tell my children not to drink	-.040	.951	-.062
12. Experimenting with alcohol is harmless so there is no need for me to intervene	-.040	.927	-.048

Note: All parenting items are coded such that high scores indicate more of the construct.

Table 8. Exploratory Factor Analysis of Father-Reported Items

	Components		
Item	1	2	3
1. Talk to your children about the dangers of drinking alcohol	.745	.116	.435
2. Take action to stop your children from drinking alcohol	.769	-.040	.315
3. Tell your children you would be upset if they drink alcohol	.829	.033	.271
4. Discuss reasons not to drink alcohol	.857	.101	.444
5. Ask your children if they drink alcohol	.836	-.009	.559
6. Ask your children if their friends drink alcohol	.841	.019	.534
7. Share your own negative experiences with alcohol	.409	-.038	.890
8. Share your negative experiences associated with friend/family drinking	.493	.091	.880
9. I drink alcohol so I have no right to tell my children not to drink alcohol	.042	.815	-.044
10. Most kids experiment with drinking alcohol so there is no need for me to try to stop my children from doing it	.067	.909	.026
11. I drank alcohol as a teenager so I have no right to tell my children not to drink	.028	.907	.043
12. Experimenting with alcohol is harmless so there is no need for me to intervene	.011	.913	.076

Note: All parenting items are coded such that high scores indicate more of the construct.

Table 9. Exploratory Factor Analysis of Adolescent Report of Mother Items

	Components		
Item	1	2	3
1. Talk to you about the dangers of drinking alcohol	.811	.236	.216
2. Take action to stop you from drinking alcohol	.683	.135	.134
3. Tell you that she would be upset if you drink alcohol	.803	.143	.138
4. Discuss reasons not to drink alcohol	.862	.215	.158
5. Ask you if they drink alcohol	.795	-.040	.353
6. Ask you if your friends drink alcohol	.731	-.026	.421
7. Share her negative experiences with alcohol	.265	-.146	.888
8. Share her negative experiences associated with friend/family drinking	.241	-.134	.885
9. My mother drink alcohol so she has no right to tell me not to drink alcohol	.159	.735	-.110
10. Most kids experiment with drinking alcohol so there is no need for my mother to try to stop me from doing it	.086	.861	-.147
11. My mother drank alcohol as a teenager so she no right to tell me not to drink	.166	.849	-.181
12. Experimenting with alcohol is harmless so there is no need for my mother to intervene	.108	.881	-.113

Note: All parenting items are coded such that high scores indicate more of the construct.

Table 10. Exploratory Factor Analysis of Adolescent Report of Father Items

	Components		
Item	1	2	3
1. Talk to you about the dangers of drinking alcohol	.823	.168	.282
2. Take action to stop you from drinking alcohol	.805	.196	.244
3. Tell you that he would be upset if you drink alcohol	.844	.247	.207
4. Discuss reasons not to drink alcohol	.907	.206	.272
5. Ask you if they drink alcohol	.819	-.010	.385
6. Ask you if your friends drink alcohol	.783	.001	.373
7. Share his negative experiences with alcohol	.330	-.138	.900
8. Share his negative experiences associated with friend/family drinking	.314	-.117	.896
9. My father drink alcohol so he has no right to tell me not to drink alcohol	.147	.831	-.128
10. Most kids experiment with drinking alcohol so there is no need for my father to try to stop me from doing it	.153	.890	-.149
11. My father drank alcohol as a teenager so she no right to tell me not to drink	.168	.867	-.124
12. Experimenting with alcohol is harmless so there is no need for my father to intervene	.111	.841	-.121

Note: All parenting items are coded such that high scores indicate more of the construct.

Table 11. Confirmatory Factor Analyses by Reporter

	Reporter			
	Mother	Father	Adolescent report of Mother	Adolescent report of Father
Factor 1: Strategies				
1. Talk to your children about the dangers of drinking alcohol	.682	.675	.823	.796
2. Take action to stop your children from drinking alcohol	.704	.721	.581	.744
3. Tell your children you would be upset if they drink alcohol	.710	.800	.702	.805
4. Discuss reasons not to drink alcohol	.761	.809	.873	.932
5. Ask your children if they drink alcohol	.721	.751	.658	.692
6. Ask your children if their friends drink alcohol	.715	.750	.587	.645
Factor 2: Legitimacy				
9. I (my parent) drink alcohol so I have no right to tell my children not to drink alcohol	.771	.749	.653	.806
10. Most kids experiment with drinking alcohol so there is no need for me (my parent) to try to stop my children from doing it	.899	.893	.788	.838
11. I (My parent) drank alcohol as a teenager so I have no right to tell my children not to drink	.933	.867	.776	.806
12. Experimenting with alcohol is harmless so there is no need for me (my parent) to intervene	.940	.925	.890	.823
Correlation among factors	-.03 (p=n.s.)	.05 (p=.n.s.)	.21 (p<.001)	.21 (p<.001)

Note: Standardized factor loadings presented. All loadings are significant at p<.001. Note: All parenting items are coded such that high scores indicate more of the construct.

Table 12. Series 1: Testing Invariance Between Mothers and Fathers

	χ^2	df	p	CFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	p for Δdf
Single group solutions									
Father self-report	42.566	30	.097	.992	.033	.029	-	-	-
Mother self-report	40.390	30	.064	.994	.029	.029	-	-	-
Measurement invariance									
Unconstrained model	82.826	60	.027	.993	.031	.029	-	-	-
Factor loading invariant model	90.846	68	.034	.993	.029	.034	7.23	8	n.s.
Factor loading and intercept invariant model	105.55	76	.014	.991	.031	.037	22.88	16	n.s.
Factor loading, intercept, and error variance invariant model	120.62	86	.008	.989	.032	.047	37.44	26	n.s.

Table 13. Series 2: Testing Invariance Between Mothers and Adolescents

	χ^2	df	p	CFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	*p* for Δdf
Single group solutions									
Adolescent report of mother	56.617	29	.002	.982	.045	.044	-	-	-
Mother self-report	39.467	29	.093	.994	.029	.028	-	-	-
Measurement invariance									
Unconstrained model	96.209	58	.001	.988	.039	.037	-	-	-
Factor loading invariant model	128.766	66	.001	.981	.046	.056	30.591	8	p<.001
Factor loading and intercept invariant model	224.446	74	.001	.954	.068	.063	125.41	16	p<.001
Factor loading, intercept, and error variance invariant model	231.815	84	.001	.955	.063	.072	111.67	26	p<.001

Table 14. Series 3: Testing Invariance Between Fathers and Adolescents

	χ^2	df	p	CFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	*p* for Δdf
Single group solutions									
Adolescent report of father	33.172	29	.271	.997	.018	.040	-	-	-
Father self-report	36.604	29	.157	.995	.026	.027	-	-	-
Measurement invariance									
Unconstrained model	69.807	58	.138	.996	.022	.035	-	-	-
Factor loading invariant model	95.792	66	.010	.990	.033	.055	27.038	8	p<.001
Factor loading and intercept invariant model	159.583	74	.001	.954	.053	.056	101.98	16	p<.001
Factor loading, intercept, and error variance invariant model	162.866	84	.001	.973	.048	.059	84.06	26	p<.001

Table 15. Results of Parent-Reported Determinants of Parenting Model

	Outcome		
Predictor	Strategies	Legitimacy	Disclosure
Parent education	-.22 (.08)*	.12 (.07) †	-.05 (.15)
Parent ethnicity	.32 (.10)*	.02 (.07)	.29 (.14)*
Adolescent age	.04 (.03)	-.01 (.02)	.05 (.04)
Other psychopathology	-.06 (.09)	.02 (.06)	.77 (.17)**
Current AUD v. Others	.05 (.04)	.03 (.03)	.10 (.07)
Recovered AUD v. Never	.05 (.06)	-.01 (.04)	-.17 (.08)*
Family History of AUD	.06 (.10)	.04 (.06)	.42 (.14)*
Current alcohol use	.02 (.09)	-.31 (.07)**	.36 (.12)*
Parent education*other psych	--	--	-.65 (.21)*

Note: Unstandardized parameter estimates are reported with standard errors in parentheses. Other psychopathology is coded 0=no diagnosis, 1=diagnosis. Current AUD vs. others is coded "recovered AUD" = 1, "current AUD"=-2, "never diagnosed"=1. Recovered vs. Never is coded "recovered AUD" = -1, "current AUD"=0, "never diagnosed" = 1. Current alcohol use is coded 0=non-drinker, 1=drinker; parent education is coded 0=less than some college, 1=at least some college; parent ethnicity is coded 0=Caucasian, 1=Hispanic or other ethnicity. Note: All parenting items are coded such that high scores indicate more of the construct. †p<.10; *p<.05; *p<.01; **p<.001

Table 16. Results of Determinants of Mothers' Parenting Model

	Outcome					
Predictor	Strategies		Legitimacy		Disclosure	
	Adolescent report	Mother self-report	Adolescent report	Mother self-report	Adolescent report	Mother self-report
Parent education	-.36 (.11)*	-.36 (.10)**	.06 (.14)	.70 (.25)*	-.33 (.14)*	.07 (.18)
Adolescent age	-.03 (.03)	.07 (.03)*	-.01 (.02)	-.11 (.03)**	.08 (.04)*	.07 (.06)
Other psychopathology	-.26 (.13)*	.01 (.10)	.06 (.07)	-.01 (.09)	.18 (.19)	1.08 (.23)**
Current AUD v. Others	-.14 (.08) †	.10 (.06)	.04 (.05)	.10 (.07)	.04 (.09)	.18 (.12)
Recovered AUD v. Never	-.10 (.08)	-.07 (.07)	.08 (.05)	-.09 (.04)*	-.12 (.08)	-.29 (.11)*
Family History of AUD	.05 (.15)	-.04 (.10)	.02 (.07)	.13 (.11)	.30 (.15)*	.44 (.17)*
Current alcohol use	-.29 (.13)*	.19 (.10) †	-.19 (.12) †	.35 (.19) †	.12 (.11)	.54 (.15)**
Parent education*alcohol use	-	-	.07 (.15)	-.82 (.26)*	-	-
Parent education*other psych	-	-	-	-	-.18 (.23)	-.98 (.27)**

Note: Unstandardized parameter estimates are reported with standard errors in parentheses. Other psychopathology is coded 0=no diagnosis, 1=diagnosis. Current AUD vs. others is coded "recovered AUD" = 1, "current AUD"=-2, "never diagnosed"=1. Recovered vs. Never is coded "recovered AUD" = -1, "current AUD"=0, "never diagnosed" = 1. Current alcohol use is coded 0=non-drinker, 1=drinker; parent education is coded 0=less than some college, 1=at least some college; parent ethnicity is coded 0=Caucasian, 1=Hispanic or other ethnicity. All parenting items are coded such that high scores indicate more of the construct.
†p<.10; *p<.05; *p<.01; **p<.001

Table 17. Results of Determinants of Fathers' Parenting Model

	Outcome		
Predictor	Strategies	Legitimacy	Disclosure
Parent education	-.22 (.10)*	.17 (.09)†	-.34 (.12)*
Adolescent age	-.02 (.03)	-.02 (.03)	.09 (.04)*
Other psychopathology	-.27 (.12)*	.02 (.09)	.14 (.13)
Current AUD v. Others	-.06 (.04)	.05 (.03)	-.08 (.05)
Recovered AUD v. Never	.04 (.07)	.02 (.05)	-.06 (.08)
Family History of AUD	-.08 (.11)	-.01 (.08)	.22 (.15)
Current alcohol use	-.20 (.12) †	-.20 (.10)*	.07 (.13)

Note: Unstandardized parameter estimates are reported with standard errors in parentheses. Other psychopathology is coded 0=no diagnosis, 1=diagnosis. Current AUD vs. others is coded "recovered AUD" = 1, "current AUD"=-2, "never diagnosed"=1. Recovered vs. Never is coded "recovered AUD" = -1, "current AUD"=0, "never diagnosed" = 1. Current alcohol use is coded 0=non-drinker, 1=drinker; parent education is coded 0=less than some college, 1=at least some college; parent ethnicity is coded 0=Caucasian, 1=Hispanic or other ethnicity. All parenting items are coded such that high scores indicate more of the construct. †p<.10; *p<.05; *p<.01; **p<.001

Table 18. Effects of Mothers' Alcohol-Specific Parenting on Adolescent Alcohol Attitudes

Covariates	Adolescent Attitudes about Alcohol
Adolescent age	-.07 (.02)**
Mother other psychopathology	-.10 (.05)*
Predictors	
Mother lifetime AUD	.02 (.05)
Mother current alcohol use	-.14 (.04)*
Strategies	.05 (.02)*
Legitimacy	.05 (.03)
Disclosure	-.05 (.01)*
Support	.02 (.02)
Control	.05 (.03) †

Note: Unstandardized parameter estimates are reported with standard errors in parentheses. Other psychopathology is coded 0=no diagnosis, 1=diagnosis. Lifetime AUD is coded 0=non alcoholic, 1=lifetime AUD; current alcohol use is coded 0=non-drinker, 1=drinker. Parenting variables are coded such that high scores indicate more of the construct. Alcohol attitudes are coded such that high scores indicate strong negative attitudes about alcohol. †p<.10; *p<.05; *p<.01; **p<.001

Table 19. Effects of Fathers' Alcohol-Specific Parenting on Adolescent Alcohol Attitudes

Covariates	Adolescent Attitudes about Alcohol
Adolescent age	-.06 (.02)*
Father other psychopathology	.01 (.05)
Predictors	
Father lifetime AUD	-.01 (.06)
Father current alcohol use	-.18 (.05)**
Strategies	.05 (.03)*
Legitimacy	.01 (.03)
Disclosure	-.05 (.02)*
Support	.07 (.03)*
Control	-.01 (.03)

Note: Unstandardized parameter estimates are reported with standard errors in parentheses. Other psychopathology is coded 0=no diagnosis, 1=diagnosis. Lifetime AUD is coded 0=non alcoholic, 1=lifetime AUD; current alcohol use is coded 0=non-drinker, 1=drinker. Parenting variables are coded such that high scores indicate more of the construct. Alcohol attitudes are coded such that high scores indicate strong negative attitudes about alcohol. †p<.10; *p<.05; *p<.01; **p<.001

Table 20. Effects of Alcohol-Specific Parenting on Adolescent Alcohol Attitudes, Moderated by Mothers' Current Drinking Status

Covariates	Adolescent Attitudes about Alcohol	
	Non-drinking mother	Drinking mother
Adolescent age	-.03 (.02)	-.10 (.02)**
Mother other psychopathology	.03 (.05)	-.17 (.06)*
Predictors		
Mother lifetime AUD	-.11 (.10)	.05 (.06)
Strategies	.07 (.03)*	.04 (.03)
Legitimacy	.01 (.07)	.12 (.07) †
Disclosure	-.04 (.03)	-.06 (.02)*
Support	.05 (.03)	.04 (.03)
Control	.05 (.05)	.01 (.05)

Note: Unstandardized parameter estimates are reported with standard errors in parentheses. Other psychopathology is coded 0=no diagnosis, 1=diagnosis. Lifetime AUD is coded 0=non alcoholic, 1=lifetime AUD. Parenting variables are coded such that high scores indicate more of the construct. Alcohol attitudes are coded such that high scores indicate strong negative attitudes about alcohol. †p<.10; *p<.05; *p<.01; **p<.001