

Gender-Specific Mediation Links Between Parenting Styles, Parental Monitoring, Impulsiveness, Drinking Control, and Alcohol-Related Problems*

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ABSTRACT. Objective: Recently, it has been suggested that traits may dynamically change as conditions change. One possible mechanism that may influence impulsiveness is parental monitoring. Parental monitoring reflects a knowledge regarding one's offspring's whereabouts and social connections. The aim of this investigation was to examine potential gender-specific parental influences to impulsiveness (general behavioral control), control over one's own drinking (specific behavioral control), and alcohol-related problems among individuals in a period of emerging adulthood. **Method:** Direct and mediational links between parenting styles (permissive, authoritarian, and authoritative), parental monitoring, impulsiveness, drinking control, and alcohol-related problems were investigated. A multiple-group, SEM model with (316 women, 265 men) university students was examined. **Results:** In general, the overall pattern among male and female respondents was distinct. For daughters,

perceptions of a permissive father were indirectly linked to more alcohol-related problems through lower levels of monitoring by fathers and more impulsive symptoms. Perceptions of an authoritative father were also indirectly linked to fewer impulsive symptoms through higher levels of monitoring by fathers among daughters. For men, perceptions of a permissive mother were indirectly linked to more alcohol-related problems through lower levels of monitoring by mothers and more impulsive symptoms. For sons, perceptions of mother authoritative were indirectly linked to fewer alcohol-related problems through more monitoring by mothers and fewer impulsive symptoms. **Conclusions:** Monitoring by an opposite-gender parent mediated the link between parenting styles (i.e., permissive, authoritative) on impulsiveness. (*J. Stud. Alcohol Drugs*, 72, 247–258, 2011)

DEVIANCE PRONENESS THEORY SUGGESTS that alcohol-related problems may best be predicted by the confluence of temperamental factors and environmental factors, such as poor parenting (Sher, 1991). Recently, researchers have demonstrated that constructs concerning temperament are dynamic entities (Johnson et al., 2007; Littlefield et al., 2009, 2010; Roberts et al., 2003, 2006). Thus, parental regulation of behavior such as monitoring may not only weaken the effects of temperamental risk on alcohol-related problems, but it may also buffer the expression of the trait itself. Moreover, parental regulation of behavior may emerge from a particular style of parental decision making that affects their family dynamic. In other words, general parenting approaches (i.e., authoritative, authoritarian, and permissive) may also influence the actual monitoring behavior of parents. Thus, for the current study, we tested whether parental monitoring could operate as a

mechanism (i.e., mediator) of effects of parenting style on behavioral control variables, such as impulsiveness, in a general sense and drinking control in a specific contextual sense regarding alcohol behaviors during emerging adulthood. Emerging adulthood is the period of life from the late teens through the 20s (Arnett, 2000) and is the period of risk for developing substance use disorders (Substance Abuse and Mental Health Services Administration, 2002).

Parental monitoring reflects the extent to which parents know their offspring's friends, whereabouts, and social plans while growing up (Patterson and Stouthamer-Loeber, 1984; Small and Kerns, 1993) and continues to affect behavior during emerging adulthood (Beck et al., 2004). Miller and Plant (2003) showed emerging adults who perceived a lack of parental monitoring were nearly three times as likely to believe that all of society's rules may be broken. A lack of parental monitoring during childhood and adolescence has been connected with negative behaviors, such as an increase in adolescent opportunities for drug selling (Little and Steinberg, 2006), Ecstasy (3,4-methylenedioxymethamphetamine, or MDMA) use (Martins et al., 2008), cigarette smoking (Chuang et al., 2005; Weis et al., 2006), marijuana and methamphetamine use (Shillington et al., 2005), gambling and delinquency (Vitaro et al., 2001), as well as theft and vandalism (Miller and Plant, 2003). In general, these findings suggest lower parental monitoring directly contributes to risky behaviors during adolescence and extending into emerging adulthood.

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These effects extend to alcohol-related behaviors as well. Arata et al. (2003) found high school students, already classified as nonproblematic social drinkers, reported more parental monitoring than those classified as problem drinkers. Chuang et al. (2005) found that higher levels of parental monitoring were linked to lower levels of alcohol use in general. Prospectively, Beck et al. (2004) found that highly monitored adolescents were less likely to report drinking 1 year later. This negative relationship between high levels of parental monitoring and lower levels of drinking remained even after controlling for age, gender, drinking at baseline, and putting oneself in high risk situations (Beck et al., 2004). In another longitudinal study, Barnes et al. (2006) showed that higher parental monitoring was effective in reducing growth trajectories of alcohol misuse, illicit drug use, and delinquency. Barnes et al. (2006) also found that higher parental monitoring acted to buffer the detrimental effects of peer deviance on alcohol misuse and delinquency.

Although parental monitoring is widely thought to lessen the likelihood of problematic alcohol use in adolescence (Capaldi et al., 2009; Latendresse et al., 2008), it is possible that these effects may extend into emerging adulthood (such as among college students) when parents may not always be present to engage in active monitoring. For instance, Veal and Ross (2006) found that higher levels of parental monitoring were associated with lower drinking quantity among college-age women and lower drinking frequency among college-age men. In a prospective study involving college students, Walls et al. (2009) reported, "students who perceived higher parental monitoring during the summer before college were significantly less likely, by about three-quarters of the odds for each one-unit increase in parental monitoring, to transition to experiencing alcohol-related consequences" (p. 914). Moreover, in another longitudinal study, which followed students from high school into college, Arria et al. (2008) found that parental monitoring had an indirect influence on college drinking through reduction of high school drinking. Hence, those with better parental monitoring in high school drank less in high school, and this transmitted to less drinking in college as well (Arria et al., 2008). Because of the continued importance of monitoring into college years, a clearer picture of mechanisms by which parental monitoring reduces alcohol-related problems when offspring may be beginning to show signs of independence is important. One way young adults monitor themselves is by regulating their own behaviors later in life. Hence, one possible mechanism worth exploring may be the role of parental monitoring transmitted through levels of impulsiveness, as well as control over one's own drinking in the alcohol-related-problems pathway.

Impulsiveness

The literature has characterized impulsiveness in multiple ways, even as there is a general consensus that it is

a risk factor for multiple problem behaviors (Fischer and Smith, 2008). Impulsiveness is most commonly defined as the extent an individual's behavior is influenced by immediate, as opposed to delayed, consequences (Barnes et al., 2005; Wilson and Herrnstein, 1985); as a lack of planning and a tendency toward risk taking (Eysenck and Eysenck, 1978); or as a failure in self-monitoring of appropriate behaviors (Patock-Peckham and Morgan-Lopez, 2006). In this current investigation, impulsiveness is distinct from sensation seeking (i.e., boredom susceptibility and adventure seeking) and reflects a tendency for unnecessary risk taking, nonplanning, and doing things without first thinking them through (Eysenck and Eysenck, 1978). Impulsiveness has been identified as a key predictor of heavy episodic drinking and alcohol-related problems (e.g., Hutchinson et al., 1998; Sher and Trull, 1994; Sher et al., 2005). Finally, Sher and Trull (1994) include higher than normal levels of impulsiveness as an indicator of generalized behavioral under-control, which is typically predictive of alcohol use disorders.

Traditionally, temperamental traits have been characterized as unchanging lifelong dispositions (Costa and McCrae, 2006; McCrae et al., 2000). However, recent research has suggested that traits are dynamic constructs that may change over one's lifetime (Johnson et al., 2007; Littlefield et al., 2009, 2010; Roberts et al., 2003). In short, as environments or life situations change, so can the expression of temperament in individuals. Roberts et al. (2006) meta-analytic review found that temperamental traits changed more during emerging adulthood than during any other period of life. It is possible that being well informed regarding your offspring's social life and experiences outside of the household may be particularly important during this transitional period from adolescent to adult responsibilities. Thus, one way context may change may be through the mechanism of parental monitoring.

Longitudinal research has begun to suggest that context may be particularly sensitive to gender (Hicks et al., 2007), with developmental context playing a more crucial role in symptom expression than heritability among women. Hence, relationships between environmental influences and traits may best be examined by testing men and women separately. This is also consistent with the recommendations of several investigators (Chassin and Handley, 2006; Fromme, 2006; Patock-Peckham and Morgan-Lopez, 2006).

Therefore, in this present investigation, we seek to explore the possibility that impulsiveness mediates the relationship of parental monitoring on both drinking control and alcohol-related problems. The mechanisms regarding how parental monitoring buffers negative outcomes remain unclear. We propose that higher parental monitoring may be associated with lower levels of impulsive symptoms and higher levels of drinking control in the alcohol-related-problems pathway.

Drinking control

Leeman et al. (2007) have identified impaired control over one's own drinking as one of the earliest signs for the development of alcohol dependence. Drinking control indicates the ability to "limit alcohol consumption in a particular situation" (Heather et al., 1993, p. 701). A failure in the ability to stop drinking once one has begun to drink has long been recognized as one of the hallmarks of addiction (Leeman et al., 2007; Levine, 1978). In one sense, a lack of drinking control may be considered impulsiveness specific to the context of alcohol consumption.

Patock-Peckham et al. (2001) found self-regulation (i.e., good generalized control) was directly linked to more drinking control (i.e., good specific control regarding drinking), and Patock-Peckham and Morgan-Lopez (2006) found impulsiveness (i.e., poor generalized control) to be linked to reduced levels of drinking control. Moreover, Patock-Peckham and Morgan-Lopez (2006) found drinking control mediated influences of impulsiveness on both alcohol use and alcohol-related problems. Drinking control is an important variable to study regarding alcohol-related problems because there is a clear link between higher levels of drinking control and fewer alcohol-related problems (Leeman et al., 2007; Patock-Peckham et al., 2001; Patock-Peckham and Morgan-Lopez, 2006).

In this present investigation, we seek to explore the possibility that both impulsiveness and drinking control will mediate the relationship of parental monitoring on alcohol-related problems. We propose higher parental monitoring may, in fact, be linked to fewer impulsive symptoms and more drinking control, thus buffering the occurrence of alcohol-related problems.

Parenting styles

As a secondary aim of this investigation, we explored the multifaceted nature of parenting. In fact, it is possible that a generalized approach to parenting may contribute to how well a parent monitors one's offspring. Parenting styles reflect a generalized approach concerning how decisions are made within a family dynamic. As measured by Buri (1991) there are three well-known and commonly measured styles of parenting—authoritarian, authoritative, and permissive—concerning communication and decision-making styles within a family dynamic. Authoritarian parents are typically rule driven and tend to value obedience rather than discussion with their offspring. Authoritative parents clearly let their offspring know they are in charge, with clear rules and instructions; but this style is characterized as facilitating open discussions with a fair give and take with the child. Permissive parents are characterized as behaving more like a peer than as a parent to their offspring. These parents often permit offspring to make their own decisions, rules, and standards

of conduct. Because how decisions are made in families (i.e., parenting style) is not the same as knowing about one's offspring's social life and activities outside the home (i.e., parental monitoring), we explored which parenting styles contributed to the most monitoring of offspring. We hypothesized that parents who had rules for their children (i.e., they use discipline—authoritative and authoritarian) would be more likely to monitor their offspring's whereabouts and be more informed regarding their peer relationships rather than permissive parents.

Motivations for the present investigation

Most studies examining parental monitoring examine this variable with mothers and fathers lumped together with the word "parents" at the item level (Barnes et al., 2006; Chuang et al., 2005; Veal and Ross, 2006). One exception to this is the work of Webb et al. (2002), who showed mother's monitoring was significantly related to alcohol use for both men and women whereas father's monitoring was not. Yet, previous research regarding other parenting variables (i.e., parenting styles) has shown that separately considering maternal and paternal effects on adolescent behavior can provide more nuanced insights into the positive or negative effects of parenting (Patock-Peckham et al., 2001; Patock-Peckham and Morgan-Lopez, 2006, 2007, 2009a, 2009b). Thus, in this investigation, we sought to explore the potentially unique contributions of mother and father monitoring on same-gender and opposite-gender offspring.

Another purpose was to examine which general parenting style (e.g., permissive, authoritative, or authoritarian) contributes to the highest level of parental monitoring. In addition, we sought to explore whether parental monitoring did or did not have any direct influence on behavioral control variables, such as impulsiveness (general control), as well as indirect influences on drinking control (specific control directed toward alcohol consumption) and alcohol-related problems. Moreover, we sought to explore these relationships under the potential moderating variable of gender of respondent. Last, we sought to explore whether influences by parenting styles and parental monitoring on alcohol-related problems were mediated by impulsiveness and drinking control.

Method

Participants

Participants included 581 (316 women, 265 men) university students. Of a total of 581, 23 women and 28 men had missing data on at least one variable in the analysis. All participants were awarded course credit for their participation. The sample was 46% male, with an average age of 20.07 years ($SD = 2.52$). The sample was predominately White

(67.98%). The remainder was 11.36% Hispanic, 10.50% Asian, and 4.65% African American; 5.51% reported "other" race/ethnicity. According to participant reports, 82.27% did not perceive their fathers to be alcoholics, and 91.21% did not perceive their mothers to be alcoholics.

Procedures

Data collection occurred at two locations: (a) Missouri University of Science and Technology (formerly the University of Missouri–Rolla), Rolla, MO, and (b) San Diego State University, San Diego, CA. This sample is characteristic of college students at state-funded universities. All data were collected using paper-and-pencil questionnaires, with the use of an anonymous drop box to ensure participant anonymity.

Measures

Parental Authority Questionnaire. The Parental Authority Questionnaire (Buri, 1991; Buri et al., 1988) is a 60-item measure, 30 per parent, based on Baumrind's (1971) prototypes of permissive, authoritative, and authoritarian styles of decision making within a family. Reitman et al. (2002) found the Parental Authority Questionnaire to have an acceptable factor structure, internal consistency, and convergent validity for samples with similar ethnic and socioeconomic status as the one in the present investigation. Sample items for the 10-item authoritativeness scale included, "My (mother/father) always encouraged verbal give-and-take whenever I have felt that the family rules and restrictions were unreasonable," and "As the children in my family were growing up, my (mother/father) consistently gave us direction and guidance in rationale and objective ways." Sample items for the 10-item authoritarianism scale included, "Whenever my (mother/father) told me to do something as I was growing up, (she/he) expected me to do it immediately without asking any questions" and "My (mother/father) felt that wise parents should teach their children early just who is boss in the family." Sample items for the 10-item permissiveness scale include: "My (mother/father) has always felt that what children need is to be free to make up their own minds to do what they want to do" and "Most of the time as I was growing up my (mother/father) did what the children in the family wanted when making family decisions." Responses for the Parental Authority Questionnaire were 1 = *strongly disagree*, 2 = *disagree*, 3 = *unsure*, 4 = *agree*, and 5 = *strongly agree*. The α reliabilities in this sample were as follows: mother permissive .77, father permissive .79, mother authoritarian .84, father authoritarian .88, mother authoritative .87, and father authoritative .89.

Parental monitoring. The Parental Monitoring Scale (Small and Kerns, 1993) is an eight-item measure originally adapted from interview research of Patterson and Stouthamer-Loeber (1984). This measure assesses the extent

that parents know the whereabouts of their offspring, know who their friends are, and generally discuss their offspring's social life and plans. We adapted this measure so that items were repeated separately for mothers and fathers rather than asked once for "parents." Thus, there were a total of 16 items. Sample items include the following: "My (mother/father) knew who my friends were," "When I went out at night, my (mother/father) knew where I was," "I talked to my (mother/father) about the plans I had with my friends," and "My (mother/father) knew how I spent my money." Responses ranged from 0 = *never*, 1 = *rarely*, 2 = *sometimes*, 3 = *most of the time*, and 4 = *always*. The α reliabilities for mother and father monitoring were .88 and .93, respectively.

Eysenck 1.7. This scale (Eysenck et al., 1985) includes a 19-item subscale for impulsiveness (the Venturesomeness and Empathy subscales were deleted). Impulsiveness reflects behavioral under-control items in which people act and speak without thinking. Sample items include the following: "Do you often get into a jam because you do things without thinking?" "Do you often do things on the spur of the moment?" and "Do you mostly speak without thinking things out?" The α reliability in this sample for impulsiveness was .80.

Drinking control measure. This scale reflects 10 items from the Impaired Control Scale (Heather et al., 1993). Higher scores on this measure are reflective of a greater degree of perceived control over drinking (i.e., an ability to stop drinking at will). Sample items include the following: "I could stop drinking easily after one or two drinks" and "I would be able to stop drinking before becoming completely drunk." Item responses ranged from 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree or disagree*, 4 = *agree*, and 5 = *strongly agree*. The α reliability for this sample was .80.

Alcohol-related problems. These items came from the Problems with Alcohol Use measure indicating alcohol abuse or dependence (Rhea et al., 1993). Each of the 12 items were assessed on a scale from 0 = *never* to 3 = *many times*. Characteristic items include using social occasions as an excuse to drink, sneaking drinks, engaging in heavy episodic drinking, etc. The α reliability for the Problems with Alcohol Use Scale was .84.

Statistical approach

First, a conceptual model was specified before testing. This conceptual model is shown in Figure 1. Next, a series of multiple-group structural equation models were fit using Mplus v5.2 (Muthén and Muthén, 1998–2009). Full-information maximum likelihood was used under the assumption that the probability of missingness depends on observed data but does not depend on data that are missing after accounting for observed variables (i.e., missing at random; Schafer and Graham, 2002). We investigated a model with structural paths and intercepts allowed to vary freely across male and

TABLE 1. Summary of intercorrelations, means, and standard deviations for all variables included in the conceptual path model

<i>M</i>	<i>SD</i>	Measure	1	2	3	4	5	6	7	8	9	10	11
29.17	(5.14)	1. Mother monitor	1.00	.34	-.14	-.10	-.04	.01	.44	.10	-.06	.05	-.16
<i>23.56</i>	<i>(5.78)</i>			1.00	-.11	-.17	.01	-.11	.15	.48	-.21	.01	-.20
19.62	(8.97)	2. Father monitor	.52	1.00	-.11	-.17	.01	-.11	.15	.48	-.21	.01	-.20
<i>19.25</i>	<i>(7.49)</i>				1.00	.47	-.47	-.14	.10	-.05	.13	-.13	.17
24.31	(5.95)	3. Mother permissive	-.28	-.01	1.00	.47	-.47	-.14	.10	-.05	.13	-.13	.17
<i>24.59</i>	<i>(5.81)</i>					1.00	-.20	-.47	-.00	.10	.08	.02	-.02
24.63	(6.17)	4. Father permissive	-.20	-.21	.54	1.00	-.20	-.47	-.00	.10	.08	.02	-.02
<i>25.07</i>	<i>(6.42)</i>						1.00	.46	-.41	-.13	.03	.13	-.12
30.03	(7.20)	5. Mother authoritarian	.08	.04	-.48	-.08	1.00	.46	-.41	-.13	.03	.13	-.12
<i>31.29</i>	<i>(6.66)</i>							1.00	-.17	-.41	-.09	-.01	.12
32.57	(8.29)	6. Father authoritarian	.02	-.05	-.19	-.48	.39	1.00	-.17	-.41	-.09	-.01	.12
<i>33.19</i>	<i>(7.22)</i>								1.00	.38	-.01	-.04	-.08
36.00	(7.42)	7. Mother authoritative	.33	.25	.17	-.12	-.38	-.11	1.00	.38	-.01	-.04	-.08
<i>35.40</i>	<i>(6.47)</i>									1.00	-.14	.02	-.14
34.18	(8.20)	8. Father authoritative	.27	.38	-.02	.11	-.11	-.47	.46	1.00	-.14	.02	-.14
<i>34.24</i>	<i>(6.68)</i>										1.00	-.21	.27
7.19	(4.15)	9. Impulsiveness	-.26	-.24	.08	.07	.14	.14	-.24	-.20	1.00	-.21	.27
<i>7.05</i>	<i>(4.20)</i>											1.00	-.51
4.28	(0.65)	10. Drinking control	.15	.12	-.06	-.10	-.02	.07	.10	.08	-.28	1.00	-.51
<i>4.16</i>	<i>(0.67)</i>												1.00
0.53	(0.47)	11. Alcohol problems	-.17	-.19	.05	.08	.09	.05	-.12	-.13	.33	-.47	1.00
<i>0.56</i>	<i>(0.48)</i>												

Notes: Intercorrelations among women (*n* = 316) are presented in **bold** above the diagonal and intercorrelations among men (*n* = 265) are presented in *italics* below the diagonal. Means and standard deviations are presented in **bold** for women and in *italics* for men.

female groups. Model fit was determined by examining the comparative fit index (CFI; Bentler, 1990) and root mean square error of approximation (RMSEA; Browne and Cudeck, 1993; Hu and Bentler, 1998), as well as chi-square statistics. Mediation analyses (Holmbeck, 1997) were examined within each gender to investigate indirect influences of parenting styles on impulsiveness, drinking control, and alcohol-related problems through parental monitoring. The Empirical Asymmetric Confidence Interval test for mediation with products of coefficients was used (MacKinnon et al., 2004). MacKinnon's (2008) method for confidence interval (CI) estimation was conducted for testing the significance of three-path mediation effects.

Results

Descriptive statistics. Means and standard deviations for all the variables examined in the conceptual model are presented in Table 1. Means and standard deviations in bold reflect those for women, and means in italics reflect those for men in our sample. In addition, correlations among variables are presented in bold above the diagonal, and correlations among men are presented in italics below the diagonal.

Overall model fit. All hypothesized paths in Figure 1 were estimated separately among men (Figure 2) and women (Figure 3). Model intercepts (e.g., means for parental monitoring, impulsiveness, drinking control, and alcohol-related problems) were also allowed to vary across the two gender groups. The base model fit the data well, $\chi^2(40 df, n = 581)$

= 58.990, *p* = .0268, RMSEA = .040, 95% CI [.014, .061], CFI = .972.

Tests for invariance across gender. Tests for gender differences across each gender were conducted. A series of models with each path constrained to equality across gender was fit and compared against the base model. Each test was a single-degree-of-freedom test of a model with a specific path constrained to equality compared against the base model. Gender differences on path coefficients and change in chi-square values can be found in Table 2.

Key within-gender two-path mediated effects

Impulsiveness (men). Higher levels of mother authoritarianism were indirectly linked to fewer impulsive symptoms through increased mother monitoring (mediated effect = -.041; 95% CI [-.080, -.010]). Conversely, higher levels of mother permissiveness were indirectly linked to more impulsive symptoms through less mother monitoring (mediated effect = .040; 95% CI [.008, .0838]).

Impulsiveness (women). Higher levels of father authoritarianism were indirectly linked to fewer impulsive symptoms through increased father monitoring (mediated effect = -.053; 95% CI [-.087, -.021]). Conversely, higher levels of father permissiveness were indirectly linked to more impulsive symptoms through less father monitoring (mediated effect = .035; 95% CI [.011, .066]).

Drinking control (men and women). For men, higher levels of mother monitoring were indirectly linked to more drinking control through fewer impulsive symptoms (medi-

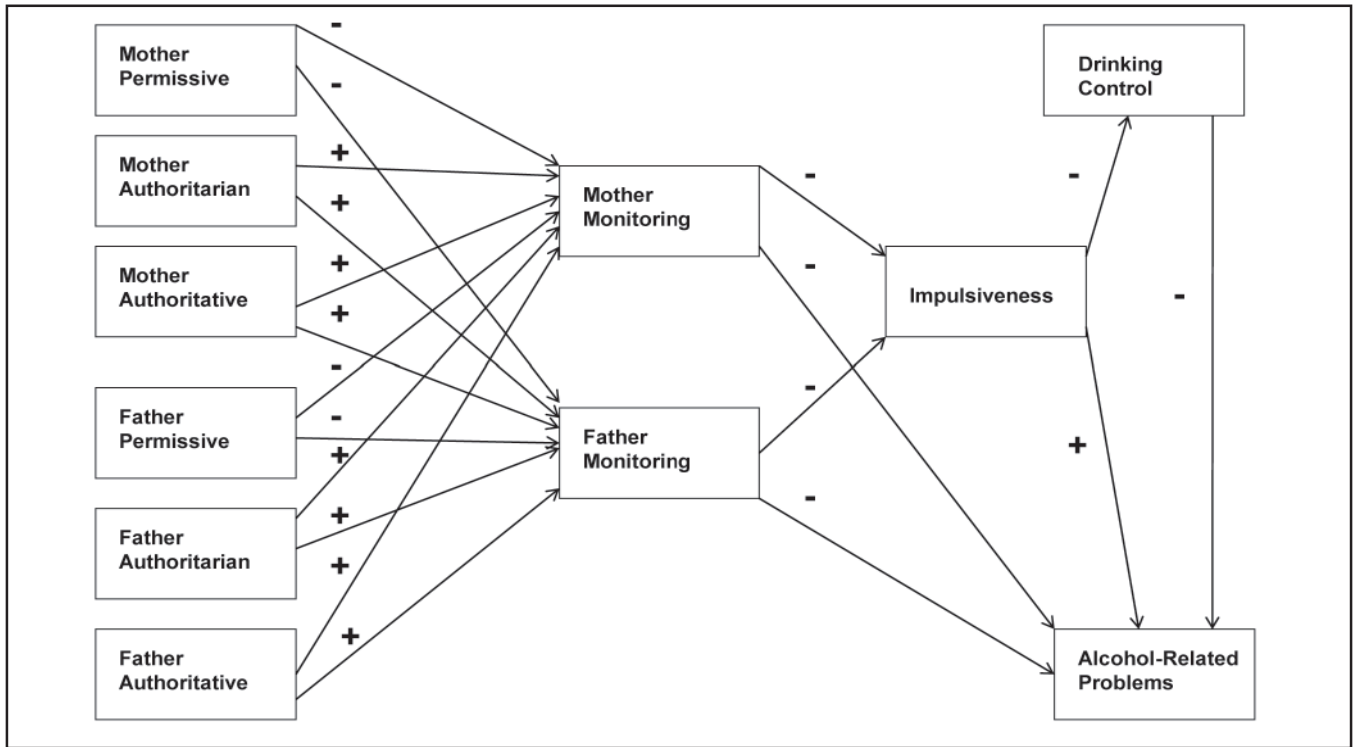


FIGURE 1. Conceptual figure including all exogenous and endogenous variables in the structural equation model. All paths tested, and their anticipated directional relationships with other variables are shown. All exogenous variables were allowed to correlate. Mother and father monitoring were also allowed to correlate.

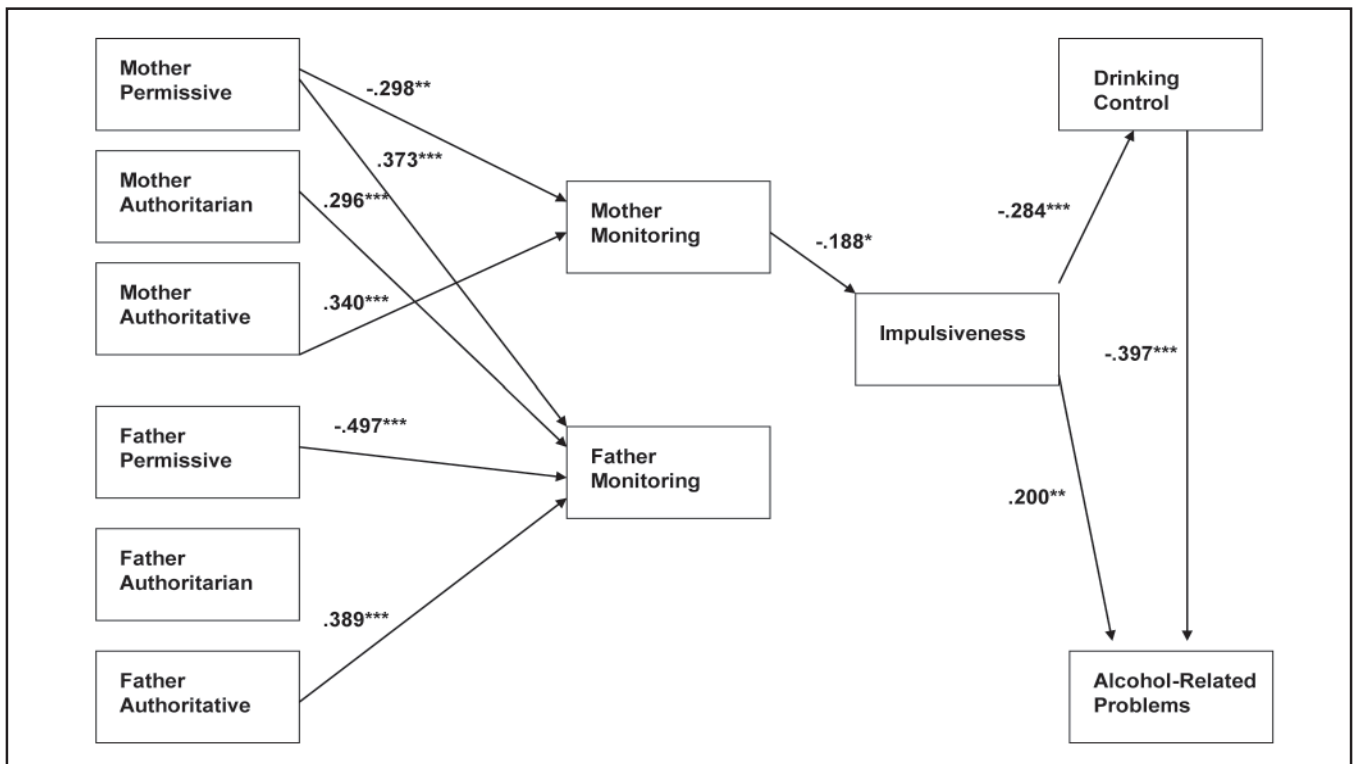


FIGURE 2. Multiple-group structural equation model (men). Standardized coefficients are shown. All exogenous variables were allowed to correlate freely in the model. Mother and father monitoring were also allowed to correlate. * $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 2. Gender differences on path coefficients

Model	χ^2	$\Delta\chi^2$
Base model	58.990	–
Parenting style to mother monitoring		
Mother permissiveness	61.564	2.574
Mother authoritarianism	59.078	<1.000
Mother authoritative	59.872	<1.000
Father permissiveness	59.017	<1.000
Father authoritarianism	59.379	<1.000
Father authoritative	65.418	6.428**
Parenting style to father monitoring		
Mother permissiveness	66.386	7.396***
Mother authoritarianism	63.169	4.179*
Mother authoritative	59.696	<1.000
Father permissiveness	61.282	2.292
Father authoritarianism	59.658	<1.000
Father authoritative	60.219	1.229
Mother monitoring to impulsiveness	63.111	4.121*
Father monitoring to impulsiveness	59.141	0.151
Mother monitoring to alcohol-related problems	60.481	1.491
Father monitoring to alcohol-related problems	59.142	<1.000
Impulsiveness to drinking control	59.878	<1.000
Impulsiveness to alcohol-related problems	59.666	<1.000
Drinking control to alcohol-related problems	60.481	1.491

Notes: Base model is the model with no direct effects of parenting styles on alcohol-related outcomes. See the Conceptual model in Figure 1. Subsequent models were tested in which the indicated effect was constrained to equality across gender. $\Delta\chi^2$ is the difference in chi-square between the base model and the model in which the indicated path was constrained across gender. All comparisons in the table are single-degree-of-freedom chi-square tests.

* $p < .05$; ** $p < .02$; *** $p < .01$.

ated effect = .006; 95% CI [.001, .012]). For women, higher levels of father monitoring were indirectly linked to more drinking control through fewer impulsive symptoms (mediated effect = .003; 95% CI [.00098, .0059]).

Alcohol-related problems (men). As expected, higher levels of impulsiveness were indirectly linked to more alcohol-related problems through less drinking control (mediated effect = .0128; 95% CI [.0067, .020]). In addition, higher levels of mother monitoring were indirectly linked to fewer alcohol-related problems through fewer impulsive symptoms (mediated effect = -.003; 95% CI [-.0066, -.00059]).

Alcohol-related problems (women). As expected, higher levels of impulsiveness were indirectly linked to more alcohol-related problems through less drinking control (mediated effect = .011; 95% CI [.005, .018]). In addition, higher levels of father monitoring were indirectly linked to fewer alcohol-related problems through fewer impulsive symptoms (mediated effect = -.0015; 95% CI [-.003, -.0003]). Moreover, higher levels of father authoritative were indirectly linked to fewer alcohol-related problems through increased father monitoring (mediated effect = .004; 95% CI [.001, .008]). Conversely, higher levels of father permissiveness were indirectly linked to more alcohol-related problems through less father monitoring (mediated effect = .0029; 95% CI [.0006, .006]).

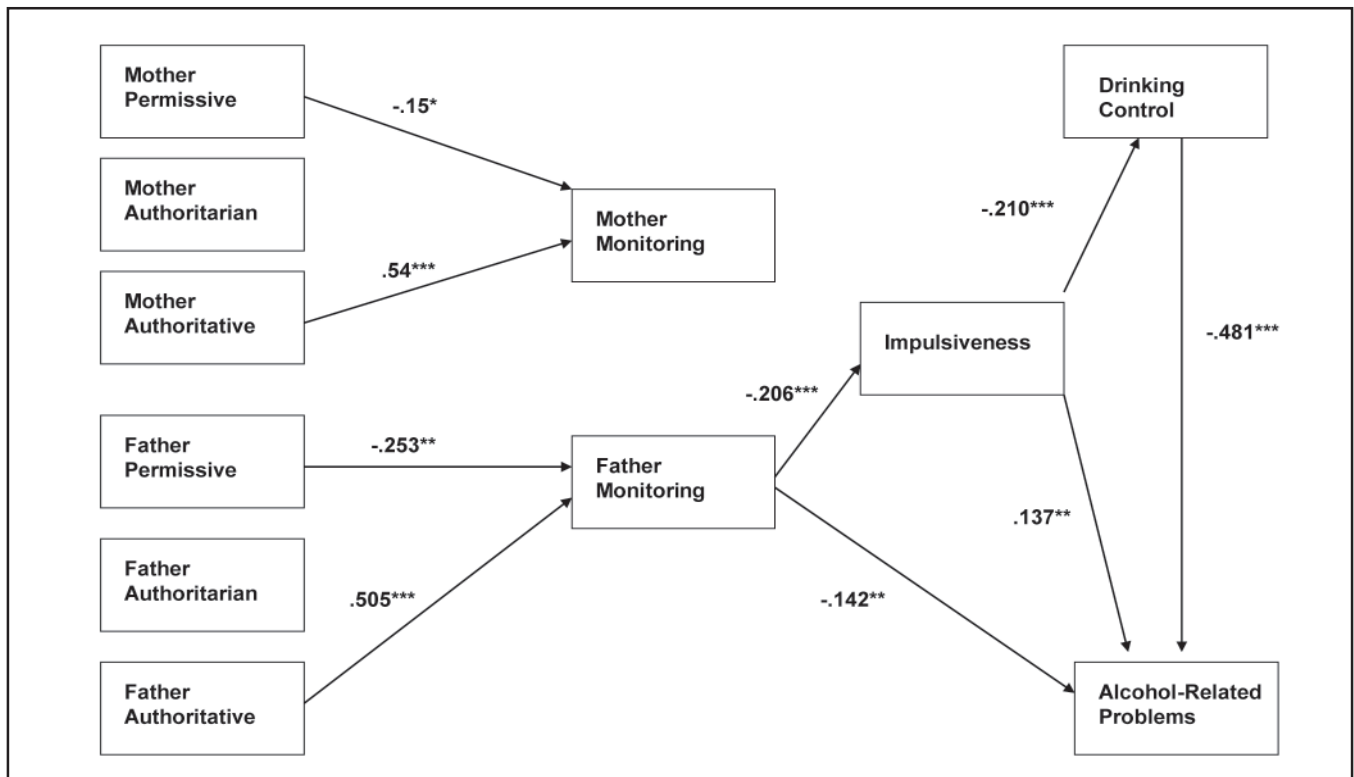


FIGURE 3. Multiple-group structural equation model (women). Standardized coefficients are shown. All exogenous variables were allowed to correlate freely in the model. Mother and father monitoring were also allowed to correlate.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Key within-gender three-path mediated effects

Drinking control (men). Higher levels of mother authoritative-ness were indirectly linked to more drinking control through more mother monitoring and less impulsiveness (mediated effect = .0018; 95% CI [.0004, .0039]). Conversely, higher levels of mother permissiveness were indirectly linked to less drinking control through less mother monitoring and more impulsive symptoms (mediated effect = -.0018; 95% CI [-.004, -.0003]).

Drinking control (women). Higher levels of father authoritative-ness were indirectly linked to more drinking control through more father monitoring and less impulsive symptoms (mediated effect = .0017; 95% CI [.0005, .0034]). Conversely, higher levels of father permissiveness were indirectly linked to less drinking control through less father monitoring and more impulsive symptoms (mediated effect = -.0012; 95% CI [-.0025, -.0003]).

Alcohol-related problems (men). Higher levels of mother monitoring were indirectly linked to fewer alcohol-related problems through fewer impulsive symptoms and more drinking control (mediated effect = -.0017; 95% CI [-.0036, -.00038]). In addition, higher levels of mother authoritative-ness were indirectly linked to fewer alcohol-related problems through more mother monitoring and fewer impulsive symptoms (mediated effect = -.0009; 95% CI [-.002, -.00016]). Conversely, higher levels of mother permissiveness were indirectly linked to more alcohol-related problems through less mother monitoring and more impulsive symptoms (mediated effect = .0009; 95% CI [.0001, .0023]).

Alcohol-related problems (women). Higher levels of father monitoring were indirectly linked to fewer alcohol-related problems through fewer impulsive symptoms and more drinking control (mediated effect = -.0011; 95% CI [-.0022, -.0003]). In addition, higher levels of father authoritative-ness were indirectly linked to fewer alcohol-related problems through more father monitoring and fewer impulsive symptoms (mediated effect = -.0008; 95% CI [-.0018, -.0002]). Conversely, higher levels of father permissiveness were indirectly linked to more alcohol-related problems through less father monitoring and more impulsive symptoms (mediated effect = .0005; 95% CI [.00009, .00132]).

Discussion

Our findings are consistent with Sher's (1991) model of deviance proneness, which suggests interplay of parental and temperamental influences along externalizing pathways to alcohol use disorders. These present findings are also consistent with recent investigators who have begun to suggest personality constructs are dynamic entities in which context can influence a trait (Johnson et al., 2007; Littlefield et al., 2009, 2010; Roberts et al., 2003, 2006). In addition, these findings are consistent with those who suggest that

parental monitoring is a key variable to consider in an effort to explain the etiology of alcohol-related problems (Arria et al., 2008; Beck et al., 2004; Walls et al., 2009) and that monitoring is a key promotive factor (i.e., generally associated with better outcomes; Zucker et al., 2008). Moreover, the present findings add to existing literature by showing that parenting styles relate to quality of parental monitoring and that parental monitoring by an opposite-gender parent may be a potential mechanism in the expression of impulsiveness in the pathway from drinking control to alcohol-related problems.

Parenting styles (i.e., authoritative and permissive) of opposite-gender parents were indirectly related to behavioral control variables, such as impulsiveness and drinking control. This further illustrates the complexity of parental influences on trait variables in an externalizing pathway to alcohol-related problems. Although previous investigations from our laboratory have found that the same-gender parent can directly influence impulsiveness (Patock-Peckham and Morgan-Lopez, 2006) and positive control variables such as self-regulation (Patock-Peckham et al., 2001), these new findings suggest that the opposite-gender parents' style of parenting may indirectly influence behavioral control variables via parental monitoring. In turn, this may imply that the parenting styles of both parents may play a role in the etiology of alcohol-related problems but that they occur through different mechanisms.

Conceivably, how parents in a family decide to make decisions involving their children may influence whether parents will effectively monitor their offspring's social life and behavior, particularly behavior that occurs outside of the house. Our findings suggest that authoritative parenting is linked to more effective monitoring of an opposite-gender offspring. These effects are consistent with Social Learning Theory, in that modeling positive control via monitoring is associated with more positive control among offspring. However, it remains unclear why the opposite-gender parent rather than the same-gender parent doing the monitoring matters for impulsiveness specifically. We suspect this is another layer in the socialization process similar to those found in moral development theories (Hoffman, 1975; Kohlberg, 1969). Nevertheless, we feel we can state with confidence that an authoritative parenting style, whether directly by the same-gender parent (Patock-Peckham and Morgan-Lopez, 2006) or indirectly by the opposite-gender parent, is linked to a reduced expression of behavioral control variables, such as impulsiveness and a lack of drinking control.

Even though monitoring reflects an awareness of an offspring's social life and plans, a permissive style was found to be linked to lower levels of monitoring. Thus, allowing an offspring to make decisions like an equal is negatively associated with parents actually knowing about what goes on with offspring outside of the home. Interestingly, the most rule-driven style, authoritarian, was found to be unrelated

to monitoring. Thus, having authority does not mean your child will share with you about the social nature of his or her life. Our findings are consistent with those of Jackson (2002), who found adolescents exposed to permissive and authoritarian parenting were 1.8–5.9 times as likely to deny parental authority regarding alcohol use than those exposed to authoritative parents. In turn, this may suggest parental monitoring (at least in terms of offspring report) reflects the degree to which offspring communicate to their parents about their behaviors and whereabouts, rather than the degree of parents' actual efforts to monitor their child's behaviors (Luk et al., 2010; Small and Kerns, 1993).

Parental monitoring has been known to play an important environmental role in the development and transmission of alcoholism in families (Barnes and Farrell, 1992; Chassin et al., 1993; Dishion and Loeber, 1985). This investigation adds to the literature by adding to the epidemiology of alcohol-related behaviors via the mechanism of parental monitoring in explaining one way it may buffer a personality trait known to contribute to alcohol-related problems in the next generation. Poor parental monitoring is known to contribute to increased time spent with deviant peers (Dishion and Loeber, 1985), yet little else is known about the impact of monitoring on other potential mechanisms that increase the likelihood an alcohol-related problem will occur. Specifically, our investigation suggests poor parental monitoring on the part of the opposite-gender parent, rather than the same-gender parent, is directly linked to increased impulsiveness in the alcohol-related-problems pathway. Our findings suggest that, for daughters, the helpful effects of parental monitoring rests with the father's understanding of her social plans and whereabouts, and this knowledge is directly associated with levels of impulsiveness in the alcohol-related-problems pathway. In contrast, our findings suggest that, for sons, the helpful effects of parental monitoring rests with the mother's understanding of his social plans and whereabouts, and this knowledge is directly associated with impulsiveness in the alcohol-related-problems pathway. Moreover, this investigation adds to our present understanding of parenting and behavioral under-control/control variables by illustrating how parental influences, such as parenting styles and monitoring, may be transmitted by key personality constructs known to be important predictors of alcohol-related problems, such as impulsiveness (general poor control) and drinking control (specific positive control over one's own drinking). This study also illustrates how parenting styles can indirectly influence behavioral control variables via the mechanism of parental monitoring.

Our findings extend previous work (Webb et al., 2002) by measuring parental monitoring separately for mothers and fathers and by examining respondent's gender simultaneously as part of the same model. When monitoring measured separately for each parent enters the model as a potential mediator, the opposite-gender parent now contributes to

behavioral under-control by directly influencing levels of impulsiveness and indirectly influencing drinking control as well as alcohol-related problems. These present and previous findings suggest that both parents influence behavioral control mechanisms known to contribute to alcohol-related problems. Nevertheless, these specific findings in this present study add specific, new knowledge regarding exactly how parents may perpetuate or buffer against development of alcohol-related problems. This research, along with that of others, suggests that the general approach to parenting does matter and that relationships with both parents can contribute differentially to one's development in emerging adulthood (Patock-Peckham and Morgan-Lopez, 2006; Webb et al., 2002). Our research expands on Webb et al.'s (2002) work by illustrating that parental monitoring indirectly influences alcohol-related problems through control mechanisms such as impulsiveness and drinking control.

This present work also adds to existing literature by examining impulsiveness as a mediator of monitoring effects on drinking control. We found impulsiveness did indeed act as a mechanism in the link between paternal monitoring and drinking control among daughters, whereas impulsiveness did in fact act as a mechanism between maternal monitoring and drinking control among sons. Although this is an initial test of these phenomena, which needs to be replicated, it does illustrate that generalized control (as measured by an expression of impulsiveness) may operate as a direct mediator on control directly applied to the context of drinking. This specific finding is consistent with those of investigators who also found direct links from impulsiveness to drinking control (Patock-Peckham and Morgan-Lopez, 2006) and from self-regulation to drinking control (Patock-Peckham et al., 2001). Knowing impulsiveness fully mediates the link between monitoring on drinking control may be important, because individuals with more control over their own drinking are less likely to use alcohol as a coping mechanism (Hutchinson et al., 1998; Room and Leigh, 1992). Moreover, a lack of drinking control has recently been identified as one of the earliest signs of alcohol dependence (Leeman et al., 2007).

There are several limitations to the present investigation concerning the cross-sectional nature of these data and the college student population. Hence, this investigation should be considered an initial inquiry into multiple mediation pathways for parenting styles and monitoring on behavioral control variables in the alcohol-related-problems pathway. Researchers in possession of longitudinal data should be encouraged to examine linkages between these constructs with repeated-measures data. For instance, parental monitoring and impulsiveness are clearly associated, and there is a need for the field to developmentally explore and unpack this association as it unfolds over time. Moreover, this investigation is limited because it is possible that monitoring may also act as a moderator as well as a mediator of the pathway

from parenting styles to impulsiveness. Therefore, more investigations exploring different aspects of this phenomena are clearly needed.

Further investigations may also wish to examine these relationships in more specialized samples of respondents, such as individuals diagnosed with alcohol use disorders, as well as those containing children of alcoholics and juvenile offenders. This present research is also limited because it does not spell out if there are specific crucial developmental times when parental monitoring may be essential regarding trait formation.

Other limitations concern that we measured parental monitoring only as one remembered it while growing up. It remains unclear as to whether what occurred in childhood is more or less important than any monitoring that may still be occurring now into young adulthood by parents. Another limitation of this current work is that it addresses the concept of impulsiveness only as it was classically described by Eysenck et al. (1985). Personality researchers may wish to explore the relationship between parental monitoring and multifaceted measures of impulsivity, which include both emotional and cognitive aspects of impulsiveness (e.g., Dick et al., 2010; Whiteside and Lynam, 2001). Moreover, future investigations may seek to explore these relationships with individuals undergoing therapy for addiction to alcohol. Conceivably, it is possible that these relationships may be even stronger among individuals within the criminal justice system, who may be undergoing rehabilitation, or who may be in need of rehabilitation for substance use disorders.

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