



FATHERS DO MAKE A DIFFERENCE: PARENTAL INVOLVEMENT AND ADOLESCENT ALCOHOL USE

Using data from the National Longitudinal Study of Adolescent Health (N = 9,148), we examined the relationship between dimensions of parent-child involvement (shared communication, shared activity participation, and emotional closeness) and three adolescent alcohol outcomes (alcohol use, alcohol related problems, and risky behavior co-occurring with alcohol use). This paper addresses previous limitations in fathering research by investigating both paternal and maternal involvement in understanding adolescent alcohol outcomes. When analyzed simultaneously, both shared communication with fathers and emotional closeness to fathers, but not shared activity participation, had a unique impact on each alcohol outcome, above and beyond maternal involvement factors. Implications for theory and research on parental involvement are discussed.

Keywords: father involvement, adolescents, alcohol use

Research on father involvement continues to grow (Cassano, Adrian, Veits, & Zeman, 2006) and demonstrates that fathers play an important role in the development of their children. Adolescent behavior problems are affected by varying levels of father involvement (Lamb & Tamis-Lemonda, 2004). For example, involved fathers have children who engage in less antisocial behavior (Flouri & Buchanan, 2002) and close parent-adolescent relationships are a protective factor in the development of delinquent

^aDepartment of Psychology, Kent State University.

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Correspondence concerning this article should be sent to Elizabeth A. Goncy, Kent State University, Department of Psychology, Kent, OH 44242-0001. Electronic mail: egoncy@kent.edu



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behavior (Harris, Furstenberg, & Marmer, 1998). In understanding individual differences in adolescent behavior problems, it is however not clear (a) whether some dimensions of father involvement are more important than others and (b) whether paternal involvement is still important after controlling for the role of maternal involvement. In particular, understanding whether various aspects of father involvement uniquely predict adolescent behavior problems above and beyond maternal involvement is important for further conceptualizing father involvement and building empirically informed conceptual models of fathering and adolescent behavior problems (Amato & Gilbreth, 1999; Lamb, 2004).

The current study aims to investigate the unique role of various aspects of both paternal and maternal involvement in the development of adolescent alcohol use (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000). Sixty-eight percent of high school seniors report experimentation with alcohol (Johnston, O'Malley, Bachman, & Schulenberg, 2006a) and alcohol experimentation may increase engagement in risky behaviors and problems related to alcohol use (Lane, Cherek, Rhodes, Pietras, & Tcheremissine, 2003). These co-occurring risky behaviors include increased rates of injuries (Spirito, Jelalian, Rasile, Rohrbeck, & Vinnick, 2000), criminal activity and delinquency (Ensor & Godfrey, 1993; Milgram, 1993), and reduced self-control (Abrams & Wilson, 1983). Understanding the role of both fathers and mothers in adolescent alcohol use may prove valuable for prevention and intervention efforts to reduce adolescent drinking (Komro, Stigler, & Perry, 2006).

Parental Involvement

Empirical findings demonstrate that several parental factors are related to alcohol use, alcohol related problems and co-occurring risky behaviors. Greater quantities and qualities of father involvement and support reduce adolescent problem behavior, such as polydrug use, delinquency, and violent behavior (Zimmerman, Salem, & Notaro, 2000). Across age, gender, and ethnicities, higher levels of parental supervision are associated with less adolescent alcohol use (Pilgrim, Schulenberg, O'Malley, Bachman, & Johnston, 2006). An adolescent's inability to relate or securely attach to his/her father predicts increased adolescent alcohol use (Jones & Benda, 2004). Parental overinvolvement and control operate as risk factors for excessive alcohol use (Dishion & Loeber, 1985; Jessor, 1987), whereas involved and supportive parenting is related to lower alcohol use (e.g., Barnes, Reifman, Farrell, & Dintcheff, 2000; Wills, Vaccaro, & McNamara, 1992). In summary, these findings indicate that parents play a key role in the development of adolescent alcohol use and co-occurring risky behaviors.

Conceptualization of Parental Involvement

Previous research on paternal involvement has been limited by largely ignoring the role of maternal involvement (Pleck & Masciadrelli, 2004). Ignoring maternal involvement is problematic because paternal and maternal involvement constructs are highly associated (Marsiglio, Amato, Day, & Lamb, 2000). If empirical studies do not

control for maternal involvement, it is unclear what independent impact fathers have on adolescent outcomes. In a 2000 review paper, Marsiglio and colleagues demonstrated that in most studies that independently examine both fathers and mothers, father involvement does demonstrate independent contributions, above and beyond maternal involvement (Marsiglio et al., 2000). However, in only 25% of papers do researchers analyze the independent effects of both fathers and mothers simultaneously (Phares, Fields, Kamboukos, & Lopez, 2005) and therefore a substantial number of papers are limited in their claims on parenting involvement effects. For example, one may erroneously conclude that paternal involvement is strongly associated with adolescent outcomes when in fact the effect is due to maternal involvement. The current study expands on previous research on parental involvement and adolescent alcohol use by including both paternal and maternal involvement and thus examines their simultaneous and independent impact on adolescent alcohol use.

Several components of father involvement have been proposed in the literature (see for recent reviews Marsiglio et al., 2000; Parke, 2002; Parke, Dennis, Flyr, Morris, Leidy, & Schofield, 2005), but whether these theorized constructs represent empirically supported constructs is rarely tested (Cabrera et al., 2000). For example, Lamb, Pleck, Charnov, and Levine (1987) proposed three father involvement factors (engagement, availability, and responsibility), but researchers have focused almost exclusively on one of these three dimensions, namely engagement (later redefined as positive engagement; Pleck, 1997). However, recent empirical findings indicate that a multidimensional conceptualization better captures father involvement than a unidimensional one (Schoppe-Sullivan, McBride, & Ho, 2004). The current study extends previous fathering research that operationalized involvement as a unidimensional construct by testing a multidimensional model of paternal and maternal involvement. The specific dimensions of this multidimensional conceptualization were further informed by a growing trend in the literature to understand dimensions of father involvement unique to specific developmental stages (Cabrera et al., 2000). Based on this, we conceptualized father involvement as being composed of three dimensions, namely shared communication, shared activity participation, and emotional closeness.

Shared communication. Communication between adolescents and their parents is one essential element for positive adolescent outcomes, particularly delinquency reduction. In one sample of delinquent males, greater communication between parents and sons decreased rates of delinquency (Hirschi, 1969). In another sample, greater instrumental or content-oriented (i.e., talking about relationships, the future) communication between parents and adolescents also decreased delinquent behaviors, but intimate communication (i.e., sharing thoughts and feelings) did not (Cernkovich & Giordano, 1987). Higher levels of open communication and less problematic communication between parents and adolescents also lowered delinquent behavior rates and likelihood of engaging in serious delinquent acts (Clark & Shields, 1997). Additionally, communication between fathers and adolescents about sexuality and sexual experiences may reduce risky sexual behavior (e.g., Dilorio, McCarty, & Denzmore, 2006; Kirkman, Rosenthal, & Feldman, 2002), a risky behavior co-occurring with adolescent alcohol use.

Shared activity participation. Shared activity participation is a second component of parental involvement. The emotional connection occurring when fathers and adolescents enjoy leisure activities together may improve the quality of the father-adolescent relationship (Brotherson, Yamamoto, & Acock, 2003; Rettig & Leichtentritt, 2001). Shared activity participation between fathers and adolescents reduces adolescent depression (Yuan & Hamilton, 2006) and school failure (Menning, 2006). In one African American adolescent sample, higher levels of shared activity participation also predicted less alcohol use (Jordan & Lewis, 2005).

Emotional closeness. One final indicator of parental involvement is emotional closeness. Fewer emotional and behavioral problems occur when adolescents experience close relationships with their parents (Flouri & Buchanan, 2002). Close father-child relationships help promote adolescent general well-being, even after controlling for maternal closeness, non-custodial involvement levels and frequency of time spent with adolescents (Yuan & Hamilton, 2006). In a cross-national study of family processes and adolescent deviancy, both closeness to parents and communication with parents was related to lower levels of deviancy, including alcohol and drug use (Vazsonyi, Hibbert, & Snider, 2003).

The Current Study

As early adolescent alcohol use is detrimental for health and long-term outcomes, investigation of paternal and maternal involvement and their relation to alcohol use, alcohol related problems, and risky behavior co-occurring with alcohol use is critical. The purpose of the current study was to test the relationship between the above three proposed parent involvement variables and these three adolescent alcohol use outcomes. We hypothesized that greater levels of all father and mother involvement factors are negatively related to levels of alcohol use, alcohol related problems, and co-occurring risky behavior. We further hypothesized that, when considered simultaneously, each of the three different dimensions of father involvement uniquely predict adolescent alcohol use and related consequences above and beyond maternal involvement. In all of the analyses, we controlled for several other factors related to adolescent alcohol use, including gender (i.e., males use alcohol more frequently, have more co-occurring alcohol related problems; Substance Abuse and Mental Health Services Administration, 2005), adolescent age (alcohol consumption increases with age, Johnston, O'Malley, Bachman, & Schulenberg, 2006b), ethnicity (Johnston et al., 2006a), and family status (Amato & Riviera, 1999).

Method

Participants

Participants were derived from the first wave of the contractual dataset of the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative sample of adolescents in grades 7 to 12 (Udry, 2003). This current study included

9,148 adolescents who answered all questions incorporated in analyses, had sample weights available and were under the age of 18. All adolescents resided in two-parent residential homes, with 12% ($n = 1,100$) also having a non-residential biological father and 5% ($n = 523$) having a non-residential biological mother. Some adolescents were excluded from analyses ($n = 366$) because they were considered to be statistical outliers on at least one of three outcome variables ($z\text{-score} > 3.29$; Tabachnick & Fidell, 2007).

The mean age for adolescents (51% female) assessed was 15.68 years ($SD = 1.47$) with ages ranging from 11.58 to 18.00 years. Fifty-eight percent were White, 14% African American/Black, 7.5% Asian or Pacific Islander, 6.5% Hispanic/Latino and 14% other ethnicities. Analyses comparing those with missing data to adolescents included in the analyses demonstrated that adolescents missing data were more likely to be male and more likely to be African American than other ethnicities (all p 's < 0.05). Additionally, adolescents with missing data had lower levels of shared communication and shared activity participation with both their fathers and mothers than adolescents included in the statistical analyses (all p 's < 0.05).

Parental Involvement Measures

Eleven items measured parental involvement separately for both fathers and mothers. Two parental involvement factors, shared communication and shared activity participation, consisted of five items with dichotomous response options, 0 = *no*, 1 = *yes*. The psychometric properties of these two factors had been previously established via principal component analysis in the Add Health data (Jordan & Lewis, 2005). Reliability was demonstrated using Cochran's Q, which is appropriate for investigating internal consistency in binary response sets (e.g., Berry & Mielke, 2003). The Cochran's Qs were statistically significant ($p < 0.001$) demonstrating internal consistency for both factors. In addition to these two factors, we used one item to measure emotional closeness between adolescents and their parents. Parental involvement scores were created separately by parent gender to allow for comparison of paternal and maternal involvement. All parental involvement items were completed by the adolescent. If adolescents reported having a non-residential biological parent, the adolescents' shared communication, shared activity participation and emotional closeness scores for both residential and non-residential parents were incorporated in the final constructs.

Shared communication. The shared communication factor included five items. Items asked about whether the adolescent discussed four life events (dating or going to a party, personal problems, school projects, and grades) or had a serious argument about his/her behavior with his/her father(s) and mother(s) during the previous four weeks. These items include both measures of positive (i.e., dating) and negative (i.e., serious argument) topics to represent a broader construct of communication. Higher scores represented more topics communicated with fathers ($M = 1.86$, $SD = 1.52$) and mothers ($M = 2.41$, $SD = 1.57$).

Shared activity participation. The shared activity participation factor included five items. Items integrated five different activities (sports, religious services, social outings, shopping, and school projects) the adolescent participated in with his/her father(s) and mother(s) during the previous four weeks. Higher scores represented greater number of activities participated with fathers ($M = 1.37, SD = 1.30$) and mothers ($M = 1.73, SD = 1.14$).

Emotional closeness. One-item (“How close do you feel to your biological/residential father/mother?”) measured the third component of parental involvement, emotional closeness. Responses were based on a 5-point Likert scale, ranging from 1 = *not at all* to 5 = *very much*. If an adolescent reported having close relationships with multiple fathers or multiple mothers, the higher level of closeness between the adolescent and his/her father ($M = 4.32, SD = 0.92$) and mother ($M = 4.56, SD = 0.75$) was used.

Adolescent Alcohol Use, Alcohol Related Problems and Co-occurring Risky Behavior Measures

Three components of self-reported adolescent alcohol use, alcohol related problems and co-occurring risky behaviors were created based on twenty-seven items. These items were a-priori hypothesized to be content related and measure aspects of drinking behavior and patterns. Confirmatory factor analysis of these twenty-seven items indicated that a three-factor solution best fit the data.

Alcohol use. Six items measured alcohol use (defined as beer, wine or liquor use), including experimentation (i.e., had a drink of alcohol—not just a sip or taste—more than 2 or 3 times in your life; number of drinks [defined as a glass of wine, a can of beer, a wine cooler, a shot glass of liquor or a mixed drink] usually had on each drinking occasion), unsupervised use (i.e., ever drink alcohol when you are not with your parents or other adults in your family; number of days becoming drunk or very, very high on alcohol), and binge drinking, (i.e., number of occasions had more than five drinks in a row; drinking alcohol on several days within the past year). Items were added together to create a count total ranging from 0 to 49 ($M = 3.74, SD = 5.56$). Approximately 55% of the sample engaged in no alcohol use and therefore had scores of 0.

Alcohol related problems. Nine items measured problems related to alcohol use. These items measured relationship problems from drinking alcohol (i.e., trouble with parents; problems with school or school work; problems with friends; problems with dating relationship), regretting behavior related to drinking alcohol (i.e., later regretted something done when drinking; regretted sexual situation from when drinking; physical fight from drinking), and physical complaints resulting from alcohol use (i.e., hang-over after drinking; sick to the stomach or threw-up). Items were added together to create a count total ranging from 0 to 6 ($M = 0.70, SD = 1.39$). Adolescents who had received a score of 0 on the alcohol use variable automatically received a score of 0 on

this variable. Seventy-three percent of the sample either had never used alcohol or reported having no alcohol related problems.

Risky behavior co-occurring with alcohol use. Twelve items measured risky behaviors co-occurring with alcohol use, incorporating questions concerning sexual risky behavior (i.e., first sexual intercourse when drunk or while drinking; most recent sexual intercourse when drunk or while drinking), violent risky behavior (i.e., most recent fight when drunk or while drinking; carrying a weapon while drinking), and other types of risky behavior (i.e., driving when drunk; being drunk at school; been drunk when alone; drank alcohol while using other illicit drugs). Items were added together to create a count total ranging from 0 to 4 ($M = 0.38$, $SD = 0.84$). Adolescents who had received a score of 0 on the alcohol use variable also automatically received a score of 0 on this variable. Seventy-nine percent of this sample had never used alcohol or reported never having a co-occurring risky behavior.

Analysis Plan

Negative Binomial regressions were conducted to determine if the three proposed components of parental involvement (shared communication, shared activity participation, and emotional closeness) demonstrated independent contributions in predicting differences in the three alcohol components (alcohol use, alcohol related problems and co-occurring risky behavior) above and beyond maternal involvement. As the outcome variables included highly skewed count data as demonstrated above by high percentages of the sample not using alcohol (55%), having no alcohol related problems (73%) or no co-occurring risky behavior (79%), ordinary least squares regression is not appropriate (Hammer & Landau, 1981). A common remedy for such data is to dichotomize the dependent variable and use logistic regression models. However, dichotomization of the dependent variable leads to several problems, particularly the loss of individual variability on the dependent variable (MacCallum, Zhang, Preacher, & Rucker, 2002). Alternative solutions for highly skewed count data on the dependent variable include Poisson and Negative Binomial regressions (Karazsia & van Dulmen, 2008; Long & Freese, 2006).

Negative Binomial regressions are preferred over Poisson regressions if the mean of the outcome variable is not equal to the standard deviation of the outcome variable. We used the statistical software package STATA (Stata Corporation, 2008) to compute a Likelihood-ratio (LR) test of alpha and determine whether the mean is significantly different from the standard deviation. In the present analysis, this test was statistically significant for alcohol use ($\chi^2(1) = 360.000$, $p < .001$), for alcohol related problems ($\chi^2(1) = 4858.29$, $p < .001$), and for co-occurring risky behavior ($\chi^2(1) = 1472.09$, $p < .001$). These tests therefore indicate that the dependent count variables are better estimated by the Negative Binomial regression function than the Poisson function. Additionally, because of the cluster and stratified sampling design within the Add Health study, all statistical analyses were run in Stata to correct for the clustered nature of the

Add Health data set and to incorporate sample weights. Finally, due to having three outcome variables, a more conservative alpha level was used (Cohen, 1994) via a Bonferroni correction, which made the corrected alpha equal 0.017 (0.05/3).

Results

Bivariate Analyses

Table 1 displays bivariate correlations among adolescent age, all paternal and maternal predictor variables (shared communication, shared activity participation and emotional closeness) and all outcome variables (alcohol use, alcohol related problems and co-occurring risky behavior). All predictor variables with one exception (paternal emotional closeness with maternal shared communication) were positively associated with each other (all p 's < .017). Also, all outcome variables were positively associated with each other (all p 's < .017). Within examination of correlations between paternal and maternal involvement, shared communication ($r = 0.55$), shared activity participation ($r = 0.52$) and emotional closeness ($r = 0.48$) were all statistically significant (all p 's < .017), suggesting that as levels of involvement with fathers on these various dimensions increase, so do levels of maternal involvement.

Shared communication with parents was positively correlated with all three outcome variables (all p 's < .017), whereas shared activity participation with parents and emotional closeness were negatively correlated with all three outcome variables (all p 's < .017). Adolescent's age was positively correlated with the three alcohol outcome variables and paternal and maternal shared communication, but negatively correlated with shared activity participation and emotional closeness with both dad and mom (all p 's < .017).

When comparing adolescent gender to mean differences of the three outcome variables, adolescent males were more likely than females to use alcohol ($t(9146) = 2.76$, $p < .017$, $d = 0.057$). However, there was no statistically significant difference between adolescent males and females by mean levels of alcohol related problems or co-occurring risky behavior. Analyses of ethnicity differences for alcohol use demonstrated that Caucasian, Hispanic and other ethnic adolescents were more likely to use alcohol, have alcohol related problems and co-occurring risky behavior than African American or Asian adolescents and that African American were more likely to use alcohol than Asian adolescents (all p 's < .017).

Are Dimensions of Paternal Involvement Unique Predictors of Adolescent Drinking Behavior after Controlling for Dimensions of Maternal Involvement?

When considering all father and mother involvement variables simultaneously, all involvement variables - with the exception of paternal shared activity participation for two outcome variables - uniquely predicted adolescent alcohol use, alcohol related problems, and co-occurring risky behaviors, after controlling for adolescent gender,

Table 1
Bivariate Correlations of All Study Variables (N = 9,148)

	1 [#]	2	3	4	5	6	7	8	9	10
1	-	0.63*	0.54*	0.07*	0.10*	-0.13*	-0.16*	-0.15*	-0.13*	0.26*
2		-	0.59*	0.08*	0.12*	-0.13*	-0.13*	-0.16*	-0.13*	0.22*
3			-	0.05*	0.08*	-0.11*	-0.14*	-0.17*	-0.15*	0.20*
4				-	0.55*	0.31*	0.18*	0.17*	0.04*	0.08*
5					-	0.11*	0.26*	-0.04*	0.08*	0.14*
6						-	0.52*	0.29*	0.14*	-0.19*
7							-	0.17*	0.20*	-0.21*
8								-	0.48*	-0.16*
9									-	-0.12*
10										-

* $p < .017$

[#] 1 = Adolescent Alcohol Use, 2 = Alcohol Related Problems, 3 = Co-occurring Risky Behavior, 4 = Shared Communication with Dad, 5 = Shared Communication with Mom, 6 = Shared Activity Participation with Dad, 7 = Shared Activity Participation with Mom; 8 = Emotional Closeness with Dad, 9 = Emotional Closeness with Mom; 10 = Adolescent Age

age, ethnicity and family status (see Table 2). As predicted, father involvement accounted for unique predictive power above and beyond maternal involvement. Shared communication demonstrated a positive relationship with alcohol use (Incidence rate ratio (IRR) = 1.07, $p < .017$), whereas emotional closeness (IRR = 0.86, $p < .017$) was negatively related to alcohol use. Shared activity participation with fathers did not significantly predict alcohol use. Similar patterns of father involvement also emerged for alcohol related problems and co-occurring risky behavior when drinking. Shared communication was positively related to alcohol related problems (IRR = 1.12, $p < .017$) and co-occurring risky behavior (IRR = 1.08, $p < .017$). However, shared activity participation was negatively related to alcohol related problems (IRR = 0.89, $p < .017$), but not with co-occurring risky behaviors. Finally, emotional closeness was also negatively related to both alcohol related problems (IRR = 0.82, $p < .017$) and co-occurring risky behaviors (IRR = 0.79, $p < .017$).

For mothers, shared communication demonstrated a positive relationship with alcohol use (IRR = 1.11, $p < .017$), alcohol related problems (IRR = 1.11, $p < .017$) and co-occurring risky behavior (IRR = 1.12, $p < .017$). Additionally, for mothers, shared activity participation and emotional closeness were negatively related to alcohol use (IRR = 0.86 and 0.90, respectively both $p < .017$), alcohol related problems (IRR = 0.86 and 0.87, respectively both $p < .017$) and co-occurring risky behaviors (IRR = 0.84 and 0.82, respectively both $p < .017$).

Discussion

This study examined three aspects of parental involvement (shared communication, shared activity participation, and emotional closeness) for their impact on adolescent alcohol use, alcohol related problems, and co-occurring risky behavior. Contrary to our hypotheses, shared communication with both fathers and mothers was a risk factor for adolescent alcohol use and related outcomes. Consistent with the proposed hypotheses, both paternal and maternal shared activities were independent protective factors for alcohol related problems, but only maternal shared activities was a protective factor for alcohol use and co-occurring risky behaviors. Similar to previous research (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995; Wills et al., 1992) and the proposed hypotheses, paternal and maternal emotional closeness were protective factors for adolescent alcohol use, alcohol related problems and co-occurring risky behavior.

Greater shared communication with both fathers and mothers was a risk factor for alcohol use, alcohol related problems and co-occurring risky behavior. The bivariate correlations showed that shared communication was positively associated with both shared activities and emotional closeness. Perhaps after simultaneous consideration of all three involvement variables, the positive component of communication may have been explained through shared activity participation and emotional closeness and the negative communication topics, such as serious arguments, may be what is negatively related to alcohol use, alcohol related problems and co-occurring risky behavior. Additionally, due to the cross sectional nature of the study, discussion of some topics may

Table 2
 Summary of Simultaneous Negative Binomial Regression Model for Shared Communication, Activities and Closeness Variables Predicting Adolescent Alcohol Use, Alcohol Related Problems and Co-occurring Risky Behaviors, Controlling for Adolescent's Biological Sex, Age, Ethnicity and Family Status (N = 9,148)

Predictor	Alcohol Use			Alcohol Related Problems			Co-occurring Risky Behaviors					
	B	SE B	IRR	p [#]	B	SE B	IRR	p	B	SE B	IRR	p
Gender (Males)	-0.16*	0.06	0.85	0.006	-0.02	0.06	0.98	0.702	-0.21*	0.06	0.81	0.001
Age	0.27*	0.02	1.32	<0.001	0.31*	0.02	1.37	<0.001	0.28*	0.03	1.33	<0.001
Race (White)												
Hispanic	0.01	0.11	1.01	0.938	-0.08	0.14	0.92	0.558	-0.03	0.14	0.97	0.853
Black	-0.56*	0.08	0.57	<0.001	-0.63*	0.10	0.53	<0.001	-0.35*	0.12	0.70	0.004
Asian	-0.60*	0.14	0.55	<0.001	-0.73*	0.21	0.48	0.001	-0.58*	0.22	0.56	0.010
Other	0.13	0.12	1.14	0.301	0.12	0.12	1.12	0.337	0.07	0.11	1.08	0.518
Family Status												
Mother	0.11	0.06	1.12	0.079	0.04	0.09	1.04	0.633	0.13	0.10	1.14	0.182
Communication	0.10*	0.02	1.11	<0.001	0.10*	0.02	1.11	<0.001	0.12*	0.02	1.12	<0.001
Activities	-0.15*	0.03	0.86	<0.001	-0.15*	0.03	0.86	<0.001	-0.17*	0.04	0.84	<0.001
Closeness	-0.10*	0.03	0.90	0.002	-0.14*	0.04	0.87	0.001	-0.19*	0.05	0.82	<0.001
Father												
Communication	0.07*	0.02	1.07	0.002	0.12*	0.03	1.12	<0.001	0.08*	0.03	1.08	0.011
Activities	-0.04	0.02	0.96	0.053	-0.11*	0.03	0.89	0.001	-0.06	0.03	0.95	0.070
Closeness	-0.16*	0.03	0.85	<0.001	-0.20*	0.04	0.82	<0.001	-0.23*	0.04	0.79	<0.001
Constant	-1.86				-3.90				-3.62			
F(13, 116)		48.55*		<0.001		40.14*		<0.001		45.31*		<0.001

* $p < .017$

IRR = Incidence Rate Ratio

[#] The p -values in this column represent the exact p -value given for each analysis.

have been a response to the adolescent's alcohol use rather than a cause. Another explanation could be that paternal and maternal involvement may also invoke negative outcomes due to characteristics of the child, such as hostility or wariness (Pleck & Masciadrelli, 2004).

Involvement in shared activities between fathers and adolescents did not contribute significantly to the explanation of adolescent alcohol use and co-occurring risky behavior with alcohol use. However, shared activity participation between adolescents and fathers did significantly contribute to the explanation of adolescent alcohol related problems. As research has shown that spending time with parents decreases across adolescence, and perhaps even more so for fathers (Pleck, 1997), these limited interactions may not be enough for adolescents to reap the positive benefits of shared activity participation.

As hypothesized, emotional closeness was a significant predictor of adolescent drinking behaviors. Previous research on adolescent alcohol use and other risky behaviors suggests that feeling connected with one's parents can act as a protective factor against risky behaviors (i.e., Resnick et al., 1997). This connectedness may be demonstrated through adolescents' feelings of closeness with their parents or demonstrated in other activities between adolescents and parents, as demonstrated by the results of the analyses in this study.

Implications for Theory and Practice

As this paper demonstrated independent effects of the father-child relationship above and beyond the mother-child relationship, future research on parents should incorporate both paternal and maternal involvement. The findings from this paper highlight that fathers and mothers make unique contributions to adolescent drinking behavior. Practically, fathers can be important in protecting adolescents from engaging in delinquent and risky behaviors, such as alcohol use. Adolescent alcohol intervention programs should advocate for involving fathers in their adolescent's lives, particularly by encouraging them to participate in meaningful activities with their children. The findings of this study provide empirical evidence for this practice-based strategy.

The findings of the current study support the argument by Schoppe-Sullivan and colleagues (2004) to conceptualize father involvement as a multidimensional rather than a unidimensional construct, since some components, such as emotional closeness, predict adolescent outcomes, while other components, such as shared communication, may represent responses to adolescent behavior. Previous research with the Add Health data (Cookston & Finlay, 2006) also demonstrated that a multi-dimensional, rather than a unidimensional, conceptualization may better represent father involvement. Cookston and Finlay concluded that father involvement was a uniformly protective factor in the development of adolescent alcohol use, whereas our findings demonstrated that some components, namely shared communication, may be risk factors. Even though the constructs we included in our study were somewhat different from those used by Cookston and Finlay, our findings may indicate that some aspects of father involvement may

be more important in explaining adolescent outcomes than other aspects. However, direct comparison between this paper and Cookston and Finlay's paper is not possible due to non-identical constructs and Cookston and Finlay's use of a longitudinal data analysis, whereas these analyses were cross-sectional.

Limitations and Future Directions

One limitation of the current study included the availability of only a single item concerning parent-adolescent emotional closeness. Multiple questions regarding closeness may provide more meaningful insight into processes related to father-adolescent closeness. Additionally, father and mother involvement was reported only from the adolescent's perspective. Previous research has suggested it is best to have multiple reporters of parental involvement (i.e., father, mother, and adolescent; e.g., Bosco, Renk, Dinger, Epstein, & Phares, 2003). However, if we are limited to only one perspective, as in this study, the best solution is often to have the child's perception of parental involvement as this perception likely influences adolescents' own behavior more than a father or mother's perception of their involvement (Marsiglio et al., 2000).

This study is also limited by the cross-sectional nature of the data. Recent developmental studies indicate the importance of studying the bidirectional relationship between parental behavior and child functioning (e.g., Crouter & Booth, 2003) and a logical next step would be to investigate the relationship between parental involvement and adolescent alcohol use in a longitudinal design. Longitudinal studies would likely provide further insight as to whether parental involvement not only predicts adolescent alcohol use, but whether adolescent alcohol use potentially leads to changes in parental involvement across time.

Other measures of parental variables known to impact adolescent alcohol use, such as parental substance use levels or levels of parental monitoring and autonomy in decision making, were not included in these analyses. Thus, an inability to control for these other factors may lead to an overestimation of parental effects considered here. Future research would benefit from incorporating these variables and further delineate parental influences on adolescent alcohol use, especially because measures of parental monitoring and adolescent autonomous decision making would create a more complete picture of positive parental engagement (Pleck, 1997).

Future directions in examining father involvement on adolescent alcohol use and related behaviors should investigate potential moderating and mediating effects of this relationship. For example, emotional closeness may moderate the effects of shared communication and shared activity participation on alcohol use, as closeness may act as a buffer in problematic discussions and arguments or as a catalyst to shared activity participation. Future research should also focus on empirically testing theoretical constructs of parental involvement, including engagement, accessibility and responsibility (Lamb et al., 1987), by breaking down these factors into testable constructs. These theoretical constructs may have different meanings or different association with outcomes, such as delinquency and aggression, at different ages.

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