Father Involvement and Adolescent Adjustment: Longitudinal Findings from Add Health

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Based on two waves of data from the National Longitudinal Study of Adolescent Health, evidence from 2,387 adolescents tested the hypothesis that mothers and fathers in two-parent families make unique, additive contributions to the delinquency, depressive symptoms, and alcohol use behaviors of their children. Cross-sectional and longitudinal structural equation models were used to explain variance in problematic outcomes. Before controlling for baseline scores, the cross-sectional and longitudinal results supported the conclusion that mother and father involvement explained unique variance in children's adjustment. For delinquency and alcohol behaviors, the associations were attenuated considerably when Wave 1 behaviors were held constant. For depressive symptoms, only father involvement was a practically significant predictor. Results are discussed in light of methodological considerations pertaining to investigations of parent involvement during adolescence.

Keywords: father involvement, mother involvement, adolescent adjustment, delinquency, depression, alcohol use, longitudinal

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Although research on the associations between father involvement and child adjustment in two-parent homes permeates the canon (Lamb, 2004), evidence from nationally representative data that assesses longitudinal relations between mother and father

involvement and adolescent adjustment is considerably more rare. Furthermore, in comparison to a body of literature that has reported the role of maternal factors in the prediction of child adjustment (Caplan & Hall-McCorquodale, 1985), relatively few studies have provided evidence that father behaviors offer a unique, additive contribution to the prospective prediction of adolescent adjustment when predicted by (a) maternal behavior and (b) problem behavior at an earlier point in time. Only recently has substantive work sought to explicate the exact role of fathers in their children's lives. Doherty, Kouneski, and Erikson (1998) and Lamb, Pleck, Charnov, and Levine (1987) offered important conceptual frameworks to guide research on fathers. Doherty and colleagues posited that responsible fathering is influenced by the father's relationships with the child and the child's mother, as well as contextual factors (e.g., cultural practices), individual characteristics of the father, child, and mother, and the nature of the coparenting relationship. Lamb and colleagues offered less guidance in explaining when fathers were involved and instead focused on the behaviors that constitute attentive fathering. The model by Lamb and colleagues described fathering as comprised of engagement (e.g., interactions with children), accessibility (e.g., responsiveness to child gestures and availability of father), and responsibility (e.g., providing care for children). Although there remains important conceptual work to be done in the area of father involvement, such considerations fall beyond the purview of this investigation. Herein, we consider the typical statistical associations observed between father behavior and children's adjustment over time.

Presently, two statistical associations have been observed that relate to the role of father involvement in the prediction of child and adolescent adjustment. One such pattern, the *additive* association, offers evidence to suggest that father involvement provides a unique contribution to their children's adjustment in addition to what can be explained by mother involvement and other social context variables. Based on a sample of over 2,500 adolescents in Britain, Flouri and Buchanan (2003) found that after mother involvement, child age and sex, socioeconomic status of the family, interparent conflict, depressive symptoms, and self-efficacy were controlled, father involvement was still a statistically significant and salient predictor of adolescent happiness. Similarly, Amato and Riviera (1999) found comparable results in the 1987–1988 National Survey of Families and Households when they reported results of a structural equations model that predicted a combination of home and school problems from mother and father involvement. Separate latent factors of mother and father involvement were estimated from three measured indicators for each parent: time spent with parent, closeness with parent, and perceived support from parent. After parent age and education, number of children, and stepfather presence were controlled, father involvement was observed to be a highly significant predictor of behavior problems, even slightly larger than the effect offered by mother involvement. The results of these two studies provide evidence that father involvement offers unique, additive information in the prediction of child adjustment, even after the effects of maternal involvement and risk and protective factors are removed.

Alternatively, other researchers have reported that a father's presence and involvement do not offer a unique predictive role, and, in such cases, a *contextual-suppression* association is typically offered as an explanation. In these instances, the predictive power of father involvement is explained by maternal and social context

characteristics. Providing such evidence, Crockett, Eggebeen, and Hawkins (1993) reported effects for father presence on young children's cognitive and behavioral adjustment in Anglo and Mexican American families. The positive effects of father presence in the home, however, disappeared when child age, mother education, and family poverty status factors—among others—were statistically controlled. Research that has reported similar suppression effects (Goldstein, 1982, 1983; Hofferth, 1985; Marshall, English, & Stewart, 2001) generally appear to support the conclusion that father involvement is dependent upon child characteristics, mother involvement, and socioeconomic factors.

Studies that have documented contextual-suppression or additive associations differ based on the conceptualization of father involvement. Specifically, Amato and Riviera (1999), a study that documented an additive association, operationalized father involvement in terms of the parent-child relationship quality, whereas suppression studies (e.g., Crockett et al., 1993) measured father involvement in terms of whether the biological father is present in the home and how much time he spends with the child. This distinction between the quantity of involvement as compared to the quality of father-child relationships has proved especially meaningful in guiding inquiry regarding father involvement (Grossman, Pollack, & Golding, 1988). Some researchers have found strong associations between the quantity of involvement and the quality of interactions (Amato, 1994), whereas others have found less salient relations (Radin, 1994). Pleck (1997) suggested that studies include measures of both quantity and quality of interactions. To address these concerns, in the present study mother versus father involvement are operationalized as separate latent factors measured by components of interaction quantity and quality, thus maximizing the likelihood of creating parental involvement constructs that include the necessary features of both the contextual-suppression and additive interpretations.

However, in addition to the conceptualization of involvement, the strength of the associations between parent involvement and child adjustment is inexorably linked to the method of analysis. Prediction of adolescent adjustment from father involvement variables without controlling for mother variables is more likely to demonstrate stronger associations than a comparable analysis that controls for mother effects. Likewise, correlations observed in cross-sectional studies are more likely to demonstrate larger associations with child adjustment variables than similar associations in longitudinal studies. Least likely to demonstrate significant unique effects of parenting are longitudinal studies that control for earlier levels of problem behavior and social contextual factors. Belsky (1998), however, claimed that such models are most appropriate for the estimation of the unique effects of fathering because they control for (a) mother behavior, (b) child characteristics, and (c) aspects of the social environment that influence child and adolescent development.

Numerous studies have supported cross-sectional associations between father involvement and adolescent adjustment, including the aforementioned findings by Amato and Riviera (1999) and Flouri and Buchanan (2003). John and colleagues (1987) observed associations between child-reported father involvement and children's depressive symptoms. Forehand and Nousiainen (1993) found an absence of an association between mother acceptance and the adolescent's academic and interpersonal competence in school but did note associations for father's acceptance.

However, despite evidence to suggest that father involvement prior to adolescence is an important aspect of subsequent adjustment, longitudinal results are considerably rarer. Lefkowitz and Tesiny (1984) reported prospective findings that father rejection in childhood was a significant predictor of adult female depression, even after mother rejection was controlled. Comparing results from cross-sectional and longitudinal studies suggests that analytic methods may produce results that offer unique interpretations. To replicate earlier nationally representative cross-sectional studies (Amato & Riviera, 1999; Flouri & Buchanan, 2003) and offer new longitudinal evidence, the current study used parental involvement as either a concurrent or prospective predictor of adolescent adjustment in a number of analytic models.

Three major behavioral domains of adolescence were used as dependent variables here: delinquency, depressive symptoms, and alcohol use. Results from national surveys have reported that delinquency and drinking behavior (Ketterlinus, Lamb, & Nitz, 1994), as well as depressive symptoms (Galambos, Leadbeater, & Barker, 2004), represent health concerns that emerge during adolescence. Approximately 30% of police arrests involve suspects younger than 21 (U.S. Department of Justice, 2001), and approximately 10% of all individuals between the ages of 10 and 21 are arrested each year (Office of Juvenile Justice and Prevention, 1998). Although the majority of juvenile delinquency cases involve boys (Snyder & Sickmund, 1999), there is a marked increase of depressive symptoms in girls during adolescence, with depression rates occurring twice as often as depression in boys, a trend that continues throughout the lifespan (Cicchetti & Toth, 1998; Fleming & Offord, 1990; Lewinsohn, Clarke, & Rohde, 1994). Depression is not a trivial or infrequent event among adolescents, and surveys have indicated that, across 14 studies of nonclinical adolescents, the median rate of depression was 35% (Petersen et al., 1993) and that 6% to 13% of adolescents had attempted suicide at some point (Garland & Zigler, 1993). Rates for suicide attempts are especially troublesome for boys, who tend to have a higher success rate in completing suicide attempts than do girls (National Institute of Mental Health, 2004). Alcohol use also begins to surge during adolescence, with 51% of 8th graders and 80% of 12th graders reporting some alcohol consumption (Johnson, O'Malley, & Bachman, 2001). With numbers this high, alcohol use during adolescence is somewhat normative; however, adolescent alcohol use has been linked with increased sexual risk behaviors (Stueve & O'Donnell, 2005) and dangerous driving behaviors (van Beurden, Zask, Brooks, & Dight, 2005). Furthermore, there is evidence that 8% of female fatalities and 16% of male fatalities occurred when the driver had blood alcohol content higher than the legal standard (National Institute for Highway Safety, 2004). Prior evidence has demonstrated that parent-child relationships are important protective factors in subsequent delinquency (Hanson, Henggeler, Haefele, & Rodick, 1984), depression (John, Gammon, Prusoff, & Warner, 1987), and alcohol use (Barnes, 1984). Thus, for the analyses reported here, family context variables were used to explain levels of depressive and delinquent behavior. Specifically, mother and father involvement were used as longitudinal predictors of child adjustment.

The present study focused on families with two parents (a biological mother and a biological father or stepfather) who resided with the child. Although adolescents from two-parent families are less likely to appear in treatment samples, current evi-

dence suggests that approximately half of all children who are clinically referred reside with two parents (Phares & Lum, 1997). The independence associated with adolescence also creates risks for entry into problem behaviors that may or may not be chronic. Due to the lack of conclusive longitudinal evidence to support the additive orientation, a longitudinal design from a nationally representative data set—the National Longitudinal Study of Adolescent Health—was used to discern whether mother and father involvement offer unique and additive predictive power to understanding problem behavior at later times. Because the purpose of this paper was to examine mother and father involvement over and above other family and child characteristics, control variables were selected to replicate those found in Amato & Riviera (1999). In their study, the presence of a stepfather in the home was positively associated with behavior problems, a nonsignificant association was observed between parent age and behavior problems, and a negative association occurred between parent education and behavior. Child sex was also controlled in the present study to accommodate the changes common in adolescence for male delinquency (Keiley, Bates, Dodge, & Pettit, 2000) and female depression (Wade, Cairney, & Pevalin, 2002).

ANALYTIC MODEL

Figure 1 presents the structural equations model that informed these analyses. Latent factors for father involvement, mother involvement, and Wave 1 adolescent behavior were the independent variables, with Wave 2 adolescent adjustment as the key dependent variable. Three measured variables were used as indicators of latent factors for mother and father involvement, and two measured indictors (not shown in Figure 1) were used to estimate the Wave 1 and 2 latent dependent factors. In this article, three separate psychosocial and behavioral aspects of adolescent adjustment were used as dependent variables—delinquent behaviors, depressive behaviors, and alcohol use and problems—and four control variables were included—child age, child sex, stepfather status, and parent education.

METHOD

This study used data from Waves 1 and 2 of the National Longitudinal Study of Adolescent Health (Add Health). Wave 1 data were collected from September 1994 to December 1995. Wave 2 data were collected from April to August 1996. Described in greater detail in Udry & Bearman (1998), Add Health is a nationally representative longitudinal study of adolescents' health-relevant behaviors and beliefs with an emphasis on social context. Adolescents were interviewed at school and home at both waves, and one parent, typically the mother, was interviewed at Wave 1. The public use data included 6,504 participants. Because no data were available for their mothers, 377 participants from the sample were removed from analysis, and 1,962 additional cases were dropped because no data were available for the fathers. Of the remaining cases, approximately 75% of participants were retained from Wave 1 to Wave 2. Because we did not employ missing data imputation, the final sample was limited to the 2,387 public-use cases in which a mother and either a biological father
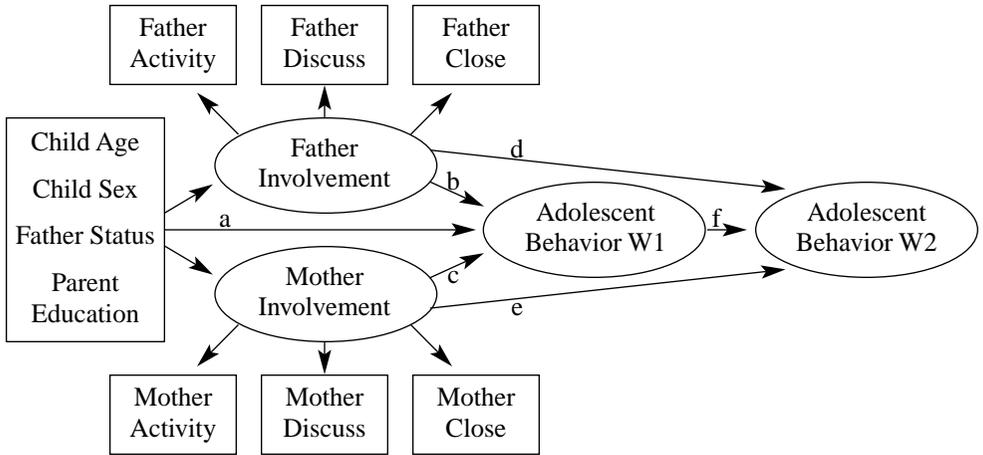
Figure 1. Analytic model.

or stepfather resided in the home and for whom complete data were available on all study variables. The final sample included 1,129 boys (47.3%) and 1,258 girls (52.7%), with a mean age at Wave 2 of 15.49 ($SD = 1.53$, range = 11.59–19.43).

INDEPENDENT VARIABLES

Three measures of parent-child involvement were created from adolescents' reports of resident mothers and fathers: shared activities, discussion of personal issues, and parent-child closeness. For both parents, these three scores were used as measured indicators of latent variables that captured mother and father involvement. The independent variables reported here are from the Wave 1 adolescent in-home survey.

Activities shared with parent. At Wave 1, adolescents were asked to indicate whether they had participated in four activities with each parent within the past four weeks. The activities—shopping, playing a sport, attending religious services, going to a movie—were dichotomously coded *no* and *yes*, and a score was calculated as the mean of the shared activities. Scores ranged from 0 to 1 for mothers and fathers ($M = .41$, $SD = .24$, and $M = .27$, $SD = .24$, respectively) and differed significantly, $t(2386) = 27.05$, $p < .001$.

Discussion with parents. Five items from the Wave 1 survey were used to ascertain whether, in the last four weeks, adolescents had talked to parents about life plans, discussed personal problems, worked on a school project, or spoken about grades and other school issues. The dichotomous response options for each form of discussion included $0 = no$ and $1 = yes$, and an average score was created across the five items that differed significantly between parents ($M = .42$, $SD = .28$ for mothers and $M = .35$, $SD = .29$ for fathers; $t[2386] = 12.57$, $p < .001$).

Parent-child closeness. The adolescents' overall perception of closeness with each parent at Wave 1 was measured from five items that surveyed the parent as warm and loving, a good communicator, encouraging of independence, open to discussing ethics, plus one item measuring the overall quality of the relationship. Response options for each item were coded to range from 1 = *strongly disagree* to 5 = *strongly agree*, and an average of the five items was used as a closeness scale score. The mean score for mothers ($M = 4.31$, $SD = 0.75$, $\chi^2 = .83$) was significantly higher ($t[2386] = 10.32$, $p < .001$) than the score for fathers ($M = 4.14$, $SD = 0.86$, $\chi^2 = .89$). However, despite the significant mean difference between mother and father scores, average reports of closeness with both parents were quite high.

DEPENDENT VARIABLES

The three dependent variables—delinquent behaviors, depressive behaviors, and alcohol use/problems—were chosen to represent varied aspects of child adjustment during the adolescent transition. For each latent dependent factor, two measured indicators of each behavioral domain were constructed.

Delinquency. Fifteen items measured adolescent delinquent behaviors. The typical scaling of these items involves the creation of a mean composite of the 15 items (Resnick et al., 1997). In this study, to accommodate structural equation modeling with latent variables, two measured indicators of delinquency were necessary, therefore, the 15 items were divided into two separate delinquency subscale scores using a procedure similar to the one described in Schulz, Cowan, and Cowan (2004). First, descriptive statistics were obtained for each of the items. Next, items of similar variance were paired and randomly assigned to one of the two subscales. The first subscale score included eight items that measured, for example, levels of involvement in graffiti, lying to parents, shoplifting, and stealing a car. Example items from the second subscale of seven items included loud and rowdy behavior, burglaries, and drug sales. Response options for the items were scaled from 0 = *not at all* to 3 = *5 or more times*. The internal consistency estimates for scores were adequate at Wave 1 (indicator one, $M = 0.27$, $SD = 0.38$, $\chi^2 = .73$; and indicator two, $M = 0.23$, $SD = 0.31$, $\chi^2 = .69$) and Wave 2 (indicator one, $M = 0.22$, $SD = 0.33$, $\chi^2 = .76$; and indicator two, $M = 0.21$, $SD = 0.31$, $\chi^2 = .68$).

Depression. Depressive symptoms were measured by 15 indicators of depression that were divided into two subscales of eight and seven items each based on the method described above for delinquency. The first subscale (Wave 1, $M = 0.44$, $SD = 0.39$, $\chi^2 = .77$; and Wave 2, $M = 0.45$, $SD = 0.41$, $\chi^2 = .80$) included items such as talking less, feeling bothered, feeling depressed, and problems keeping focused. The second subscale (Wave 1, $M = 0.39$, $SD = 0.38$, $\chi^2 = .73$; and Wave 2, $M = 0.45$, $SD = 0.37$, $\chi^2 = .71$) included reports of feeling lonely, blue, and sad.

Alcohol use and problems. The latent factor for alcohol behaviors was estimated from two scales of alcohol-related experiences, one of alcohol use and another that scaled problematic interpersonal experiences related to alcohol use. The alcohol use score

was created as the mean of three items that measured how often in the past year the adolescent drank, how often the adolescent drank five drinks in a row, and how often the adolescent had gotten drunk. The items were scaled from 0 = *never* to 6 = *every day or almost every day*. The Wave 1 alcohol use score had a mean of 0.64 (*SD* = 1.11, χ^2 = .88), and the Wave 2 score had a mean of 0.83 (*SD* = 1.26, χ^2 = .87).

The alcohol problem behavior score surveyed a variety of tribulations the adolescent had experienced due to alcohol use, including problems with parents and friends, on dates, and at school, as well as items for having a hangover or a physical fight with others. The response categories were 0 = *never* to 4 = *5 or more times*, and the mean score for Wave 1 was 0.14 (*SD* = 0.32, χ^2 = .78) and for Wave 2 was 0.17 (*SD* = 0.38, χ^2 = .79). Exact items for each subscale are available from the author.

CONTROL VARIABLES

Based on previous research on parental involvement and children's problem behaviors (Amato & Riviera, 1999), a number of control variables were included in this analysis. Because the primary dependent measures were at Wave 2, child age was computed as a transformation of the date of birth and age at the Wave 2 interview and ranged from 12 to 18. The child's biological sex was coded 1 = *male* or 2 = *female*. Parent education level was estimated as the average of the highest level of education for mother and father. Mean parent education score was 5.82 (*SD* = 2.13) and indicated the average parent had completed high school. Finally, adolescent household rosters and parent report of marital status were used to derive two dummy-coded variables to indicate whether the resident father was a biological father (*n* = 2,188) or stepfather (*n* = 199).

RESULTS

The bivariate correlations among the study variables are shown in Table 1. Because of the large sample size, statistical significance at the $p < .05$ level was achieved with a correlation of .04, and correlations of .05 were significant at the $p < .01$ level. The correlations in Table 1 provide evidence that parent factors and child behavior are related. Mother and father closeness scores separately demonstrated moderate associations with delinquency and alcohol behaviors and were strongly associated with depressive symptoms. We also observed strong associations within reporters for our indicators of availability, discussion, and closeness between mother and father. Furthermore, the discussion scores for both parents proved a less powerful predictor than the activity score. Strong associations were also observed between delinquency and alcohol use and problem scores, whereas comorbidity with depressive symptoms was less salient.

The remaining analyses report the results of four structural equations models estimated separately for each of the three dependent variables of delinquency, depressive symptoms, and alcohol use. For each dependent variable, confirmatory factor analysis (CFA) measurement models were tested to assess the fit of the analytic model to the measured variables. The CFA models included four latent factors: mother involvement, father involvement, dependent variable at Wave 1, and dependent variable at

Table 1

Bivariate Correlations among Study Variables (N = 2387)

Subscale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Mother activity	—	.5**	.18**	.1**	.21**	.17**	-.14**	-.06**	-.13**	-.09**	-.18**	-.15**	-.14**	-.10**	.13**	.16**	.22**	.02
2. Father activity		—	.17**	.23**	.18**	.32**	-.08**	-.04*	-.17**	-.17**	-.14**	-.14**	-.10**	-.08**	-.10**	.17**	-.21**	.08**
3. Mother discussions			—	.56**	.15**	.01	-.01	-.02	.08**	.04*	.06**	.05**	.05**	.08**	.16**	.08**	-.10**	-.11**
4. Father discussions				—	.13**	.26**	.01	-.01	-.01	-.07**	.02	.00	.02	.02	-.01	.09**	.09**	.01
5. Mother close					—	.48**	-.24**	-.19**	-.33**	-.25**	-.17**	-.16**	-.16**	-.17**	-.09**	.04*	-.14**	.02
6. Father close						—	-.21**	-.16**	-.32**	-.28**	-.18**	-.19**	-.16**	-.16**	-.08**	.03	-.16**	.14**
7. Wave 1 total delinquency							—	.59**	.25**	.23**	.42**	.41**	.37**	.36**	-.13**	.00	.07**	-.02
8. Wave 2 total delinquency								—	.18**	.23**	.25**	.25**	.39**	.42**	-.09**	.03	-.04*	-.04*
9. Wave 1 total depression									—	.56**	.20**	.21**	.16**	.20**	.11**	-.10**	.16**	-.09**
10. Wave 2 total depression										—	.15**	.15**	.16**	.20**	.16**	-.09**	.12**	-.06**
11. Wave 1 alcohol use											—	.70**	.60**	.50**	-.07**	-.01	.26**	-.05**
12. Wave 1 alcohol problems												—	.50**	.57**	-.03	-.01	.20**	-.03
13. Wave 2 alcohol use													—	.70**	-.07**	.00	.22**	-.03
14. Wave 2 alcohol problems														—	-.01	.01	.15**	-.03
15. Child sex															—	-.01	-.07**	-.02
16. Parent education																—	-.08**	.03
17. Child age																	—	-.01
18. Biological father																		—

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

Wave 2 (Table 2). The latent factors for mother and father involvement were estimated by the six measured variables that captured both mother and father activities shared with each parent, discussions with parents, and parent-child closeness scores. The remaining two latent factors modeled the Wave 1 and 2 dependent variables with the two measured indicators for each behavioral domain that were described in the method section. Table 3 summarizes the results for the second set of models, which predicted adolescent behavior at Wave 1 from the latent mother and father factors. The cross-sectional models evaluated the significance of paths b and c in Figure 1, controlling for path a. The third set of models—Table 4—predicted child adjustment at Wave 2 using mother and father behavior measured at Wave 1 (paths d and e), without

Table 2

Confirmatory Factor Analysis Measurement Models for Study Variables

Parameters	Estimates		
	Delinquency	Depression	Alcohol
Standard regression weights			
Father involvement → father talk	.39***	.37***	.41***
Father involvement → father close	.78***	.79***	.70***
Father involvement → father time	.41***	.39***	.46***
Mother involvement → mother talk	.25***	.21***	.26***
Mother involvement → mother close	.65***	.83***	.56***
Mother involvement → mother time	.35***	.26***	.42***
W1 dependent variable → W1 score(a)	.99***	.87***	.87***
W1 dependent variable → W1 score(b)	.70***	.87***	.81***
W2 dependent variable → W2 score(a)	.99***	.89***	.86***
W2 dependent variable → W2 score(b)	.73***	.81***	.81***
Correlations between error terms			
Father talk → mother talk	.53***	.54***	.52***
Father close → mother close	.18***	.12***	.25***
Father time → mother time	.42***	.44***	.39***
W1 score(a) → W2 score(a)[a]	−.10**	.00	.06
W1 score(b) → W2 score(b)[b]	.17***	.02	.10**
χ^2	156	213	186
df	24	24	24
GFI	.99	.98	.98
RMSEA	.05	.06	.05

[a]Correlation between the four control variables and adolescent behavior at Wave 1 and the four control variables and adolescent behavior at Wave 2.
[b]Correlation between father involvement and adolescent behavior at Wave 1 and father involvement and adolescent behavior at Wave 2.
*$p < .05$; **$p < .01$; ***$p < .001$.

controlling for adolescent behavior at Wave 1. In the fourth and final set of models, adolescent adjustment at Wave 2 was predicted from mother and father involvement while controlling for child adjustment at Wave 1 (paths *d* and *e*, controlling for paths *a* and *f*). Table 5 reports these results. In all but the measurement models, the control variables described in the method section were included in the models.

DELINQUENCY

When the CFA measurement model for delinquency reported in Table 2 was first estimated, it included no correlated error terms, and the fit was poor. Prior research (Amato and Riviera, 1999) and the modification indices suggested that error terms between theoretically relevant variables across factors be freed. As a result, the error terms between a number of measured indicators were freely estimated and not fixed to zero. In particular, error terms were estimated between the measured indicators for the parent involvement factors of mother and father talk, mother and father closeness, and mother and father time, as well as for the dependent variables between the first measured indicator of delinquency at Waves 1 and 2 and between the second measured indicator of delinquency at Waves 1 and 2. Significant improvement in fit was observed in the model when these terms were freely estimated, and although chi-square was significant ($p < .001$), other estimates of fit that are less influenced by sample size suggested a robust model (RMSEA = .05, GFI = .99).

Results from the cross-sectional model demonstrated that mother and father involvement were highly significant predictors of delinquency even after child sex and age, parent education, and father status were controlled (Table 3). As the first two rows of Table 3 report, the predictive power of mother involvement was over twice that observed for fathers. Table 4 reports results for the prediction of Wave 2 delinquency using control variables and mother and father involvement at Wave 1. The results from these analyses provided evidence that mother and father involvement offered substantial predictive power, with mother involvement accounting for greater estimation of Wave 2 behaviors. The final delinquency model—Table 5—predicted child delinquency at Wave 2, with the covariates and Wave 1 delinquency controlled and mother and father involvement used as predictors. After the effect for earlier delinquency was removed, the effects for both mother and father were attenuated considerably, with mother involvement no longer significant and father involvement significant at only the $p < .05$ level.

To test whether an additive association was observed, for each model we estimated an additional model in which only control variables and either the mother latent factor or the father latent factor (but not both) was used to predict child delinquency. When we tested this model for the cross-sectional estimation, we observed that the standardized regression weight was –.42 for mother and –.15 for father. Given that the weights obtained for the mother and father models did not decline (but in fact increased as compared to Table 3), we concluded that an additive effect was observed. When we conducted similar analyses for the models in Tables 4 and 5, we observed a similar pattern of association, namely slightly larger standardized beta coefficients for the models that included both mother and father factors as predictors.

Table 3
Cross-Sectional Prediction of Wave 1 Dependent Variable (DV)

	Estimates		
Parameters	Delinquency	Depression	Alcohol
Standard regression weights			
Father involvement → W1 DV	−.23***	−.37***	−.20***
Mother involvement → W1 DV	−.50***	−.45**	−.31***
Child age → W1 DV	−.15***	−.13**	.13***
Parents' education → W1 DV	.16***	.09*	.11***
Child sex → W1 DV	−.05	.12**	.01
Biological father in home → W1 DV	.03	−.03	.00
Child age → father involvement	−.26***	−.21***	−.25***
Parents' education			
→ father involvement	.15***	.05***	.15***
Child sex → father involvement	−.13***	−.20***	−.13***
Biological father in home			
→ father involvement	.19***	.19**	.20***
Child age → mother involvement	−.34***	−.09***	−.32***
Parents' education			
→ mother involvement	.24***	.01***	.23***
Child sex → mother involvement	.21***	−.15	.26***
Biological father in home			
→ mother involvement	−.02	.00	.00
Standardized factor loadings			
Father involvement → father talk	.42***	.34***	.35***
Father involvement → father close	.58***	.59***	.56***
Father involvement → father time	.35***	.42***	.42***
Mother involvement → mother talk	.22***	.15***	.20***
Mother involvement → mother close	.32***	.43***	.25***
Mother involvement → mother time	.41***	.32***	.48***
W1 dependent variable → W1 score(a)	.92***	.92***	.92***
W1 dependent variable → W1 score(b)	.75***	.76***	.76***
Correlations between error terms			
Father talk → mother talk	.57***	.58***	.57***
Father close → mother close	.40***	.38***	.41***
Father time → mother time	.44***	.45***	.43***
χ^2	748	830	651
df	35	40	35
GFI	.96	.95	.96
RMSEA	.09	.09	.09

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

Table 4
Longitudinal Prediction of Wave 2 Scores without Controlling Baseline Score

Parameters	Estimates		
	Delinquency	Depression	Alcohol
Standard regression weights			
Father involvement → W2 DV	−.18***	−.34***	−.15***
Mother involvement → W2 DV	−.31***	−.25***	−.23***
Child age → W2 DV	−.20***	−.04	.11***
Parents' education → W2 DV	.12***	0.03	.09***
Child sex → W2 DV	−.05	.21***	−.01
Biological father in home → W2 DV	.00	.00	.00
Child age → father involvement	−.25***	−.25***	−.24***
Parents' education			
→ father involvement	.15***	.15***	.15***
Child sex → father involvement	−.13***	−.13***	−.12***
Biological father in home			
→ father involvement	.19***	.19***	.20***
Child age → mother involvement	−.32***	−.32***	−.31***
Parents' education			
→ mother involvement	.25***	.24***	.23***
Child sex → mother involvement	.25***	.25***	.27***
Biological father in home			
→ mother involvement	−.02	.01	.00
Standardized factor loadings			
Father involvement → father talk	.36***	.35***	.36***
Father involvement → father close	.56***	.57***	.56***
Father involvement → father time	.42***	.42***	.42***
Mother involvement → mother talk	.23***	.22***	.21***
Mother involvement → mother close	.28***	.28***	.24***
Mother involvement → mother time	.43***	.43***	.47***
W2 dependent variable → W2 score(a)	.85***	.96***	.98***
W2 dependent variable → W2 score(b)	.86***	.75***	.70***
Correlations between error terms			
Father talk → mother talk	.57***	.57***	.57***
Father close → mother close	.41***	.40***	.41***
Father time → mother time	.43***	.43***	.43***
χ^2	716	687	715
df	35	35	35
GFI	.96	.96	.96
RMSEA	.09	.09	.09

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

Table 5
Prediction of Wave 2 Adolescent Adjustment Controlling for Wave 1

	Estimates		
Parameters	Delinquency	Depression	Alcohol
Standard regression weights			
Father involvement → W2 DV	–.04*	–.17***	–.04
Mother involvement → W2 DV	–.02	–.07	–.05
W1 DV → W2 DV	.55***	.61***	.70***
Child age → W2 DV	–.11***	–.04	.01
Parents' education → W2 DV	.03	.02	.02
Child sex → W2 DV	–.03	.11***	–.01
Biological father in home → W2 DV	–.02	.03	.01
Child age → W1 DV	.03	.17***	.26***
Parents' education → W1 DV	–.04	–.09***	.01
Child sex → W1 DV	–.15***	.11***	–.06*
Biological father in home → W1 DV	–.02	–.09***	–.04*
Child age → father involvement	–.24***	–.24***	–.24***
Parents' education			
→ father involvement	.15***	.15***	.15***
Child sex → father involvement	–.12***	–.12***	–.12***
Biological father in home			
→ father involvement	.19***	.19***	.19***
Child age→ mother involvement	–.30***	–.30***	–.30***
Parents' education			
→ mother involvement	.24***	.24***	.24***
Child sex → mother involvement	.29***	.15***	.29***
Biological father in home			
→ mother involvement	–.01	–.01	–.01

continued

DEPRESSION

After error terms were correlated, the measurement model for depressive symptoms offered adequate fit to the theoretical model (Table 2). Analysis of the cross-sectional model reported in Table 3 showed that the mother and father involvement latent factors offered substantial predictive power to the estimation of Wave 1 depression after demographic variables were controlled, with larger regression weights for mother involvement as compared to father involvement. Table 4 reports results for the longitudinal prediction of depressive symptoms without baseline scores in the equation. These results provided evidence that both mother and father involvement were equally important predictors of Wave 2 functioning, although at this step of the analysis the

Table 5 *continued*

	Estimates		
Parameters	Delinquency	Depression	Alcohol
Standardized factor loadings			
Father involvement → father talk	.36***	.36***	.36***
Father involvement → father close	.56***	.56***	.56***
Father involvement → father time	.42***	.42***	.41***
Mother involvement → mother talk	.23***	.23***	.23***
Mother involvement → mother close	.22***	.22***	.22***
Mother involvement → mother time	.46***	.46***	.46***
W1 dependent variable → W1 score(a)	.68***	.91***	.99***
W1 dependent variable → W1 score(b)	1.02***	.83***	.71***
W2 dependent variable → W2 score(a)	.81***	.93***	.98***
W2 dependent variable → W2 score(b)	.91***	.77***	.71***
Correlations between error terms			
Father talk → mother talk	.56***	.56***	.56***
Father close → mother close	.42***	.42***	.42***
Father time → mother time	.43***	.43***	.43***
W1 score(a) → W2 score(a)	.25***	–.04	–.09***
W1 score(b) → W2 score(b)	.14**	.05	.20***
χ^2	909	1008	765
df	51	51	51
GFI	.95	.95	.96
RMSEA	.08	.09	.08

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

regression weight from father involvement to child depression was larger than the weight for mother involvement. Finally, results are reported in Table 5 to support the longitudinal model that predicted depression from mother and father involvement at Wave 2 after baseline scores and covariates were held constant. In that model, only father involvement offered significant predictive power in the explanation of variance in depressive symptoms, whereas the association with mother involvement diminished notably. When we tested whether the results reported above constituted an additive effect, as we did for delinquency, we observed an identical pattern: larger standardized regression weights for the models in which both the mother and father latent factors were used to simultaneously predict the Wave 2 child outcome measure. For example, the standardized beta weight for the longitudinal prediction of depression with baseline controlled (Table 5) was estimated at –.07 for mothers and –.17 for fathers.

Alcohol Use

As Table 2 reports, good fit was observed for the alcohol use and problems CFA. The cross-sectional prediction of alcohol use reported in Table 3 resulted in significant associations between mother and father involvement and behavior. When Wave 2 alcohol use was predicted from father and mother involvement and all the control variables except Wave 1 alcohol use, both mother and father were significant predictors, as reported in Table 4. In the final model reported in Table 5, when the alcohol use was regressed on mother and father involvement and when the control variables and Wave 1 alcohol use were retained in the model, the associations for mother and father were attenuated to a nonsignificant level. Because we did not obtain unique effects for mothers and fathers, we did not test for the additive associations.

Predictors of Mother and Father Involvement

In addition to providing evidence for the prediction of adolescent adjustment over time, these models also offered evidence for the prediction of mother and father involvement. Evidence gleaned across the models reported in Tables 2–5 suggests that child age was consistently negatively associated with mother and father involvement, parent education was positively associated with involvement, and daughters tended to have greater involvement with their mothers and less involvement with their fathers, with an opposite pattern observed for sons. Finally, biological fathers tended to be more involved with their adolescents than stepfathers, although these effects were small and inconsistent across the models, showing limited association with the dependent variables.

DISCUSSION

Gone are the days of father as "forgotten contributors to child development" (Lamb, 1975). Since that time, a body of literature has amassed to document the role of fathers in the lives of their children; however, results from nationally representative studies with longitudinal analyses have been reported less frequently. In addition, few longitudinal studies have controlled for Wave 1 scores before adding parent involvement to the estimation model. The results reported here demonstrate that mother and father involvement play only a small role in the prospective prediction of child adjustment, except in the case of adolescent depressive behaviors. Contrary to a contextual-suppression association that might suggest father involvement is one of a potentially large number of family context variables that explain variation in child adjustment, these results provide evidence in support of an additive orientation to mother and father involvement.

In this study we reported results using three separate methods of analysis that are commonly found in published studies. First, cross-sectional analyses were estimated to offer evidence as to whether mother and father involvement uniquely predict adolescent adjustment using measures that were all obtained at the same point in time. Relying on cross-sectional data is a common practice and represents the majority of studies reported in the literature, including a number of studies referenced in this arti-

cle (Amato & Riviera, 1999; Flouri & Buchanan, 2003; Forehand & Nousiainen, 1993). A review of the cross-sectional results from this study suggests strong evidence for unique associations between both mother and father involvement and delinquency, depression, and alcohol use, these effects appearing even after controlling for age and sex of adolescent and parent education. For each dependent variable, the standardized estimates for mother involvement were larger than the substantial estimates for father involvement. The cross-sectional results, taken alone, appear to provide evidence to support both contextual-suppression and additive associations. Mother involvement accounted for a substantially larger proportion of the variance in adolescent adjustment than did father involvement, but father's additive contribution to the model was not trivial and added unique predictive value. Similar results have been reported repeatedly. Next, longitudinal models of delinquency, depression, and alcohol behaviors were calculated from Wave 1 estimates of the independent variables (e.g., control variables, mother and father involvement) and Wave 2 dependent measures. In these models, the standardized estimates for mother involvement decreased notably, so much so that the magnitude of the difference between mother and father factors was less apparent for delinquency and alcohol behaviors and reversed for depressive symptoms.

In the final series of analyses, the parent involvement variables from Wave 1 were used to predict adolescent delinquency, depression, and alcohol use at Wave 2 after level of problem behavior at Wave 1 was controlled. These models were most likely to demonstrate a contextual-suppression association, and, in fact, the magnitude of the estimates for mother and father involvement was greatly attenuated to the point of being practically nonsignificant in the prediction of delinquency and alcohol use. For depression, father involvement was still an important predictor, even after controlling for Wave 1 problem behavior and mother's involvement. The longitudinal results reported here for depressive symptoms appear to support the conclusion (Forehand & Nousiainen, 1993; John et al., 1987; Lefkowitz & Tesiny, 1984) that father involvement is of emerging importance throughout late childhood, especially adolescence. It is possible that because mothers and children evidence higher levels of closeness during childhood and early adolescence, high-quality mother-child relationships in early adolescence may not have been associated with later adjustment because they tend to be more normative. It may be that the children in early adolescence who are close to both their mothers and fathers may be at the lowest risk for subsequent problematic adjustment. Furthermore, because we observed for depressive symptoms that associations between father involvement and child adjustment remained stable over the different models, whereas the estimates for mother involvement appeared to decline, an important conclusion appears to be that there is considerable stability of the relations between father involvement and child adjustment, even when other factors are controlled. Such findings suggest that father involvement explains unique variance in adjustment regardless of other factors.

Barrera and Garrison-Jones (1992) and Forehand and Nousiainen (1993) suggested that children may have lowered expectations for father-child closeness, making it all the more valuable when it occurs. However, this explanation is problematic because it implies that some adolescents in two-parent families desire closeness with their fathers but do not receive it. If this is the case, data are needed to explain

which children respond to *which* father characteristics. An important next step appears to be the identification of variables that mediate between father involvement and children's adjustment, possibly through assessment of children's social constructions of father's involvement or by accounting for bidirectional processes between parent and child over time. Subsequent analyses of other data that explore the reciprocal relations between child problem behavior and parent-child closeness over time could provide meaningful information for how parent-child relationships are both a product of child behavior as well as an antecedent. Laird, Pettit, Bates, and Dodge (2003) observed strong reciprocal influences between parents' knowledge of their adolescents' whereabouts and the delinquent behaviors of those children. Likely, similar cross-lagged effects exist between parent-child closeness and child problem behavior development. Clarification of the bidirectional links between parent-child relationships and child behavior during the adolescent transition will ultimately provide evidence that may be of benefit to family practitioners and policy.

Reported in greater depth elsewhere (see Pleck & Masciadrelli, 2004), the associations of the control variables with father and mother involvement offer interesting insight into understanding parental involvement. The trends across models demonstrated a pattern in which child age was negatively associated with reports of mother and father involvement, whereas parents' education was positively associated with involvement. In addition, biological fathers received higher ratings of father involvement than did stepfathers with no measurable association of biological father presence in the home and mother involvement. Broadly, these results provide further evidence to support the conclusion that adolescence is a transitional time in which opportunities and risks for development must be investigated more closely. In addition, in the final model, we observed that the associations between parent involvement and child adjustment declined notably when the control variables and the baseline estimates of the problem behavior were included. Given the strong stability of problem behaviors over such a short period of time (one year), it was not surprising that the association was attenuated but unexpected that parent involvement accounted for variance on top of baseline problem behavior.

There are a number of limitations that influence the ability to generalize these results. First, aside from the family structure and parent education variables, the analyses reported here rely on adolescent reported data. It is reasonable to conclude that a portion of the associations observed here resulted from shared method variance. Add Health contains a number of comparable parent involvement variables, obtained via parent report, that measure discussions with parents and closeness. However, these data were only available for the respondent parent—typically the mother—whereas information about father *and* mother involvement was only available from child report. Ideally, future nationally representative longitudinal studies will attempt to acquire measures of mother and father involvement that have been obtained from adolescents, their parents, or other sources (e.g., teacher, peer).

Another limitation is the reliance on a single measure of parent-child relationship quality and closeness. For both mothers and fathers, the latent factors for involvement were estimated from measures of parent-child closeness, discussions with parents, and shared activities with the adolescent. However, a trend exists in the results of Tables 1 and 2 in which the parent-child closeness estimates—not the

measures of discussion or shared activities—explained greater variance in both the estimation of the latent factors and prediction of the dependent variables. Future studies may benefit from multi-method approaches to the measurement of parent closeness during adolescence with the goal of clarifying the aspects of parent involvement that are predictive of child adjustment. Crockett and colleagues (1993) noted that their measurement of father involvement may have been insensitive to measurement of the important additive role of fathers. Recently, Day and Lamb (2004) published an edited volume that summarized efforts to provide greater precision in the measurement of and discourse related to father involvement. Hopefully, nationally representative studies of adolescents and family context that are conducted in the future will heed their recommendations and benefit from recent developments in measurement and conceptualization.

In closing, the data reported here demonstrate the cross-sectional and longitudinal value of mother and father involvement in predicting subsequent levels of adolescent problem behaviors, especially depressive symptoms. This paper included data from a single child and a longitudinal design, suggested by Amato and Riviera (1999) as components of an ideal study, but only used data on the key study variables from one source: the child. Social policies that affect families are constantly evolving, and these results provide evidence that residential fathering is a unique and important aspect of two-parent families. This study underscores the significance of including both mother and father involvement as possible predictors of child behavior problems. When designing intervention programs for children with behavioral problems, it is important to remember the additive effect of parents on their child's behavior, as well as the unique contribution a residential father (whether a biological father or a stepfather) has on his child.

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