

Does time with dad in childhood pay off in adolescence?

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ABSTRACT

Internalizing, externalizing, and delinquent behaviors in adolescence can trigger a cascade of negative outcomes later in life, including poor school performance, criminal justice involvement, and future psychological distress. Fathers' involvement in their children's lives and close father-child ties may play a protective role against negative, and support positive, behaviors. We draw on six waves of the Fragile Families and Child Well-Being survey, a birth cohort study representative of urban births between 1998 and 2000, to examine (1) whether father involvement in middle childhood is associated with fewer problem behaviors at age 15 and (2) if the salience of father involvement differs depending on whether the father was present in the home (i.e., was married to or living with his child's mother). We find relatively significant protective associations between father involvement and adolescent behavioral outcomes, associations which persist among even those whose fathers were not present in the home. Policies that promote greater father involvement, rather than other options such as promoting marriage, may be more effective in reducing behavioral problems among adolescents.

Over the last three decades, a contentious literature has arisen over whether, and how much, fathers matter for children, particularly when children live apart from their fathers or are from disadvantaged backgrounds. Early studies using population-based samples rarely found significant associations, leading scholars to conclude that father involvement may not matter much, if at all, for children's wellbeing. More recent studies typically find only modest associations but those that examine adolescent outcomes draw on samples that are more than two decades old.¹ Today's fathers may have greater impact on their children's lives than in previous decades, due to the greater time spent parenting (Bianchi 2011) and increasing salience of the parenting role in men's lives (Edin and Nelson, 2014; Waller 2002). For the current study, we draw on contemporary data to examine the relationship between father involvement and adolescent behaviors by using measures from the Fragile Families and Child Wellbeing study, a birth cohort study beginning in 1998 through 2000, with recent teen interviews (youth were interviewed between 2014 and 2017, at approximately age 15).

Assumptions about the importance of fathers' roles in children's lives, particularly those who live apart from their children, are woven into the nation's policies, and reveal a curious paradox. For children whose parents divorce, courts adjudicate custody and visitation when a child support order is set. In most jurisdictions, shared custody is the default. But when parents part outside of marriage, a factor often associated with disadvantage fathers are rarely granted shared custody. Furthermore, visitation orders are rarely issued when child support orders for unmarried parents are set. Implicit in this disjuncture is the assumption that divorced – and often

¹The Fragile Families youth reached middle adolescence in 2015 and 2016, over two decades after those in the National Longitudinal Study of Adolescent to Adult Health or the National Longitudinal Survey of Youth. Until very recently, scholars drawing on the Fragile Families study had been only able to examine outcomes of these youth in middle childhood (e.g., McLanahan, Sara, Laura Tach and Daniel Schneider. 2013. "The Causal Effects of Father Absence." *Annual Review of Sociology* 39(1):399-427. doi: 10.1146/annurev-soc-071312-145704.). These studies found only a modest positive impact of a father's involvement on child outcomes, especially among those who did not live with their children and/or were disadvantaged.

more advantaged – fathers matter more for children’s wellbeing than unmarried – and often less advantaged – fathers, a conclusion that has received support from the research on middle-childhood outcomes (Carlson and Magnuson 2011, McLanahan, Tach and Schneider 2013, Nelson 2004). Yet a recent examination of the large geographic difference in disadvantaged children’s chances of moving from the bottom to the top fifth of the income distribution by young adulthood, as documented by Chetty et al. (2018), shows that a key correlate of mobility is the presence of fathers in the community, measured by the proportion of males who claim children as dependents for tax purposes. This research suggests that father presence, and perhaps involvement, earlier in life may play a particularly salient role at later stages, as young people move through adolescence. If father involvement can stave off problem behaviors at this critical life stage, when youth are more vulnerable to the influences of peers and neighborhood contexts than in middle childhood, it might promote more successful transitions to adulthood and greater social mobility.

In the current paper, we explore whether teen’s behavioral outcomes in middle adolescence are influenced by father presence and involvement in middle childhood. We examine the association between several measures of father involvement at ages 5 and 9 (mothers’ reports) and perceived emotional closeness at age 9 (children’s reports), and internalizing, externalizing, and delinquent behavior at age 15 (mothers’ and youth’s reports), controlling for a rich array of covariates collected at earlier survey waves. We find evidence that father involvement in middle childhood is associated with significantly lower problem behaviors (particularly internalizing and externalizing behaviors) in adolescence. The associations between father involvement and problematic behaviors largely persist regardless of whether the father had lived with his child. Effect sizes are larger than those in studies that observed adolescent

outcomes in the mid-1990s or before. This may be because contemporary fathers may be engaging with their children more, and in more effective ways than before. The coefficients are also larger than in studies examining children at younger ages, suggesting that adolescence may be a period in the life course where the payoffs of fathers' prior investments may be especially large.

Father involvement and youth outcomes: Context

From 1940 to 1999, the percentage of all births that were to unmarried women increased from 3.8 percent to 33.0 percent (Ventura and Bachrach 2000). During this period, cohabitation also increased, and many nonmarital births were to cohabiting parents, especially as the 20th century came to a close (Cherlin 2004). Simultaneously, the divorce rate rose: While about a third of marriages in the 1950s ended in divorce, this rate rose to half in the 1980s before plateauing (Cherlin 2005).

In response to the dramatic demographic changes in the decades leading up to the 1970s, the federal government implemented the Child Support Enforcement (CSE) program in 1975. Over the years, CSE implemented new methods to track noncustodial fathers and enforce child support payments, mandating automatic wage withholding, and implementing new sanctions such as suspending drivers' and professional licenses, seizing assets, and intercepting tax returns (Legler 1996).

Scholars responded to these demographic and policy changes by trying to assess the impacts of nonresidential fathers' financial contributions. They additionally attended to the significance of time spent with children and the quality of the father-child bond (Amato and Gilbreth 1999). Studies conducted in the 1980s and 1990s, however, often had limited data on

which to draw and what data were available were usually from small, non-random, cross-sectional studies. This research showed mixed results at best (Harris, Furstenberg and Marmer 1998), leading scholars to conclude that fathers might not matter, or matter much, for their children's wellbeing.

Both the sharp decline in marital births and the implementation of policies to ensure nonresident children could benefit from their fathers' financial support pointed to the need for data that would allow for a better understanding of children living apart from their fathers. Through the 1990s, existing data sources did not represent a large proportion of nonresidential fathers and the omission of low-income fathers, who were less likely to have been married at the time their children were born, was particularly concerning (Reichman et al. 2001). The Fragile Families and Child Wellbeing Study (FF), utilized in the present paper, was designed to address these limitations. To gather data on often-excluded low-income and minority fathers, the study oversampled births to unmarried parents (Reichman et al. 2001). In addition, just prior to Fragile Families, two nationally-representative studies (the National Longitudinal Study of Adolescent to Adult Health and the National Longitudinal Survey of Youth) enrolled large numbers of youth in early and mid-adolescence, allowing researchers to capitalize on youth reports of father involvement and their own wellbeing.

In answering the question "does time with dad matter?" care must be taken to specify which kind of involvement, for which outcome, among children of which age, and for what type of father. We focus our literature review on studies that use representative samples and specify relevant details about the measures and methods employed. In addition, we limit our review to

studies of adolescent outcomes, our topic of interest, though we do review studies of outcomes of our youth captured in earlier waves of the Fragile Families study.²

Father involvement may be associated with better youth behavioral outcomes for several reasons. Fathers who are involved with, and emotionally close to, their children provide parental monitoring which can prevent youth engagement in delinquent behaviors (Keijsers 2016) and may also increase the likelihood that problematic or worrisome behaviors (e.g., internalizing and externalizing symptoms) be addressed prior to escalation. Father involvement may also reduce maternal stress, particularly by decreasing material hardship which can, in turn, limit harsh parenting often associated with worse adolescent behavioral outcomes (e.g., Kopystynska et al. 2017, Leinonen, Solantaus and Punamäki 2003).

It is also possible that father involvement may matter in different ways – or for different outcomes – depending on the living arrangements of both the parents and the child. Resident fathers provide more time and economic resources than do nonresident fathers (Amato and Gilbreth 1999, Carlson and Berger 2013) so their involvement may matter more for adolescent outcomes.

Most prior studies examine the effects of nonresident father involvement on children enrolled in grades 7-12 using the National Longitudinal Study of Adolescent to Adult Health (Add Health).³ This research draws on a number of measures of involvement among nonresident fathers: *relational quality*, measured by adolescents' reports of closeness; *accessibility*, measured

² There are also many studies drawing on small unrepresentative samples, women attending free prenatal clinics, for example. Our review excludes such studies.

³ Add Health is a nationally representative, longitudinal study of youth in grades 7-12 in the 1994-1995 school year. Youth have been followed into young adulthood with the most recent data collected in 2008 when the youth were between ages 24 and 32. Add Health provides data on family, social, psychological, and physical wellbeing, among many other (less-relevant for the purposes of this study) domains. <https://www.cpc.unc.edu/projects/addhealth>

as number of overnight stays they report with their father in the past 12 months; and *engagement*, measured by a the number of activities in which youth and their fathers participate together (see Menning 2006). Three early analyses draw only on Wave 1 (Stewart 2003) or combine data from the first two waves (Mitchell et al. 2009, Stewart and Menning 2009). One study (Hawkins, Amato and King 2007) includes both cross-sectional and longitudinal analyses examining the association of father involvement at Wave 1 with child outcomes at Wave 2. Two studies which take adolescent smoking as their outcome (Ali and Dean 2015, Menning 2006) also employ longitudinal models using the first two Add Health waves.

Each of the cross-sectional studies using Add Health limit their focus to nonresident fathers. They find positive effects of involvement among nonresident fathers on a variety of child outcomes. Stewart (2003) shows that, net of visitation, fathers' involvement in recreational pursuits had no effect on adolescent adjustment, nor did measures of authoritative parenting (i.e., working on school projects and talking about dates or parties), with the exception of "talking about other things at school," which was associated with reduced delinquency and higher grades. In this study, early adolescents' perceived emotional closeness to their father was associated with significantly lower levels of emotional distress and a higher GPA, but this did not moderate the effect of father involvement, suggesting that emotional closeness is somewhat independent of the frequency or quality of time spent. These results suggest that even (nonresident) fathers who deploy high quality parenting practices might not significantly improve their adolescent children's wellbeing.

Emotional closeness is also associated with other outcomes. Mitchell et al. (2009) found that feelings of closeness to the father significantly lowered internalizing behaviors among girls, and externalizing behaviors of boys, though the effect sizes were modest. Additionally, this

analysis found that shared activities significantly increased the school performance of both daughters and sons, while also reducing externalizing behaviors among daughters. There may also be a connection between father/child relationships and healthy eating habits. Stewart and Menning (2009) found that a multidimensional construct combining closeness, contact, and shared activities was associated with healthier dietary habits, particularly eating breakfast, though the effect sizes are small.

One cross-sectional study drawing from another nationally representative survey included both nonresident and resident fathers and found significant effects of involvement on early adolescent outcomes. Carlson (2006) merged data from the 1996 and 2000 waves of the 1979 National Longitudinal Survey of Youth (NLSY), examining the outcomes of children aged 10-14. The study found that father presence (an index based on seven items including closeness, communication, supervision and attendance at events) reduced both the size and significance of nearly all the effects of family structure on youth behavior. Father presence also had direct effects on internalizing and externalizing behaviors, delinquency, and negative feelings, though involvement was more beneficial when fathers were living with their children for every outcome except delinquency.

As research in this area matured, researchers were able to use longitudinal designs. Two such studies using Add Health examined the impact of nonresident fathers' involvement on adolescent smoking, each finding significant effects. Deploying Waves 1 and 2 (collected one to two years apart), Menning (2006), found that a one standard deviation increase in father involvement (measured as changes in a composite, standardized measure including adolescent-reported closeness to their father, frequency of overnight stays, and nine items from an activity scale) between waves was associated with about a 30 percent reduction in the odds that an

adolescent would smoke regularly, and a one standard deviation decrease in father involvement was associated with about a 40 percent increase in the odds a teen would be a regular smoker at Wave 2. Ali and Dean (2015), using the same data and multidimensional construct of father involvement as Menning (2006), found that the fathers' level of involvement at Wave 1 was associated with a decline in the probability that an adolescent would subsequently smoke regularly, an effect that persisted into young adulthood (at Wave 3, seven to eight years after the Wave 1 interview). Specifically, a one standard deviation increase in the level of father involvement at Wave 1 was associated with a 14 percent decrease in the odds of being a smoker in Wave 2, and a 13 percent decline in Wave 3.

Coley and Medeiros (2007) analyzed two waves of data from the Three-City Study, a stratified, random sample of 2,000 low-income mothers and children residing in low-income neighborhoods in Boston, Chicago and San Antonio. Nonresident father involvement here is a composite measure which includes levels of contact, feelings of closeness and taking responsibility for daily needs as measured at Wave 1. Youth enrolled in the study at age 10-14 were asked to report delinquent behaviors such as alcohol and drug use, cheating in school, and stealing 16 months later. Higher rates of father involvement in Wave 1 were associated with a lower rate of delinquency at Wave 2. The protective effect was driven by youth who were already involved in delinquent behavior at baseline. Also, an increase of delinquency between waves predicted an increase in father involvement irrespective of the initial levels of delinquency and of father involvement. This indicates that fathers whose children's behavioral problems increased between waves increased their level of involvement in response. The later finding is particularly notable as other scholars, as discussed in the next paragraph, have theorized (and sometimes attempted to test) the opposite claim, that fathers increase their engagement with

children whose health, behavior, and other characteristics make them more pleasant and rewarding to engage with.

In sum, studies using larger, population-based surveys, whether cross-sectional or longitudinal, are more optimistic about the positive impact of father involvement than earlier research, but there is an important exception. Drawing on Waves 1 and 2 of Add Health, Hawkins, Amato and King (2007) conducted a cross-lagged analysis of nonresidential fathers' involvement and found no impact of "active fathering" (level of contact, shared activities, communication, and emotional closeness) on any measure of adolescent wellbeing a year or two later. However, when active fathering and children's wellbeing were measured contemporaneously, positive fathering was associated with enhanced child wellbeing. They also found that father involvement varied by children's behavior: At each wave, fathers were more likely to be involved with their children when their children were well-behaved.⁴

While the FF study has been used to analyze the role of fathers' financial contributions to their children's wellbeing (e.g., Nepomnyaschy 2007, Nepomnyaschy and Garfinkel 2007, Nepomnyaschy and Garfinkel 2011, Nepomnyaschy, Magnuson and Berger 2012), there is limited research on father involvement and wellbeing. A recent study finds that fathers' engagement during the prenatal period was associated with reduced likelihood of the child having a low birthweight (Lee et al. 2018). Another study, examining children when they were ages 1, 3, and 5, finds that, among children born to unmarried parents, father involvement is associated with reduced problematic behaviors in early childhood (Choi, Kim and Kunz 2018).

⁴ At least one other study confirms this result. While not a study of adolescents, using the Early Childhood Long Survey-Kindergarten (ECLS-K), Hofferth & Pinzon (2011) found that children who were in better health in kindergarten saw higher levels of involvement in third grade. Here, father involvement is the mother's report of level of contact by the nonresident father in the past year, child health is measured by mother's rating.

In another study looking at children with nonresident fathers, among children born to African American single mothers, frequent and quality contact with biological fathers is associated with improved child behaviors (Choi and Jackson 2011). Other research finds that cooperative parenting, regardless of the father's residential status, is associated with reduced risk of injury among children (Nepomnyaschy and Donnelly 2015). Because the Year 15 FF data were only recently released, the current study is among the first to examine father involvement and adolescent outcomes [another manuscript, under review at the time of writing, explores whether father involvement reduces socioeconomic gaps in youth behavioral outcomes (Nepomnyaschy et al. 2018)].

Three aspects of the literature bear mention. First, these studies generally yield effect sizes that are relatively modest. Second, nearly all the extant research draws on data collected from youth who reached adolescence in the mid- to late 1990s, more than two decades ago. Meanwhile, there is evidence that men's engagement in the father role (Edin and Nelson 2013) and in fathering activities has grown. Married fathers, for example, spent 2.5 hours a week doing childcare from the mid-1960s through the mid-1980s and 7.8 hours in 2008; time spent doing childcare rose among nonresident fathers as well (Bianchi 2011).

Third, much of the research on the impact of father involvement on adolescent wellbeing has been limited to nonresident fathers. While one might presume that the quantity of involvement is higher among resident fathers on average, there is still likely to be considerable variation in time spent, in the quality of interactions, and in the closeness of the emotional bond.

Contributions of the Current Study

In the current study, we deploy the Fragile Families and Child Wellbeing Study, a unique dataset that follows children from birth to age 15 and asks mothers, fathers, and (at ages 9 and 15) children a rich battery of questions about father involvement, to examine the degree to which paternal presence and involvement in middle childhood, as measured by both mothers' and children's reports, influence their externalizing, internalizing, and delinquent behaviors in adolescence. We find strong evidence that spending time with one's father, as well as feeling emotionally close, is associated with significantly lower prevalence of internalizing and externalizing behaviors. Next, we examine whether the importance of father presence and involvement differs based on father residence. In these analyses, we find that, regardless of whether youth lived with their fathers in middle childhood, when youth spend time with or feel close to their fathers, they have fewer problematic behaviors.

Data and Sample

This study uses six waves of data from the Fragile Families and Child Wellbeing Study (<http://www.fragilefamilies.princeton.edu>). The Fragile Families and Child Wellbeing Study (FF) follows a birth cohort of about 5,000 youth born in 20 large U.S. cities between 1998 and 2000. The study oversamples youth born to unmarried parents by a 3 to 1 ratio and is representative of births to married and unmarried parents at the study's baseline. Mothers and fathers were interviewed at baseline and when the child was ages 1, 3, 5, and 9. The youth's primary caregiver (most often the mother) was interviewed when the youth was age 15 and the youth was interviewed at ages 9 and 15. Response rates from the mothers' and primary caregiver survey (at age 15) were 89% (age 1), 86% (age 3), 85% (age 5), 77% (age 9), and 73% (age 15). This dataset is well-suited for the current study because (1) FF provides unique data about father

involvement, our primary independent variable of interest; (2) it allows for the examination of household, family, and behavioral characteristics of adolescents and their families across childhood; and (3) there are multiple reporters of both father involvement and youth behaviors.

Fragile Families included 4,898 focal children at baseline. For this study, the sample is first limited to youth whose mother was their primary caregiver at age 15 (n=3,146). Then, we dropped cases where the teen was not interviewed at age 15 (n=127). Because we are interested in father involvement, we drop observations where the father is either unknown or dead at age 15 (n=150). We also wanted to ensure that the youth lived with his or her mother in early childhood (ages 1 and 3, in addition to baseline) to limit unobserved confounders that may have led to the teens not living with their mother; thus, youth who did not live with their mother at either age 1 or 3 were dropped (n=56). Next, we dropped cases where the adolescent was missing on any of the dependent variables of interest (n=22). This left us with a sample of 2,791.

Next, we imputed all missing data on the independent variables using chained multiple imputation models to create 20 datasets. Variables with the largest amount of missing data are age 3 measures gathered from in-home visits [the youth's score on the Peabody Picture Vocabulary Test (n=1,134) and Child Behavior Checklist items (n=614)]. Our analyses are conducted using the full sample (n=2,791). For descriptive statistics, proportions and means are estimated across all 20 imputed datasets.

Measures

Age 15 Youth Outcome Variables

We examine several outcome variables measured at age 15 and draw on both youth- and mother-reports.

Delinquency –

Delinquency is a scale constructed using 13 delinquency items from the age 15 youth interview. Youth were asked items including whether they had deliberately damaged property that didn't belong to you, hurt someone badly enough to need bandages or medical care, sold marijuana or other drugs, and were loud, rowdy, or unruly in public places. There were four answer choices ranging from never to five or more times. The items were summed and standardized to the analytic sample.

Internalizing behaviors –

Internalizing behaviors are measured using all variables from the mother's report of the adolescent's behaviors in the anxious/depressed (6 items) and withdrawn (2 items) subscales of the Child Behavior Checklist (CBCL; Achenbach and Rescorla 2001). These variables include youth cries a lot, feels too guilty, is too fearful or anxious, and is unhappy, sad, or depressed. Answer choices range from 1 (not true) to 3 (often true). Items were averaged and standardized to the analytic sample.

Externalizing behaviors –

Externalizing behaviors are measured using the mother's reports of the youth's behaviors from the aggressive (11 items) and rule-breaking (9 items) subscales of the CBCL (Achenbach and Rescorla 2001). These items include that the youth is disobedient at school, threatens people, lies or cheats, talks too much, sets fires, and vandalizes. Answer choices range from 1 (not true) to 3 (often true). Items were averaged and standardized to the analytic sample.

Father Involvement

Our primary independent variables of interest are measures of father involvement in middle childhood (measured at ages 5 and 9). We use several indicators of involvement, ranging from basic indicators of father presence in the household to how close the youth reported being to the father.

Parents lived together –

This variable is coded categorically as mother and father did not live together (at either middle childhood wave), lived together at one wave, and lived together at two waves.

Contact with father –

This is a categorical indicator of how frequently the father spends time with the youth. This measure is created from an item asked of the mother at ages 5 and 9 – how often the father spent at least an hour with the youth in the past month. The original variables are coded as never, 1-2 times a month, a few times a month, a few times a week, and daily. The composite measure, combining the variables from ages 5 and 9, is coded as: the father spend no time with the youth at both waves; the father spent no time with the teen at one wave and some time at the other; the father spent some time with the youth at both waves; and the father spent time with his child daily at both waves. No hour spent at both waves is used as the reference category in analyses.

Extremely close to biological father –

This variable is reported by the youth at age 9 and asks how close the adolescent feels to his or her biological father (not very close, fairly close, quite close, and extremely close). This item is asked if the youth had seen his or her father in the past year. We code teens without father contact as not very close. This item is recoded dichotomously as extremely close versus anything else.

Hour spent and cohabitation –

We construct a combined measure of the frequency of spending an hour with the biological father and cohabitation, both measured across middle childhood. This variable includes twelve categories: (1) no cohabitation and no hour spent, (2) no cohabitation and daily hour at both waves, (3) no cohabitation and no hour at one wave and some hour at the other, (4) no cohabitation and some hour at both waves, (5) one wave of cohabitation and no hour at both waves, (6) one wave of cohabitation and daily hour at both waves, (7) one wave of cohabitation and no hour at one wave and some hour at the other, (8) one wave of cohabitation and some hour at both waves, (9) two waves of cohabitation and no hour at both waves, (10) two waves of cohabitation and daily hour at both waves, (11) two waves of cohabitation and no hour at one wave and some hour at the other, and (12) two waves of cohabitation and some hour at both waves. Category one (no cohabitation and no hour spent at both waves) is used as the reference category in our analyses.

Closeness and cohabitation –

We also create a joint measure of closeness and cohabitation using the cohabitation at middle childhood variable and extremely close at age 9. This variable has six categories: (1) no cohabitation and extremely close, (2) no cohabitation and not close, (3) one wave of cohabitation and extremely close, (4) one wave of cohabitation and not close, (5) two waves of cohabitation and extremely close, and (6) two waves of cohabitation and not close. No cohabitation and not close is used as the reference category in our analyses.

Covariates

Baseline –

Baseline covariates, measured at the time of the youth's birth and reported in the mother's interview, include the parents' relationship status at the youth's birth (married, cohabiting, or other) whether the mother received assistance from either the Supplemental Nutrition Assistance Program (SNAP) or Temporary Assistance for Needy Families (TANF), the mother's education level (less than high school, high school, and at least some college), mother's age (less than 21, 21-30, 31 and older), mother's race (white non-Hispanic, black non-Hispanic, Hispanic, and other), whether the focal child is the mother's first-born, whether the mother had an alcohol or drug problem, if the father ever in jail by wave 2 (the first wave at which mothers were asked about incarceration histories, rather than incarceration at the time of the interview), household income, number of adults in the household, number of children in the household, the youth's sex, and whether the youth had a low birthweight.

Age 3 covariates –

Several covariates that might predict both father involvement and youth outcomes are measured at age 3: the mother's report of the father's cooperative parenting, standardized CBCL scores, and the youth's Peabody Picture Vocabulary Test (PPVT) score, whether the youth spent any hour with her biological father in the month prior to the interview, whether the mother was repartnered (living with the new partner), and whether the father had a biological child with a partner other than the focal child's biological mother by age 3.

Age 15 covariates –

Because adolescents' ages at the time of the age 15 interview varied, the youth's age, in months, at the age 15 interview is included.

Analytic Strategy

We first present descriptive statistics of the father involvement variables, behavioral outcomes, and covariates used in our analyses.⁵ Next, we estimate a series of ordinary least squares regression models on multiply imputed data examining the associations between each measure of father involvement in middle childhood (ages 5 and 9) and each behavioral outcome (measured at age 15) for the full sample. In these models, we control for covariates at baseline and age 3, along with the youth's age (in months) at age 15. Next, we examine categorical measures of father involvement and cohabitation to explore whether the import of spending time with fathers and being extremely close differs if the youth and father live together during middle childhood. Finally, we estimate sensitivity analyses.

Results

Descriptive Results

Descriptive statistics of father involvement are presented in Table 1. About half the sample (49.33%) did not live with both biological parents at either wave 5 or 9. About a third (36.94%) lived with both biological parents at both waves and 13.73 percent lived with both biological parents at one wave. A fifth (21.78%) of youth did not spend an hour with their biological father at both wave 5 and 9. A similar percentage (19.07%) spent an hour with their biological father at one, but not both, middle childhood waves. Just under 30 percent of youth spent at least an hour with their fathers at each wave and a similar proportion spent an hour with their fathers daily at both waves.

⁵ All analyses are conducted without weights. Because we have subset the data by factors that were not adjusted for when creating the weights and because there are differences in the current study's sample compared to the full FF sample, the weights will likely no longer adjust the sample back to the population of interest.

For the combination variable of cohabitation and time spent, the largest groups were cohabitated and spent time together daily at both waves (26.27%), no cohabitation and no hour at both waves (21.23%), no cohabitation at either wave and spent time together at one wave (13.97%), no cohabitation at either wave and spent time together at both waves (12.88%). The smallest groups were no cohabitation at either wave and spending an hour together daily and the various permutations of living together at some point but not spending an hour together at a wave.

About a third of youth in the sample did not live with both their biological mother and biological father at either wave and reported not being extremely close to their biological father. About fifteen percent did not live together but were extremely close. About a quarter reported living with both biological parents at both waves and being extremely close to their father. About 10 percent lived with both biological parents at both waves but did not report being extremely close to their father. The proportions that lived with both biological parents at only one wave is smaller and the group that reports being extremely close to their father is slightly larger than the group that does not.

<<< TABLE 1 APPROXIMATELY HERE >>>

Table 2 presents descriptive statistics of the outcome variables and baseline covariates for the full sample. For the full sample, youth reported engaging in an average of about one delinquent act (with a possible range of 0 to 12) and had average internalizing behavior scores of 0.26 and average externalizing behavior scores of 0.23 with possible ranges from 0 to 2.

About a quarter of the sample was born to married parents, a third (34.86%) to cohabiting parents, and 39.66 percent to parents who were in some other type of relationship. Over a third (35.12%) of youth's families received assistance through either TANF or SNAP at baseline.

About half the teens were female. Just under a third of mothers (30.20%) had less than a high school degree while a similar percentage (31.66%) had earned either their high school diploma or GED, and 38.14% had completed at least some college. About a quarter of mothers (26.63%) were under age 21 when the focal child was born while about half (53.55%) were between the ages of 21 and 30 and 19.82 percent were at least age 31. Just under a tenth (8.90%) of the youth had low birthweight. About 14 percent of the youth's mothers were born outside of the US. Around half the mothers in the sample were non-Hispanic black (49.29%), about a quarter were Hispanic (25.30%), 21.86 percent were non-Hispanic white, and about 4 percent were some other race or ethnicity. About a third (32.35%) of mothers reported excellent health at the time of the youth's birth and just under forty percent (39.68%) of the focal children's births were the mother's first. Approximately two and a half percent of mothers reported having an alcohol or drug problem at the time of the child's birth and 22.31 percent said that the youth's father was in jail by the wave 2 interview (when youth were approximately one year of age). Average baseline household income was \$33,559 and households had, on average, 2.26 adults and 1.21 children at that time.

At age 3, mothers reported average cooperative parenting scores of 3.21 (with a range from 1 to 4 where higher scores indicate more greater cooperative parenting). Based on how high and low CBCL and PPVT scores were defined, about a quarter of children fell into each category. About three-quarters (74.81%) of youth at age 3 had spent at least an hour with their biological father in the last month. At that wave, 8.92 percent of mothers were living with a new partner and over two-fifths (42.51%) of fathers had a child with another partner. Adolescents' average age at the time of the age 15 interview was 187.20 months or 15.58 years.

<<< TABLE 2 APPROXIMATELY HERE >>>

Multivariate Results

Delinquent behaviors –

<<<TABLE 3 APPROXIMATELY HERE >>>

As shown in Table 3, none of the father involvement variables are significantly associated with delinquent behaviors. Across all models, several covariates are associated with delinquent behaviors. Having a more highly educated or older mother, being female, and spending time with the father at age 3 were associated with a lower delinquency score. Having a mother who was black (compared to white), a mother with an alcohol or drug problem at baseline, a father who had been in jail, and higher cooperative parenting scores at age 3 are associated with higher delinquency scores. Having a father who had a child with another partner by age 3, having more children in the household, and being older at the year 15 interview are marginally associated with higher delinquency scores.

Internalizing behaviors –

<<< TABLE 4 APPROXIMATELY HERE >>>

Results from models examining the association between father involvement and internalizing behavior scale scores are presented in Table 4. The results in Column 1 show that living with both biological parents is not significantly associated with internalizing behaviors. Column 2 shows that, compared to those who do not spend time with their biological father at either middle childhood wave, youth who spend some time with their father at both waves have internalizing behavior scores that are 0.18 standard deviations lower. Youth who spend time with

their fathers daily at both waves have 0.22 standard deviation (SD) lower scores. In Column 3, results show that adolescents who report being extremely close to their biological fathers, compared to those who do not, have internalizing behavior scores that are 0.09 SD lower.

Several covariates are significantly associated with internalizing behaviors. Teens whose mothers were any race other than white and who were in excellent health at the youth's birth and whose parents had higher cooperative parenting scores had lower internalizing behaviors. Those whose parents were cohabiting at birth (compared to being married) and who had higher PPVT scores had higher internalizing behavior scores.

Externalizing behaviors –

<<< TABLE 5 APPROXIMATELY HERE >>>

Results from models examining the association between father involvement and externalizing behaviors are presented in Table 5. As seen in Column 1, youth whose biological parents lived together at both waves had 0.13 SD lower externalizing behavior scores than those whose parents did not live together at either middle childhood wave. In Column 2, compared to teens who did not spend an hour with their biological father at either middle childhood wave, those who spent at least some hour with their father at both waves had externalizing behavior scores that were 0.22 SD lower and those who spent time with their fathers daily at both waves had scores that were 0.25 SD lower. Adolescents who report being extremely close to their biological fathers have 0.12 SD lower externalizing behavior scores than those who are not extremely close to their fathers.

Several covariates are significantly associated with externalizing behaviors. Youth who were female and older and who had mothers were older (at least 31) at the time of the child's

birth, Hispanic, in excellent health at the child's birth, and whose parents reported cooperative parenting had lower externalizing behavior scores. Adolescents whose fathers had been in jail by wave 2 or who had higher PPVT scores at age 3 had higher externalizing behavior scores.

Differences in the importance of father involvement by residential status

<<< TABLE 6 APPROXIMATELY HERE >>>

Next, we examined whether the relationship between father involvement and each of the three problem behaviors differs if the father and youth live together. Because some of the categories are very small, the proportion of the sample in each category is reported in Column 7. The top panel of Table 6 shows results from three models examining the associations between a 12-level categorical measure of cohabitation/hour spent with the father and delinquent, internalizing, and externalizing behaviors. None of the categories of this variable are significantly associated with delinquent behaviors. Father involvement – regardless of residence – seems to be associated with reduced internalizing behaviors. Youth who did not live with their fathers at either middle childhood wave but spent some time with him at each wave had 0.18 SD lower internalizing behaviors and 0.27 SD lower externalizing behaviors. Youth who lived with their fathers and spent time with them daily at both waves had 0.22 SD lower internalizing behavior scores and 0.28 lower externalizing behaviors. Living with their fathers at one wave and spending time with him at both waves is marginally associated with lower internalizing behaviors, though his group is small so limited statistical power may explain the lack of traditional significance. Similarly, the small sizes of other categories may be the cause for lack of significance.

The bottom panel of Table 6 shows the associations between a cohabitation/closeness variable and the three problem behaviors. In these analyses, the reference group is not living together at either middle childhood wave and not being extremely close to their father (as reported by the youth at age 9). Column 2 shows that youth who live with their fathers at both waves and were extremely close to them have 0.14 SD lower internalizing behavior scores. In Column 3, we see that being extremely close to the biological father is associated with reduced externalizing behaviors both for youth who did not live with their fathers at either wave 5 or 9 (0.14 SD reduction) and those who lived with their fathers at both waves (0.22 SD reduction). Adolescents who lived with their fathers at both waves but were not extremely close also have marginally lower (0.13 SD) externalizing behavior scores. This joint cohabitation/closeness variable is not significantly associated with delinquent behaviors (nor was being extremely close in the model presented in Table 3).

Testing alternative model specifications

Next, we estimated models by various parental and youth characteristics to examine whether the relationship between father involvement and youth behaviors differs by the parents' relationship quality and whether this relationship differs by the sex of the youth.

When stratified by cooperative parenting scores at age 3, we see that among those who reported high cooperative parenting (a score of 4 on a scale ranging from 1 to 4 – about a third of the sample), when youth were extremely close to their fathers, there was a marginally significant association with reduced internalizing behaviors and spending some time together at only one wave is associated with increased internalizing behaviors. This latter finding may be reflective of dramatic but perhaps uncommon change in the pattern of father involvement (youth whose

parents who got along well at age 3 but then, during middle childhood, the father dropped out of the youth's life for a time). Among youth whose mothers reported lower cooperative parenting (anything below 4), results were similar to those in the main models: Being extremely close to one's father was associated with reduced internalizing and externalizing behaviors and spending time was associated with both lower internalizing and externalizing behaviors. Additionally, living with both parents at both middle childhood waves is associated with reduced externalizing behaviors. These findings suggest that father involvement may be particularly important among youth whose parents do not have a highly cooperative relationship.

Because female and male youth may display different types of problem behavior [e.g., girls may have more internalizing behaviors while boys may have more delinquent or externalizing behaviors (e.g., Eschenbeck, Kohlmann and Lohaus 2007)], we explored differences in the salience of father involvement for youth by sex depending on the outcome measured. Among boys, we find that there is a significant association between father involvement and delinquent behaviors: boys who are extremely close to their fathers have engaged in 0.13 fewer delinquent activities. There is also a marginally significant association (-0.21) between spending time daily at both waves and delinquent behaviors among boys. Reflecting the main models, for boys, consistently spending time with their fathers (whether daily or not) is associated with reduced internalizing and externalizing behaviors but the effect sizes are slightly larger than in the main models. Being extremely close to one's father is associated with significantly reduced externalizing behaviors as well. For girls, spending time with their fathers daily at both waves is associated with reduced internalizing and externalizing behaviors (and spending time together less often at both waves is marginally associated with reduced externalizing behaviors). Having a father who spends time with the child at one wave

but not the other is associated with higher engagement in delinquent behaviors, suggesting that abrupt changes in the pattern of father involvement might be harmful. Finally, feeling extremely close to their fathers was marginally associated with reduced internalizing and externalizing behaviors for girls.

Discussion

We provide two sets of models in this paper. First, we examined whether father presence and involvement in middle childhood predict three types of problematic behavior at age 15. Next, we tested whether the relationship between father involvement and problem behaviors was more salient if the father and mother lived together during middle childhood. The results across these three sets of models consistently illustrate the importance of father involvement – spending time with, and being close to, the youth at both middle childhood waves – in reducing problematic adolescent behaviors.

Illustrating this point, in the first set of models, which analyze the relationship between father involvement and behavioral outcomes, spending time with the biological father at both middle childhood waves is associated with reduced internalizing, and externalizing behaviors. Similarly, being extremely close to the biological father is associated with reduced internalizing and externalizing behaviors. Only for one outcome (externalizing behaviors) is co-residence alone at both middle childhood waves significantly associated with adolescent behaviors.

Next, we examined the relationships between both father involvement and youths' reports of perceived closeness with their fathers based on whether the father lived with his child (e.g., married to or living with the mother) in middle childhood. Here, we see that consistent time spent with fathers is important for externalizing and internalizing behaviors regardless of

whether the father lived with the child. Similarly, regardless of residential status, feeling extremely close to their father at age 9 is significantly associated with reduced externalizing behaviors in adolescence. Among those whose parents lived together in middle childhood, feeling extremely close is also associated with reduced internalizing behaviors.

Taken together, we find that father involvement, particularly spending time together, is associated with significant reductions in problematic behaviors among adolescents. These findings suggest that father presence alone might not benefit youth. In all our models, it is involvement, not mere co-residence, that matters most. While this finding holds across a range of models, there are several distinctions worth examining in further detail.

First, a wider range of father presence and involvement are beneficial for externalizing behaviors than for reductions in delinquent or internalizing behaviors. Not only time spent and perceived closeness, but also co-residence is associated with externalizing behaviors suggesting that externalizing behaviors are more sensitive to father presence. Both internalizing and externalizing behaviors appear to be shaped by both consistent time spent with fathers and the tenor of the emotional bond. In the main models, father presence and involvement do not predict delinquent behaviors.

Second, however, father involvement seems to reduce delinquent behaviors among boys. While the paper's main models show that father involvement is not associated with delinquent behaviors, we see in sensitivity analyses that father involvement, particularly being extremely close to one's father, may be effective in reducing delinquent behaviors for boys. There is also evidence that spending time with one's father daily reduced delinquent behaviors among sons.

Finally, we believe that the finding that father involvement matters even among fathers who did not live with their children is critical. As shown in Table 6, among those whose parents

did not live together in middle childhood, spending time with one's father is strongly associated with reduced problematic behaviors. Interestingly, we see that for youth with co-resident fathers, only spending an hour together *daily* is significantly associated with reductions in both internalizing and externalizing behaviors (spending at least an hour together at both waves is associated with reduced externalizing behaviors, however). This aligns with our finding that father presence – via co-residence – alone is not associated with reductions in problematic behaviors. It is direct investments of time that count.

There are possible limitations that may lead to bias in our study. We rely on the mother's report of how frequently the father spends time with the youth. If parents' relationships are contentious, the mother may underreport the father's involvement (e.g., Mikelson 2008). While it could be helpful to use an aggregate measure of father involvement based on both the mother's and father's reports, fathers' attrition from the study is much greater than mothers' and this attrition is likely not random. We are able, however, to include multiple reporters' indicators of father involvement by using youths' reports as a predictor of closeness to their father. Additionally, in our analyses of father involvement by residential status, small cell sizes in certain categories may have limited our ability to detect significant associations between some of these smaller categories and youth behavioral outcomes.

Our finding that it is father's active involvement, not simply living with both biological parents, that predicts reduced problem behaviors among adolescents has particular policy relevance: merely having one's father in the household (whether parents are married or cohabitating) does not seem to be the answer to reducing problem behaviors among youth. Instead, at least at this pivotal stage in a child's life course. It is direct involvement and, to a lesser extent, the quality of the father-child bond, that shields adolescents from problem

behaviors. Based on these findings, policies that encourage father involvement, rather than marriage, may be particularly beneficial for promoting positive adolescent behaviors. Policies that encourage father involvement, such as extending the presumption of shared custody to unmarried fathers and insuring automatic adjudication of parenting time when child support orders are set could be vital to the wellbeing of adolescents (Edin et al. Forthcoming).

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Table 1: Father Involvement in Middle Childhood (n=2,791)

	%
Mother and biological father relationship in middle childhood	
Did not live together	49.33
Lived together at one wave	13.73
Lived together at two waves	36.94
Frequency child spent an hour with biological father	
Never at both waves	21.78
Never at one wave & some at one wave	19.07
Some hour at both waves	29.70
Daily at both waves	29.45
Extremely close to biological father (age 9)	49.07

FATHER INVOLVEMENT BY RESIDENCE

Joint cohab/hr spent (12 level)

No cohab & no hour at both waves	21.23
No cohab & daily hour at both waves	1.25
No cohab & no hour at 1 wave & some hour at other	13.97
No cohab & some hour at both waves	12.88
1 wave of cohab & no hour at both waves	0.49
1 wave of cohab & daily hour at both waves	1.94
1 wave of cohab & no hour at 1 wave & some hour at other	4.36
1 wave of cohab & some hour at both waves	6.94
2 waves of cohab & no hour at both waves	0.05
2 waves of cohab & daily hour at both waves	26.27
2 waves of cohab & no hour at 1 wave & some hour at other	0.74
2 waves of cohab & some hour at both waves	9.88

Joint cohab/closeness (6 level)

No cohab & extremely close	15.39
No cohab & not close	33.93
1 wave of cohab & extremely close	7.84
1 wave of cohab & not close	5.89
2 waves of cohab & extremely close	25.83
2 waves of cohab & not close	11.11

Table 2: Descriptive Statistics of Dependent Variables and Covariates (n=2,791)

Outcomes	mean or %
Delinquency (pre-standardization, range 0-12)	1.05
Internalizing behav (pre-standardization, range 0-2)	0.26
Externalizing behav (pre-standardization, range 0-2)	0.23
Baseline Covariates	
Parents' relationship	
Married	25.47
Cohabiting	34.86
Other	39.66
Mother received SNAP or TANF	35.12
Child is female	49.27
Mother's education level	
<HS	30.20
HS or GED	31.66
At least some college	38.14
Mother's age	
<21	26.63
21-30	53.55
31+	19.82
Child had low birthweight	8.90
Mother born outside of the US	14.09
Mother's race	
White (non-Hispanic)	21.86
Black (non-Hispanic)	49.29
Hispanic	25.30
Other	3.56
Mother reported excellent health	32.35
Focal child is mother's firstborn	39.68
Mother had alcohol or drug problem	2.55
Father ever in jail by wave 2	22.31
Income	3359.09
Number of adults in HH	2.26
Number of children in HH	1.21
<i>Age 3</i>	
Mother-reported cooperative parenting (range 1-4)	3.21
CBCL score (standardized)	0.00
PPVT score	86.84
Child spent any hour with dad in last month	74.81
Mother repartnered	8.92
Father has another child with another partner	42.51

Age 15

Youth's age at year 15 interview (in months)

187.20

Abbreviations: std (standardized), SNAP (Supplemental Nutrition Assistance Program), TANF (Temporary Assistance to Needy Families), HS (high school), HH (household), CBCL (Child Behavior Checklist), PPVT (Peabody Picture Vocabulary Test)

Table 3: Association between father involvement and delinquent behaviors, results from OLS models (n=2,791)

	(1)	(2)	(3)
	Youth-reported Delinquent Behaviors (Standardized), Age 15		
Mother and biological father relationship in middle childhood (ref=did not live together)			
Lived together at one wave	0.04 (0.58)		
Lived together at two waves	-0.06 (-1.02)		
Frequency child spent an hour with biological father (ref=never at both waves)			
Never at one wave & some at one wave		0.10 (1.56)	
Some hour at both waves		-0.04 (-0.53)	
Daily at both waves		-0.12 (-1.63)	
Extremely close to biological father (age 9)			-0.06 (-1.51)
Baseline Covariates			
Parents' relationship (ref=married)			
Cohabiting	0.08 (1.46)	0.09 (1.52)	0.09 (1.64)
Other	0.07 (1.14)	0.07 (1.06)	0.08 (1.36)
Mother received SNAP or TANF at baseline	0.00 (0.06)	-0.00 (-0.02)	0.00 (0.05)
Mother's education at child's birth (ref: <HS)			
HS or GED	-0.15** (-3.05)	-0.15** (-3.01)	-0.15** (-3.05)
At least some college	-0.15** (-2.79)	-0.15** (-2.80)	-0.15** (-2.80)
Mother's age at the child's birth (ref: <21)			
21-30	-0.08 (-1.53)	-0.07 (-1.44)	-0.08 (-1.59)
31+	-0.21** (-3.09)	-0.20** (-2.97)	-0.22** (-3.20)
Child is female	-0.27*** (-7.42)	-0.27*** (-7.39)	-0.27*** (-7.32)
Child had low birthweight	-0.03 (-0.43)	-0.03 (-0.43)	-0.03 (-0.41)
Mother Born Outside of the U.S.	-0.04 (-0.64)	-0.04 (-0.63)	-0.05 (-0.85)
Mother's race (ref: White - Non-Hispanic)			

Black - Non-Hispanic	0.12*	0.12*	0.13*
	(2.23)	(2.12)	(2.42)
Hispanic	0.05	0.05	0.06
	(0.87)	(0.87)	(0.91)
Other	0.07	0.08	0.08
	(0.67)	(0.72)	(0.75)
Mother reported excellent health at child's birth	-0.06	-0.06	-0.06
	(-1.57)	(-1.62)	(-1.58)
Household income	-0.00	-0.00	-0.00
	(-0.78)	(-0.66)	(-0.93)
Focal child is mother's first-born biological child	0.01	0.01	0.01
	(0.22)	(0.20)	(0.23)
Adults in household	-0.03	-0.03	-0.03
	(-1.37)	(-1.39)	(-1.33)
Children in household	0.03+	0.03	0.03+
	(1.65)	(1.50)	(1.67)
Mother had alcohol or drug problem	0.25*	0.25*	0.26*
	(2.16)	(2.14)	(2.18)
Dad has ever been in jail by wave 2	0.14*	0.13*	0.14*
	(2.36)	(2.31)	(2.37)
Year 3 Covariates			
Child spent any hour with dad in last month	-0.17*	-0.16*	-0.17*
	(-2.48)	(-2.13)	(-2.40)
Cooperative parenting	0.06+	0.06*	0.06*
	(1.95)	(2.08)	(2.04)
CBCL score (standardized)	0.00	0.00	0.00
	(1.12)	(1.16)	(1.15)
PPVT score	0.03	0.03	0.03
	(1.55)	(1.51)	(1.50)
Mom repartnered	0.11	0.10	0.11
	(1.50)	(1.37)	(1.55)
Father has kids w/other mothers	0.08+	0.07+	0.08+
	(1.91)	(1.73)	(1.93)
Kid's age in months, age 15 interview	0.00+	0.00*	0.00+
	(1.94)	(1.97)	(1.95)
Constant	-0.84+	-0.86+	-0.85+
	(-1.81)	(-1.87)	(-1.85)

Notes: t-statistics in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Abbreviations: std (standardized), SNAP (Supplemental Nutrition Assistance Program), TANF (Temporary Assistance to Needy Families), HS (high school), HH (household), CBCL (Child Behavior Checklist), PPVT (Peabody Picture Vocabulary Test)

Table 4: Association between father involvement and internalizing behaviors, results from OLS models (n=2,791)

	(1)	(2)	(3)
	Internalizing Behaviors (Standardized), Age 15		
Mother and biological father relationship in middle childhood (ref=did not live together)			
Lived together at one wave	-0.01 (-0.12)		
Lived together at two waves	-0.07 (-1.37)		
Frequency child spent an hour with biological father (ref=never at both waves)			
Never at one wave & some at one wave		-0.07 (-1.07)	
Some hour at both waves		-0.18** (-2.65)	
Daily at both waves		-0.22** (-2.97)	
Extremely close to biological father (age 9)			-0.09* (-2.13)
Baseline Covariates			
Parents' relationship (ref=married)			
Cohabiting	0.12* (2.14)	0.13* (2.33)	0.13* (2.34)
Other	0.01 (0.14)	0.01 (0.12)	0.02 (0.35)
Mother received SNAP or TANF at baseline	0.06 (1.33)	0.05 (1.25)	0.06 (1.31)
Mother's education at child's birth (ref: <HS)			
HS or GED	0.01 (0.14)	0.01 (0.17)	0.01 (0.15)
At least some college	-0.04 (-0.68)	-0.03 (-0.64)	-0.04 (-0.70)
Mother's age at the child's birth (ref: <21)			
21-30	0.01 (0.19)	0.01 (0.29)	0.01 (0.11)
31+	0.03 (0.49)	0.04 (0.62)	0.03 (0.37)
Child is female	0.11** (2.91)	0.11** (3.02)	0.11** (3.02)
Child had low birthweight	0.06 (0.85)	0.05 (0.78)	0.06 (0.86)
Mother Born Outside of the U.S.	-0.01 (-0.13)	-0.01 (-0.15)	-0.02 (-0.38)
Mother's race (ref: White - Non-Hispanic)			

Black - Non-Hispanic	-0.49*** (-8.83)	-0.49*** (-8.88)	-0.48*** (-8.66)
Hispanic	-0.35*** (-5.52)	-0.35*** (-5.56)	-0.34*** (-5.44)
Other	-0.41*** (-3.77)	-0.41*** (-3.77)	-0.40*** (-3.70)
Mother reported excellent health at child's birth	-0.22*** (-5.65)	-0.23*** (-5.71)	-0.23*** (-5.66)
Household income	0.00 (1.20)	0.00 (1.27)	0.00 (1.08)
Focal child is mother's first-born biological child	0.06 (1.34)	0.07 (1.41)	0.06 (1.34)
Adults in household	-0.01 (-0.43)	-0.01 (-0.42)	-0.01 (-0.41)
Children in household	-0.01 (-0.66)	-0.01 (-0.67)	-0.01 (-0.67)
Mother had alcohol or drug problem	0.14 (1.20)	0.13 (1.12)	0.14 (1.20)
Dad has ever been in jail by wave 2	0.07 (1.23)	0.06 (1.14)	0.07 (1.21)
Year 3 Covariates			
Child spent any hour with dad in last month	0.11 (1.56)	0.16* (2.21)	0.11+ (1.65)
Cooperative parenting	-0.10** (-3.29)	-0.09** (-2.73)	-0.10** (-3.23)
CBCL score (standardized)	-0.00 (-0.25)	-0.00 (-0.21)	-0.00 (-0.21)
PPVT score	0.21*** (9.68)	0.22*** (9.75)	0.21*** (9.57)
Mom repartnered	0.05 (0.72)	0.05 (0.71)	0.06 (0.84)
Father has kids w/other mothers	-0.06 (-1.49)	-0.07+ (-1.73)	-0.06 (-1.44)
Kid's age in months, age 15 interview	-0.00 (-0.90)	-0.00 (-0.93)	-0.00 (-0.93)
Constant	0.97* (2.06)	0.98* (2.09)	0.96* (2.06)

Notes: t-statistics in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Abbreviations: std (standardized), SNAP (Supplemental Nutrition Assistance Program), TANF (Temporary Assistance to Needy Families), HS (high school), HH (household), CBCL (Child Behavior Checklist), PPVT (Peabody Picture Vocabulary Test)

Table 5: Association between father involvement and externalizing behaviors, results from OLS models (n=2,791)

	(1)	(2)	(3)
	Externalizing Behaviors (Standardized), Age 15		
Mother and biological father relationship in middle childhood (ref=did not live together)			
Lived together at one wave	0.04 (0.62)		
Lived together at two waves	-0.13* (-2.43)		
Frequency child spent an hour with biological father (ref=never at both waves)			
Never at one wave & some at one wave		-0.05 (-0.77)	
Some hour at both waves		-0.22*** (-3.34)	
Daily at both waves		-0.25*** (-3.38)	
Extremely close to biological father (age 9)			-0.12** (-2.95)
Baseline Covariates			
Parents' relationship (ref=married)			
Cohabiting	-0.02 (-0.31)	0.00 (0.09)	0.00 (0.06)
Other	-0.03 (-0.41)	-0.01 (-0.22)	0.00 (0.04)
Mother received SNAP or TANF at baseline	0.07+ (1.65)	0.07 (1.58)	0.07 (1.64)
Mother's education at child's birth (ref: <HS)			
HS or GED	-0.05 (-1.08)	-0.05 (-1.04)	-0.05 (-1.07)
At least some college	-0.04 (-0.71)	-0.04 (-0.65)	-0.04 (-0.74)
Mother's age at the child's birth (ref: <21)			
21-30	-0.02 (-0.35)	-0.01 (-0.25)	-0.02 (-0.48)
31+	-0.23*** (-3.37)	-0.22** (-3.27)	-0.24*** (-3.60)
Child is female	-0.08* (-2.32)	-0.08* (-2.14)	-0.08* (-2.13)
Child had low birthweight	0.09 (1.36)	0.09 (1.31)	0.09 (1.39)
Mother Born Outside of the U.S.	-0.04 (-0.64)	-0.05 (-0.80)	-0.07 (-1.09)

Mother's race (ref: White - Non-Hispanic)			
Black - Non-Hispanic	-0.05 (-1.02)	-0.05 (-0.96)	-0.03 (-0.65)
Hispanic	-0.14* (-2.30)	-0.15* (-2.40)	-0.14* (-2.21)
Other	-0.02 (-0.14)	-0.01 (-0.07)	0.00 (0.01)
Mother reported excellent health at child's birth	-0.14*** (-3.55)	-0.14*** (-3.59)	-0.14*** (-3.55)
Household income	-0.00 (-0.07)	-0.00 (-0.14)	-0.00 (-0.36)
Focal child is mother's first-born biological child	-0.08+ (-1.67)	-0.07 (-1.56)	-0.08 (-1.64)
Adults in household	-0.02 (-1.11)	-0.02 (-1.05)	-0.02 (-1.04)
Children in household	0.01 (0.86)	0.01 (0.85)	0.02 (0.89)
Mother had alcohol or drug problem	0.17 (1.45)	0.16 (1.41)	0.17 (1.49)
Dad has ever been in jail by wave 2	0.13* (2.19)	0.13* (2.08)	0.13* (2.18)
Year 3 Covariates			
Child spent any hour with dad in last month	0.05 (0.68)	0.11 (1.51)	0.05 (0.81)
Cooperative parenting	-0.07* (-2.34)	-0.06+ (-1.84)	-0.07* (-2.31)
CBCL score (standardized)	0.00 (0.33)	0.00 (0.37)	0.00 (0.38)
PPVT score	0.24*** (10.95)	0.24*** (10.95)	0.24*** (10.77)
Mom repartnered	0.09 (1.32)	0.09 (1.31)	0.10 (1.48)
Father has kids w/other mothers	0.02 (0.50)	0.01 (0.22)	0.03 (0.58)
Kid's age in months, age 15 interview	-0.01*** (-3.35)	-0.01*** (-3.35)	-0.01*** (-3.35)
Constant	1.82*** (4.04)	1.81*** (4.03)	1.79*** (3.99)

Notes: t-statistics in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Abbreviations: std (standardized), SNAP (Supplemental Nutrition Assistance Program), TANF (Temporary Assistance to Needy Families), HS (high school), HH (household), CBCL (Child Behavior Checklist), PPVT (Peabody Picture Vocabulary Test)

Table 6: Father involvement by residence & youth behaviors (n=2,791)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Delinquent behaviors		Internalizing behaviors		Externalizing behaviors		% of sample in each category
Joint cohab/hr spent (12 level, ref=no cohab/no hour)							
No cohab & daily hour at both waves	-0.19 (-1.10)		-0.08 (-0.44)		-0.15 (-0.86)		1.25
No cohab & no hour at 1 wave & some hour at other	0.09 (1.25)		-0.10 (-1.35)		-0.05 (-0.64)		13.97
No cohab & some hour at both waves	-0.06 (-0.76)		-0.18* (-2.47)		-0.27*** (-3.63)		12.88
1 wave of cohab & no hour at both waves	-0.00 (-0.01)		-0.03 (-0.09)		-0.10 (-0.36)		0.49
1 wave of cohab & daily hour at both waves	-0.14 (-0.96)		-0.15 (-1.02)		-0.11 (-0.73)		1.94
1 wave of cohab & no hour at 1 wave & some hour at other	0.13 (1.23)		-0.01 (-0.09)		-0.05 (-0.47)		4.36
1 wave of cohab & some hour at both waves	0.02 (0.22)		-0.18+ (-1.83)		-0.10 (-1.03)		6.94
2 waves of cohab & no hour at both waves	-0.47 (-0.52)		-0.48 (-0.54)		-0.22 (-0.25)		0.05
2 waves of cohab & daily hour at both waves	-0.10 (-1.21)		-0.22** (-2.80)		-0.28*** (-3.51)		26.27
2 waves of cohab & no hour at 1 wave & some hour at other	0.37 (1.51)		0.14 (0.59)		-0.20 (-0.90)		0.74
2 waves of cohab & some hour at both waves	-0.01 (-0.13)		-0.14 (-1.61)		-0.26** (-2.83)		9.88
Joint cohab/closeness (6 level, ref=cohab & not close)							
No cohab & extremely close		0.01 (0.22)		-0.08 (-1.30)		-0.14* (-2.31)	15.39
1 wave of cohab & extremely close		0.03 (0.42)		-0.05 (-0.65)		-0.04 (-0.45)	7.84
1 wave of cohab & not close		0.05		-0.02		0.01	5.89

		(0.54)		(-0.25)		(0.12)	
2 waves of cohab & extremely close		-0.10		-0.14*		-0.22***	25.83
		(-1.53)		(-2.20)		(-3.46)	
2 waves of cohab & not close		0.06		-0.03		-0.13+	11.11
		(0.81)		(-0.42)		(-1.65)	
Constant	-0.87+	-0.84+	0.99*	0.98*	1.86***	1.84***	
	(-1.88)	(-1.83)	(2.10)	(2.10)	(4.14)	(4.11)	

Notes: t-statistics in parentheses; ***p<0.001, **p<0.01, *p<0.05, +p<0.10; Models control for baseline and year 3 variables and child's age at year 15