

FATHERS' IMPORTANCE IN ADOLESCENTS' ACADEMIC ACHIEVEMENT

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Abstract: Many studies have investigated mothers' impact on students' achievement, yet little is known about how various father types impact students' school performance. This study examines 6 mutually exclusive categories of father type: resident biological fathers, resident stepfathers, resident adoptive fathers, non-resident biological fathers, unknown biological fathers, and deceased fathers. Adolescents' school performance from seventh through twelfth grade is examined using data from 3 waves of the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative United States secondary data source. Findings indicate different types of fathers have distinct and independent positive associations with adolescents' school achievement, after controlling for mother involvement. Adolescents with resident biological fathers had higher school performance than adolescents with nonresident fathers. Adolescents with stepfathers had higher rates of school failure than their peers living with their biological parents. The lowest achievement and the highest risk of school failure and course failure were experienced by those adolescents who did not have a resident father figure and didn't know the identity of their fathers. Implications include the need to model for the unique influence of father involvement and father type on academic achievement, and the inclusion of unique family contexts in efforts to increase adolescents' school involvement and integration.

Keywords: father type, father involvement, adolescents, academic achievement, school failure

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In recent years, research has increased concerning the associations of fathers' (including guardians') contributions to their children's psychosocial and academic outcomes (e.g., Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004; Martin, Ryan, & Brooks-Gunn, 2010). Studies have documented the unique contribution of fathers' activities and behaviors, since mothers and fathers differ in terms of parenting styles (Simons & Conger, 2007), parental care (Mikelson, 2008), and parental involvement (Lamb, 2004). Increased focus on fathers' roles raises new questions about the influences of different categories of fathers in children's developmental outcomes, particularly with regard to changing family dynamics such as divorce, remarriage, and unmarried childbearing (Schwartz & Finley, 2006; Perry, Harmon, & Leeper, 2012). Despite distinct categories of fathers in a variety of family dynamics, prior research studies often dichotomize father types into biological fathers versus stepfathers (e.g., Sweeney, 2007; Videon, 2004), or father presence versus father absence (e. g., Vogt Yuan & Hamilton, 2006). Many studies fail to investigate fathers' influence on children's academic outcomes, instead relying on mothers' involvement to model the effect of both parents (see An & Hodge, 2013; Lai & Vadeboncoeur, 2013; Monti, Pomerantz, & Roisman, 2014; von Otter, 2014; Sheng, 2012). As family demographics continue to evolve, research into the various influences of different father types becomes more important.

Children experience a wide range of family types and categories of father, including biological, step, adoptive, foster, and absent. The few studies that do account for different father types are inconsistent. For example, some studies have reported that children with stepfamilies have lower academic achievement and more problem behaviors (Cherlin & Furstenberg, 1994), while other studies have illustrated that the level of involvement is important, so that highly involved stepfathers were associated with academic outcomes for their stepchildren similar to those of children with resident biological fathers (Emmott & Mace, 2014; Vogt Yuan & Hamilton, 2006). However, there is some evidence that greater fathers' involvement in later schooling is correlated with lower achievement, possibly because fathers become more highly involved when students are already struggling (McBride, Dyer, Liu, Brown, & Hong, 2009). Finally, little is known about the influence of having an adoptive father on child outcomes, which is an important consideration since adoptive fathers make a legal and deliberate choice to become a father (Baumann, 1999).

The current study provides important contributions to these gaps in our knowledge by examining how fathers' roles in children's families are associated with adolescents' academic outcomes. Furthermore, the association of three types of resident father (biological, step, and adoptive) and three types of nonresident biological father (deceased, unknown, and not living with adolescents) with adolescents' school outcomes is examined. Mothers' involvement is controlled for to understand how fathers' contributions to children's outcomes emerge above and beyond mothers' involvement. Understanding fathers' various familial roles and the importance of their involvement in their children's academic lives strengthens our understanding of all aspects of family systems that impact children's lived experiences. The study utilizes secondary data and is

largely exploratory in nature. It is based within a United States sample and generalizations beyond the United States are tenuous.

Research and Theory of Father Types and Father Influence

Fathers' involvement has unique and long-term outcomes for children, although mother's involvement is the more traditional way of measuring parents' involvement (Curtis, Grinnell-Davis, & Alleyne-Green, 2017; Gordon, 2016, 2017). For example, in a longitudinal study, Flouri and Buchanan (2004) found that fathers' level of involvement in their children's educational pursuits at age 7 influenced educational attainment 13 years later when those children turned 21. Additionally, Coley, Lewin-Bizan, and Carrano (2011) found that fathers' warm and stimulating parenting predicted enhanced reading and math skills for children in middle childhood. McBride et al. (2009) found that father affection in early childhood predicted later father involvement in children's academic pursuits. McBride, Schoope-Sullivan, and Ho (2005) found that the involvement of a father figure in a child's schooling may affect student achievement beyond the influence of maternal involvement. Finally, Jeynes (2015) found in a meta-analysis of father involvement and school outcomes that father involvement contributed to students' achievement above and beyond mothers' involvement, especially for students in elementary school. However, although it is clear that fathers have unique contributions to students' outcomes, little is known about the particular contributions of different categories of fathers.

Biological Fathers

Studies have shown that in two-biological-parent families, involved fathers have a distinct positive association with children's school achievement over and above that of mothers, even after taking into account parents' education and income (Affuso, Bacchini, & Miranda, 2017; Martin et al., 2010; Tamis-LeMonda et al., 2004; U.S. Department of Education, 1998; Vasquez, Patall, Fong, Corrigan, & Pine, 2016). In the literature, most studies use two-biological-parent families as the basis of comparison for other family structures, including those with stepfathers and adoptive fathers, but few specifically focus on the fathers' unique contribution to their children's outcomes. Fathers' involvement and support in their children's lives has been associated with students' school readiness and academic outcomes when children had lower levels of mothers' involvement and support (Harris, Furstenberg, & Marmer, 1998; Martin et al., 2010); however, fathers' involvement and support has not predicted students' school outcomes when there were high levels of support from the mothers. Higher levels of father support are especially important when, for any reason, mothers are unable to provide a high level of support, even within a nuclear family structure. Even when analyses find that fathers' involvement and support are insignificant (e.g., Martin et al., 2010), or even negative (McBride et al., 2009) as a contributor to students' academic outcomes, fathers may contribute to the family in a way not yet measured given that two-biological-parent families have students with the highest academic outcomes (e.g., Manning & Lamb, 2003). Thus, biological fathers are likely contributing to the students' achievement outcomes in other ways. For example, Simons & Conger (2007) found that within two-biological-

parent households, when parents both demonstrated authoritative parenting styles, characterized by high warmth and high consistency, children had the highest academic outcomes, and children who had at least one parent with an authoritative parenting style fared better than those with no authoritative parents. Yet, they found that an authoritative father did not outweigh having an uninvolved mother (Simons & Conger, 2007). Thus, there are other mechanisms at work in a biological father's role in child rearing and students' academic outcomes.

Stepfathers

Certain stereotypes about stepfathers are well known. For example, stepfathers are seen as less loving, more conflictual, less supportive, and less involved than biological fathers, and are more strongly associated with negative outcomes for children (Planitz & Feeney, 2009). When examining the psychosocial adjustment of members of a stepfamily, Gosselin and David (2007) found that outcomes were dependent on the coping ability of all members. Furthermore, the level of communication among members of the stepfamily predicted the quality of the relationships among stepparents and stepchildren, although a high quality of communication was linked to a lower quality of relationship, perhaps due to the stepparent playing the role of a friend rather than parent and disciplinarian. Additionally, Gosselin and David (2007) found that when children engaged in meaningful activities together with their biological fathers, regardless of residence, the children reported poor relationship quality with their stepfathers.

Some literature indicates that stepfathers exhibit lower levels of warmth, acceptance, and involvement, and more negativity toward their stepchildren than biological fathers do, especially when those stepfathers have their own biological children (Lamb, 2007). However, when stepfamilies have biological children, the stepfathers' engagement with their stepchildren rises and is similar to biological fathers' engagement and involvement levels. Finally, Lamb (2007) investigated when and why stepfathers adopt their stepchildren. The few stepfathers who do adopt their stepchildren are more likely to not have their own biological children, and are in the earlier stages of their marriage to the mother.

Adoptive Fathers

In contrast, adoptive fathers have been given very little attention by researchers compared to either biological fathers or stepfathers. Limited research has found that adoption is related to increased risk of academic difficulties, external or internal problem behaviors, and other negative outcomes (Haugaard, 1998; Kriebel & Wentzel, 2011; Rodgers & Rose, 2001). Adopted children sometimes enter families with accumulated risk factors, such as poor prenatal care, or abuse prior to adoption. Kriebel and Wentzel (2011) found that when adopted children had many prior risk factors, the children had lower academic outcomes; however, children who entered an adopted family with parents who employed a child-centered parenting style, characterized by authoritative parenting with high levels of warmth and consistency, had better academic and behavioral outcomes. This parenting style acted as a moderator between the adopted children's risks and their academic outcomes. While Kriebel and Wentzel's study did not differentiate between mothers'

and fathers' parenting styles, both mothers and fathers participated in the study and contributed to the moderating effect on children's outcomes. Simons and Conger (2007) investigated parenting styles within biological families and found it to be likely that fathers provide a unique contribution to child-raising and to their children's academic outcomes (pp. 236–237).

Father Residency

Father absence in children's lives has been associated with negative academic outcomes (McLanahan, Tach, & Schneider, 2013). Compared to children with biological fathers in the household, children without fathers or those who do not live with their biological fathers were found to be less prepared for school (Fowler & Richards, 1978; Martin et al., 2010), to have lower academic achievement and cognitive ability (Cherlin & Furstenberg, 1994; Hetherington & Stanley-Hagan, 1997; Mulkey, Crain, & Harrington, 1992; Rodgers & Rose, 2001), to experience higher risk of school dropout (McLanahan & Sandefur, 1994; Suh & Suh, 2011), and to exhibit higher levels of behavior problems (King, Mitchell, & Hawkins, 2010). For instance, Menning (2006) found that when nonresident fathers had higher involvement in their children's lives, those children had a lower probability of detrimental school outcomes; the students who were most at risk were those whose fathers had infrequent involvement. Sweeney (2007) found that children without a resident father also fare poorly emotionally.

Despite the contributions these studies and theories make to our understanding of how and why fathers are important for their children's development, large gaps in our understanding remain about the associations between children's school performance and the unique contributions of father involvement activities, father types, and father residency. Using the National Longitudinal Study of Adolescent Health Database (Add Health; Udry, 2003), this study provides a detailed look into how the contributions of the different types of fathers are associated with adolescents' academic outcomes.

Our study addressed three research questions to investigate the unique association of fathers' roles in adolescent achievement: (a) Do adolescents' father type and father residency uniquely predict their academic outcomes as measured by grade point average (GPA)? It is hypothesized that adolescents with resident biological fathers have higher GPAs than those with stepfathers or no fathers. (b) For adolescents with resident fathers, is father relationship quality and educational expectation associated with GPA? It is hypothesized that different levels of father quality and expectation are associated with differences in adolescents' GPAs. Finally, (c) Are father type and father involvement associated with adolescents' school and course failure? It is hypothesized that adolescents without fathers are at a higher risk of failure than those with fathers.

Method

Data from the National Longitudinal Study of Adolescent Health (Add Health) were used for this study. Add Health is a school-based study of adolescents from 134 schools in seventh through twelfth grade (Udry, 2003). The Add Health study combines longitudinal stratified survey

data to investigate how adolescents' social environments and behaviors are associated with their health and school outcomes. Add Health selected nationally representative participants in four in-home interviews across four waves of data collection, including Wave I (1994–1995), Wave II (1996), Wave III (2001–2002), and Wave IV (2008–2009). As the present study's outcome measure was academic achievement and a majority of participants in the Add Health study were beyond high school age in Wave IV, only the first three waves are used here. All Wave III respondents were asked to complete a high school transcript release form that authorized the study personnel to collect student participants' transcripts from the last schools attended. Approximately 91% of the Wave III respondents signed a valid transcript release form and had transcript data collected, which is linked to the Wave I and Wave II data. The Add Health data set contains a rich volume of data concerning academic achievement and family background; however, it is a secondary data set, and as such researchers utilizing the data are constrained to use only the items included within the study.

Sample

From the full sample of 20,745 adolescents who completed the in-depth, in-home questionnaire in Wave I, the current study restricted the sample to those who reported information about their fathers, whose type of resident father did not change between Wave I and Wave II of data collection, and who were under 18 years old ($n = 6,992$), since young adults over age 18 may choose to live apart from their parents. An additional 398 cases were excluded because they did not indicate having a resident parent, leaving a final sample of 6,594. The sample was about equally split between males (48.6%, $n = 3,205$) and females (51.4%, $n = 3,389$). In addition, 67.4% of the adolescents lived with their biological fathers, while 26.9% did not have a resident father. Table 1 lists the frequencies of the sample by father type.

Table 1 *Sample Frequency of Adolescents With Different Father Types*

Type of father	Gender		Total	Percent
	Male	Female		
Biological father	2,250	2,194	4,444	67.4%
Stepfather	170	144	314	4.8%
Adoptive father	23	42	65	1.0%
Unknown father	100	106	206	3.1%
Deceased father	78	111	189	2.9%
Knows but does not live with bio-father	584	792	1,376	20.9%
Total	3,205	3,389	6,594	100%
Percent	48.6%	51.4%		

Because of oversampling of schools in Add Health and other features in the survey's sample designs, all analyses take account of appropriate sampling weights, and standard errors are corrected for design effects (for details, see Chantala & Tabir, 1999). We rescaled the weights so that all weights sum to the actual size of the sample dataset.

Predictor Variables

Father type: Information about the type of father present in the home was gathered from the in-home interview, specifically the household roster obtained during that interview. Information about the nonresident biological father, if any, was obtained from the in-home questionnaire. In the Add Health study, there were five categories for fathers: biological father, stepfather, adoptive father, stepfather who became adoptive father, and foster father. Due to limited sample size for the last three groups, the authors combined adoptive father and stepfather who became adoptive father into one group: adoptive father. Adolescents with foster fathers ($n = 38$) were not included in this research. Adolescents who self-reported that fathers were not present were grouped into three further categories: those whose fathers were dead, those who did not know anything about their biological fathers, and those who did not live with their biological fathers. All father types are mutually exclusive, with each adolescent in our sample paired with one specific type of father. Thus, adolescents were grouped into six categories according to their father types, three with resident father figures (biological father, stepfather, or adoptive father), and three with nonresident father figures (known biological father, unknown biological father, and deceased father).

Father influence: Five father quality variables were summed to create a composite measure to represent the quality of the relationship between the adolescent and the father figure. Wave I items included questions about how close the adolescents felt to their fathers, how warm and loving their fathers were towards them, and the quality of their communications (Cronbach's $\alpha = .89$) among others. The scale has a theoretical range of 5 to 25, with $M = 22.93$ ($SD = 2.77$). Father's educational expectation was measured using the sum of two items: how disappointed the respondent's father would be if the respondent did not graduate from college, and how disappointed he would be if the respondent did not graduate from high school during Wave I. Responses were based on a scale from 1 (*low educational expectation*) to 5 (*high educational expectation*). The scale has a theoretical range of 2 to 10, with $M = 8.81$ ($SD = 1.81$).

Control variables: Based on previous research on father involvement and children's school performance, we used gender and social economic status (SES) as control variables in the analyses. SES was created using a combination of parental income, parental education levels, and household income. Household income was derived from Wave I reports. Since around 33% of adolescents did not have resident fathers or had very limited contact with their fathers, while more than 85% lived with their biological mothers, mother's highest level of education, in years, was used for parental education level, when available. If mother's highest level of education was missing, father's highest level of education was used for parental education level. The two variables, income and parental education level, were standardized. SES is a strong indicator of academic achievement, as students from higher SES families attain higher standardized test scores across all subject domains, graduate from high school and college at greater rates, and are held back a grade at lower rates than students from lower SES families (Jimerson, Egeland, Sroufe, & Carlson, 2000; Rampey, Dion, & Donahue, 2009; Reynolds & Johnson, 2011; Warren, Hoffman,

& Andrew, 2014). Mother's influence was measured by the scales of mother quality and mother's educational expectation. Mother quality was measured using the same five summed variables from Wave I as father quality but from the perspective of the adolescent's relationship with the mother (Cronbach's $\alpha = .83$). The scale has a theoretical range of 5 to 25, with $M = 23.19$ ($SD = 2.42$). We measured mother's educational expectation using the same two summed variables from Wave I as father's educational expectation, but from the viewpoint of the mother. The scale has a theoretical range of 2 to 10, with $M = 8.73$ ($SD = 1.79$). Race and ethnicity was measured as White, Black, Asian, Native American, Hispanic, and other.

Outcome Variables

Multiple indicators of educational success were used for the analyses, including three GPA variables, one school failure variable, and one course failure variable. In addition to self-reported data in Wave I and Wave II, official indicators of school performance from students' high school transcripts in Wave III were also used in this study.

GPA: In Wave III, students were asked to sign a transcript release form authorizing Add Health to request official transcripts from the high schools they last attended, which included their academic performance for each year of high school. The cumulative overall GPA for all courses taken across all years ($M = 2.57$, $SD = 0.83$) was used in this study. If a student had only 2 years of course-taking data, his or her cumulative GPA was calculated based on those 2 years, in contrast to the typical student with 4 years of data.

Course failure: There is no self-reported course failure available in Wave I and Wave II. Therefore, the cumulative course failure from the official transcript data across all years was used. The variable is a ratio of the number of courses where the student received a failing grade over the number of courses on the student's transcript. Therefore the range of the scale is 0 to 1 with $M = 0.10$ ($SD = 0.14$).

School failure: Adolescents were asked whether they repeated a grade or had been held back a grade (0 = no, 1 = yes), received an out of school suspension (0 = no, 1 = yes), or been expelled from school (0 = no, 1 = yes). Due to the high number of zero cases, 4,973 (75.4%) of the items were dichotomized to 0 (*never having been expelled, suspended, or held back a grade*) and 1 (*having been expelled, suspended, or held back a grade*).

Analysis

The analysis was conducted in several steps. First, to account for missing data 26 data sets were imputed using STATA version 14.1, following Bodner's (2008) recommendation that the number of imputed data sets should exceed the highest percentage of missing data (quality of father relationship, Wave II; 25.6%). Next, a linear regression was conducted to study the association of each of the six categories of father type on the overall cumulative GPA across years. Covariates were SES, race/ethnicity, gender, mother quality (Wave I), and mother's educational expectation (Wave I). Third, a linear regression was used to examine the association of father type and course

failure, controlling for the same five covariates. Next, a binary logistic regression was conducted to test the relationship between father type and school failure, again using the same covariates. Mother quality and mother's educational expectation were included to allow the unique influence of fathers to be modeled separately from the influence of mothers. Finally, path analyses were conducted to examine how father quality, father's educational expectation, mother quality, mother's educational expectation, SES, and gender were associated with children's cumulative GPA and school failure. Both a full-group path analysis and a multiple-group path analysis were conducted. Father type was the grouping variable for the multiple-group path analysis. Cumulative GPA was modeled as a continuous variable and school failure was modeled as a dichotomous variable, consistent with previous analyses. Since only children with resident fathers (biological, step, and adoptive) had legitimate values on the father influence variables (father quality and father's educational expectation), only these cases were analyzed in these path analyses. Missing values were handled with the full information approach in Mplus. In addition, the residuals of the cumulative GPA and school failure variables were allowed to covary, resulting in a just-identified model with perfect model fit. Path coefficients for associations between father influence variables and the outcome variables were of interest.

Results

Father Type and Adolescents' GPAs

To test the association between father type and adolescents' GPAs, a general linear model was conducted with father type and five covariates: SES, race, gender, mother quality, and mother's educational expectation. Results indicate the main effect for father type was significant, $F(5, 6359.9) = 111.82, p < .001, R^2 = 0.16$, suggesting that the cumulative GPAs differed for adolescents who had different types of fathers, controlling for the covariates.

Pairwise comparisons were conducted to further compare father types in terms of the cumulative GPAs of adolescents, controlling for covariates. A series of linear regression models was run, each time using a different reference group for the father type variable. In relation to those with resident biological fathers, adolescents with resident stepfathers ($t = -2.45, p = .014$), unknown fathers ($t = -5.42, p < .001$), deceased fathers ($t = -2.40, p = .016$), and not living with father ($t = -8.87, p < .001$) all had significantly lower cumulative GPAs. Adolescents with resident stepfathers had significantly higher GPA scores when compared to those with unknown fathers ($t = -2.70, p = .007$) and not living with father ($t = -1.98, p = .048$). Adolescents with resident adoptive fathers had higher GPA scores when compared to those with unknown fathers ($t = -2.68, p = .008$). Finally, adolescents with unknown fathers had significantly lower GPAs than those with deceased fathers ($t = 1.99, p = .047$); see Table 2.

Father Type and Course Failure

To test the association between father type and adolescents' overall course failure, a general linear model was conducted with father type and five covariates: SES, race, gender, mother

quality, and mother's educational expectation. Results indicate the main effect for father type was statistically significant, $F(5, 6284.7) = 51.05, p < .001, R^2 = 0.10$; that is, overall course failure differed for adolescents who had different types of father.

Pairwise comparisons controlling for covariates were conducted using a series of regression models similar to that for the cumulative GPAs (see Table 3). In relation to adolescents with resident biological fathers, those with resident stepfathers ($t = 2.20, p = .028$), those with unknown fathers ($t = 4.01, p < .001$), and those not living with father ($t = 5.22, p < .001$) all had significantly higher rates of course failure. Adolescents with resident adoptive fathers had lower rates of course failure when compared to those with unknown fathers ($t = 3.26, p = .001$) and those not living with father ($t = 2.77, p = .006$).

Father Type and School Failure

To test the association between father type and adolescents' overall school failure, a binary logistic regression was conducted with father type and five covariates: SES, race, gender, mother quality, and mother's educational expectation. Results indicate the main effect for father type was statistically significant, $F(5, 6287.5) = 44.86, p < .001$; that is, the linear composite of overall school failure differs for adolescents who have different types of father.

Pairwise comparisons controlling for covariates were conducted using a series of logistic regression models, each time using a different reference group for the father type variable. Results are shown in Table 4. In relation to adolescents with resident biological fathers, those with resident stepfathers ($t = 2.03, p = .043$), resident adoptive fathers ($t = 2.74, p = .006$), unknown fathers ($t = 2.00, p = .046$), deceased fathers ($t = 3.03, p = .002$), and those not living with father ($t = 7.45, p < .001$) all had significantly higher rates of school failure. No other comparisons were significant.

Table 2 *Linear Regression Analysis of the Association of Father Types, Father Involvement, and Adolescents' GPAs*

Variable	Cumulative GPAs				
	Resident biological father	Resident stepfather	Resident adoptive father	Unknown father	Deceased father
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
SES	.25 (.02) ***	.19 (.03) ***	.16 (.03) ***	.16 (.03) ***	.18 (.04) ***
Gender ^a	.27 (.02) ***	.31 (.04) ***	.33 (.04) ***	.33 (.04) ***	.33 (.05) ***
Race ^b	-.05 (.01) ***	-.05 (.01) ***	-.04 (.01) **	-.04 (.01) **	-.05 (.01) **
M-quality	.03 (.01) ***	.03 (.01) ***	.03 (.01) **	.03 (.01) **	.02 (.01) *
M-ed expectation	.05 (.01) ***	.04 (.01) ***	.04 (.01) ***	.04 (.01) **	.04 (.01) ***
Resident stepfather	-.14 (.06)*				
Resident adoptive father	-.14 (.07)	.02 (.09)			
Unknown father	-.34 (.06) ***	-.22 (.08)**	-.25 (.09) **		
Deceased father	-.17 (.07)*	-.04 (.09)	-.07 (.10)	.18 (.09)	
Not living with father	-.25 (.03) ***	-.12 (.06)*	-.15 (.08)	.11 (.06)	-.08 (.07)
<i>R</i> ²	.16				

^aFemales were coded 0 as the reference group. ^bWhites were treated as the reference group.

p* < .05. *p* < .01. ****p* < .001.

Table 3 *Linear Regression Analysis of the Association of Father Types and Course Failure*

Variable	Cumulative course failure				
	Resident biological father	Resident stepfather	Resident adoptive father	Unknown father	Deceased father
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
SES	-.04 (.00) ***	-.03 (.01) ***	-.03 (.01) ***	-.03 (.01) ***	-.03 (.01) **
Gender ^a	-.04 (.01) ***	-.06 (.01) ***	-.06 (.01) ***	-.06 (.01) ***	-.06 (.01) ***
Race ^b	.01 (.00) ***	.01 (.00) **	.01 (.00) **	.01 (.00) **	.01 (.00) **
M-quality	-.00 (.00) ***	-.01 (.00) **	-.01 (.00) *	-.01 (.00) *	-.01 (.00) *
M-ed expectation	-.01 (.00) ***	-.01 (.00) **	-.01 (.00) *	-.01 (.00) *	-.01 (.00) *
Resident stepfather	.03 (.01)*				
Resident adoptive father	.01 (.01)	-.02 (.01)			
Unknown father	.06 (.01) ***	.03 (.02)	.05 (.02) **		
Deceased father	.02 (.02)	-.00 (.02)	.02 (.02)	-.04 (.02)	
Not living with father	.03 (.01) ***	.01 (.01)	.03 (.01) **	-.02 (.02)	.01 (.02)
<i>R</i> ²	.10				

Note. Higher scores indicate a higher number of courses failed.

^aFemales were coded 0 as the reference group. ^bWhites were treated as the reference group.

p* < .05. *p* < .01. ****p* < .001.

Table 4 *Logistic Regression Analysis of the Association of Father Types and Adolescents' School Failure*

Variable	Overall school failure				
	Resident biological father	Resident stepfather	Resident adoptive father	Unknown father	Deceased father
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
SES	-.38 (.07) ***	-.23 (.11) *	-.19 (.11)	-.18 (.11)	-.23 (.12) *
Gender ^a	-.86 (.08) ***	-.92 (.12) ***	-.94 (.13) ***	-.93 (.13) ***	-.97 (.14) ***
Race ^b	.08 (.02) **	.07 (.04)	.05 (.04)	.05 (.04)	.07 (.05)
M-quality	-.07 (.01) ***	-.07 (.02) ***	-.07 (.02) **	-.06 (.02) **	-.06 (.02) **
M-ed expectation	-.08 (.02) ***	-.08 (.03) **	-.08 (.03) *	-.08 (.03) *	-.07 (.04) *
Resident stepfather	.33 (.16)*				
Resident adoptive father	.89 (.33) ***	.51 (.36)			
Unknown father	.39 (.19) *	.10 (.24)	-.38 (.38)		
Deceased father	.63 (.21) **	.30 (.26)	-.19 (.38)	.19 (.28)	
Not living with father	.67 (.09) ***	.34 (.17)	-.16 (.33)	.22 (.20)	.04 (.22)

Note. Higher scores indicated a higher number expulsions, suspensions, or grades repeated. Standardized betas are not reported as STATA version 14 does not allow β for data using complex survey designs.

^aFemales were coded 0 as the reference group. ^bWhites were treated as the reference group.

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

Table 5 Path Coefficients from Multiple-Group Path Analysis to Predict Cumulative GPA and School Failure

Variable	Biological fathers		Stepfathers		Adoptive fathers	
	Cumulative GPA	School failure	Cumulative GPA	School failure	Cumulative GPA	School failure
	<i>B(SE)</i>	<i>B(SE)</i>	<i>B(SE)</i>	<i>B(SE)</i>	<i>B(SE)</i>	<i>B(SE)</i>
Father quality	.01 (.00) **	-.01 (.00) ***	.00 (.01)	-.02 (.01)*	-.01 (.01)	-.006(.03)
Father educational expectation	.03 (.01) ***	-.00 (.02)	.10 (.03)***	-.17 (.06)**	.09 (.08)	-.204(.16)
Mother quality	.00 (.00)	-.01 (.00) **	-.01 (.01)	.01 (.01)	.02 (.01)	-.022(.03)
Mother educational expectation	.02 (.01) *	-.04 (.01) **	-.01 (.03)	.08 (.06)	-.01 (.07)	.001(.12)
Gender ^a	.25 (.03) ***	-.49 (.06) ***	.11 (.10)	-.50 (.20)*	.42 (.16)**	-.573(.45)
SES	.29 (.02) ***	-.31 (.04) ***	.39 (.07)***	-.29 (.15)*	.24 (.10)*	-.25(.27)

Note. Adolescents without resident fathers were not included in the model because there are no resident father involvement data.

^aFemales were coded 0 as the reference group.

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

Influence of Father Quality and Educational Expectation on School Failure and GPA

Full-group analysis: Of the 4,823 children with resident fathers (biological, step, and adoptive), 3,403 of them had a valid value on at least one of the following variables: father quality, father’s educational expectation, mother quality, mother’s educational expectation, SES, and gender. These cases were used in the full-group path analysis. Figure 1 shows the model with estimated path coefficients. These predictor variables accounted for 16% of the variance in cumulative GPA and 14% of the variance in school failure.

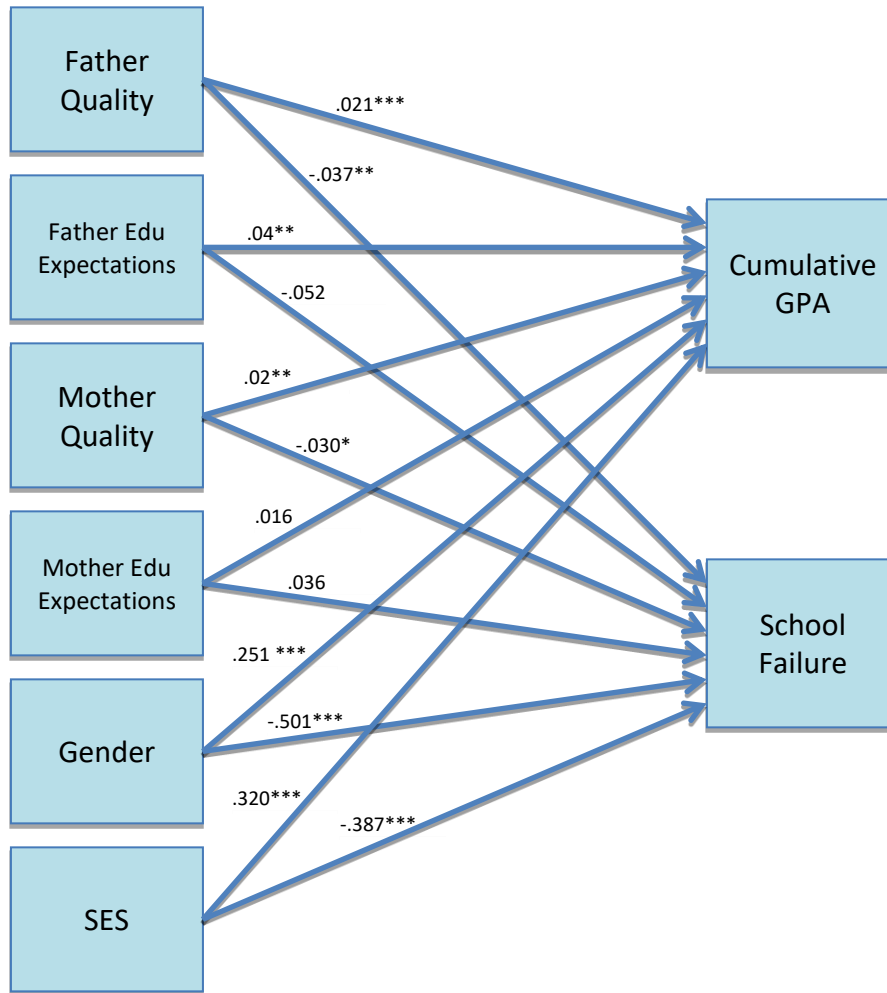


Figure 1. Full-group path analysis model with unstandardized path coefficients. Cumulative GPA was modeled as a continuous variable and school failure was modeled as a dichotomous variable. Their residuals were correlated.

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

Both father quality and father’s educational expectation were significantly associated with cumulative GPA. As father quality increased by 1 point, the child’s cumulative GPA increased by 0.02 points ($p < .001$), controlling for other predictors. As father’s educational expectation increased by 1 point, the child’s cumulative GPA increased by 0.04 points ($p < .01$), controlling

for other predictors. A significant negative association was found between father quality and school failure ($p = .001$), but father’s educational expectation was not associated with school failure ($p = .057$) at the .05 level, controlling for the other predictors. Mother quality and SES were found to be significantly associated with cumulative GPA positively and school failure negatively. In addition, female students tended to have higher cumulative GPAs and were less likely to have any school failure. We also tested whether there was any interaction between gender and the father and mother influence variables. None of the interactions was statistically significant at the .05 level.

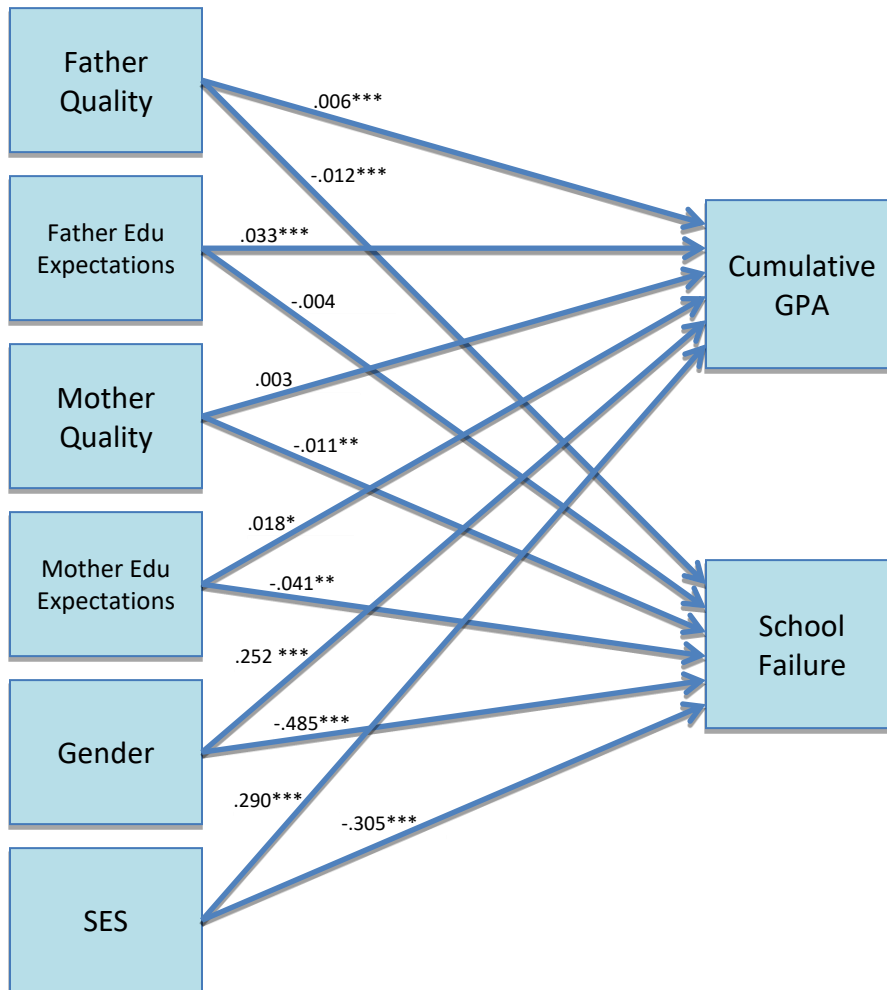


Figure 2. Path model of influence of biological father quality and father’s educational expectation on cumulative GPA and school failure.

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

Multiple-group analysis: The multiple-group analysis revealed that father quality and father’s educational expectation affected students with different types of resident fathers differently in terms of cumulative GPA and school failure. Table 5 shows the path coefficients between predictor and outcome variables for each of the three resident father types. For those

living with biological fathers, both father quality and father’s educational expectation were significantly positively associated with cumulative GPA ($p = .001$ for father quality and $p < .001$ for father’s educational expectation), controlling for other predictors. Father quality was significantly negatively associated with school failure ($p = .001$), but father’s educational expectation was not associated with school failure ($p = .81$), controlling for the other predictors. In addition, mother quality was negatively associated with school failure ($p < .01$) and mother’s educational expectation was positively associated with cumulative GPA ($p < .01$) and negatively associated with school failure ($p < .01$). Students from higher SES families and female students tended to have higher cumulative GPA and were less likely to have any school failure (see Figure 2).

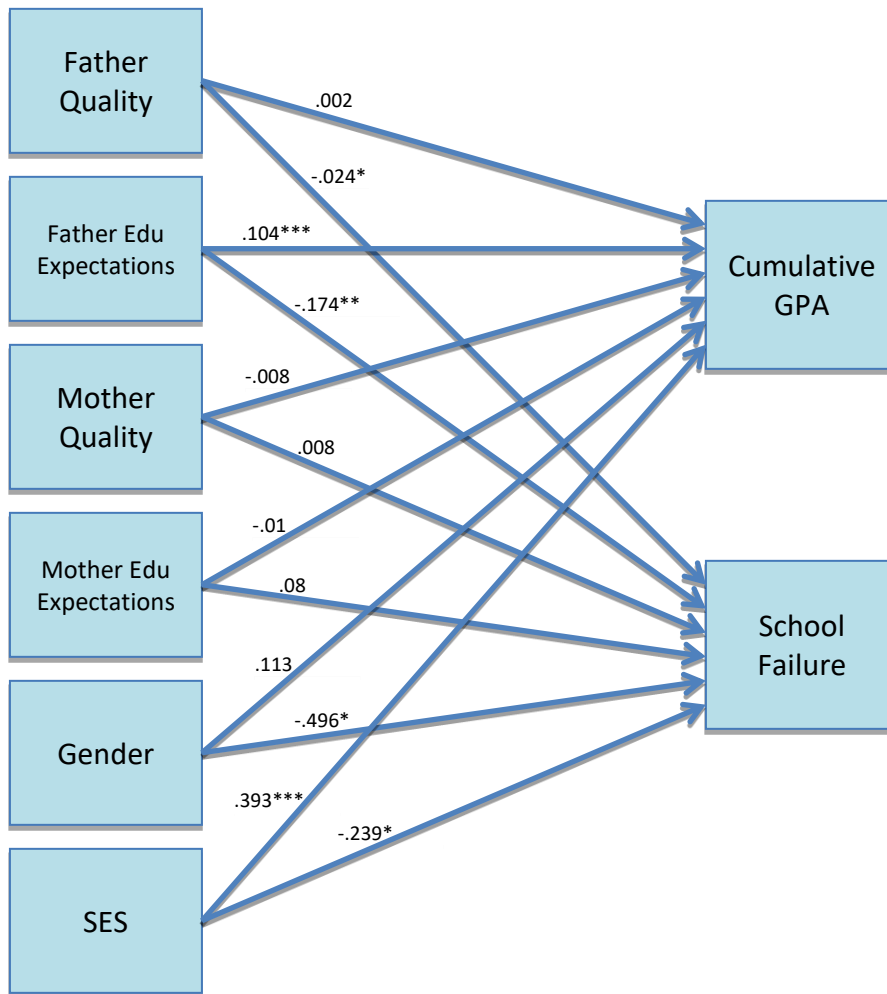


Figure 3. Path model of influence of stepfather quality and stepfather’s educational expectations on cumulative GPA and school failure.

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

For adolescents living with stepfathers, father’s educational expectation was positively associated with cumulative GPA ($p < .001$) and negatively associated with school failure ($p < .01$).

Father quality was negatively associated with school failure ($p < .05$) and not significantly associated with cumulative GPA ($p = .67$). The mother influence variables were not associated with the outcome variables. Students from higher SES families and female students tended to have higher cumulative GPA and were less likely to have school failure. However, there was no gender difference in cumulative GPA after controlling for the other predictors (see Figure 3).

For those living with adoptive fathers, neither father quality nor father's educational expectation was significantly associated with cumulative GPA after controlling for the other variables. These father influence variables were not significantly associated with school failure either. In addition, neither mother quality nor mother's educational expectation was significantly associated with cumulative GPA or school failure. Students from higher SES families and female students tended to have higher cumulative GPA but SES and gender were not significantly associated with school failure.

Discussion

Fathers matter in the lives of adolescents. Within families, fathers add unique contributions, depending upon their involvement behaviors, role types, and residency, to adolescents' school performance. Prior studies have provided important information about how the differences in dichotomies of fathers (e.g., resident vs. nonresident, or biological vs. non-biological) affect children's outcomes (Sweeny, 2007; Videon, 2004; Vogt Yuan & Hamilton, 2006). We add significantly to the literature by looking more comprehensively at the many ways relationships with their fathers comprise adolescents' lived experiences. Our findings illustrate that father type and quality of father-adolescent relationship contribute unique associations with adolescents' school performance, boosting our understanding of the importance of fathers in their children's lives. These findings are particularly important, as prior findings in the literature on fathers' unique contribution to adolescents' outcomes, above and beyond mothers' contributions, have been inconsistent (Cherlin & Furstenberg, 1994; Martin et al., 2010; McBride et al., 2009; Vogt Yuan & Hamilton, 2006). Our findings indicate that not only are fathers important, but there are differences in outcomes depending upon the type of father relationship.

Adolescents with Resident Fathers

By testing the association of father type, quality of father relationship, and adolescents' GPAs, we consistently found that adolescents living with their biological fathers and mothers had the highest GPAs, lowest course failure, and lowest levels of school failure compared to children with stepfathers and nonresident fathers. Adolescents in families with both biological parents consistently outperformed their peers, indicating that having a stable family is an important aspect of children's outcomes; although our study did not address adoptive families as such, we speculate that these outcomes might be reflected in certain other family types, including adoptive.

Adolescents in adoptive families appear to also have an advantage in some areas; for instance, the SES in adoptive families is higher than all other family compositions (Schwartz &

Finley, 2006; Troilo & Coleman, 2008). Interestingly, although overall performance for adolescents with adoptive fathers was lower than for those who lived with their biological families, the regression analysis indicated that there was not a significant difference from those with biological fathers in school or course performance. Adoptive fathers tend to have more commitment to their children because of comparatively high role clarity (Finley, 1998). These findings are consistent with the stereotype of adoptive fathers, who are perceived to be more compassionate, giving, supportive, and well meaning when compared to divorced, nonresidential, and never-married fathers (Troilo & Coleman, 2008). When adoptive fathers are more involved in adolescents' development, this can generate positive dynamics in adoptive families, which can reduce adolescents' school failure and course failure. The findings also agree with the social role theory that adoptive fathers are their children's only father figures (Finley, 1998; Troilo & Coleman, 2008); these fathers make firm commitments to the children from the beginning, which is different from stepfathers or nonresident biological fathers. These findings about adoptive fathers are important in light of Kriebel and Wentzel's (2011) findings that children with risk factors prior to adoption are at risk for poorer outcomes without parental investment and warmth. The adolescents who were adopted likely benefited from the positive dynamics of having high investment in their well-being and high involvement from their adoptive fathers.

Children raised with stepfathers appeared to be particularly vulnerable to lower academic outcomes, which corroborates prior research showing that adolescents living in families with stepfathers have significantly lower GPAs when compared to those with biological fathers (Lamb, 2007; Planitz & Feeney, 2009; White, 1994). Additionally, children raised in stepfamilies showed no advantage over children raised by single mothers, despite the higher overall family income when there are two wage earners in a family (Baumann, 1999; Gosselin & David, 2007; Planitz & Feeney, 2009; White, 1994). When a stepfather was present, despite higher familial SES, adolescents did not show significantly better school performance compared to adolescents whose fathers were dead or those who did not live with their biological fathers, after controlling for adolescents' gender, ethnicity, and mother's involvement. Moreover, stepfathers tended to be less involved in adolescents' lives compared to biological fathers and adoptive fathers. There are several possible explanations of these results. First, adding a stepparent to a family adds another familial transition in adolescents' lives, beyond the dissolution of the original biological family. It is also likely that adolescents have had lower emotional well-being following the dissolution of their biological parents' union. For example, they may have felt that they were abandoned by their biological fathers, or may have had negative feelings towards their parents for not being able to resolve their differences. Some researchers have claimed that the problems associated with family disruption are rooted in marital discord that begins long before the parents separate or divorce (Skolnick, 1991). Additionally, stepfathers may have lower overall investment in their stepchildren than biological fathers do and adolescents may have been aware of the low involvement and reacted to it, setting up conditions ripe for conflict.

Adolescents Without Resident Fathers

The results of this study show how critical biological father presence is in adolescents' lives. Father absence had many causes, including parental divorce (adolescents who knew their biological fathers but did not live with them), death, non-marital birth, and children abandoned by their fathers entirely (and so did not know anything about their biological fathers). Adolescents in the last category were the most disadvantaged group overall, with the lowest academic performance and highest risk of school and course failure. They may have had the disadvantages that often come with a single-mother household, such as low SES, lack of father involvement, and perhaps lower mother involvement, especially if the mother is working long hours to support her child or children. Adolescents also have lower socioemotional stability and experience negative feelings toward their fathers when their fathers are not available to support them emotionally, academically, spiritually, or physically (Downey, Ainsworth-Darnell, & Dufur, 1998; King et al., 2010; Menning, 2006; Popenoe, 1999; Sweeney, 2007).

One important difference emerged for adolescents without resident fathers. Adolescents whose fathers had died were not significantly different from adolescents with adoptive fathers in terms of their school performance. This finding supports the research showing children of widowed parents report significantly less life stress, less family conflict, and more support than those with stepparents (Short, 2002). Adolescents who have experienced their father's death may experience emotional loss but not the familial conflict and stress of marriage dissolution; death, unlike divorce, is not a failure of a relationship. In most cases, their fathers did not choose to leave or abandon their families and children. Moreover, in a father's death, the mother likely still retains love and admiration for him. For the adolescents, the stories that their fathers loved them and protected them remain the same, even though the paternal presence has been lost. They tend to develop positive inner feelings towards their fathers as a way of memorializing them (Silverman, Nichman, & Worden, 1992).

In contrast to adolescents with deceased fathers, school performance of adolescents who knew their biological fathers, but did not live with them, showed significant differences from that of adolescents living with their biological fathers; however, the results were similar to those of adolescents with stepfathers. They also showed a relatively higher risk for experiencing school failure and course failure. These results agree with Troilo and Coleman's (2008) finding that divorced nonresidential fathers were among the most negatively stereotyped father types. A possible reason may be that most of these adolescents knew their biological fathers, but did not live with them, and are also from divorced families, like adolescents with stepfathers.

To summarize, results of this study are consistent with stereotypes of different father types: biological and adoptive fathers are the most positively viewed, while divorced and nonresidential, and never-married fathers are the most negative (Troilo & Coleman, 2008). However, in contrast to the literature that shows fatherlessness has the same devastating consequences for all children

who are without the emotional, moral, or economic support of their fathers (Daniels, 1998), this study suggests that father absence is not equally harmful to all adolescents.

Conclusion

One important implication of our findings is that practitioners and policy makers should be aware of how important father involvement is for children's school performance. In particular, school counselors and school psychologists could be of help to adolescents with unknown fathers, by finding ways to effectively assist these adolescents to succeed academically. For policy makers, intervention policies and programs can address the need for more supportive services directed toward fatherless adolescents, in particular those with unknown biological fathers.

A key direction for future research is to explore why academic performance differs among adolescents without fathers. The findings in this study suggest that adolescents who have no knowledge of their biological fathers had significantly lower GPAs and higher school and course failure than those with deceased biological fathers and those who did not live with their fathers. It is important to examine this group of adolescents separately and explore whether adolescents with unknown fathers are also at risk for socioemotional difficulties, such as problem behaviors or emotional problems.

Limitations

The results of this study must be interpreted in light of its limitations. First, we do not know why those adolescents who did not know anything about their fathers have low academic performance and high course and school failure. Unfortunately, as this study was a secondary analysis, there is no related information available. However, we did find that these adolescents also have lower SES, mother involvement, and mother's educational expectation. Finally, this study did not examine the association of other factors, such as parent's marital status, siblings, and stepsiblings, with adolescent's school performance. In addition, it is possible that the findings could be mediated or moderated by a number of contextual factors such as same-sex or cross-sex relationships between fathers and sons or daughters, the number of children present, and the mix of the children present within the home (i.e., the number of biological, step, or adopted children, and the family makeup); however, these factors are beyond of the scope and design of the present research and represent potential future directions for research in this area.

Despite these limitations, the present study contributes to the literature about father influence on adolescents' academic achievement by providing complete comparisons of adolescents with different types of fathers and their academic outcomes. Unlike prior studies that had to rely on small and selected samples, the nationally representative longitudinal data of Add Health on adolescents and their parents allowed this study to understand broader trends among different groups of adolescents with different father types. More importantly, by separating adolescents with nonresident fathers into three groups, this study found that one group —

adolescents with no knowledge of their biological fathers — was at highest risk, suggesting that more attention needs to be paid to this group.

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