Family Structure, Parent-Child Relationships, and Self-Rated Health in Adolescence and Young Adulthood*

Bridget K. Gorman
Rice University

Holly E. Heard
Rice University

Carolyn A. Kapinus
Ball State University

*Please direct correspondence to Bridget K. Gorman, Rice University, Department of Sociology MS-28, 6100 S. Main Street, Houston, TX 77005-1892. Email: bkgorman@rice.edu. Office phone: 713-348-4137. This research uses data from Add Health, a program project designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris, and funded by grant P01-HD31921 from the National Institute of Child Health and Human Development, with cooperative funding from 17 other agencies. Special acknowledgment is due to Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Persons interested in obtaining data files from Add Health should contact Add Health, Carolina Population Center, 123 W. Franklin Street, Chapel Hill, NC 27516-2524. The authors gratefully thank Monica K. Johnson and Ken Bollen for their helpful suggestions during the writing of this paper.

ABSTRACT

While the importance of social support for health is well established, little information exists regarding the role of support from parents for the health of adolescents, or whether any benefit of parental support persists over time. Furthermore, since prior studies have demonstrated that parent-child bonds are weakened in non-intact and reconstituted families, we consider whether the salience of parental support for teen self-rated health varies by family structure. Using data from Waves I and III of Add Health, we examine the association between aspects of the parent-child relationship and self-rated health in adolescence (Wave I) and young adulthood (Wave III) for respondents living in two biological/adoptive, stepfather, and single mother families at Wave I. Unlike previous studies in this area, we include detailed measures of the parent-child relationship (e.g., perceived closeness, time spent together, parental supervision, and parental educational aspirations), and assess whether any direct effects of support from parents are observed once non-family support and other measures of adolescent well-being are controlled. Overall, our findings indicate that self-rated health is reduced for respondents who lived in stepfather or single mother families during adolescence, although the effect is reduced in young adulthood. Family structure effects at both waves are explained by mother-child relationship measures and indicators of health characteristics and behaviors. Within-family structure models show that Wave I parent-child relationship measures are stronger predictors of self-rated health at Wave I than at Wave III. The influence of mother-child relationship measures on self-rated health is largely explained by indicators of the father-child relationship and health characteristics and behaviors.

INTRODUCTION

Studies of adolescent health often focus on health behaviors (e.g., drinking, smoking, and risky sexual behavior), since rates of illness and mortality are low among adolescents in the United States. However, because of this focus on health behaviors we have less knowledge about more direct measures of physical health. This is certainly the case for self-rated health, one of the most widely examined measures of health status among adults, but an understudied health indicator among adolescents and young adults. This is an important gap in our understanding of adolescent well-being, since self-rated health among teenagers is not that much higher than for adults, suggesting that adolescents assess their health based on different criteria (see discussion by Mechanic and Hansell 1987). Adults tend to base their assessments on the presence (or absence) of existing physical health conditions, in addition to beliefs regarding their health trajectory. As a result, self-rated health among adults is strongly tied to mortality risk (Idler and Benyamini 1997). Among adolescents, however, assessments appear to be more sensitive to psychological well-being, as well as indicators of social competence (e.g., sports, grades) and perceived support from parents, friends, and other adults (Hendry and Reid 2000; Mechanic and Hansell 1987; Vilhjalmsson 1994).

This lack of attention towards self-rated health in adolescence is problematic because while adolescents in general may be quite healthy, important differences in healthfulness exist within the adolescent population. One important stratifier is family structure. The relationship between family structure and child well-being is well documented, with children living in single mother families faring worse than children living with two parents across a range of outcomes. In addition to well-founded concerns regarding academic, emotional and behavioral problems, the health and development of children raised by a single mother are also at risk (Angel and

Angel 1993). Studies of child well-being also suggest that stepfamilies have outcomes similar to those of single mother families (McLanahan and Sandefur 1994).

Explanations for the diminished health of children living in single mother families are often socioeconomic in nature, as most of the health problems are attributed to poverty and diminished access to health care services (Angel and Angel 1993). However, a focus on adolescent health provides reasons to suspect that parental support, and indeed the quality of the parent-child relationship in general, may also help explain family structure differences in self-assessed adolescent physical health. Studies have shown that children benefit directly from living in married couple families, because the presence of both parents doubles the time available to interact with a parent. However, the "incomplete institutionalization" of stepfamilies means that stepfathers are less likely to establish close parental relationships with stepchildren than biological fathers (Cherlin 1978). For single parent families, studies show that children see their mother less each week than those in two parent families (Waite and Gallagher 2000). A lack of partner support contributes to role overload for single parents, which may undermine the effectiveness of parenting (Grolnick 2003; Weiss 1979). In fact, Acock and Demo (1994) found that parenting behaviors likely to be affected by role overload, such as stressful relationships with children and harsh discipline, were some of the most important differences between single mother and married couple families.

While few studies have examined the importance of parental support and other aspects of the parent-child relationship for adolescent physical health, existing research indicates that parental support has a positive influence on adolescent physical health (Mechanic 1980; Viljhalmsson 1994; Vingilis, Wade and Seeley 2002; Wickrama, Lorenz, and Conger 1997). Furthermore, there is some evidence that parent-child relationship characteristics account for

part of the association between family structure and self-rated adolescent health (Wade, Pevalin and Vingilis 2000).

RESEARCH QUESTIONS

(1) How important is family structure for self-rated health in adolescence? While past research indicates that a substantial difference should exist between adolescents living with two biological parents versus living with a single mother, we also investigate whether the health of teenagers living in stepfather families differs from those living with two biological parents.

(2) How important are aspects of the parent-child relationship for shaping adolescent self-rated health, and are mother-child relationship measures more important for adolescent self-rated health than father-child relationship measures? Furthermore, does adjusting for parent-child relationship characteristics mediate the association between family structure and self-rated health?

(3) Does family structure in adolescence continue to matter for self-rated health in young adulthood? Do parent-child relationship measures during adolescence have any enduring effect on self-rated health in young adulthood?

DATA AND METHODS

Data

This research uses data drawn from two waves of the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative study of American adolescents initially in grades 7-12 from 134 middle and high schools in 80 communities in 1994-1995. Add Health was designed to assess the causes of adolescent health and health behavior, focusing on the multiple contexts – social and physical – in which young people live. Sampling of schools was stratified by region, urbanicity, school type (public vs. private), racial composition, and size. Data collection for Wave I occurred in two steps. First, an in-school questionnaire was administered to all students present in selected schools, resulting in over 90,000 completed questionnaires. At the same time, school administrators from each participating school completed a school administrator questionnaire regarding school characteristics. Second, a subsample of students (and one parent or parent-like figure) were selected for in-depth interviews at home, stratified within schools by sex and grade. Over 80 percent of selected students participated in the in-home interviews in 1995 (n = 20,745).

The original Wave I respondents were re-interviewed in 2001-2002 when they were between the ages of 18 and 26. As the respondents had aged substantially, this Wave III follow-up was designed to gather information on the new domains of young adult life, including relationships, health status and health behavior, parenting, higher education, and labor market experiences.[1] A total of 15,197 respondents were re-interviewed during the Wave III field-work

[1]A Wave II follow-up also occurred in 1996. However, we do not include information from this wave in our analysis because the time interval between Waves I and II was very short; for many respondents, the interval was less than one year. As a result, no significant change occurred on our dependent measure (self-rated health), and in many of our independent measures. We do not include information from all three waves because measures of parent-child relationships were not available at Wave III for the majority of respondents.

period, 14,322 of whom had valid information on sample weights. As the main purpose of this analysis is to explore the association between family structure, parent-child relationships and self-rated health, we cut 1,585 adolescents living in Wave I family types with insufficient sample sizes to support a stratified analysis (see Measures, Family Structure below). Our final sample size is 12,737 respondents.[2]

Measures

Self-Rated Health Status

Our dependent variable, self-rated health, is a continuous measure asked of respondents at both Waves I and III. Respondents were asked to rate their health in general on a five-point scale (1 = poor, 2 = fair, 3 = good, 4 = very good, and 5 = excellent). This is a powerful measure of health, as studies have consistently found it to be an independent predictor of mortality (Idler and Benyamini 1997).

Family Structure

Measures of family structure type are based on adolescent reports of the number and type of household members, taken from the household roster section of the Wave I interview. Adolescents who reported living with a mother or father were asked about the type of relationship to that resident parent (e.g., biological, step, adoptive, foster). Too few respondents lived in biological father-stepmother, single father, or other family types to sustain a separate analysis, so these cases were deleted from our sample (see above). This decision was made because parent-child relationship questions vary by family structure (see below), thus prohibiting

[2]Missing values were imputed using the "impute" command in STATA [see StataCorp (2003) for more information]. For most variables, the rate of missingness was quite low (under 1% of cases). Only four measures had a higher rate of missingness: trouble in school (1.52%), BMI at Wave I (2.55%), BMI at Wave III (2.28%), and family income (22.78%). Given the high rate of missing values that were imputed for family income, we include a control that flags imputed cases in all regression models.

a pooled analysis that includes a control for family structure. Our final sample includes children living with (1) two biological or adoptive parents (n = 8,012, 63%), (2) a mother and stepfather (n = 1,802, 14%), and (3) a single mother (n = 2,923, 23%).

In addition to family structure at Wave I, our models control for changes in family structure between Waves I and III. The household roster of the Wave III interview asks respondents about their current living arrangements. The majority of respondents (58%) did not reside in a parental home at Wave III, another 8% lived in a different family type, and the remainder (34%) resided in the same family type as they did in Wave I. Respondents who did not live in a parental home were not asked about parent-child relationships, precluding us from controlling for changes in parent-child relationships between waves.[3]

Wave I Residential Parent-Child Relationship

Since family structure alone does not tell us about the nature of the adolescent's relationship with their parents, we include nine measures of the adolescent's relationship with their residential parent(s) that may capture aspects of perceived parental support. First, we construct two measures of the adolescent's bond with their parents. We utilized exploratory factor analysis of eight items asked of respondents regarding their relationship with their resident mother and resident father, using squared multiple correlations as prior communality estimates. The principal factor method was used to extract the factors. A scree test suggested two meaningful factors, the first of which we label as *bond with mother* (variance explained by factor = 2.40). This is constructed from four items ("How close do you feel to your mother," "Most of

[3]The Wave III questionnaire did not ask most respondents living in parental homes if they resided with the exact same persons as they had in previous waves. As a result, while we can, for example, determine the number of respondents who live in mother-stepfather families in both Waves I and III, we cannot definitively ascertain whether this is the same stepfather. We thus measure stability in family *type*, as opposed to parental stability.

the time, your mother is warm and loving to you," "You are satisfied with the way your mother and you communicate with each other," "Overall, you are satisfied with your relationship with your mother"). Responses are ranked on a five-point scale and reverse-coded so higher values indicate a closer relationship or more agreement with the question. Answers are averaged, with higher scores indicating a closer relationship with mother. As this measure is highly skewed (over 80% of respondents had a strong or very strong bond with their mother), we created a dummy measure where 1 = very strong bond with mother, 0 = all other. *Very strong bond with father* is the second factor identified, and was constructed in the identical manner and from the same four questions listed for our measure of the adolescents' bond with mother, although when asked they referenced the father (variance explained by factor = 2.67). A missing category is also included due to cases in stepfather families where the respondent did not name a father living in the home.[4]

We include four measures that reflect the amount of time adolescents and parents spend together. First, we construct two measures of the *number of things the respondent talked about with his/her mother [father] in the past four weeks* (talked about someone respondent is dating or a party respondent went to, had a talk about a personal problem, had a serious argument about behavior, talked about school work or grades, and talked about other things respondent is doing in school). Responses are summed and collapsed into three categories: (1) none, (2) 1-2 topics,

[4]Questions pertaining to closeness with parents, as well as other aspects of the parent-child relationship, follow a household roster section. In the household roster, adolescents are ask to identify a "mother" and a "father" in the home; they are then queried as to what kind of mother or father this is (e.g., biological mother, step-mother, foster mother). If a child does not identify any person in the home as a mother or a father, then they skip the section that includes all of the questions pertaining to the residential parent-child relationship included in this paper. Since all family types included in this paper include a biological mother, complete information is available on all measures that include information about the mother. However, missing information is present on questions asked about the relationship with the father for some children living in stepfather families, because the respondent did not nominate their stepfather as a "father" (some were listed as "mother's husband," for example). For father-specific questions, a missing category is included to capture these respondents (see Table 1). Since no father is living in the home in single mother families, all resident parent-child relationship questions reference only the mother.

(3) 3 or more topics. We also construct two measures of the *number of activities the respondent participated in with his/her mother [father] in the past four weeks* (gone shopping, played a sport, gone to a religious service or church-related event, gone to a [movie, play, museum, concert, or sports] event, and worked on a project for school). Responses are summed and collapsed into three categories: (1) none, (2) 1-2 activities, (3) 3 or more activities.

Related to time spent with parents, we also include a summary measure of *parental control*. This is constructed from responses to seven yes-no items of whether or not parents let respondents make their own decisions about weekend curfew, friends, what clothes to wear, how much TV to watch, which TV programs to watch, bedtime, and what to eat. Scores range from 0 to 7, with higher scores representing higher levels of parental control.

Our final measures of the residential parent-child relationship are two items regarding *maternal and paternal college aspirations for the adolescent* ("How disappointed would your mother [father] be if you did not graduate from college?"). Responses ranged from 1 = low disappointment, to 5 = high disappointment. Because these measures were highly skewed, we dichotomized each in order to contrast those who believe their mother [father] has high college aspirations for them (1 = high disappointment if did not graduate from college), against all other responses (0 = all lower).

Wave I Relationship with Non-Resident Father

As children who live in both stepfather and single mother homes can also be influenced by their relationship (or lack thereof) with their non-resident father, we include two additional measures to capture aspects of this relationship. First, we include a dichotomous measure of whether the respondent *ever lived with their non-resident father* (1 = yes, 0 = no). Second, we created an index of *time spent with non-resident father.* This is constructed from three items: "In

the last 12 months, about how often have you stayed overnight with him?"; "In the last 12 months, about how often have you talked to him in person or on the telephone, or received a letter from him?" Responses to both items ranged from 0 = not at all, to 5 = more than once a week. The third item is a count of how many things the respondent has done with their biological father in the past four weeks.[5] Our index of time spent with non-resident father is the average of the responses to these three questions, where 0 = no interaction with father, and 5 = spent a great deal of time with father (α = .82).

In addition to including a detailed set of measures regarding the parent-child relationship, we also control for other forms of social support, adolescent characteristics, as well as socioeconomic and demographic controls (see below). We incorporate these measures into our model building in order to examine whether any observed association between closeness with parents and self-rated health can be accounted for by support from persons other than parents, adolescent characteristics (e.g., self esteem, smoking, gender), or parental resources (income, education).

Wave I Socioeconomic Status and Demographic Characteristics

We control for measures of socioeconomic status in our models, as one large difference between children living in different family types is the wide disparity in economic resources available within families; that is, children living with two married, biological parents tend to come from homes with higher educated parents who earn more income (Lichter and Crowley 2002). As such, we control for socioeconomic status in order to test whether differences in parental resources across family forms account for any observed differences we might see in the

[5]See activities and topics discussion with residential mother (described above) for a list of specific responses. Range: 0-10; we divide this by 2 so the range is from zero to five.

relationship between parent-child relationships and self-rated health. Furthermore, economic disadvantage is strongly associated health status.

Family income is included as a continuous measure of total family income in 1994. Missing values are imputed (see footnote #2), and a dummy measure was created as a control to mark missing cases since a large percentage of cases (22.8%) were missing. A continuous measure of *parental education* is also included, representing the average grade of completed schooling of the respondent's mother and father (1 = 8th grade or less, 2 = more than 8th grade, but did not graduate from high school, 3 = went to business, trade, or vocational school instead of high school, 4 = high school graduate or GED, 5 = went to a business, trade or vocational school after high school, 6 = went to college but did not graduate, 7 = graduated from college or university, and 8 = professional training beyond a 4-year college or university).

We also include standard demographic characteristics. In addition to *gender*, the *age of the adolescent at Wave I interview* is included as a continuous measure. *Race/ethnicity* of the respondent is also included, given the wide racial disparity in health status in the United States**.** Race/ethnicity is included as a categorical measure, where 1 = non-Latino white (reference), 2 = non-Latino black, 3 = Latino, and 4 = all other.

Wave I Friend and School Support

We also control for adolescent characteristics that may mediate any association between parental closeness and self-rated health. Three adolescent characteristics are included that are measured only at Wave I. The first two capture aspects of perceived non-family support. Respondents were asked to report how much they felt that "friends care about you" and "teachers care about you." Responses range from 1 = not at all, to 5 = very much. In addition, an index was constructed from four questions that tap the amount of trouble the respondent was

having in school (problems getting along with teacher, trouble paying attention in school, trouble getting homework done, and trouble getting along with other students). Responses are summed, and because the measure was skewed toward little trouble a dichotomous measure was created where 1 = 0-1 problems (little to no school problems), and 0 = 2+ problems (α = .71).

Wave I – III Adolescent Health Characteristics and Behaviors

Five measures are also included that are measured both at Waves I and III. For each, we construct a measure of Wave I status, and then construct a measure of change from Wave I to Wave III (i.e., we subtract the Wave I value from the Wave III value). First, we construct a measure of depressive symptoms, based on averaged responses to nine questions (α = .79) regarding respondents' emotional state during the last week (e.g., "You were bothered by things that usually don't bother you," "You felt sad," "You were too tired to do things"). Second, we construct a measure of self-esteem, based on averaged responses to four questions ("You have a lot of good qualities," "You have a lot to be proud of," "You like yourself just the way you are," "You feel like you are doing everything just about right"), where 1 = strongly agree, and 5 = strongly disagree (α = .80).

Body Mass Index is included as a continuous measure, based on height and weight. *Frequency of physical activity during the last week* (e.g., aerobics, active sports) is also included as a continuous measure, where 0 = none, 1 = 1-2 times, 2 = 3-4 times, and 3 = 5 or more times. Finally, we include a dichotomous measure of whether respondents have *smoked cigarettes during the last 30 days* (1 = yes, 0 = no), as the past studies have demonstrated that teen smoking behavior is influenced by the quality of the parent-child relationship (Steinberg 2000).

Due to the complex sampling strategy employed to collect the Add Health data (a multistage, stratified, school-based, cluster sampling design), the models presented below are

estimated using the Huber or White estimator of variance in STATA (see Chantala and Tabor 1999). Rather than assuming that observations are independent, STATA corrected for the intracluster correlation that occurs because of the complex sample design, producing standard errors that are more accurate and reducing the chance of false-positive significance tests. In addition, we used weights in all analyses because some ethnic groups are oversampled.

RESULTS

Descriptive Statistics

Table 1 presents weighted means and percentages for self-rated health and each independent predictor. We see that at both waves respondents rate their health as very good, although the change from 3.90 to 4.01 between Waves I and III is a significant increase. While the self-rated health status of persons improved significantly in each family type, those who lived in single parent or stepfather families reported significantly poorer health than persons living with two biological parents, at both waves.

— Table 1 about here —

Several interesting observations can also be made about family structure differences in the parent-child relationship. First, and somewhat surprisingly, there is no significant difference in adolescent viewpoints regarding how close they feel to their mother. Just over half of adolescents in each family type report that they have a very strong bond with her. Second, teenagers in stepfather families talk with their mother the most, while teens in two parent families talk to their mother the least (e.g., 51% vs. 42% discussed three or more topics in the last month, respectively). Yet, adolescents living with two parents report participating in the most activities with their mother, while those in stepfather families report the least. Third, teens

living with two parents report significantly higher college aspirations from their mother than teens living in single parent families, and report that their parents exert a greater amount of control over their activities.[6]

As documented in other studies, adolescents living in step and single parent families are the most at-risk socioeconomically; they live in poorer families, with less well-educated parents, than children living with two parents. Teens living with two parents also report that they feel more supported by friends and teachers than teens living in step or single parent families, and they report fewer problems in school.

Furthermore, adolescents in two parent families report less depression, higher self-esteem, higher amounts of physical activity, lower BMIs, and less smoking than teens in either step or single parent families, and often these differences are significant. Interestingly, there is little difference in how much respondents change on these factors between waves, with the exception of depression and self-esteem. Relative to respondents living with two parents at Wave I, those living in stepfather families experienced a significantly larger drop in depression scores, and a significantly higher increase in self-esteem. This finding may be related to family structure changes that occurred between Waves I and III. Of all respondents at Wave I, those living in stepfather families were the least likely to be living in this same family type at Wave III. Indeed, only 18 percent of respondents living in a stepfather family at Wave I were still living in this family type at Wave III, compared to 32 percent of teens living in single mother families, and 38 percent of teens living with two parents. While the majority of respondents in

[6]We do not comment on family structure differences in father-child relationships in Table 1, as the observed differences are "by design" in that they are driven by the high level of missingness in stepfather families (see Footnote #3).

each family type reported living outside the parental home at Wave III, the percentage was greatest among those who had lived in a stepfather family at Wave I (67%).

Self-Rated Health at Wave I

Research Questions: How important is family structure for self-rated health in adolescence? Does the quality of the parent-child relationship matter, and how much does this mediate the association between family structure and self-rated health?

Table 2: Full Sample

- Model 1 (baseline model) shows that while mother-child relationship characteristics have a significant effect on self-rated health, they mediate very little of the association between family structure and self-rated health. Important aspects of the mother-child relationship: bond with mother, activities together in the past month, and perceived college aspirations.
- Model 2 adds demographic and socioeconomic controls. Some small mediation of family structure effect, but does not alter mother-child relationship variables. SES operates in the predicted manner (higher SES = better health). Older age and being male are also associated with better health. Surprisingly, black teens report better health than white teens (but this was not significant in the bivariate – suppressor effect).
- Model 3 adds perceived support from friends and teacher, along with whether respondents report few problems in school. All have a strong, positive effect on self-rated health. Further, they mediate some of the family structure effect, and some of the parent-child relationship measures.

- Model 4 (full model) adds adolescent characteristics and behaviors. All have a strong, significant association with self-rated health, and account for most of the association between family structure and health. Indeed, these measures appear to account for the remaining difference in self-rated health between teens living in single parent and two parent families, although a small but significant difference continues between teens in stepfather and two parent families. In addition, adjusting for characteristics and behaviors at Waves I and III reduces bond with mom, educational aspirations, and maternal control to non-significance. Of the mother-child relationship measures, only teens who report a moderate amount of activities with their mother (1-2 in the past month) are significantly advantaged on self-rated health.

Table 3: Stratified by Family Structure

- The purpose of this table is to investigate whether mother-child relationship measure operate differently by family type. Furthermore, by stratifying the sample by family structure we can incorporate measures of the father-child relationship, both residential and non-residential (something we are unable to do in the pooled models; see footnote #4 for more information).
- Two parent families: strong, significant effects of mother-child in Model 1. This is mediated, in part, by father-child measures in Model 2. When considered together, we see that bond with mother and father are independent predictors of self-rated health. Parental control and activities with mother is also significant, although activities with father has the strongest, positive effect on self-rated health. Controlling for demographic characteristics, SES, social and school support, and other health characteristics and

behaviors reduces most of the parent-child relationship measures to non-significance. However, activities with father retains its positive association with self-rated health.

- Stepfather families: Fewer significant parent-child measures for these respondents, even in the baseline model. Indeed, the two maternal-child measures that were significant in Model 1 (bond with mother and activities with mother) lose significant once father-child relationship measures are introduced in Model 2. However, Model 3 indicates that two measures have a significant effect on self-rated health, even after adjustment for controls. First, teens who report a very strong bond with their stepfather report better health, while teens who do not nominate their stepfather as a father figure report worse health.
- Single mother families: mother-child relationship factors have no effect on self-rated health once controls are introduced in Model 3.

Self-Rated Health at Wave III

Research Questions: Does family structure in adolescence continue to matter for self-rated health in young adulthood? Do parent-child relationship measures during adolescence have any enduring effect on self-rated health in young adulthood?

Table 4: Full Sample

- Table 4 predicts self-rated health at Wave III, controlling for health at Wave I. In terms of family structure, while initial models found the same relationship as described at Wave I, the effect sizes for stepfather and single mother are smaller (about half what they were at Wave I). Furthermore, adjusting for mother-child relationship characteristics in Model 1 reduces the coefficient for stepfather to non-significance, while the coefficient for single mother loses significance in Model 4 once we adjust for health behaviors and characteristics.

- As was the case at Wave I, at Wave III activities with mother is a significant predictor of self-rated health. Respondents who engaged in the most activities with their mother (3+ in the past month) reported better health than respondent who engaged in no activities with their mother.

Table 5: Stratified by Family Structure

- Two parent families: No lasting effects of the parent-child relationship on self-rated health. Bond with mother was significant in the bivariate, but loses significance once father-child characteristics were introduced in Model 2, where activities with father and perceived college aspirations from father had a positive effect on self-rated health. But, adjusting for health behaviors and characteristics reduces both these measures to non-significance.
- Stepfather families. Mother-child measures have no effect, in any model. However, father-child relationship measures do matter, even after controls are introduced in Model 3. In particular, respondents who participated in activities with their stepfather in the month prior to the Wave I interview report significantly better health at Wave III. And, somewhat surprisingly, those who did not nominate their stepfather as a "father or father figure" at Wave I report better health at Wave III.
- Single mother families. While bond with mother was significant at first, this was reduced to non-significance once controls were introduced in Model 3. However, two aspects of the parent-child relationship at Wave I had an enduring effect on self-rated health. First, teens who participated in a high level of activities with their mother (3 or more) at Wave I reported better health at Wave III than those who did not participate in any activities with her. Second, respondents who reported at Wave I that they had ever

lived with their non-resident father report better health at Wave III when compared against those who never lived with their non-resident father.

CONCLUSION

coming soon . . .

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Table 1. Weighted Means and Percentages for Self-Rated Health and Independent Predictors

	Full Sample	Two Parent	Stepfather	Single Mother
Dependent Measures				
Self-rated health: Wave I[a]	3.90	3.95	3.81***	3.80***
Wave III	4.01	4.05	3.94**	3.92***
WI Residential Mother-Child Relationship				
Very strong bond with mother	54.22	54.78	53.75	52.89
Number of topics discussed with mother				
None	11.88	12.76	8.63***	11.49
1-2	43.17	44.95	40.31*	39.90**
3+	44.86	42.17	51.06***	48.57***
Number of activities with mother				
None	13.57	11.76	17.70***	16.08**
1-2	66.57	66.97	66.12	65.72
3+	19.85	21.27	16.18***	18.19*
High college aspirations from mother	48.87	49.83	47.32	47.14*
Parental control (mean)	1.89	1.92	1.90	1.79*
WI Residential Father-Child Relationship				
Very strong bond with father	30.85	44.32	18.19***	---
Missing	26.69	---	33.49	---
Number of topics discussed with father				
None	16.64	21.31	21.09	---
1-2	38.22	53.53	28.62***	---
3+	18.45	25.16	16.80***	---
Missing	26.69	---	33.49	---
Number of activities with father				
None	22.74	28.89	29.89	---
1-2	38.69	53.82	30.51***	---
3+	11.89	17.29	6.11***	---
Missing	26.69	---	33.49	---
High college aspirations from father	36.54	51.88	24.29***	---
Missing	26.69	---	33.49	---
WI Relationship with Non-Residential Father				
Ever lived with non-resident father	24.55	---	69.00	66.41
Time spent with non-resident father	0.71	---	1.38	1.37

Table 1. Weighted Means and Percentages for Self-Rated Health and Independent Predictors

	Full Sample	Two Parent	Stepfather	Single Mother
WI Demographic Measures				
Age (mean)	15.86	15.84	15.84	15.95
Female	49.72	48.66	51.74	51.46
Race/ethnicity				
Non-Hispanic white	68.02	73.46	70.05	50.80***
Non-Hispanic black	15.08	8.55	14.42***	34.54***
Hispanic	11.65	11.64	11.97	11.45
Other race	5.03	6.35	3.55**	3.22***
WI Socioeconomic Measures				
Parental education (mean)	4.89	5.01	4.73***	4.62***
Family income (mean)	$46,008	$53,339	$45,274***	$25,126***
Missing on family income	20.32	20.50	18.34	21.11
WI Friend and School Support				
High support from friends	86.05	87.49	84.12**	83.12***
High support from teachers	53.09	55.64	48.96***	48.41***
Little or no school problems	72.08	74.67	67.92***	67.30***
WI Health Characteristics & Behaviors				
Depression (mean)	0.62	0.58	0.68***	0.70***
Self-esteem (mean)	4.09	4.11	4.02***	4.07
Physical Activity (mean)	1.25	1.28	1.19***	1.18***
BMI (mean)	22.45	22.36	22.03*	23.01***
Currently smoking	26.40	24.66	32.42***	27.46
WI-WIII Change in Health Characteristics & Behaviors				
Depression (mean)	-0.13	-0.11	-0.18**	-0.15
Self-esteem (mean)	0.13	0.12	0.18*	0.13
Physical Activity (mean)	-0.75	-0.76	-0.73	-0.74
BMI (mean)	3.30	3.26	3.40	3.34
Currently smoking	8.02	7.94	11.24	6.07
W1-WIII Change in Family Structure				
Same family type	33.72	37.74	18.06***	32.45**
Different family type	8.22	5.85	14.80***	10.74***
Not in parental home at WIII	58.06	56.41	67.14***	56.81
Unweighted N	12,737	8,012	1,802	2,923

*p < .05, **p < .01, ***p < .001 (reference: two parent families)

[a]Self-rated health is significantly different (p < .001) at Waves I and III for the full sample, and for respondents in each family type.

Table 2. Unstandardized OLS Regression Coefficients: Self-Rated Health at Wave I, Full Sample

	Bivariate	Model 1	Model 2	Model 3	Model 4
Family Structure (ref: Two parent)					
Stepfather	-.14 (.03)***	-.12 (.03)***	-.10 (.03)**	-.08 (.03)*	-.06 (.03)*
Single mother	-.14 (.03)***	-.13 (.03)***	-.10 (.03)**	-.08 (.03)*	-.05 (.03)
Very strong bond with mother	.23 (.02)***	.20 (.02)***	.19 (.02)***	.13 (.02)***	-.02 (.02)
Topics discussed with mother (ref: None)					
1-2	.03 (.04)	.03 (.04)	.03 (.04)	.02 (.04)	.03 (.03)
3+	.04 (.04)	.02 (.04)	.02 (.04)	.03 (.04)	.05 (.03)
Activities with mother (ref: None)					
1-2	.20 (.03)***	.16 (.03)***	.17 (.03)***	.13 (.03)***	.08 (.03)*
3+	.33 (.04)***	.25 (.04)***	.23 (.05)***	.17 (.04)***	.05 (.04)
High college aspirations from mother	.11 (.02)***	.09 (.02)***	.07 (.02)**	.06 (.02)*	.03 (.02)
Maternal control	.00 (.01)	-.01 (.01)	.00 (.01)	.00 (.01)	.01 (.01)
Age at WI	-.00 (.01)		.01 (.01)*	.01 (.01)	.06 (.01)***
Female	-.17 (.02)***		-.16 (.02)***	-.20 (.02)***	-.05 (.03)
Race/ethnicity (ref: Non-Hispanic white)					
Non-Hispanic black	-.02 (.03)		.05 (.03)*	.06 (.03)*	.03 (.03)
Hispanic	-.12 (.03)***		-.01 (.03)	-.01 (.03)	-.00 (.03)
Other race	-.07 (.07)		-.08 (.07)	-.08 (.07)	-.09 (.05)
Parental education	.07 (.01)***		.05 (.01)***	.05 (.01)***	.03 (.01)***
Family income	.001 (.00)***		.001 (.00)*	.001 (.00)	.000 (.00)
Missing on family income	-.03 (.03)		-.01 (.03)	-.00 (.03)	-.01 (.03)
High support from friends	.25 (.03)***			.15 (.04)***	.07 (.03)*
High support from teachers	.25 (.02)***			.14 (.02)***	.06 (.02)**
Little or no school problems	.29 (.03)***			.22 (.03)***	.05 (.02)*
Wave 1 Characteristics and Behaviors					
Depression	-.53 (.03)***				-.20 (.03)***
Self-esteem	.48 (.02)***				.31 (.02)***
Physical Activity	.25 (.02)***				.17 (.02)***
BMI	-.05 (.00)***				-.04 (.00)***
Currently smoking	-.32 (.03)***				-.18 (.02)***
R^2		.03	.05	.08	.21

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

Table 3. Unstandardized OLS Regression Coefficients: Self-Rated Health at Wave I, by Family Structure

	Two Parent Families			Stepfather Families			Single Mother Families		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Very strong bond with mother	.21 (.03)***	.11 (.03)**	-.02 (.03)	.15 (.06)*	.11 (.06)	-.10 (.05)	.20 (.05)***	.20 (.05)***	-.02 (.05)
Topics discussed with mother (ref: None)									
1-2	.03 (.04)	.03 (.04)	.02 (.04)	-.08 (.12)	-.06 (.12)	-.06 (.10)	.10 (.09)	.10 (.09)	.08 (.08)
3+	.02 (.05)	.02 (.05)	.04 (.05)	-.08 (.10)	-.08 (.11)	-.02 (.10)	.07 (.07)	.07 (.07)	.12 (.07)
Activities with mother (ref: None)									
1-2	.17 (.04)***	.09 (.04)*	.07 (.04)	.09 (.08)	.09 (.08)	.02 (.07)	.17 (.07)*	.17 (.07)*	.08 (.06)
3+	.25 (.06)***	.06 (.05)	.01 (.05)	.26 (.10)*	.19 (.10)	.02 (.10)	.24 (.09)**	.24 (.09)**	.04 (.08)
High college aspirations from mother	.12 (.02)***	.07 (.03)	.04 (.03)	-.01 (.06)	-.01 (.07)	-.03 (.06)	.07 (.05)	.07 (.05)	.03 (.05)
Maternal control	-.02 (.01)*	-.03 (.01)**	.00 (.01)	-.01 (.02)	-.02 (.02)	-.01 (.02)	.01 (.02)	.02 (.02)	.02 (.01)
Very strong bond with father		.16 (.03)***	.03 (.03)		.21 (.10)*	.11 (.09)*		---	---
Topics discussed with father (ref: None)									
1-2		.04 (.04)	.01 (.03)		-.15 (.09)	-.15 (.08)		---	---
3+		.01 (.05)	-.03 (.04)		-.08 (.11)	-.03 (.10)		---	---
Activities with father (ref: None)									
1-2		.16 (.03)***	.06 (.03)		-.03 (.08)	-.07 (.07)		---	---
3+		.32 (.05)***	.10 (.04)*		.21 (.13)	.09 (.11)		---	---
High college aspirations from father		.07 (.04)	.02 (.03)		.01 (.09)	-.08 (.08)		---	---
Missing information about father		---	---		-.15 (.11)	-.19 (.09)*		---	---
Ever lived with non-resident father		---	---		.06 (.06)	.05 (.06)		-.00 (.06)	.00 (.05)
Time spent with non-resident father		---	---		.01 (.02)	.00 (.02)		.01 (.02)	-.02 (.02)
R^2	.03	.05	.22	.02	.03	.23	.02	.02	.21

Note: Standard errors in parentheses;
Model 3 controls for W1 demographic characteristics, W1 socioeconomic measures, W1 social and school support, and W1 health characteristics and behaviors.

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

Table 4. Unstandardized OLS Regression Coefficients: Self-Rated Health at Wave III, Full Sample

	Bivariate	Model 1	Model 2	Model 3	Model 4
Self-Rated Health at Wave I	.33 (.01)***	.31 (.01)***	.30 (.01)***	.29 (.01)***	.23(.01)***
Family Structure (ref: Two parent)					
Stepfather	-.07 (.03)*	-.06 (.03)	-.05 (.03)	-.04 (.03)	-.03 (.03)
Single mother	-.08 (.02)**	-.08 (.02)**	-.07 (.02)**	-.06 (.02)*	-.03 (.02)
Very strong bond with mother	.11 (.02)***	.09 (.02)***	.09 (.02)***	.07 (.02)**	.04 (.02)
Topics discussed with mother (ref: None)					
1-2	.01 (.03)	.01 (.03)	.01 (.03)	.01 (.03)	.04 (.03)
3+	.01 (.03)	-.01 (.03)	-.01 (.03)	.00 (.03)	.03 (.03)
Activities with mother (ref: None)					
1-2	.03 (.03)	.02 (.03)	.04 (.03)	.02 (.03)	.02 (.03)
3+	.15 (.03)***	.12 (.03)***	-.15	.12 (.03)**	.10 (.03)**
High college aspirations from mother	.05 (.02)*	.04 (.02)	(.03)***	.03 (.02)	.02 (.02)
Maternal control	-.01 (.01)	-.01 (.01)*	.03 (.02)	-.00 (.01)	-.00 (.01)
			-.00 (.01)		
Age at WI	.01 (.01)		.02 (.01)**	.02 (.01)*	.01 (.01)*
Female	-.10 (.02)***		-.10	-.12 (.02)***	-.08 (.02)***
Race/ethnicity (ref: Non-Hispanic white)			(.02)***		
Non-Hispanic black	-.00 (.03)			.02 (.03)	.01 (.03)
Hispanic	-.00 (.03)		.03 (.03)	.03 (.03)	.01 (.03)
Other race	-.05 (.04)		.04 (.03)	-.06 (.04)	-.06 (.04)
			-.06 (.04)		
Parental education	.02 (.01)**		.01 (.01)*	.01 (.01)*	-.00 (.01)
Family income	.001 (.00)**		.00 (.00)	.00 (.00)	.00 (.00)
Missing on family income	.04 (.03)		.04 (.03)	.04 (.03)	.04 (.02)
High support from friends	.03 (.03)			-.01 (.03)	-.03 (.03)
High support from teachers	.12 (.02)***			.08 (.02)***	.05 (.02)**
Little or no school problems	.14 (.02)***			.11 (.02)***	.04 (.02)
Wave 1 Characteristics and Behaviors					
Depression	-.52 (.03)***				-.32 (.03)***
Self-esteem	.42 (.02)***				.24 (.02)***
Physical Activity	.18 (.03)***				.12 (.02)***
BMI	-.02 (.00)***				-.02 (.00)***
Currently smoking	-.24 (.03)***				-.19 (.03)***
Change from WI-WIII					
Depression	-.43 (.03)***				-.26 (.03)***
Self-esteem	.42 (.02)***				.28 (.02)***
Physical Activity	.19 (.03)***				.13 (.02)***
BMI	-.02 (.00)***				-.02 (.00)***
Currently smoking	-.28 (.02)***				-.24 (.02)***
WI-WIII Change in Family Structure					
Different family type	-.01 (.04)				.03 (.04)
Not in parental home	.05 (.02)*				.04 (.02)
R^2		.13	.13	.14	.25

Note: All bivariate models control for self-rated health at Wave I; Standard errors in parentheses. *p < .05, **p < .01, ***p < .001

Table 5. Unstandardized OLS Regression Coefficients: Self-Rated Health at Wave III, by Family Structure

	Two Parent Families			Stepfather Families			Single Mother Families		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Self-Rated Health at Wave I	.32 (.02)***	31 (.02)***	.22 (.01)***	.35 (.03)***	.35 (.03)***	.30 (.03)***	.29 (.02)***	.29 (.02)***	.21 (.02)***
Very strong bond with mother	.08 (.03)**	.05 (.03)	.03 (.03)	.09 (.05)	.09 (.05)	.03 (.05)	.13 (.05)*	.13 (.05)*	.07 (.05)
Topics discussed with mother (ref: None)									
1-2	.04 (.04)	.02 (.04)	.06 (.04)	.01 (.08)	.04 (.09)	.02 (.09)	-.10 (.09)	-.11 (.09)	-.06 (.08)
3+	.02 (.04)	-.02 (.04)	.04 (.04)	-.06 (.09)	-.04 (.11)	-.03 (.10)	-.07 (.09)	-.08 (.09)	.00 (.08)
Activities with mother (ref: None)									
1-2	.04 (.04)	.02 (.04)	.04 (.04)	.05 (.06)	.01 (.06)	-.01 (.07)	-.08 (.06)	-.08 (.06)	-.06 (.06)
3+	.09 (.05)	.03 (.05)	.06 (.05)	.14 (.08)	.05 (.09)	.00 (.09)	.23 (.07)**	.24 (.07)**	.19 (.07)**
High college aspirations from mother	.04 (.03)	-.02 (.04)	-.03 (.03)	.06 (.05)	.00 (.05)	-.01 (.06)	.02 (.04)	.02 (.04)	.04 (.04)
Maternal control	-.01 (.01)	-.02 (.01)*	.00 (.01)	-.03 (.02)	-.03 (.02)	-.02 (.02)	.00 (.01)	.00 (.01)	.01 (.01)
Very strong bond with father		.05 (.03)	.02 (.03)		-.10 (.08)	-.11 (.08)		---	---
Topics discussed with father (ref: None)									
1-2		.05 (.03)	.03 (.03)		-.03 (.09)	-.04 (.08)		---	---
3+		.07 (.04)	.03 (.04)		-.00 (.12)	.01 (.10)		---	---
Activities with father (ref: None)									
1-2		.05 (.03)	.01 (.03)		.17 (.08)*	.18 (.06)**		---	---
3+		.09 (.04)*	.03 (.04)		.29 (.11)*	.30 (.10)**		---	---
High college aspirations from father		.08 (.03)*	.07 (.03)		.13 (.08)	.09 (.08)		---	---
Missing information about father		---	---		.15 (.10)	.18 (.08)*		---	---
Ever lived with non-resident father		---	---		.01 (.07)	.01 (.06)		.12 (.05)**	.11 (.04)**
Time spent with non-resident father		---	---		-.01 (.02)	-.02 (.02)		-.02 (.02)	-.03 (.02)
R^2	.12	.12	.26	.15	.16	.28	.12	.13	.25

Note: Standard errors in parentheses;
Model 3 controls for W1 demographic characteristics, W1 socioeconomic measures, W1 social and school support, W1-W3 health characteristics and behaviors, and W1-W3 family change.

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