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The Intergenerational Consequences of Parental Health Limitations

*Scholars have theorized interrelationships between family members' health and well-being. Though prior research demonstrates associations between parents' and children's health, less is known about the relationship between parental health limitations and children's behavioral and academic outcomes. This article uses data from the Fragile Families and Child Well being Study (*N = *3,273) to estimate the relationship between parental health limitations and four aspects of children's well-being. Findings reveal that mothers' health limitations, especially when they occur in middle childhood or chronically, are independently associated with greater internalizing and externalizing behaviors, lower verbal ability, and worse overall health at age 9. Fathers' health limitations are not associated with children's well-being. Fathers exert influence in other ways, as the relationship between mothers' chronic health limitations and children's internalizing behaviors is concentrated among children not residing with their fathers. These findings support the development of policies and interventions aimed at families.*

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There are good reasons to expect that parental health—with its potential to either strengthen or deplete family emotional, financial, and social resources—has implications for children's well-being. Some researchers have characterized the family as a setting for health promotion and urged greater attention to the interconnections between family members' health and well-being (Christensen, 2004; Novilla et al., 2006). Despite this, relatively little research examines the consequences of parental health for children's well-being after infancy (though for research showing a bidirectional relationship between maternal and child health, see Garbarski, 2014; Garbarski & Witt, 2013).

Health limitations are an important yet understudied indicator of health that may be especially consequential for children's well-being. More than one tenth of adults (12.0% of men and 12.9% of women) report activity limitations that interfere with their ability to work, live independently, or participate in community activities (National Center for Health Statistics, 2014). Parental health limitations impair families' emotional, financial, and social well-being and, accordingly, may reduce children's well-being. In this study, we use data from the Fragile Families and Child Well being Study (FFCWB; http://www.fragilefamilies.princeton.edu/; Reichman, Teitler, Garfinkel, & McLanahan, 2001) to examine the association between maternal and paternal health limitations and four measures of child well-being: internalizing behaviors, externalizing behaviors, verbal ability, and overall health. We also consider the timing and

chronicity of parental health limitations and whether fathers' residential status moderates associations between parental health limitations and children's outcomes.

Linking Parental Health Limitations to Children's Well-being

Life course theory posits that children's developmental trajectories are shaped by larger contextual forces. Children's outcomes are continually altered by the interactions they have with family members, the stress placed on family members by limited resources, and the skills and resources family members bring to their relationships (Conger et al., 1990; Conger, Rueter, & Elder, 1999; Elder, 1998). Therefore, parental health limitations may be deleterious for children's well-being (Grossman, 1972).

Timing of health limitations

Life course theory also suggests that the timing of life course events is related to children's well-being. The timing of parental health limitations could operate in two ways. First, timing may matter as children may differentially respond to proximal and distal events. It may be that the immediate stress and upheaval of proximal health limitations is especially consequential for children. Conversely, as early childhood experiences set children on trajectories for later life course outcomes (Elder, 1998), distal health limitations may be especially consequential. Second, timing may matter on the basis of the age at which children experience parental health problems. On the one hand, early childhood (approximately ages 0 to 5) is an important life course stage where children develop behaviors and academic orientations (Guo, 1998). Family stressors that occur during this life course period may set patterns of poor behaviors and delay children's academic process. On the other hand, those in middle childhood (approximately ages 5 to 9) may be better able to comprehend their parents' health problems and therefore feel greater emotional responses to these health problems.

Chronicity of health limitations

Life course theory, as well as cumulative disadvantage theory, suggests that disadvantage is additive across time (DiPrete & Eirich, 2006; Elder, 1998). Therefore, chronic parental health limitations may be more detrimental for children than sudden changes in parental health. The financial difficulties and attendant stressors of parents with chronic health limitations are likely greater than those of parents with temporary health limitations (Smith, 1999), who can resume previous levels of employment after health limitations have passed. Additionally, children of parents with chronic health limitations, compared to those with short-term health limitations, may be exposed to greater family conflict and family stress.

Mothers' and fathers' health limitations

Mothers' and fathers' health limitations may differentially influence children's well-being. Mothers typically spend more time caring for children than fathers do (Bianchi, Robinson, & Milkie, 2007), and children's well-being may suffer if the quantity and quality of time mothers spend with children is reduced by health limitations (though see Milkie, Nomaguchi, & Denny, 2015). Nevertheless, mothers' and fathers' health limitations may increase stress within the household, distract other parents from child caretaking, and lower economic resources in the household, all of which could impair children's well-being. Furthermore, the relationship between mothers' and fathers' health limitations and children's well-being may vary depending on parents' residential status. It is possible that associations between mothers' and fathers' health limitations and children's well-being is muted when parents are living together, as having another adult in the household may buffer children from deleterious consequences.

Prior Research on Parental Health Limitations and Children's Well-being

Relatively little research considers the relationship between parental health and children's well-being after infancy (though, for research on maternal depression, see Kiernan & Huerta, 2008; Turney, 2011a, 2011b). Two large-scale studies used cross-sectional data to document an association between mothers' and children's health (Hardie & Landale, 2013; Minkovitz, O'Campo, Chen, & Grason, 2002). One study utilized longitudinal data to document

a reciprocal relationship between mothers' health limitations and children's activity limitations (Garbarski, 2014; also see Garbarski & Witt, 2013). Additionally, to our knowledge, only one nationally representative study has considered how both maternal and paternal health problems are independently related to children's well-being (Hogan, Shandra, & Msall, 2007; though see Mikail & von Baeyer, 1990; Osborn, 2007; Pakenham & Cox, 2012). In this article, we extend existing research on parental health and children's well-being in four ways: (1) by using longitudinal data, (2) by considering both maternal and paternal health limitations, (3) by considering the timing and chronicity of health limitations, and (4) by considering the moderating role of father's residential status in the association between parental health and children's well-being.

Additional Correlates of Parental Health Limitations and Children's Well-being

Our multivariate analyses adjust for factors that may confound the relationship between parental health limitations and children's well-being. Race, immigrant status, age, and socioeconomic factors are closely associated with parental health and children's outcomes (Adler & Rehkopf, 2008; Duncan, Yeung, Brooks-Gunn, & Smith, 1998; Kao & Thompson, 2003; McLoyd, 1998). Poor parental health may follow union dissolution (Meadows, McLanahan, & Brooks-Gunn, 2008), and children with unmarried parents have a higher risk of poor outcomes (Brown, 2010). Child low birth weight has been linked to maternal health (Chandra, Martinez, Mosher, Abma, & Jones, 2005) and child development (McCormick, Gortmaker, & Sobol, 1990). Finally, depression and physical health problems often co-occur (Jones et al., 2004).

Method

To estimate the relationship between parental health limitations and children's well-being, we used data from the Fragile Families and Child Well being Study (FFCWB), a cohort of 4,898 urban children born to mostly unmarried mothers in 1998–1999 and followed over 9 years (Reichman et al., 2001). Mothers and fathers were first interviewed immediately after the focal child's birth, usually in the hospital, and were again interviewed by telephone when children were age 1, 3, 5, and 9 years. Response rates across the survey waves were relatively high, especially for mothers. About 86% of sampled mothers participated in the baseline survey and, of these, 90%, 88%, 87%, and 76% completed the 1-, 3-, 5-, and 9-year surveys, respectively. At baseline, 78% of fathers participated (they were only asked to participate if mothers completed a baseline survey), and 69%, 67%, 64%, and 59% completed the 1-, 3-, 5-, and 9-year surveys. The analytic sample ($N = 3{,}273$) excluded the 1,383 (28%) observations in which the mother did not participate in the 9-year survey, when our outcome variables were measured, and the additional 242 (5%) observations missing data on our dependent variables. In supplemental analyses, we estimated the probability of being in the analytic sample as a function of covariates and then weighted the analyses by the inverse of this probability (e.g., Cornwell, 2012; Turney, 2015). These results were consistent with those presented in the article.

Measures

Children's well-being. We considered four indicators of children's well-being, all measured at the 9-year survey: internalizing behaviors, externalizing behaviors, verbal ability, and overall health. Internalizing and externalizing behaviors are ascertained with the Child Behavior Checklist (CBCL), an established and commonly used measure for assessing problem behaviors in children (Achenbach, 1992). Children's primary caregivers, nearly always their mothers, were asked to rate various aspects of the children's behaviors (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very or often true*). We averaged caregivers' responses to 32 questions about internalizing behaviors ($\alpha = .88$) and 34 questions about externalizing behaviors ($\alpha = .91$). Verbal ability was measured with the Peabody Picture Vocabulary Test–Third Edition (PPVT; Dunn & Dunn, 1997). Finally, children's health, reported by their primary caregivers, ranged from *poor* (1) to *excellent* (5). To facilitate comparisons across outcomes and an interpretation of the magnitude of the coefficients, we standardized internalizing behaviors, externalizing behaviors, and verbal ability (though we present unstandardized means in the first descriptive table).

Parents' health limitations. The key explanatory variables were mothers' and fathers' health limitations, measured in two ways. First, we considered any health limitations, a dummy variable indicating the parent, at either the 5- or 9-year surveys, reported having a serious health problem that limits the amount or kind of work he or she can do. Parents who answered affirmatively to this question were also asked to identify the health problem(s) that limits the amount or kind of work. At the 9-year survey, the conditions for mothers included back problems (21% of mothers who report health limitations), asthma (17%), pain (14%), mental health (13%), high blood pressure (12%), diabetes (8%), heart disease (6%), recovering from injury or surgery (6%), joint problems (6%), chronic disease or illness (6%), seizures/epilepsy (5%), arthritis (5%), neurological problems (4%), gastrointestinal or urinary problems (3%), heart and blood problems (3%), overweight (2%), pregnancy (2%), and muscle problems (2%).

Second, we considered the timing and chronicity of health limitations with a series of mutually exclusive dummy variables: health limitations at the 5-year survey, health limitations at the 9-year survey, health limitations at the 5- and 9-year surveys, and no health limitations at the 5- or 9-year surveys. We were unable to consider earlier health limitations because mothers and fathers were first asked about these limitations at the 5-year survey. Mothers' and fathers' health limitations were weakly correlated ($r = .060$ and .069 at the 5- and 9-year surveys, respectively).

Control variables. The multivariate analyses adjusted for an array of characteristics associated with parents' health limitations and children's well-being. These included mother's race (non-Hispanic White [reference category], non-Hispanic Black, Hispanic, non-Hispanic other race), mother's and father's status as a mixed-race couple, mother's foreign-born status, mother's age, mother's family structure at age 15 (1 = *lived with both biological parents*, 0 = *did not live with both biological parents*), mother's relationship to child's biological father (married [reference category], cohabiting, nonresidential romantic, no relationship), mother's and father's repartnering, grandmother's residence in household, mother's and father's educational attainment (less than high school [reference category], high school diploma or Graduate Equivalency Diploma [GED], some college, college degree), mother's and father's material hardship, mother's poverty status (1 = *income below the poverty line*, 0 = *income at or above the poverty line*), mother's and father's employment status, mother's cognitive ability (measured by the Weschler Adult Intelligence Scale [WAIS]); Weschler, 1981, mother's and father's depression (measured by the Composite International Diagnostic Interview–Short Form [CIDI-SF]); Kessler et al., 1998, child's gender, child's low birth weight (fewer than 2,500 grams), and child's health. Time-invariant controls were measured at baseline, and time-varying controls were measured at the 3-year survey, which ensured that all control variables were measured prior to the measures of parental health limitations (see Table 1 for specifics about the timing of variable measurement). All models adjusted for a lagged dependent variable measured at the 3-year survey.

Analytic Strategy

First, we used *t* tests to examine statistically significant bivariate differences in children's internalizing behaviors, externalizing behaviors, verbal ability, and overall health by maternal health limitations and by paternal health limitations. Second, we estimated ordinary least squared (OLS) regression models (for internalizing behaviors, externalizing behaviors, and verbal ability) and ordered logistic regression models (for overall health) to estimate children's outcomes as a function of any maternal and paternal health limitations. We adjusted for the demographic, socioeconomic, and behavioral covariates described above, as well as a lagged dependent variable. The autoregressive model accounted for the association between early childhood outcomes and later childhood outcomes, isolating the association between parental health limitations and changes in children's well-being. Third, we estimated OLS and ordered logistic regression models to consider timing and chronicity of health limitations. Fourth, we considered the association between parental health limitations and children's well-being separately for two groups of children: those with residential fathers at the 9-year survey and those with nonresidential fathers at the 9-year survey. We test for significant differences in the association between parental

Table 1. *Descriptive Statistics of All Variables Included in Analyses*

	M	*SD*	Min	Max
Children's outcomes				
Internalizing behaviors (y9)	0.160	(0.178)	0	2
Externalizing behaviors (y9)	0.181	(0.197)	0	2
Verbal ability (y9)	92.744	(14.922)	37	159
Overall health (y9)	4.356	(0.830)	1	5
Explanatory variables				
Mother any health limitations (y5, y9)	0.166		0	1
Mother timing and chronicity of health limitations (y5, y9)				
Health limitations at 5-year survey	0.042		0	1
Health limitations at 9-year survey	0.070		0	1
Health limitations at 5- and 9-year surveys	0.053		0	1
No health limitations (reference)	0.835		0	1
Father any health limitations (y5, y9)	0.163		0	1
Father timing and chronicity of health limitations (y5, y9)				
Health limitations at 5-year survey	0.037		0	1
Health limitations at 9-year survey	0.072		0	1
Health limitations at 5- and 9-year surveys	0.059		0	1
No health limitations (reference)	0.832		0	1
Control variables				
Mother race (b)				
Non-Hispanic White (reference)	0.207		0	1
Non-Hispanic Black	0.501		0	1
Hispanic	0.258		0	1
Non-Hispanic other race	0.034		0	1
Mother and father are mixed-race couple (b)	0.144		0	1
Mother foreign born (b)	0.137		0	1
Mother age (y3)	27.977	(5.984)	16	50
Mother lived with both biological parents at age 15 (b)	0.409		0	1
Mother and father relationship status (y3)				
Married (reference)	0.306		0	1
Cohabiting	0.194		0	1
Non residential romantic	0.059		0	1
Separated	0.442		0	1
Mother repartnered (y3)	0.192		0	1
Father repartnered (y3)	0.199		0	1
Grandmother in household (y3)	0.141		0	1
Mother educational attainment (y3)				
Less than high school (reference)	0.284		0	1
High school diploma or Graduate Equivalency Diploma (GED)	0.257		0	1
Some college	0.342		0	1
College degree	0.117		0	1
Father educational attainment (y3)				
Less than high school (reference)	0.298		0	1
High school diploma or GED	0.341		0	1
Some college	0.260		0	1
College degree	0.102		0	1
Mother material hardship (y3)	1.669	(1.662)	0	9
Father material hardship (y3)	1.446	(1.571)	0	9
Mother employed (y3)	0.574		0	1
Father employed (y3)	0.757		0	1
Mother in poverty (y3)	0.417		0	1

Table 1. *Continued*

	M	*SD*	Min	Max
Mother cognitive ability (y3)	6.736	(2.666)	0	15
Mother depression (y3)	0.210		0	1
Father depression (y3)	0.163		0	1
Child boy (b)	0.522		0	1
Child born low birth weight (b)	0.094		0	1
Child internalizing behaviors (y3)	0.392	(0.239)	0	2
Child externalizing behaviors (y3)	0.625	(0.355)	0	2
Child verbal ability (y3)	86.379	(16.198)	40	137
Child overall health (y3)	4.485	(0.748)	1	5
N		3,273		

Note. b = measured at baseline; y1 = measured at 1-year survey; y3 = measured at 3-year survey; y5 = measured at 5-year survey; y9 = measured at 9-year survey.

health limitations and children's well-being across residential groups using the equality of coefficients test (Paternoster, Brame, Mazerolle, & Piquero, 1998).

Missing covariates were retained with multiple imputation. We produced 20 imputed data sets and averaged results across them. Most covariates were missing fewer than 5% of observations. Exceptions include several characteristics of fathers—health limitations, material hardship, employment, and depression—that were missing about 25% of observations. In supplemental analyses (not presented), we excluded observations from the analytic sample that were missing data on fathers' health limitations. Results remained substantively similar with this reduced sample size.

Sample Description

Table 1 presents means and standard deviations for all variables included in the analyses. Nearly one fifth of mothers (16.6%) and fathers (16.3%) reported any health limitations (e.g., health limitations at the 5- or 9-year surveys). Relatively few children (4.0%) had mothers and fathers who report any health limitations (descriptives not presented). Among mothers, 4.2% reported health limitations at the 5-year survey, 7.0% reported health limitations at the 9-year survey, and 5.3% reported health limitations at both the 5- and 9-year surveys. Among fathers, 3.7% reported health limitations at the 5-year survey, 7.2% reported health limitations at the 9-year survey, and 5.9% reported health limitations at both the 5- and 9-year surveys.

The majority of mothers in the analytic sample were non-Hispanic Black (50.1%), followed by Hispanic (25.8%), non-Hispanic White (20.7%), and non-Hispanic other race (3.4%). Mothers were, on average, nearly 28 years old at the 3-year survey. Nearly one half of parents (44.2%) were separated at the 3-year survey. More than one half of mothers (54.1%) and nearly two thirds of fathers (63.9%) had no education beyond high school, and about two fifths (41.7%) of mothers were living in poverty.

Results

Descriptive Differences in Children's Well-being

Table 2 presents means of children's internalizing behaviors, externalizing behaviors, verbal ability, and overall health (standardized for the first three outcome variables) by mothers' and fathers' health limitations. Children of mothers who reported any health limitations at either the 5- or 9-year surveys, compared to children of mothers who reported no health limitations, had more internalizing behaviors, more externalizing behaviors, lower verbal ability, and lower overall health. Children of fathers who reported health limitations also had more internalizing behaviors, more externalizing behaviors, lower verbal ability, and lower overall health than their counterparts.

Estimating Children's Well-being as a Function of Parental Health Limitations

Table 3 presents results from the OLS regression models estimating children's well-being

Table 2. *Means of Children's Internalizing Behaviors, Externalizing Behaviors, Verbal Ability, and Overall Health at Age Nine, by Parental Health Limitations*

	Mother		Father	
	Any health limitations	No health limitations	Any health limitations	No health limitations
Internalizing behaviors	0.277	−0.055***	0.068	−0.013^
Externalizing behaviors	0.246	−0.049***	0.165	−0.032***
Verbal ability	−0.174	0.034***	−0.121	0.024**
Overall health	4.205	4.389***	4.285	4.370*
N	542	2,731	533	2,740

Note. Measures of internalizing behaviors, externalizing behaviors, and verbal ability are standardized. Health limitations are measured at the 5- and 9-year surveys. Asterisks indicate significant differences between children of mothers and fathers who do and do not report health limitations at the 5- or 9-year surveys using *t* tests.

^$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

as a function of mothers' and fathers' health limitations, net of controls and the lagged dependent variable. Mothers' health limitations were associated with more internalizing behaviors ($b = .220$, $p < .001$), more externalizing behaviors ($b = .131$, $p < .01$), lower verbal ability ($b = -0.098$, $p < .05$), and lower overall health ($b = -0.279$, $p < .01$). The coefficients for fathers' health limitations are small and do not reach statistical significance ($b = .001$, *ns* for internalizing behaviors; $b = .050$, *ns* for externalizing behaviors; $b = -.009$, *ns* for verbal ability; $b = -0.071$, *ns* for overall health). Therefore, mothers' health limitations—but not fathers' health limitations—were associated with deleterious outcomes for children.

Supplemental analyses. We conducted two sets of supplemental analyses. First, we considered whether the relationship between mothers' health limitations and children's well-being was driven by mental health limitations. This is important because of "depression distortion," or the tendency for parents who are depressed to rate their children as having worse behaviors than observed by outsiders (Harvey, Fischer, Weieneth, Hurwitz, & Sayer, 2013). To account for this, we substituted our measure of health limitations with an alternative measure that considered parents to have no health limitations if they reported their health limitation was a mental health limitation. This allowed us to consider the independent relationship between parents' physical health limitations and children's well-being. Results, which adjusted for all control variables and a lagged dependent variable, were consistent with those presented in Table 3, suggesting that mothers' (internalizing behaviors: $b = .217$, $p < .001$; externalizing behaviors: $b = .133$, $p < .01$; verbal ability: $b = -0.107$, $p < .05$; overall health: $b = -0.294$, $p < .01$) but not fathers' (internalizing behaviors: $b = -0.005$, *ns*; externalizing behaviors: $b = .052$, *ns*; verbal ability: $b = -0.033$, *ns*; overall health: $b = -0.012$, *ns*) physical health limitations were associated with deleterious outcomes for children.

Second, we estimated the interaction between mothers' health limitations and fathers' health limitations, as children may suffer more when both parents report health limitations. Across all outcome variables, the interaction term did not reach statistical significance ($p = .367$ for estimates of internalizing behaviors, $p = .407$ for estimates of externalizing behaviors, $p = .270$ for estimates of verbal ability, and $p = .410$ for estimates of overall health). Therefore, the association between mothers' health limitations and children's well-being was not contingent on fathers' health limitations and vice versa.

Children's Well-being as a Function of Timing and Chronicity of Parents' Health Limitations

In Table 4, we consider the timing and chronicity of health limitations (measured as a series of mutually exclusive variables: health limitations at the 5-year survey, health limitations at the 9-year survey, health limitations at the 5- and 9-year surveys, and no health limitations at the 5- and 9-year surveys). All previously described control variables and the lagged dependent variable are included in each model,

Table 3. *Estimating Children's Internalizing Behaviors, Externalizing Behaviors, Verbal Ability, and Overall Health at Age Nine as a Function of Parental Health Limitations*

	Internalizing behaviors	Externalizing behaviors	Verbal ability	Overall health
Mother any health limitations	0.220***	0.131**	−0.098*	−0.279**
	(0.048)	(0.046)	(0.041)	(0.096)
Father any health limitations	0.001	0.050	−0.009	−0.071
	(0.056)	(0.052)	(0.047)	(0.110)
Mother race (reference = non-Hispanic White)				
Non-Hispanic Black	−0.179***	−0.103*	−0.416***	−0.393***
	(0.051)	(0.050)	(0.046)	(0.106)
Hispanic	−0.029	−0.185**	−0.244***	−0.237*
	(0.058)	(0.056)	(0.052)	(0.120)
Non-Hispanic other race	0.038	−0.022	−0.014	−0.238
	(0.106)	(0.103)	(0.094)	(0.218)
Mother and father are mixed-race couple	−0.050	0.017	0.149**	−0.090
	(0.052)	(0.051)	(0.046)	(0.107)
Mother foreign born	0.076	−0.070	−0.056	−0.234^
	(0.106)	(0.060)	(0.056)	(0.126)
Mother age	0.005	−0.003	0.005^	−0.007
	(0.052)	(0.003)	(0.003)	(0.007)
Mother lived with both biological parents at age 15	0.024	−0.008	0.005	−0.084
	(0.037)	(0.036)	(0.033)	(0.077)
Mother and father relationship status (reference = married)				
Cohabiting	−0.023	−0.020	−0.122*	−0.170
	(0.055)	(0.053)	(0.048)	(0.113)
Nonresidential romantic	0.074	0.147^	−0.147*	−0.122
	(0.085)	(0.081)	(0.074)	(0.172)
Separated	0.020	0.017	−0.053	−0.069
	(0.057)	(0.056)	(0.050)	(0.119)
Mother repartnered	−0.006	0.012	−0.050	−0.039
	(0.056)	(0.054)	(0.048)	(0.112)
Father repartnered	0.027	0.079	0.008	0.116
	(0.063)	(0.060)	(0.056)	(0.121)
Grandmother in household	0.045	0.028	0.008	−0.015
	(0.051)	(0.052)	(0.046)	(0.111)
Mother educational attainment (reference = less than high school)				
High school diploma or Graduate Equivalency Diploma (GED)	0.034	0.036	0.154***	−0.166^
	(0.049)	(0.048)	(0.043)	(0.100)
Some college	−0.014	−0.016	0.245***	−0.062
	(0.050)	(0.048)	(0.044)	(0.103)
College degree	0.104	0.033	0.392***	−0.062
	(0.080)	(0.076)	(0.070)	(0.164)
Father educational attainment (reference = less than high school)				
High school diploma or GED	−0.033	−0.005	0.087*	0.067
	(0.045)	(0.045)	(0.039)	(0.093)
Some college	−0.026	−0.062	0.234***	0.105
	(0.051)	(0.050)	(0.045)	(0.104)
College degree	−0.157^	−0.168*	0.349***	0.446**
	(0.081)	(0.076)	(0.069)	(0.168)
Mother material hardship	0.047***	0.031*	0.021*	0.016
	(0.012)	(0.012)	(0.010)	(0.024)
Father material hardship	−0.015	−0.001	−0.010	−0.009
	(0.014)	(0.014)	(0.012)	(0.028)

Table 3. *Continued*

	Internalizing behaviors	Externalizing behaviors	Verbal ability	Overall health
Mother employed	−0.033	−0.070^	0.033	−0.030
	(0.038)	(0.037)	(0.033)	(0.080)
Father employed	−0.042	−0.073	0.020	0.003
	(0.051)	(0.050)	(0.045)	(0.094)
Mother in poverty	0.060	0.062	−0.150***	−0.110
	(0.043)	(0.041)	(0.038)	(0.092)
Mother cognitive ability	−0.002	0.010	0.032***	−0.003
	(0.008)	(0.007)	(0.006)	(0.015)
Mother depression	0.108*	0.081^	0.061	−0.226*
	(0.047)	(0.046)	(0.040)	(0.094)
Father depression	0.080	0.084	0.030	−0.048
	(0.056)	(0.059)	(0.051)	(0.113)
Child male	−0.038	0.140***	0.084**	−0.116^
	(0.034)	(0.033)	(0.030)	(0.070)
Child born low birth weight	−0.015	−0.002	−0.041	−0.129
	(0.059)	(0.058)	(0.053)	(0.120)
Child overall health	−0.091***	−0.067**	0.058**	—
	(0.024)	(0.023)	(0.021)	
Lagged dependent variable	0.194***	0.280***	0.214***	0.617***
	(0.020)	(0.020)	(0.023)	(0.050)
R^2/log likelihood	0.096	0.154	0.318	−3347
Intercept	0.292	0.317	−0.627	
Intercept 1				−5.268
Intercept 2				−1.682
Intercept 3				0.211
Intercept 4				1.728
N	3,273	3,273	3,273	3,273

Note. Measures of internalizing behaviors, externalizing behaviors, and verbal ability are standardized. Health limitations are measured at the 5- and 9-year surveys. Ordinary least squares regression models estimate internalizing behaviors, externalizing behaviors, and verbal ability. Ordered logistic regression models estimate overall health.

^$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

but we do not display these coefficients in the table.

We turn first to the estimates of children's internalizing behaviors. Compared to no health limitations, mothers' health limitations at the 9-year survey ($b = .323$, $p < .001$) and health limitations at the 5- and 9-year surveys ($b = .222$, $p < .01$)—but not health limitations at the 5-year survey ($b = .051$, *ns*)—were associated with greater internalizing behaviors. The coefficient for health limitations at the 9-year survey was significantly different than the coefficient for health limitations at the 5-year survey ($p < .05$). Health limitations at the 9-year survey was also associated with externalizing behaviors ($b = .232$, $p < .01$) and verbal ability ($b = -0.124$, $p < .05$) but not associated with overall health ($b = -0.223$, *ns*). Mothers' health limitations at the 5- and 9-year surveys was marginally associated with verbal ability ($b = .131$, $p < .10$) and significantly associated with overall health ($b = -0.396$, $p < .05$).

Supplemental analyses. In supplemental analyses, we consider whether the association between the timing of parental health limitations and children's outcomes results from the recency of parental health limitations or from the child's age at exposure to parental health problems. To test this, we estimated the outcome variables measured at the 5-year

Table 4. *Estimating Children's Internalizing Behaviors, Externalizing Behaviors, Verbal Ability, and Overall Health at Age Nine as a Function of Timing and Chronicity of Parental Health Limitations*

	Internalizing behaviors	Externalizing behaviors	Verbal ability	Overall health
Mother timing and chronicity of health limitations (reference = no health limitations)				
Health limitations at 5-year survey	0.051	−0.026	−0.018	−0.237
	(0.086)	(0.083)	(0.074)	(0.169)
Health limitations at 9-year survey	0.323***[a]	0.232**[a]	−0.124*	−0.223
	(0.068)	(0.067)	(0.060)	(0.140)
Health limitations at 5- and 9-year surveys	0.222**	0.126	0.131^	−0.396*
	(0.081)	(0.078)	(0.070)	(0.161)
Father timing and chronicity of health limitations (reference = no health limitations)				
Health limitations at 5-year survey	−0.079	−0.004	0.135	−0.119
	(0.113)	(0.109)	(0.091)	(0.234)
Health limitations at 9-year survey	−0.024	0.040	0.004	0.094
	(0.081)	(0.077)	(0.067)	(0.167)
Health limitations at 5- and 9-year surveys	0.107	0.113	−0.107[a]	−0.227
	(0.080)	(0.079)	(0.070)	(0.183)
R^2/log likelihood	0.098	0.156	0.319	−3,344
Intercept	0.291	0.317	−0.624	
Intercept 1				−5.286
Intercept 2				−1.699
Intercept 3				0.196
Intercept 4				1.714
N	3,273	3,273	3,273	3,273

Note. Measures of internalizing behaviors, externalizing behaviors, and verbal ability are standardized. Ordinary least squares regression models estimate internalizing behaviors, externalizing behaviors, and verbal ability. Ordered logistic regression models estimate overall health. Models adjust for all control variables in Table 3.

[a]Significantly different from distal health limitations ($p < .05$).

^$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

survey as a function of parental health limitations also measured at the 5-year survey. If this association is statistically significant, it suggests that proximately occurring health limitations have deleterious consequences for children's well-being. If this association is not statistically significant, it suggests that children's age, rather than proximity of exposure to health limitations, shapes children's reactions to parental health limitations. We find that maternal health limitations at age 5 was only marginally associated with internalizing behaviors at age 5 ($b = .116$, $p < .10$) and was not significantly associated with externalizing behaviors ($b = .040$, *ns*) or verbal ability ($b = -0.050$, *ns*). There was a significant association between parental health limitations and overall health at age 5 ($b = -0.277$, $p < .05$). Therefore, our supplementary findings primarily supported the age explanation—and, more specifically, that middle childhood is important—but also provided limited evidence for the proximity explanation.

Considering Fathers' Residential Status

To consider the role of paternal presence in the home, we estimated the above analyses separately for two groups of children: those residing with their fathers at the 9-year survey and those not residing with their fathers at the 9-year survey. As shown in Table 5, we found virtually no association between mothers' health limitations and children's well-being when children were living with their fathers. We found that, among children with nonresidential fathers, mothers' health limitations at the 9-year survey and mothers' health limitations at the 5- and 9-year surveys were associated

Table 5. *Estimating Children's Internalizing Behaviors, Externalizing Behaviors, Verbal Ability, and Overall Health at Age 9 as a Function of Timing and Chronicity of Parental Health Limitations, by Fathers' Residential Status*

	Internalizing behaviors	Externalizing behaviors	Verbal ability	Overall health
Panel A. Residential father				
Mother timing and chronicity of health limitations (reference = no health limitations)				
Health limitations at 5-year survey	0.053	0.038	−0.060	−0.302
	(0.130)	(0.123)	(0.124)	(0.288)
Health limitations at 9-year survey	0.237^	0.109	−0.131	−0.117
	(0.123)	(0.115)	(0.121)	(0.283)
Health limitations at 5- and 9-year surveys	−0.014	0.071	0.064	−0.258
	(0.150)	(0.142)	(0.140)	(0.339)
R^2/log likelihood	0.137	0.164	0.387	−1,195
Intercept	0.813	0.521	−0.860	
Intercept 1		−2.057		
Intercept 2		0.277		
Intercept 3		1.897		
Intercept 4				
N	1,266	1,266	1,266	1,266
Panel B. Nonresidential father				
Mother timing and chronicity of health limitations (reference = no health limitations)				
Health limitations at 5-year survey	0.041	−0.069	0.061	−0.163
	(0.116)	(0.114)	(0.095)	(0.225)
Health limitations at 9-year survey	0.360***	0.284**	−0.115^	−0.313^
	(0.084)	(0.083)	(0.069)	(0.163)
Health limitations at 5- and 9-year surveys	0.297*[a]	0.137	−0.182*	−0.500**
	(0.099)	(0.097)	(0.082)	(0.190)
R^2/log likelihood	0.077	0.122	0.232	−2,125
Intercept	0.189	0.338	−0.471	
Intercept 1		−4.662		
Intercept 2		−1.404		
Intercept 3		0.322		
Intercept 4		1.821		
N	2,007	2,007	2,007	2,007

Note. Measures of internalizing behaviors, externalizing behaviors, and verbal ability are standardized. Ordinary least squares regression models estimate internalizing behaviors, externalizing behaviors, and verbal ability. Ordered logistic regression models estimate overall health. In the ordered logistic regression model estimating overall health among children with residential fathers, there are only three cut-points because none of these children have "poor" health. Models adjust for all control variables in Table 3.

[a]Significantly different from residential father coefficient.

^$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

with nearly all outcomes. Tests comparing coefficients across groups revealed that only the coefficients for mothers' chronic health limitations predicting internalizing behavior scores were significantly different for children residing with fathers compared to those not residing with fathers. Fathers' health limitations, across residential and nonresidential fathers, were not significantly or substantively associated with children's well-being (coefficients not shown).

Supplemental analyses. As grandparents may also buffer the deleterious consequences of

maternal health limitations, we conducted supplemental analyses to examine whether having a grandparent living in the household moderated the association between parental health limitations and children's well-being. We found no consistent evidence of a moderating role of grandparent's presence.

Discussion

Life course theory argues that developmental trajectories are shaped by larger social contexts and that children's developmental trajectories, in particular, are shaped by these contexts as filtered through their parents' resources and skills (Elder, 1998). Strains on resources, including health resources, can create stress within families and put pressure on interpersonal interactions over time (Conger et al., 1990, 1999). In this study, we used data from the FFCWB to examine associations between parental health limitations and four measures of children's well-being: internalizing behaviors, externalizing behaviors, verbal ability, and overall health. Results show that maternal and paternal health limitations are differentially associated with children's outcomes. Maternal health limitations are positively associated with children's internalizing behaviors and externalizing behaviors and negatively associated with children's verbal ability and overall health. Paternal health limitations are largely unassociated with children's outcomes.

Results also show that the association between maternal health limitations and children's well-being depends on the timing and chronicity of health limitations. We found that chronic health limitations among mothers (those reported at the 5- and 9-year surveys) are positively associated with internalizing behaviors and verbal ability and negatively associated with overall health. We also found that maternal health limitations at the 9-year survey are positively associated with internalizing and externalizing behaviors and negatively associated with verbal ability. Maternal health limitations at the 5-year survey, compared to no maternal health limitations, are not associated with children's well-being. Supplemental analyses suggest that these findings mostly reflect age differences in children's responses to parental health limitations, rather than the amount of time that had passed between the measurement of maternal health limitations and children's well-being. Thus, our findings support a key tenet of life course theory—the age at which stressors occur in a child's life shapes the relationship between those stressors and developmental outcomes.

We also examined the association between maternal health limitations and children's well-being by fathers' residential status. Our results suggest that negative associations between maternal chronic health limitations and children's internalizing behavior problems are only present within households without fathers present, suggesting that fathers may play a role in alleviating the consequences of maternal health limitations when they live in the home. Other associations did not vary significantly by fathers' residential status. More research is needed to understand the role fathers may play in alleviating the negative consequences of maternal health for children's well-being.

In sum, findings from the current study support life course theory by identifying how parental health—especially maternal health—is important for children's behaviors, verbal ability, and overall health. But there are limitations. First, health limitations is a broad measure of health that may miss important health conditions and does not differentiate between the range of conditions captured within the single indicator. Some types of health limitations may be more strongly associated with children's well-being and others less influential. Some, if they prompt greater resiliency and self-sufficiency, may even be positively associated with children's outcomes. However, an advantage to using health limitations is that it captures parents' ability to participate in the labor force and it does not require a doctor's diagnosis (and therefore includes those without regular access to a doctor). Additionally, the FFCWB is not a nationally representative sample. Though there are benefits to identifying barriers faced by children from urban areas that are particularly at risk of long-term disadvantage, our findings are not generalizable to all children. But our findings are consistent with prior research using nationally representative data that show maternal and child health are inter related (Garbarski, 2014; Hardie & Landale, 2013). Finally, though we adjust for a number of characteristics associated with parental health limitations and children's well-being, the observational data preclude causal conclusions. Understanding

the causal relationship between parental health limitations and children's well-being, as well as the mechanisms underlying this relationship, is an important avenue of future research and one just beginning to emerge in research on parental health and children's outcomes (Sitnick, Masyn, Ontai, & Conger, 2014; though, for research on the mechanisms linking maternal mental health and children's outcomes, see Frech & Kimbro, 2011; Turney, 2011b).

These findings support calls to consider health as a family affair (e.g., Christensen, 2004; Novilla et al., 2006). Policies and practices designed to address health at the family level are key to supporting all family members. Families also share health habits and behaviors, so addressing health at the family level may help children learn better health care approaches at an early age. Our article joins a growing literature on parental health and children's well-being (e.g., Garbarski, 2014; Hardie & Landale, 2013; Sitnick et al., 2014; Turney, 2011b; Wagmiller, Lennon, & Kuang, 2008) that shows the importance of considering parental health as a resource for youth alongside economic, social, and emotional resources. The current study offers new evidence by using longitudinal data to isolate the association between parental health limitations and changes in children's outcomes; considering maternal and paternal health limitations; distinguishing between early age, middle-childhood, and chronic associations of parental health limitations with children's well-being; and examining the role of residential fathers in moderating the association between maternal health and children's well-being.

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