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Research Article

The Education of Multiple Family Members and the Life-Course Pathways to Cognitive Impairment

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Abstract

Objectives: This article asks how the educational attainments of multiple family members, including parents and offspring, are associated with the cognitive health of older adults in the United States.
Methods: We use panel data from the U.S. Health and Retirement Study (2000–2012) to examine how the education of an individual, their parent(s), and their offspring are associated with the prevalence of moderate/severe cognitive impairment and the onset of cognitive impairment among older adults using logistic regression and discrete-time event history analysis, respectively.
Results: We found that when combined, only the education of the individual is inversely associated with cognitive impairment at baseline. However, both the educational attainments of an individual and their offspring are negatively associated with the risk of becoming cognitively impaired, among individuals who were not already cognitively impaired. Conversely, parental education was not predictive of being cognitively impaired or the onset of impairment. Furthermore, we found that respondent gender did not moderate the relationship between a family member's education and respondent cognitive health.
Discussion: This study adds to current research by asking how resources from earlier and subsequent generations matter for older adults' cognitive health. Although we found little evidence that parental education matters at this life stage, results suggest that offspring education has a salient positive effect on later-life cognitive health. This finding underscores an overlooked source of health disparities—offspring resources—and highlights how a family perspective remains a powerful tool for understanding health inequalities in later life.

Keywords: Cognitive health, Health and Retirement Study, Intergenerational relationships

Despite dramatic population aging over the latter part of the 20th century, the prevalence of dementia has decreased in a number of developed countries within the past few decades (Langa, Larson, & Weir, 2017). This decline is at least partially attributed to an increasingly educated older population (Langa et al., 2008, 2017). Education is hypothesized to play a critical role as individuals with more years of schooling are less likely to be cognitively impaired than those with fewer years of schooling, with evidence of both direct and indirect effects on the brain's resilience to aging and cognitive functioning (Langa et al., 2017). Broadening this perspective, life course and family researchers have also considered how parental education, in addition to one's own education, can prevent cognitive decline in later life (Fors, Lennartson, & Lundberg, 2009; Luo & Waite, 2005; Zhang, Gu, & Hayward, 2008; Zhang, Hayward, & Yu, 2016). Much of this line of research underscores the "long arm" of childhood (Hayward & Gorman, 2004) by

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emphasizing the potential downstream effect of early childhood resources and conditions on older adult brain health.

A separate body of research also points to the potential resources of the *subsequent* generation of adult children in shaping health outcomes in later life. This "social foreground" perspective (Torssander, 2013) highlights the association between children's educational attainment and delayed mortality (Friedman & Mare, 2014; Lundborg & Maljesi, 2018; Zimmer, Martin, Ofstedal, & Chuang, 2007) and lower levels of depression (Lee, Coe, & Ryff, 2017; Yahirun, Sheehan, & Mossakowski, 2020) across a variety of contexts in later life. Many of these studies highlight the potential role of health spillovers (Friedman & Mare, 2014), informational support (Torssander, 2013), or financial support (Yahirun et al., 2020) from offspring to parents that help mitigate health decline in later years.

This study builds on these research themes and examines how the educational attainments of "adjacent" generations—of parents and adult children (Wolfe, Bauldry, Hardy, & Pavalko, 2018a), in addition to an individual's own education, are associated with older adults' cognitive health in the United States. Our approach extends prior research assessing the "long arm" of childhood conditions (Fors et al., 2009; Luo & Waite, 2005; Zhang et al., 2008; Zhang et al., 2016), including parents' education, on later-life cognitive impairment by incorporating a "social foreground" (Torssander, 2013) approach to whether the education of adult offspring also shapes cognitive functioning among older adults (Lee, 2018; Ma, 2019). Incorporating both parental and offspring resources, in addition to one's own education, into an "adjacent generations" approach (Wolfe et al., 2018a; Wolfe, Bauldry, Hardy, & Pavalko, 2018b) helps to identify the importance of each generation's resources on brain health in later life. More broadly, this research expands on one of the more common conceptual models of health disparities that examine the "downward" flow of resources from parents to children by asking how health outcomes can also be shaped by an "upward" flow of resources from offspring.

Finally, in both the "long arm" (Hayward & Gorman, 2004) and "social foreground" (Torssander, 2013) approaches, scholars have also assessed whether gender moderates the relationship between family resources and later-life health outcomes (Lee, 2018; Lundborg & Maljesi, 2018). In particular, women's long-term health may be more sensitive to the resources of family members. For example, women of less-educated parents may face even more caregiving challenges in adulthood and later life, given their greater likelihood of providing care to parents than men (Pinquart & Sörensen, 2006). At the end other end of the generational spectrum, "resource substitution" theory (Ross & Mirowsky, 2006) could be used to theorize ways in which women more strongly rely on the education of their adult children to also shape their own health outcomes. An important goal of this study is to understand how gender moderates the relationship between family resources and cognitive health in later life.

Background

Education is one of the most effective resources that delay the onset of cognitive impairment in later life (Meng & D'Arcy, 2012). Educational attainment has been hypothesized to influence brain health through cognitive reserve—the development of compensatory neural circuits that provide an increased capacity to withstand damage from vascular and inflammatory brain insults (Langa, 2015). Through education, individuals also acquire the skills and resources necessary to gain a greater degree of control over their environment and maximize their potential for a longer, healthier life via the embracing of healthier behaviors, early adoption of health enhancing technologies, and improved control over dementia risk factors like hypertension and cholesterol—*all factors identified as important contributors to cognitive reserve* (Case, Fertig, & Paxton, 2005; Clouston et al., 2012; Zhang et al., 2016). For example, more schooling is linked to nutritious diets and exercise, which are established correlates of better cognitive functioning in later life (Ortega et al., 1997). Higher education is tied to a lower probability of experiencing chronic health conditions such as heart disease, diabetes, and stroke (Adler & Newman, 2002), which are frequent precursors of cognitive impairment. Apart from immediate health outcomes, individuals with more schooling also tend to be employed in occupations with greater cognitive challenges that protect against impairment in later life (Schooler, 1987). Higher education is correlated with greater income, translating to better cognitive health through the purchase of health insurance, health care services, and the alleviation of financial stress (Kahn & Pearlin, 2006). Social ties are also linked to education; those with higher levels of education are more likely to be married and to have a safety net consisting of family members and friends who themselves have more resources (Park, Wiemers, & Seltzer, 2019).

Parental Resources and Early Childhood Conditions: A "Long Arm" Perspective on Cognitive Health

Beyond the individual, parental resources and early childhood conditions are strongly tied to the health of their offspring. This "long arm" perspective highlights the significant effect that early-life factors have on later life well-being through biological and social pathways (Hayward & Gorman, 2004). The approach underscores the idea that the resources of prior generations exert an independent effect on the status attainment and health outcomes of subsequent generations (Mare, 2011). This work stands in contrast to prior approaches that stress a path-dependent pattern of status or health attainment whereby the resources of prior generations work through the middle generation to affect the latter's outcomes (Warren & Hauser, 1997).

The idea that parental education and resources enhance children's "cognitive reserve," such that cognitive stimulation during early life leads to physical, neurological, and chemical changes in the brain itself (Meng & D'Arcy, 2012; Stern, 2012), is one direct way in which parents shape offspring cognitive health. As noted above, the "cognitive reserve" hypothesis stresses how the conditions in early childhood shape the brain's ability to function efficiently and effectively (Langa et al., 2017; Stern, 2012). This is especially important because of the age patterning of brain development, where the brain develops the most during infancy and continues to grow into childhood and later adolescence (Lupien, McEwen, Gunnar, & Heim, 2009). Later on, schooling and education continue to maintain and increase brain efficiency, which in turn delay or reduce the risk of cognitive impairment in later life (Meng & D'Arcy, 2012).

Similarly, parental education also shapes the conditions surrounding early childhood health, which is linked to cognitive health through adulthood into later life. For example, parents' education and resources affect early childhood health through childhood nutrition, challenges to the immune function, and exposure to diseases (Thomas, Strauss, & Henriques, 1991). Among older Chinese cohorts, for example, childhood malnutrition and rural residence (an indicator of social disadvantage) were found to be negatively associated with the onset of cognitive impairment in later years (Zhang et al., 2008). Findings from the United States, however, are less clear. In one study, neither childhood health nor heightened levels of childhood adversity, measured on a scale which included low levels of parental education, were associated with the prevalence or incidence of older adults' cognitive impairment (Zhang et al., 2016). However, Southern birth increased the probability of becoming impaired, even after controlling for individual socioeconomic status and race (Zhang et al., 2016). Other studies that examined separate measures of childhood socioeconomic status reported that mothers' and fathers' education were protective of cognitive impairment among older adults in the United States (Greenfield & Moorman, 2018) as well as other contexts (Fors et al., 2009; Ma, 2019; Turrell et al., 2002).

A "Social Foreground" Perspective: Offspring Resources and Parental Cognitive Health

Whereas the "long arm" approach focuses on the flow of resources down the generational ladder, the social foreground perspective (Torssander, 2013) asks us to consider how children's socioeconomic resources shape the prior generation's health (Friedman & Mare, 2014; Lundborg & Maljesi, 2018; Zimmer et al., 2007). This is especially true as social networks tend to shrink with age, and offspring take on a more salient support role for adults in later life (Offer & Fischer, 2018). A number of mechanisms could explain this association. "Health spillovers" between adult children and parents occur when highly educated offspring provide improved access to new types of health knowledge or expertise (Friedman & Mare, 2014; Torssander, 2013). More educated children could also lead by example with respect to diets and exercise (Friedman & Mare, 2014). Higher levels of schooling among children could translate to fewer stressors among parents, in addition to pride or relief in possibly being able to rely on children for instrumental or financial assistance in the future (Yahirun et al., 2018). An important contribution of the "social foreground" perspective has been to theorize about the potential ways in which adult children may also shape the health outcomes and trajectories of parents. The idea that latter generations can improve older parents' health resonates with the life-course paradigm, in asking us to consider factors in later life that may affect well-being differently from earlier life stages (Elder, 1994).

With respect to cognitive health, two recent studies found that having highly educated children was negatively associated with cognitive impairment among a cohort of older adults in China (Ma, 2019) and South Korea (Lee, 2018). However, as others have pointed out (Friedman & Mare, 2014), the context of family relationships and institutional support for older adults varies remarkably across countries. Both China and South Korea have historically strong norms of filial obligation, and in China, policy measures that discourage children's neglect of older parents are part of a growing body of filial support laws across Asia (Serrano, Saltman, & Yeh, 2017). Similarly, public institutional support of the older adults has a much shorter history in China and South Korea, compared to the United States, where Social Security helped lift many older adults out of poverty. In addition, a comparative study between South Korea and the United States found that certain demographic factors, such as marital status, were associated with cognitive functioning in South Korea, but that health behaviors more strongly predicted cognitive functioning in the United States (Lyu, Lee, & Dugan, 2014). Thus, whether or not children's resources also shape parents' cognitive functioning in the United States remains an open question.

An "Adjacent Generations" Approach and the Pathways from Children's Schooling to Parents' Cognitive Health

In this study, we pair together the "long arm" and "social foreground" approaches to health to consider how the education of prior (parental) and subsequent (adult children) generations, in addition to an individual's own education, shape cognitive functioning in later life. By examining the education of adjacent generations (Wolfe et al., 2018a) in addition to one's own, we further develop our understanding of how multigenerational educational attainments (Wolfe et al., 2018b) expand the pool of resources that could affect cognitive health and call into question the resources needed to close gaps in cognitive health at the population level. In prior studies that examined men's and women's mortality, Wolfe and colleagues found that when assessed separately, the education of all generations (parent, respondent, and child) were each negatively associated with the timing of death. That is, better-educated individuals, parents, and children all tended to delay an individual's mortality. However, when combined, only the education of the respondent and to a large extent, their children, continued to be significant predictors of death (Wolfe et al., 2018a, 2018b). The findings can be framed within the context of life-course theory, such that offspring education becomes a driving force in parental health at this life stage given the importance of adult children in older adult's support networks (Elder, 1994; Offer & Fischer, 2018).

In addition, we control for a number of pathways through which children's schooling could shape parental cognitive health. Children with more education may be better positioned to provide financial support to mothers and fathers (Fingerman, Cheng, Birditt, & Zarit, 2012). Although studies based on U.S. data highlight how parents remain more likely to provide financial assistance to children than vice versa (McGarry & Schoeni, 1995), financial transfers from offspring to parents are more salient among racial/ethnic minorities (Park, 2018). However, most studies show a negative association between offspring transfers to parents and parents' health outcomes, in part because financial assistance is frequently a response to declining health among parents (Seltzer & Bianchi, 2013).

Separately, highly educated children may encourage health behaviors that influence parents' cognitive health. In the United States, having highly educated children was associated with a lower likelihood of smoking and more exercise among parents (Friedman & Mare, 2014). Such health behaviors are tied to hypertension, stroke, and heart disease, which are also correlates of cognitive functioning in later life (Tilvis et al., 2004). These health "spillovers" are important potential mechanisms through which family members help shape each other's health trajectories (de Neve & Kawachi, 2017). Highly educated children could also reduce parental stress and depression (Lee et al., 2017; Yahirun et al., 2020), mental health outcomes which are established pathways to cognitive impairment (Marin et al., 2011). More years of schooling are associated with fewer financial problems and steady employment, which in turn reduces stress for parents, who act as a safety net for children and support offspring who are not financially stable (Milkie, Bierman, & Schieman, 2008). Children with more setbacks may experience worse mental health, which in turn affects parents' mental health through the "shared fate" of parents who are exposed to children's challenges (Barr, Simons, Simons, Beach, & Philibert, 2018). In our investigation, we assess the role of older adult health behaviors and conditions to understand whether they explain the association between offspring education and older adult cognitive functioning.

Gender and Parent–Child Relationships

In the United States, gender divides the experience of family life, with intergenerational relationships differing between mothers, fathers, daughters, and sons. The centrality of family to women's lives also suggests that their health may be more sensitive to relationships with family members, as well as events in other family member's lives, compared to men. In later life, women's roles as kinkeepers also means that they spend considerable time and energy facilitating communication with and providing assistance to older parents (Rosenthal, 1985; Swartz, 2009). Women are significantly more likely than men to provide care to older parents in later life (Leopold, Raab, & Engelhardt, 2014). In addition, parents with few resources of their own are more likely to rely on the resources of adult children (Margolis & Verdery, 2017). This caregiving burden may in turn lead to more deleterious health outcomes for women compared to men, who spend less time caring for older family members (Pinquart & Sörensen, 2006).

At the other end of the generational spectrum, the birth of a child becomes an especially salient part of women's identities and work trajectories compared to men, in part due to cultural and social norms that shape expectations of motherhood and fatherhood differently (Katz-Wise, Priess, & Hyde, 2010). This has consequences for social and emotional ties to children, which tend to be stronger for mothers than fathers (Rossi & Rossi, 1990). In addition to their possibly closer ties, resource substitution theory suggests that education's beneficial effect on health is greater for women, who are otherwise disadvantaged, compared to men (Ross & Mirowsky, 2006). Although this theory was originally formulated at the individual level, it is possible that intergenerational resources also shape the health benefits of men and women differently. In South Korea, Lee (2018) found no evidence that parents' gender moderated the link between the eldest child's education and parents' cognitive trajectories. Previous studies in other social contexts and other health outcomes, on the other hand, found that both the respondent and the child's gender shaped parents' health trajectories (Lundborg & Maljesi, 2018; Yahirun, Sheehan, & Hayward, 2017).

Other Correlates of Cognitive Health

In addition to education, a number of other demographic characteristics are well-known correlates of cognitive health in later life. Racial/ethnic disparities in brain health have been established, with prevalence and incidence rates of dementia and Alzheimer's diseases substantially higher among blacks compared to whites (Mayeda, Glymour, Quesenberry, & Whitmer, 2016; Shadlen et al., 2006; Zhang et al., 2016). Thus, race/ethnicity should be accounted for in models of cognitive health. Positive social ties are also tied to better cognitive health (Seeman, Lusignolo, Albert, & Berkman, 2001) and family researchers have been particularly interested in understanding how the quality of these ties may influence individual health outcomes (Thomas & Umberson, 2018). The Health and Retirement Study (HRS) has limited measures of relationship quality between family members, but we do control for the potential number of ties through an individual's marital status and number of children. In addition to parents' education, other childhood characteristics such as Southern birth and childhood health status are established sources of disparities in cognitive health in the United States (Zhang et al., 2016) and are also included in our study.

Research Aims

This article asks how the education of multiple family members affects the prevalence and incidence of cognitive impairment among older adults in the United States. Extending prior research in this area, we offer the following hypotheses with respect to cognitive health:

(1) Separately, the educational attainments of the individual, their parents, and their offspring, will each be negatively associated with the prevalence and incidence of cognitive impairment. This follows from research conducted in the context of Asia and the United States.

(2) When combined, the strength of the association will differ by generations:

   a. Personal educational attainment will be the strongest predictor of cognitive health in later life, relative to parents' and offspring education.

   b. Evidence of the "long arm" of parental education will no longer be apparent once individual and children's attainments are included. Children's education will have a smaller, but significant effect on parents' cognitive health, compared to the respondent's own education, lending support for the "social foreground" perspective.

(3) The respondent's physical and mental health conditions are potential pathways through which offspring education is associated with parents' cognitive impairment and including an individual's intermediate health status will mediate the association.

(4) Finally, given that women's health may be more sensitive to the resources of both older parents and adult children in later life, we predict that the benefits of having highly educated parents and children will be more pronounced for women compared to men.

Data and Sample

To address these questions, we use data from the U.S. HRS, a biennial panel survey that began in 1992 and is nationally representative of the civilian noninstitutionalized population over age 50. We use the publicly available RAND HRS file—Version "P," the RAND HRS Family File—Version D, and the Enhanced HRS Fat files. The HRS Family File includes respondent reports of each of their children between 1992 and 2012. Basic demographic information on children is updated by a designated family respondent periodically, but not every question regarding each child is asked at each wave. Questions on education and marital status are skipped occasionally. However, in Wave 5 (conducted in 2000), respondents were asked detailed questions regarding *all* of their children's educational attainment and other offspring characteristics.

Our sample is comprised of respondents ages 65 and older who are alive and report at least one child aged 25 and older between 2000 (Wave 5) and 2012 (Wave 11). We limit the sample to respondents ages 65 and older because certain questions about cognitive impairment were only asked of individuals in that age range. Although the HRS sample is only representative of the noninstitutionalized population, we include those respondents who reside in nursing homes at the start of the study, or who move into nursing homes over the course of the study. Consistent with prior research (Friedman & Mare, 2014), we only include information on children's education for those offspring ages 25 or older with the assumption that most children will have completed their formal education by that age. However, children who are not yet 25 when parents first enter our sample may "age into" the sample when they turn 25.

Approximately 9.0% of our sample consists of interviews conducted through proxies for HRS respondents who are unable to complete the survey (Langa et al., 2008). We include proxy respondents because respondents who are unable to complete the survey are more likely to be cognitively impaired (Crimmins, Kim, Langa, & Weir, 2011). The inclusion of proxy respondents is important to studies of cognitive impairment and the frequent exclusion of proxy respondents leads to bias in studies of brain health (Weir, Faul, & Langa, 2011).

We constructed our sample from all respondent-observations in the RAND HRS "P" file that fell within our observation window of 2000–2012 when the respondent was aged 65 or older, had at least one child aged 25 or older, and excluded respondents with any "bad links" to children (defined as those in which the parent-child relationship is evaluated by RAND as inconsistent across survey years), and those respondents with any missing values on the measures of cognitive impairment (N = 57,061 person-observations). To maximize observations, drops were wave specific, so that respondents and their children could "age into" our sample.

There was generally little missing data on either the respondent or offspring characteristics (4.17% of person-observations contained missing information). But to address this, we used multiple imputation then deletion, where we calculated imputation models for the entire sample and then dropped those with missing cognition scores (Von Hippel, 2007). Specifically, we used Stata's suite of multiple imputation commands to impute for children's education (1.95% missing) and respondent abbreviated Center for Epidemiologic Studies Depression scale (CES-D) (27% missing). Categorical variables (i.e., parents' education) with substantial missing data (e.g., more than 5% missing data) were not imputed because of a lack of convergence during the imputation. For these variables, we included a missing category. Categorical variables with little missing data (e.g., less than 5% missing data) were imputed on the modal category (i.e., transfers from children, respondent health conditions, and behaviors). In supplemental analyses (see Supplementary Table S1), we evaluated the sensitivity of our findings to our imputation strategy by comparing results from models that used the multiple imputed data to results from models that used list-wise deletion. These results showed little substantive difference, although the results for the respondent's parents' education showed the least stability. In keeping with standard practices for missing data, we use multiple imputation and specifically the multiple imputation then deletion procedure for handling missing data that parallels prior work in this area (Lee et al., 2017). The final analytic sample had 13,450 unweighted respondents ages 65 and older comprising 56,956 person-observations.

Measures

Cognitive impairment measures differ for self- and proxy respondents. For self-respondents, we use the total cognition summary score, which includes items from tests that assess immediate word and delayed word recall, numeracy, president, and date naming (Fisher, Hassan, Faul, Rodgers, & Weir, 2017). The score ranges from 0 to 35 and following prior research (Freedman, Aykan, & Martin, 2002), we categorize respondents as having moderate/severe cognitive impairment if they have a score of eight or lower. Proxy respondents were asked to assess the respondent's cognitive abilities through seven questions that examine symptoms of impairment. These included questions about getting lost in familiar settings, wandering off, not being able to be alone for a short amount of time, having hallucinations, having a poor memory, experiencing difficulties eating, and has difficulties managing money (Zhang et al., 2016). Although the last two items are generally considered measurements of (instrumental) activities of daily living, Crimmins and colleagues (2011) found them to be significantly correlated with dementia. Proxies report whether the respondent experienced each of these symptoms (1 = yes, 0 = no) and the items were summed to create a score from zero to seven. Scores of two or more indicate cognitive impairment for the respondents with proxy reports in our sample (Zhang et al., 2016).

Respondent's own education is measured as a categorical variable distinguishing between respondents who have less than a high school education (<12 years of schooling), a high school education (12 years of schooling), some college (13–15 years of schooling), or college or more (at least 16 years of schooling). We use years of schooling as proxies for educational degrees attained to be comparable with the way in which measures of children's education are measured for the respondent's parents and offspring in the HRS. Other variables at the respondent level include respondent age (measured continuously), gender (=1 if female), race/ethnicity (non-Hispanic White, African American, Other, and Hispanic), marital status (married/partnered, widowed, and never married), and number of living children including those younger than age 25 (measured continuously).

We measure parental education by using the education of the highest-educated parent if information on both parents is available. We use the education of only one parent if the respondent only has information on one parent. Years of education act as a proxy for degrees attained given that only years/grades of schooling (as opposed to educational degrees) of respondents' parents was asked. Similar to the respondent, we distinguish between parents who have less than a high school education (<12 years of schooling), a high school education (12 years of schooling), some college (13–15 years of schooling), or college or more (at least 16 years of schooling). A substantial percentage of HRS respondents did not answer questions about either parents' education (7.44%). Following prior research in this area (Luo and Waite, 2005; Zhang et al., 2016), we assigned these respondents to the category of parents who have less than a high school education (<12 years of schooling). However, ancillary analyses (not shown here) revealed that assigning these respondents to a missing category did not substantively change our results compared to models that included the missing as a separate category. We also considered using a cumulative approach to measuring parents' education (e.g., the share of parents with a high school school education) to be consistent with our measure of offspring education, but the large share of respondent observations missing on mother's (10.5%), father's (14.2%), or either parent's education (17.3%) made this problematic in that we would have to impute or assign too many missing variables to specific categories. Other early childhood variables include childhood health (=0 if not poor, =1 if poor), as well as an indicator for Southern birth (=1 if born in U.S.-defined census region of South).

In this paper, we take the perspective that accounting for all of the respondent's children is important. We focus on a child's college education given recent research showing the increasing importance of college completion for health and mortality in the United States (Sasson and Hayward, 2019; Hayward, Hummer, and Sasson, 2015). As the mortality gap between those with and without a college education increases from earlier to more recent birth cohorts (Sasson and Hayward, 2019), scholars have argued for the importance of considering how higher education may be increasingly tied to understanding how individuals harness new scientific knowledge and technologies to advance their health outcomes (Fogel and Costa, 2004; Hayward, Hummer, and Sasson, 2015). We use 16 years of schooling as a proxy for a college education given that the HRS does not routinely ask about educational degrees earned for offspring, and only collects information on years of offspring schooling (0 to 17 years maximum). We adopt a cumulative approach (Peng, Bauldry, Gilligan, and Suitor, 2019) and measure children's education at the parent level as the share of parents with: (1) no children who completed college (16 or more years of schooling), (2) some children who completed college, or (3) all children who completed college. We also include children's proximity to parents, measured as having at least one child who lives within 10 miles of the respondent, including any coresident offspring. We account for monetary transfers of $500 or more given to parents within the past year (=1 if yes, =0 if no). In prior analyses, we also included offspring gender, children's marital status, homeownership, and children's income. None of these were significantly correlated with cognitive impairment at baseline, and because of the difficulty of interpreting these effects for all children, they are not included in the results presented here.

Respondents' health behaviors are measured as whether or not the respondent had ever smoked (=1 if yes, =0 if no), a measure taken at each survey wave and whether or not the respondent had participated in physical activity or sports in the past, measured at baseline (=1 if yes, =0 if no). The measure for physical activity is taken at baseline given the lack of comparability across the measures over different survey years, with the implication that this measure may not be a completely accurate assessment of current physical activity. Chronic conditions included dummy variables for ever having been diagnosed with diabetes, heart disease, or having experienced a stroke (=1 if the condition was ever met), measured at each wave. We also include the 7-item subset of the 20-item CES-D scale measured at each wave, which has comparable interval consistency and accuracy in assessing depressive symptoms among older adults compared to the complete CES-D scale (Andresen et al., 1994). Controls for birth cohort, sex, and race/ethnicity are also included to adjust for HRS sampling procedures.

Analytical plan

Our analytical approach examines the prevalence and incidence of cognitive impairment among older parents. How personal, parental, and offspring education is associated with cognitive impairment at one point in time may differ from how these same factors influence the onset of impairment. To measure the prevalence of cognitive impairment, we use logistic regression models of all respondents at each person's first wave of observation in our analytical sample. Substantively, this model allows us to assess how our key predictor variables are associated with the "stock" of cognitive health at baseline, where stock refers to prior impairment experiences that have left their stamp on the surviving population. We apply a progressive adjustment strategy. Model 1 examines the relationship between own education and cognitive impairment and controls for the respondent's age, demographic characteristics, and proxy status. Next, we examine the respondent's early life indicators, including parents' education, respondent childhood health, and respondent Southern birth in Model 2. Model 3 includes children's education and controls for children's financial transfers to the respondent and proximity to respondents. Next, we combine covariates from the previous three models, including respondent, parental, and offspring education in Model 4. The last model adds in health behaviors and health conditions of the respondent as potential mechanisms that explain the associations between children's education and respondent cognitive impairment. We assess whether the interactions between respondent gender and parental education and separately, respondent gender and offspring education, are significant as a final step in our analyses to determine whether the education of family members is associated with respondents' cognitive health differently by gender.

To examine the incidence of cognitive impairment and to determine whether the educational attainments of parents, respondents, and offspring influence the onset of impairment differently than the prevalence, we use a discrete-time event history model to predict the hazard of becoming impaired at the end of an observation interval, given that the respondent is not impaired at the beginning of the interval. Discrete-time event history models are appropriate for the data used here for a number of reasons (Allison, 1982). First, the data are left censored, such that many respondents remain in good cognitive health during the last year that they are observed in the sample or before they die or leave the survey (e.g., 89% of respondents are not impaired during their last observation). Second, the HRS observation interval is approximately 2 years in length given that the data are only collected every other year, thus suggesting that discrete-time, rather than continuous-time models are appropriate give the nature of HRS data collection. Our event history sample is restricted to the person-observation sample among persons who report no impairment at baseline ($N = 48{,}312$ person-observations). We use multinomial logistic regression models to assess the risk of becoming cognitively impaired in any given observation year while also incorporating possible competing risks such as death and attriting from the sample (Allison, 1982).

The "risk" of impairment starts at the age at baseline (age 65 or older), and respondents are followed until impairment, or they are censored through the last interview date or death. All of the events are treated as absorbing states. We use similar variables as the baseline analysis above, some of which are allowed to vary over time. Time-varying variables include: children's education; respondent age, marital status, number of children, education, and proxy status; children's transfers to the respondent and geographic proximity to respondents; respondent smoking behavior, and respondent health conditions such as diabetes, heart disease, stroke history, and depression. Time-varying variables are measured at the beginning of the observation interval and are not contemporaneous with the outcome. We use age in continuous years to measure time dependence in the model and apply a similar progressive adjustment strategy as described for the baseline cross-sectional analysis above. In supplemental analyses, we tested for non-linearity in the time dependence of our model, for example, the inclusion of age-squared in our models. In none of the analyses was age-squared significant; therefore, it was not included in the final models presented here. Following prior work in this area, we account for clustering at the household level in our event history models (Yahirun et al., 2017). In addition, although the majority of our respondents lived in residential units, our analytical sample also included a small share of respondents who were living in nursing homes at baseline (2.9% of respondents). Respondents who moved into nursing homes over the course of the panel study also remained in our analytical sample (4.1% of person-observations were spent in a nursing home).

At baseline, 5.7% of respondents in the sample were cognitively impaired. Table 1 presents descriptive characteristics of the sample at baseline (see Supplementary Table S2 for characteristics of the full person-observation sample). Over 60% of respondents had a high school education or less, but 88.1% reported having parents with a high school degree or less. As expected and in line with cohort trends in increasing educational attainment, the majority (86.3%) of respondents had a least some children who had completed a college education (16 years of schooling or more). Of the individuals in the analytical sample, 11.6% reported having ever been a smoker, and 36.8% reported having engaged in physical activity in the past. Chronic conditions varied widely: over one-quarter of respondents reported having been diagnosed with heart disease compared to 9.3% who reported ever having suffered a stroke.

Results

The first analysis examines cross-sectional associations between children's education and parents' cognitive impairment at baseline, presented in Table 2. Results from these models illustrate the correlates of the prevalence of cognitive impairment. Model 1 shows that respondents with higher levels of education are less likely to be cognitively impaired compared to those respondents with less than a high school degree, even after accounting for the respondent's age, gender, race, marital status, own education, and proxy status. Respondents with a college education are 47% less likely to be cognitively impaired (=1 – EXP(–0.639)) compared to those with less than a high school education. Although the protective effect for respondents with a high school education is smaller, they are still noteworthy, with high-school educated respondents 33% (=1 – EXP(–0.399)) less likely to be impaired than those with less than a high school education. Model 2 assesses the association between the respondent's parents' education and cognitive impairment. Respondents whose highest-educated parent completed a high school education or more are less likely to report being cognitively impaired at baseline, compared to those whose parents did not complete high school. The results for parents' education are robust to the inclusion of controls such as childhood health and southern birth. Note that the fit statistics all suggest a better fit for Model 1 (model with the respondent's education only) where AIC and BIC are both lower, compared to Model 2 (model with the respondent's parents education only). Model 3 assesses children's characteristics and specifically, offspring education. The results suggest that having more children who complete college is negatively associated with being cognitively impaired. Parents with some children who completed college are 41% less likely to be impaired (=1 – EXP(–0.534)) and parents whose children all completed college are 42% less likely to be cognitively impaired (=1 – EXP(–0.544)) than those with no children who completed college. Having children who live nearby and having received financial transfers from children is associated with worse cognitive health for respondents. Again, however, the fit statistics for Model 3 all suggest a worse model fit compared to Model 1, with higher values for both AIC and BIC in Model 3 compared to the first model.

In Model 4, respondent, parent, and offspring characteristics are included to determine how the education of multiple family members matters for respondent cognition in later life. Wald tests (not shown in the table) confirm that respondent education remains significantly correlated with cognitive health at baseline (χ^2 = 11.48, p < .01) although the strength of the associations are weakened. However, Wald tests (not shown in the table) also confirm that offspring education is no longer associated with impairment at baseline (χ^2=3.39, p > .10), and the effect of parents' education is also weakened, having reached marginal statistical significance (X^2 = 7.26, p = .10) and offspring schooling and offspring schooling (X^2 = 2.01, p > .10) are not significant in this final model. With respect to model fit, we find that both the Bayesian information criterion (BIC) and the Akaike information criterion (AIC) for this final model indicate the best fit of all models.

Table 3 presents results from the event history models, which assess how the education of multiple family members is associated with the risk of becoming cognitively impaired, among those who were not impaired at baseline. Note that the sample size differs from the cross-sectional analysis presented in Table 2 because respondents who were impaired at baseline are removed from the analytical sample for the event history analysis. In Table 3, Model 1, we see that respondent's own education is a strong predictor of the risk of impairment: college-educated respondents are 62% less likely (=1–EXP(–.963)) to experience impairment compared to those without a high school education

Table 1. Descriptive Statistics at Baseline, Adults Aged 65+ (*N* = 13,452 Persons)

	Percent/mean	*SE*		Percent/mean	*SE*
Respondent's characteristics			Respondent early life conditions		
Cognitive health			Parental education		
Not impaired	94.3		<High school	68.6	
Impaired	5.7		High school	19.5	
Age	72.0	0.06	Some college	5.7	
Birth cohort			College+	6.2	
AHEAD (<1924)	26.0		Poor childhood health	6.2	
CODA (1924–1930)	20.3		Southern birth	34.7	
HRS (1931–1941)	42.7				
WB (1942–1947)	11.1				
Gender			Offspring characteristics		
Men	43.0		Offspring education		
Women	57.0		No offspring w/college	13.7	
Race			Some offspring w/college	44.5	
NH White	77.9		All offspring w/college	41.8	
Black	12.6		Received transfers from 1+ child	2.6	
Other	1.7		Proximity to offspring		
Hispanic	7.8		No child cores/lives w/in 10 miles	38.2	
Marital status			1+ child cores/lives w/in 10 miles	61.8	
Married/partnered	65.1				
Separated/divorced	8.9				
Widowed	25.3		Respondent's health behaviors/conditions		
Never married	0.6		Ever smoked	11.6	
Respondent education			Exercise at baseline	36.8	
<High school	30.2		Ever diagnosed—diabetes	20.5	
High school	33.8		Ever diagnosed—heart disease	28.5	
Some college	18.4		Ever had stroke	9.3	
College+	17.6		CES-D	1.5	0.02
Number of kids	3.5	0.02			
Proxy status	9.4				

Note: Source: HRS, 2000–2012. CES-D = Center for Epidemiologic Studies Depression scale; HRS = Health and Retirement Study.

and respondents with a high school education are 49% less likely (=1−EXP(−.672)) to become impaired. In Model 2, we also see that higher levels of parents' education are also associated with a lower probability of becoming impaired, although a college education does not appear to be any more protective than a high school education in this respect. Model 3 demonstrates the negative association between children's higher education and respondent's risk of impairment, where having all children who have a college education is a clear advantage to lowering the risk of impairment: these most advantaged respondents are 44% less likely (=1-EXP(−.585)) to become impaired compared to parents with no children who completed college. However, similar to the cross-sectional results presented in Table 2, the fit statistics also show worse model fits for Models 2 and 3 compared to Model 1.

Model 4 includes the education of respondents, parents, and offspring to assess how each family member's schooling is associated with the risk of cognitive impairment. Similar to the baseline results, coefficients indicate that respondent's education remains a significant predictor of becoming cognitively impaired. Higher levels of offspring education remain protective of becoming impaired, but none of the coefficients for the respondent's parent's education are statistically significant. Note again that the model fit statistics suggest a worse fit for Model 4 than Model 1 using BIC, although AIC suggests a better fit. The addition of health behaviors and conditions in Model 5 weakens the effect of respondent education and children's education, but they remain significant. These results are confirmed through additional tests (not shown here) for respondents ($F = 38.76$, $p = .10$). In addition, AIC and BIC show the best fit of all models for Model 5. The final two columns of Table 3 show how the variables in the model are related to the risk of mortality and attrition, the competing risks to becoming cognitively impaired in the event history analysis.

Finally, we interacted: (a) respondent's gender by parent's education and (b) respondent's gender by children's education to assess whether mothers experience a greater gain from offspring schooling than fathers.

Table 2. Abbreviated Results from Logistic Regression Models Predicting Cognitive Impairment at Baseline, Adults Aged 65+

	Model 1	Model 2	Model 3	Model 4	Model 5
Respondent characteristics					
Education (<High school)					
High school	−0.399***			−0.303**	−0.431**
	[0.113]			[0.116]	[0.156]
Some college	−0.435**			−0.286	−0.394
	[0.140]			[0.146]	[0.218]
College+	−0.639***			−0.472**	−0.684*
	[0.164]			[0.178]	[0.285]
Early life conditions					
Parent's education (<High school)					
High school		−1.556***		−0.305	−0.231
		[0.161]		[0.177]	[0.260]
Some college		−2.116***		−0.843*	−1.173
		[0.382]		[0.375]	[0.733]
College+		−1.572***		−0.096	−0.102
		[0.282]		[0.299]	[0.471]
Offspring characteristics					
Offspring education (/no offspring w/college)					
Some offspring w/college			−0.534***	−0.249	−0.239
			[0.102]	[0.136]	[0.170]
All offspring w/college			−0.544***	−0.165	−0.183
			[0.107]	[0.139]	[0.193]
Controls for:					
Respondent characteristics	X			X	X
Early life conditions		X		X	X
Offspring characteristics			X	X	X
Respondent health					X
Fit statistics					
AIC	3,738.2	5,592.9	5,755.3	3,725.4	2,212.6
BIC	3,865.8	5,637.9	5,792.8	3,920.6	2,450.4

Note: All models account for clustering at household level. BIC = Bayesian information criterion; AIC = Akaike information criterion.
$^{***}p < .001$. $^{**}p < .01$. $^{*}p < .05$.
Source: HRS, 2000–2012.

Abbreviated model results are presented in Table 4. The coefficients for the interactions suggest few significant differences between women and men with respect to the effect of parent's education or children's education on the respondent's risk of becoming cognitively impaired. Wald tests results (not shown in the table) suggest that the interaction between respondent gender and parental education is not significant ($F = 2.55$, $p > .10$). However, Wald tests results for the interaction between respondent gender and offspring education for cognitive impairment show marginal significance ($F = 2.55$, $p = .0536$).

To explore these differences further, Figure 1 presents the predicted probability of cognitive impairment based on the interaction between respondent gender and offspring education as presented in Table 4. The graphs show the probability of becoming cognitively impaired for women versus men at different levels of offspring education, holding values other than respondent gender, offspring education, and respondent age at their means. Evident from Figure 1A is that women experience worse cognitive health outcomes than men at nearly all comparable levels of education. The subsequent graphs show women's versus men's probability of becoming impaired at each level of children's college completion, with confidence intervals to better assess differences across respondent gender. For parents with no children who complete a college education, Figure 1B illustrates how women have a higher probability of becoming impaired across all ages, although at no point is the gender difference statistically significant. Among those respondents whose children completed some college and respondents for whom all of their children completed college, Figure 1C and D also show that women exhibit higher probabilities of becoming impaired compared to men, but again the gender difference is not significant. Combined, the graphs suggest that in general, there are few gender differences in the overall effect of offspring education on the likelihood of the respondent becoming cognitively impaired at a given observation.

Table 3. Abbreviated Results from Multinomial Logistic Regression Models Predicting Onset of Cognitive Impairment, Adults Aged 65+ (*N* = 48,312)

	Good cognition —> Cognitive impairment					Good cognition —> Death	Good cognition —> Attrit
	M1	M2	M3	M4	M5	M5	M5
Respondent characteristics							
Education (<High school)							
High school	−0.672***			−0.584***	−0.509***	−0.059	0.044
	[0.060]			[0.061]	[0.061]	[0.050]	[0.037]
Some college	−0.967***			−0.826***	−0.712***	−0.067	0.054
	[0.080]			[0.083]	[0.083]	[0.063]	[0.044]
College+	−0.963***			−0.796***	−0.629***	0.000	0.040
	[0.084]			[0.090]	[0.090]	[0.069]	[0.047]
Early life conditions							
Parent's education (<High school)							
High school		−1.056***		−0.135	−0.087	−0.020	0.186***
		[0.085]		[0.090]	[0.089]	[0.066]	[0.034]
Some college		−1.251***		−0.290	−0.262	−0.210	0.143**
		[0.161]		[0.166]	[0.164]	[0.115]	[0.048]
College+		−1.079***		0.016	0.073	0.012	0.260***
		[0.140]		[0.145]	[0.144]	[0.109]	[0.051]
Offspring characteristics							
Offspring education (/no offspring w/ college)							
Some offspring w/college			−0.368***	−0.201**	−0.187*	−0.119	−0.016
			[0.072]	[0.074]	[0.073]	[0.064]	[0.050]
All offspring w/college			−0.585***	−0.307***	−0.231**	−0.159*	−0.093
			[0.075]	[0.079]	[0.079]	[0.065]	[0.051]
Controls for:							
Respondent characteristics	X			X	X	X	X
Early life conditions		X		X	X	X	X
Offspring characteristics			X	X	X	X	X
Respondent health					X	X	X
Fit statistics							
AIC	68,919.5	84,634.3	85,409.8	68,790.2	67,448.5	67,448.5	67,448.5
BIC	69,372.1	84,794.0	85,542.9	69,482.4	68,300.4	68,300.4	68,300.4

Note: All models account for clustering at household level. AIC = Akaike information criterion; BIC = Bayesian information criterion.
***p < .001. **p < .01. *p < .05.
Source: HRS, 2000–2012.

Discussion

This study adds to an expanding body of research applying an "adjacent generations" approach (Wolfe et al., 2018a) to understand how the educational resources of family members shape the cognitive health of older adults who are parents in the United States. Specifically, we found limited support for the idea that the early conditions of life—the "long arm" of childhood (Hayward & Gorman, 2004)—matter for cognitive health among older adults once an individual's and that individual's offspring are taken into account. In our models of both prevalence and incidence, an older parents' education is not significantly associated with cognitive impairment at baseline or the risk of becoming impaired, among those who were not impaired at baseline. This differs from prior work which finds a significant protective effect of parental resources on cognitive health that do not account for offspring education (Greenfield & Moorman, 2018). However, we note that in our findings which compare the results across different methods of handling missing data, parents' education was a significant correlate of parents' cognitive health in the multiple imputation (no deletion) sample, but was not significantly associated in the list-wise deletion sample (see Supplementary Table S1). We note that the instability of

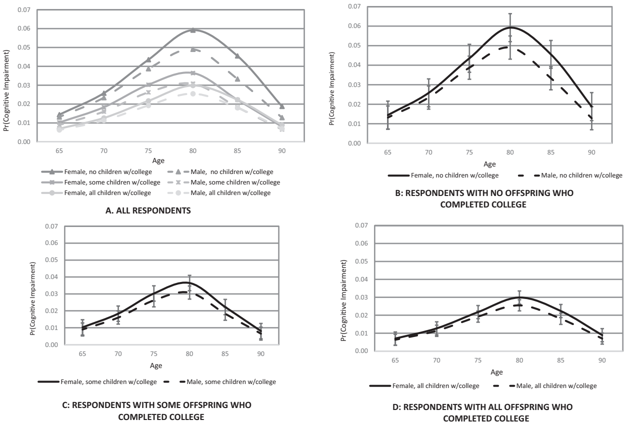
Table 4. Abbreviated Results from Logistic Regression Models Predicting Onset of Cognitive Impairment With Respondent Gender Interaction, Adults Aged 65+ (*N* = 48,312)

Female	−0.062
	[0.132]
Respondent education (<High school)	
High school	−0.512***
	[0.060]
Some college	−0.715***
	[0.083]
College+	−0.629***
	[0.090]
Parent's education (<High school)	
High school	−0.095
	[0.119]
Some college	−0.125
	[0.234]
College+	−0.325
	[0.234]
Children's college completion/(no children w/college)	
Some children w/college	−0.225
	[0.118]
All children w/college	−0.256*
	[0.123]
Female × Children's college completion	
Female × Some children w/college	0.064
	[0.147]
Female × All children w/college	0.044
	[0.151]
Female × Parent's education	
Female × Parent's education: High school	0.013
	[0.160]
Female × Parent's education: Some college	−0.277
	[0.318]
Female × Parent's education: College+	0.672*
	[0.289]

Note: All models account for clustering at household level.
****p* < .001. ***p* < .01. **p* < .05.
Source: HRS, 2000–2012.

parents' education in these supplemental results suggest caution in interpreting these findings for early life socioeconomic conditions. Regardless, our findings underscore the importance of including *children's* education at this life stage, as it is possible that the effects of a prior generation's health may have less effect once the resources of one's children are considered.

On the other hand, the results find some support for the "social foreground" perspective (Torssander, 2013) that offspring education matters for older parents' cognitive health. In the prevalence models, the significant association between children's college completion and respondent cognitive health disappears once the respondent and the respondent's parents' education are included. However, in predicting the onset of cognitive impairment, our results suggest that offspring education is a vital resource in mitigating health deterioration for older adults in the United States. Although the size of the coefficients indicates a stronger effect of personal education compared to offspring schooling, well-resourced children are clear contributors to helping prevent a decline in brain health in later life.



A. ALL RESPONDENTS

B: RESPONDENTS WITH NO OFFSPRING WHO COMPLETED COLLEGE

C: RESPONDENTS WITH SOME OFFSPRING WHO COMPLETED COLLEGE

D: RESPONDENTS WITH ALL OFFSPRING WHO COMPLETED COLLEGE

Figure 1. Predicted Probability of Cognitive Impairment by Respondent's Age, Gender, and Offspring Education.

In our analysis of the potential mechanisms through which children's educational resources influence parental health, we posited that well-resourced children may encourage their parents to take preventive steps to avoid impairment, including through diet or exercise. However, the association between children's higher education and risk of respondent cognitive impairment remained robust even after accounting for these potential mechanisms. Highly educated offspring may also provide for better preventative healthcare, although our very basic measure of transfers from children to parents did not alter the substance of our findings. It could be that highly educated children are providing medical assistance and better access to certain types of health knowledge and technologies that could prevent cognitive impairment that their less-educated counterparts cannot (Hayward, Hummer, & Sasson, 2015; Sasson & Hayward, 2018). In ancillary analyses, we found that when we used a child's high-school education, rather than a child's college education as our threshold, the association between offspring schooling and parents' cognitive impairment was no longer significant (see Supplementary Table S3). However, other specifications of children's education, including the mean, mode, and education of the eldest child all showed a positive association between children's schooling and parents' cognitive outcomes. We believe that these results can be framed within a broader social context where health disparities are increasingly being driven by those with and without access to higher education and provide a pathway for future work in this area (Hayward et al., 2015; Sasson & Hayward, 2018).

Finally, tests of the interaction between respondent gender and parent's education, and respondent gender and offspring education suggest little differences the effect of family resources on men's and women's cognitive health. Wald tests suggested only a marginal difference in the association for women versus men with respect to adult children's education. Using the interaction results to map out predicted probabilities across the age spectrum, we found that for all levels of children's college completion, any gender differences that were detected were not statistically significant. However, other studies of mortality found that both the respondent and the child's gender changed the association between offspring education and parental health (Lundborg & Maljesi, 2018; Yahirun et al., 2017). In supplemental analyses (not shown here), we included a variable capturing offspring gender, measured as the share of offspring who are daughters, and found that offspring gender was not significantly correlated with respondent cognitive impairment or risk of becoming impaired. Thus, although our study could not find conclusive evidence of gender moderation, we continue to see room for future work in this area.

A limitation of our study, as is common with similar studies, is that problems of reverse causation and omitted variable bias challenge the validity of our results regarding offspring education. Prior research has used fixed effects models (Torssander, 2013) or quasi-experimental data (Ma, 2019) to address this problem, and we believe that future work should also address these concerns more directly. Our use of early childhood conditions helps to ameliorate some of the concerns about omitted variables due to family background that predict not only the subsequent generation's educational attainments, but also the health of the respondent in later life as well. Though our longitudinal study can address temporal ordering to a certain extent, it is also possible that our upstream effect may still be partially explained by reverse causality in the cross-sectional results (i.e., some parents may have become cognitively impaired before their children completed schooling, which may have limited their offspring educational achievements). However, we found no evidence of this pattern of results in the event history models. In addition, we note that some of the health behaviors and disease conditions we use in our analyses could be an outgrowth of cognitive impairment, rather than possible mechanisms, given that we do not know the time ordering of these factors prior to baseline. Although prior research has documented the high incidence of cognitive impairment or dementia following an event such as a stroke (Mijajlović et al., 2017), more panel data are needed that include early and middle-age adulthood to fully address this issue. In addition, whereas our study examines how the education of adjacent family members matters for older adults differently depending on their gender, further research should examine whether significant differences also exist by race/ethnicity, and socioeconomic status. In separate analyses (data not shown here), we found that race may be an important moderator in shaping the extent to which parental and offspring education matters for the cognitive health of their parents in later life. Future research should explore these intersections more extensively. We acknowledge that our sample is limited to older adults who are parents only. Although very few respondents in the HRS are childless, the results presented here are not generalizable to all U.S. older adults, but is limited to those with adult children. Recent research in Mexico points to the link between parenthood and cognitive health more generally, a complex relationship that warrants research in the U.S. context as well (Saenz, Díaz-Venegas, & Crimmins, 2019). Finally, our limited focus on educational attainments of different family members may obscure the true advantages or disadvantages that family socioeconomic status broadly defined (including occupation, earnings, wealth, etc.) could have on cognition.

Still, our study using an "adjacent generations" perspective adds new knowledge to studies of cognitive health in the United States by testing the potential effect of resources from earlier and subsequent generations on older adults' cognitive health. Although we found less evidence that the respondent's parents' education matters at this life stage, we found that offspring education has a salient protective effect on the risk of becoming cognitively impaired. In this way, our findings echo recent work that also examines the educational resources of prior and subsequent generations, where offspring education has a larger impact on older adult mortality than the education of prior generations (Wolfe et al., 2018a, 2018b). Although small, the effect of children's education on mitigating the risk of health decline is not negligible and should be thought of as yet another mechanism through which the resources of kinship networks compound existing individual advantages. Having children with greater socioeconomic resources has the potential to help older parents live healthier lives, although the mechanism through which this occurs remains largely obscure and is an area open for more work. This article sheds light on an important and often overlooked source of disparities for older adults who are parents: The resources of their adult children, and underscores the importance of considering how the family continues to act as an important stratifying mechanism that generates both health advantages and disadvantages in later life.

Supplementary Material

Supplementary data are available at *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences* online.

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Conflict of Interest

None reported.

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