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The Impact of Childhood and Adult SES on Physical, Mental, and Cognitive Well-Being in Later Life

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Abstract

Objectives—To examine the relationships between socioeconomic status (SES) and health across the life course and their variations by gender and race/ethnicity.

Methods—The sample included 19,949 respondents aged 50 or over from the 1998 Health and Retirement Study.

Results—Lower childhood SES was associated with worse health outcomes in later life. Part of the effect of childhood SES on adult health occurred through childhood health. The impact of childhood SES on education and income in adulthood explained an even larger share of this effect. We also found a stronger effect of adult SES for those with lower childhood SES than for those with more advantaged childhoods. Moreover, childhood SES had a similar impact on health in later life for women and men and for Whites and non-Whites. However, college education seemed more important for women's later health, whereas income seemed more important for men's health. Education appeared to have a weaker effect on adult health for Blacks and Hispanics than for Whites.

Discussion—Both childhood and adult SES are important for health. The negative impact of low childhood SES can be partially ameliorated if people from a low SES position during childhood mobilize to higher status in adulthood.

Numerous studies have confirmed that people of higher socioeconomic status (SES) tend to have better health and that SES differences in adult health are evident for both men and women, across a range of health measures and across different societies (Feinstein, 1993; Gilman, Kawachi, Fitzmaurice, & Buka, 2002). Most scholars hold that SES differences in health are causally produced as a result of various health-related factors such as living and working conditions, access to health services, social relationships, and diversified life styles, which are unequally distributed across the social hierarchy (Feinstein, 1993; Luo & Wen, 2002). SES differentials in health may also result from health selection. People with pre-existing illness drift down the social scale: Those with poor health are selected into lower SES through decreased labor force participation or through withdrawal from paid work, thereby decreasing their wage income and inhibiting wealth accumulation (Williams, 1990). Although it is well recognized that the process of health selection can start in early childhood, the impact of childhood health on adult SES attainment and health outcomes in later life is rarely examined (Blackwell, Hayward, & Crimmins, 2001; Lundberg, 1991; Power, Stansfeld, Matthews, Manor, & Hope, 2002).

Interest in the relationship between SES in early life and health inequalities in adulthood has grown in the last few decades. Extension of the classic status attainment model views adult health as one of the outcomes of intergenerational transmission of social status (Reynolds & Ross, 1998). More recently, researchers have argued that a life course approach is necessary

to understand social variations in health, and they called for examining the relationship between both childhood and adult SES and health (Wadsworth, 1997). The life course approach implies a reciprocal relationship between SES and health and also makes room for the possibility that favorable circumstances can compensate for the effects of earlier disadvantage (Graham, 2002). At the same time, the theory of cumulative advantage/disadvantage suggests that individuals within a cohort increasingly diverge over the life course in characteristics like money and health, as large initial endowments lead to large additional gains and initial disadvantage causes further decline, regardless of the source of early advantage/disadvantage (Dannefer, 2003).

Some evidence has emerged that childhood SES is an important determinant of health in later life, with poorer health among those from lower SES backgrounds (Lynch, 2000; Turrell et al., 2002). However, empirical studies on the relative contributions of earlier and later SES conditions to health and how accumulations and interactions of these conditions affect health are rare and the findings inconsistent. Some studies have shown that health variations in adults are attributed to both early and later life circumstances (Gilman et al., 2002; Turrell et al., 2002), suggesting that childhood SES has lasting effects on health beyond its impact on later status attainment. Others do not find a significant association between childhood SES and later health once adult SES is taken into account (Marmot, Shipley, Brunner, & Hemingway, 2001), suggesting that childhood SES determines the living and working conditions in adult life and it is these circumstances that give rise to social inequalities in health. It is difficult to draw conclusions because these studies vary in sample selection and geographic coverage. Moreover, from a life course perspective, SES mobility may influence health outcomes, with upward mobility decreasing risk and partially compensating for earlier disadvantages and downward mobility increasing risk (Graham, 2002), but this idea has not been thoroughly assessed (Lynch, 2000; Mare, 1990; Turrell et al., 2002). Although recent reviews on social relations and health have called for the inclusion of multiple health outcomes in the same study (Seeman, 1996), previous investigations of the effects of childhood SES on health tend to focus exclusively on physical health, especially certain types of disease. It is unclear whether these relationships also hold for mental health and cognitive functioning (Gilman et al., 2002; Turrell et al., 2002).

Research on gender and race differences in the linkages between SES and health is scarce and inconclusive (Gilman et al., 2002; Nystrom Peck, 1994; Veijola, Puukka, Lehtinen, Moring, Lindholm, & Vaisanen, 1998). Some studies show that women and non-Whites report poorer physical health and women also report poorer mental well-being, largely due to their disadvantaged SES (Bebbington, 1998; Johnson & Wolinsky, 1994). The question remains of whether women and non-Whites receive the same health benefits from SES as do men and Whites. Given the societal discrimination that devalues SES attainment among women and non-Whites, we would expect that women and non-Whites receive fewer health benefits from SES, especially SES attainment in adult life, than men and Whites.

This study examined the relationship between SES and health in childhood and later life using a nationally representative sample of the U.S. population 50 years of age or over. By assessing SES and health in childhood and adulthood, this study addressed both the social causation and the health selection hypotheses. More specifically, it addressed the following six questions: (1) Does childhood SES have lasting effects on physical, mental, and cognitive well-being in later life? (2) Does childhood health mediate the transfer of SES status from childhood to adult life? (3) Do SES advantages accumulate, so that childhood SES, educational attainment, and household income each add to later health advantages? (4) Does SES mobility from childhood to adulthood affect health, such that upward mobility decreases risk of poor health and downward mobility increases this risk? (5) Does the impact of childhood SES and health on health in adulthood differ for men and women? (6) Does it differ for racial and ethnic groups?

METHODS

Data

Data for this study came from the 1998 Health and Retirement Study (HRS), a longitudinal survey of older Americans. It began in 1992–1993 as two separate samples: the original HRS focusing on 1931–1941 birth cohorts and the Assets and Health Dynamics Among the Oldest Old (AHEAD) focusing on 1890–1923 birth cohorts. In 1998, the two samples (wave 4 of HRS and wave 3 of AHEAD) were merged, and two new cohorts—Children of the Depression Age (1924–1930 cohorts) and War Babies (1942–1947 cohorts)—were added. The spouses were also interviewed irrespective of their age. The combined sample of 21,384 respondents is representative of all Americans born between 1890 and 1947 and their spouses. We excluded 935 spouses born after 1947. We also excluded those with missing information on key variables; the 500 excluded cases did not differ significantly on basic demographics from the 19,949 respondents in the analytical sample. Sample sizes varied slightly between the various models of adult health because the number of cases with missing information differed.

Measures of Health

We examined six measures of physical, mental, and cognitive well-being in adulthood. Table 1 presents descriptive statistics.

Self-rated health—Respondents were asked to rate their health on a 5-point scale ranging from poor to excellent ($M = 3.06$, $SD = 1.18$). This measure captures respondents' overall assessment of their own medical and functional status. Previous research shows that self-rated health correlates well with physician-assessed health and correlates better with mortality than physician assessments (Idler & Kasl, 1991).

Functional limitations—The number of functional limitations was calculated by summing responses to 12 items assessing whether the respondent had difficulties with specific forms of ambulation such as walking a block and climbing a flight of stairs or muscle movements such as moving a large chair or picking up a dime from the table (Wallace & Herzog, 1995). It ranged from 0 to 12 ($M = 2.60$, $SD = 3.15$) with alpha reliability of 0.88. Respondents who “don't do” these activities were dropped. In additional analyses, we imputed these cases based on their responses to other health measures and nonmissing functional limitation items and found similar results.

Chronic conditions—Respondents were asked if a doctor had ever told them that they had diabetes, heart disease, lung disease, cancer, hypertension, or stroke. The number of chronic conditions was the total number of conditions reported, ranging from 0 to 6 ($M = 1.11$, $SD = 1.06$).

Depressive symptoms—HRS included a short version of the Center for Epidemiological Studies Depression Scale, designed specifically for interviews with older respondents. The scale is intended to assess depressive symptoms and has satisfactory psychometric properties (Turvey, Wallace, & Herzog, 1999). Each item on the scale was a question about how the respondent felt in the last week. The form of the questions reads “Much of the time in the last week I felt ...” with a response set of yes or no. The number of depressive symptoms was a count of the affirmative responses, with two items tapping positive affect reverse coded. It ranged from 0 to 8 ($M = 1.61$, $SD = 1.94$) with alpha reliability of 0.78.

Self-rated memory—Respondents were asked to rate their memory on a 5-point scale ranging from poor to excellent ($M = 3.11$, $SD = 0.95$). Self-rated memory taps the respondent's global perceptions of his or her quick thinking (Wallace & Herzog, 1995).

Cognitive functioning—This variable was the total score of a series of tests based on a modified version of the Telephone Interview for Cognitive Status. There were four memory and two executive functioning tasks asked, yielding a maximum of 35 points, with higher scores indicating better functioning. These tasks included (a) an immediate recall test, which required recalling as many words as possible from a list of 10 commonly used words immediately after the interviewer read the list (10 points); (b) a delayed recall test of the same list (10 points); (c) naming the day of the week and the date (i.e., month, day, and year; 4 points); (d) naming the object that people usually use to cut paper, the kind of prickly plant that grows in the desert, the president of the United States, and the vice president (4 points); (e) a serial 7s test that required subtracting 7 from 100 five times (5 points); and (f) counting backward from 20 for 10 consecutive numbers (2 points). Following Herzog and Wallace (1997), we assigned respondents who refused at the inception of the task a score of 0 and those who refused during the task the score they had obtained up until their refusal ($M = 22.98$, $SD = 5.27$).

Childhood health—The respondent's rating of his or her health as a child was coded on a 5-point scale ranging from poor to excellent. Although retrospective reports of childhood health are subject to recall bias and measurement error, the previous study of a small module of HRS respondents in 1996 found a high level of internal consistency between the reports of general health and specific long-term health limitations in childhood (Elo, 1998). The respondents generally reported good health in childhood ($M = 4.15$, $SD = 1.00$).

In our sample, self-rated health was more strongly correlated with functional limitations and chronic conditions ($r = -0.59$, -0.47) than with depressive symptoms, self-rated memory, or cognitive functioning scores ($r = -0.39$, 0.32 , 0.30). Self-rated memory and cognitive functioning scores were moderately correlated with each other ($r = 0.24$) and with other health measures ($r = -0.13$ to 0.32). Self-rated health in childhood and self-rated health in adulthood were moderately correlated ($r = 0.24$).

Measures of Socioeconomic Positions

Childhood SES—Childhood SES included four items: whether the respondent's parents had ≥ 8 years of education, whether the respondent's father had a white-collar job, and whether the family was financially pretty well off, about average, or poor (see Table 1). Preliminary analyses showed that respondents who were missing on parents' education (mother: 11%; father: 14.8%) and father's occupation (5.5%) had similar characteristics to those in low status categories, and thus they were combined with low status categories. Deleting these cases left substantive conclusions unaffected. Parents' education was ≥ 8 years for more than half of the respondents (mother: 62%; father: 55%). Nearly one-fourth reported that their father had a white-collar job. More than half of the respondents rated their family's financial well-being as average (61%), and few rated their family's financial well-being as well-off (6%).

Adult SES—Adult SES was measured by respondent's own education and household income. Education was measured in years ($M = 11.87$, $SD = 3.40$). Household income was the total household income in the year prior to the survey. The values were log transformed to correct for positive skewness ($M = 10.19$, $SD = 1.47$).

Cumulative SES—To create the variable measuring cumulative SES across the life course, we first created a childhood SES index, which was the average of standardized parents' education, father's occupation, and family financial well-being. We then dichotomized this index at the median. We also dichotomized the respondent's education and household income according to whether the respondent attended college and whether the respondent's household income was above average. The combinations of dichotomized childhood SES, adult education, and household income were grouped into four categories: low position on all three

measures (coded 0; 29%); low position on two measures, high on one (coded 1; 29%); low position on one measure, high on two (coded 2; 24%); and high position on all three measures (coded 3; 18%). This variable is cumulative because it taps multiple dimensions of SES over the life course, with education completed before midlife for most respondents and household income measuring current position (Turrell et al., 2002).

SES mobility pattern—Based on SES measures, we created five SES mobility trajectories: (1) stable low: below median childhood SES, no college education, and below median income (29%); (2) downward: above median childhood SES, no college education, and below median income (12%); (3) mixed: no consistent upward or downward pattern of mobility from childhood to adulthood (33%); (4) upward: below median childhood SES, college education, and above median income (8%); and (5) stable high: above median childhood SES, college education, and above median income (18%). This measure is strongly correlated with cumulative SES ($r = 0.96$) because stable low and stable high are lowest and highest in cumulative SES. However, the mixed split evenly on two values (1 and 2) of cumulative SES.

Covariates

Gender, race/ethnicity, and age were controlled in multivariate analyses. The average age was 66.87 years ($SD = 10.40$). More than half of the respondents were female (57%). There were four race/ethnicity categories: White (77%), Black (14%), Hispanic (7%), and other (2%).

Statistical Procedures

We regressed childhood health, adult SES, and adult health on the independent variables, using ordinary least squares regression. We first regressed childhood health on childhood SES variables, controlling for gender, race/ethnicity, and age, to assess the relationship between childhood SES and health in childhood. Second, we regressed adult SES variables on childhood SES and childhood health to examine the effect of childhood SES and health conditions on SES attainment in adulthood. Next, a series of regression models were run for each adult health outcome. Model I included childhood SES and control variables. Model II added childhood health, and Model III added adult SES variables. By comparing change in coefficients for childhood SES from Model I to Model II and from Model II to Model III, we can see how much of the effect of childhood SES was mediated by childhood health and adult SES variables. Finally, regression models were estimated with cumulative SES status and measures of SES mobility as predictors of adult health outcomes.

RESULTS

Childhood SES, Childhood Health, and Adult SES

We begin by examining the relationship between childhood SES and childhood health and between childhood SES and adult SES. Net of gender, age, race/ethnicity, and other childhood SES variables, all childhood SES variables were significantly associated with childhood health (Table 2). Family financial well-being had the largest effect: Children from average/well-off families rated their health in childhood 0.19/0.25 higher than children from poor families. Respondents also rated their health in childhood higher if their parents were better educated or if their father had a white-collar job ($b = 0.06$ – 0.10).

All childhood SES variables were significant predictors of adult education (see Table 2). Respondents had 0.57–1.40 more years of education if their parents were better educated, if their father had a white-collar job, or if their family's financial well-being was average or above average (Model I). These effects were attenuated by 2–11% with the addition of childhood health, confirming a mediating effect of childhood health on transition from childhood SES to

adult education (Model II). Childhood health had a statistically significant positive effect on adult education ($b = 0.31$).

Childhood SES and health also significantly predicted adult income (Table 2). Income was higher for respondents whose parents were better educated, whose father had a white-collar job, and who came from average or well-off families (Model I). The addition of childhood health attenuated these effects by 4–14%, confirming a mediating effect of childhood health on transition from childhood SES to adult income (Model II). We saw greater attenuation of the effects when adult education was added (Model III); family financial well-being was no longer significant, and the effects of parents' education and father's occupation dropped more than half. The effect of childhood health on adult income dropped by one-third once we controlled for adult education but remained statistically significant (Model III).

Effects of Childhood and Adult SES on Health in Later Life

Next, we address the question: Does childhood SES have lasting effects on physical, mental, and cognitive well-being in later life? Childhood SES variables were strongly associated with all six health outcomes (see Table 3, Model I). With few exceptions, people with higher childhood SES had higher self-rated health ($b = 0.16$ – 0.28), lower functional limitations ($b = -0.20$ to -0.45), fewer chronic conditions ($b = -0.07$ to -0.12), fewer depressive symptoms ($b = -0.17$ to -0.32), higher self-rated memory ($b = 0.05$ – 0.27), and higher cognitive functioning scores ($b = 0.75$ – 1.20). With gender, age, and race/ethnicity controlled, childhood SES explained an additional 1–4% of the variance in adult health measures. The health differentials between people from average families and people from wealthy families appear most clearly for self-rated health and self-rated memory, with improvements in adult health with each increase in childhood financial well-being. But for other health measures, those from average families seemed to fare as well as those from wealthy families. Finally, family financial condition had no independent effect on cognitive functioning.

We address the mediating effect of childhood health by adding childhood health to the models of adult health. Childhood health was strongly associated with all adult health outcomes in the expected direction (Model II). Most coefficients of childhood SES variables were attenuated by 0–20% but remained statistically significant, but the effect of the highest level of family financial status on functional limitations and chronic conditions became insignificant.

As Model III shows, both educational attainment and household income were strong predictors of all health outcomes, with both associated with better health, and adding them substantially attenuated the effects of childhood SES on all health measures. Reductions in the size of the coefficients were 48–65% for mother's education, 18–95% for father's education, 57–77% for father's occupation, 21–38% for average family financial status, and 25–41% for well-off family financial status. Also, some childhood SES variables were no longer significant. For example, the effects of father's occupation on functional limitations or chronic conditions, of father's education and well-off family financial status on depressive symptoms, and of father's education and occupation on self-rated memory were no longer significant.

Across all health outcomes, the positive relationship between childhood health and adult SES led to reductions in the size of the effect of childhood health status once adult SES was taken into account. Most of the reductions were 10–20% with the exception of cognitive functioning scores, for which the effects of childhood health were attenuated by nearly half.

Cumulative SES and Health

Our third question asks if advantages in childhood and adulthood tend to accumulate, with the health differential widening over the life course as those with early advantage tend to

accumulate more. If childhood SES, adult education, and income all improve health in later life, we should observe a cumulative effect of status on health. Table 4 shows adjusted means of each health measure by cumulative SES. The results indicated strong and consistent graded associations between cumulative SES and health. The worst health outcomes appeared among those who grew up in a family with relatively low SES, who also attained relatively low levels of education and income in adulthood, whereas the best health outcomes appeared among those who were advantaged in both childhood and adulthood, with those advantaged on some dimensions but not on all falling in between.

SES Mobility and Health

Figure 1 shows the adjusted means for each health measure for the five SES mobility trajectories from childhood to adulthood. This figure highlights the importance of SES mobility over the life course for health in later life. Those who had a low childhood SES and then experienced upward mobility had better health outcomes than those with similar childhood SES but limited or no upward mobility. For instance, people with low childhood SES who then experienced upward mobility in adulthood had 2.05 functional limitations, significantly fewer than people with stable low SES status (3.72). In contrast, those who had high SES in childhood but who then experienced downward mobility in adulthood had worse health outcomes than those with stable high SES. For example, people with high childhood SES who experienced downward mobility as older adults had 3.17 functional limitations, significantly higher than 1.93 for people with stable high SES. Also, adult SES was more important for current health than childhood SES: Those with downward mobility were always close to the stable low and the upwardly mobile were always close to the stable high.

In addition, high SES in adulthood had larger health benefits for children from low SES families than for those who had more privileged childhoods (see Figure 1). With the exception of chronic conditions, the health differentials between upwardly mobile respondents and those with stable low SES were significantly greater than the health differentials between respondents with stable high SES and respondents who had high childhood SES but experienced downward mobility. For example, for respondents with low childhood SES, the difference in self-rated health between those who had high education and income and those who had low education and income is 0.69, which is significantly higher than the difference in self-rated health between those who had high education and income and those who had low education and income for respondents with high childhood SES (0.60). Additional regression analyses including interactions of high childhood SES with college education and above median household income showed that these interactions were statistically significant for self-rated health, functional limitations, depressive symptoms, and cognitive functioning (not shown). All these suggest that the effects of adult SES on health were stronger for people with low childhood SES than for people with high childhood SES.

Gender and Race

To answer the question about whether childhood SES, childhood health, and adult SES have the same health benefits for women and men, we added interactions of gender with each SES variable and childhood health to Model III in Table 3 (results not shown). Of the 30 interactions between gender and childhood SES, only 1 was significant, likely by chance. Of the six interactions of gender and childhood health, three were significant; childhood health was more strongly associated with functional limitations, chronic conditions, and depressive symptoms for women than for men. Gender interacted significantly with adult education for three outcomes: Educational attainment had larger effects on chronic conditions, depressive symptoms, and cognitive functioning scores for women than for men. Gender interacted with adult income for two outcomes: Adult income had smaller effects on self-rated memory and cognitive functioning scores for women than for men. Thus, whereas childhood SES had

similar effects on health for women and men, adult education seems more important for women and adult income seems more important for men.

Next, we added interactions of race/ethnicity to Model III in Table 3 to determine whether the health benefits of childhood SES, childhood health, and adult SES differ by race/ethnicity (results not shown). The effects of childhood SES variables rarely varied by race/ethnicity: Of 90 interaction terms between race/ethnicity and childhood SES (30 each for Blacks, Hispanic, and other race/ethnicity), only 5 were significant, about what would be expected by chance. However, the health benefits of adult education clearly varied with race/ethnicity. Most of the interactions showed fewer health benefits of adult education for non-Whites than for Whites. Five of the six interactions of Black with education were significant: Four of them showed weaker effects of education on self-rated health, functional limitations, chronic conditions, and self-rated memory for Blacks than for Whites; one showed a stronger effect of education on cognitive functioning scores for Blacks than for Whites. All six interactions of Hispanics with education were significant: They showed weaker effects of education on all health measures for Hispanics than for Whites. Four of 18 interactions of race/ethnicity with household income were significant: Three showed that compared with Whites, income had weaker effects on depressive symptoms for Blacks, on self-rated health for Hispanics, and on chronic conditions for other race/ethnic minorities; one showed a stronger effect of income on cognitive functioning scores for Blacks.

DISCUSSION

This study examined the relationships between SES and health in childhood and later life and variations by gender and race/ethnicity. We found that childhood SES and adult SES had independent effects on most health outcomes. People who grew up in relatively disadvantaged families had poorer health outcomes than people with more privileged childhoods. Childhood SES appeared to affect health in later life partly by affecting health in childhood. But a much larger proportion of the effect of childhood SES on adult health operated through its effect on educational attainment and household income in adulthood. Our results also suggest that the negative impact of low childhood SES can be ameliorated if people from a low childhood SES position achieve higher status in adulthood. Moreover, the effects of childhood SES were remarkably similar for women and men and for Whites and non-Whites. However, college education seemed more important for women's health, while income seemed more important for men's health. Education appeared to have fewer health benefits for Blacks and Hispanics than for Whites.

This study has several limitations. First, because the only measure of childhood health available in the HRS is self-rated childhood health, we do not know how a history of illness, emotional well-being, or cognitive functioning, for example, might be linked to adult SES and health in later life. Second, both childhood SES and health were obtained through retrospective reports. Although some studies have shown that for more objective items, such as parents' education and occupation, retrospective reports are fairly reliable, we need more research on the accuracy of retrospective reports of more subjective items, such as self-rated childhood health. Third, because of the limited information on childhood and the period between childhood and later adulthood, it is difficult to establish possible pathways between childhood SES and health in later life, other than adult educational attainment and household income.

Despite these limitations, this study contributes to our understanding of the relationship of SES and health over the life course. We have found very similar patterns of the relationships between childhood SES and health and measures of adult health across three dimensions of health, physical health, emotional well-being, and cognitive function, suggesting that the impact of childhood SES conditions is pervasive.

This study has confirmed that the relationship between SES and health is reciprocal, thus lending support to both social causation and health selection hypotheses. It showed that childhood SES affected health at early ages, that childhood health affected SES attainment in adult life, and that adult SES affected health in later life. Although there was a clear pathway from childhood SES to childhood health, to adult SES, and to health in later life, the direct links from childhood SES to adult SES (e.g., education), from childhood SES to adult health, and from childhood health to adult health remained significant. These findings, which are consistent with other studies (Power, Manor, & Matthews, 1999; Turrell et al., 2002), suggest that childhood SES and health can have lasting direct effects on adult health in addition to their impact on SES attainment in adult life.

One unexpected result is that, net of parents' education and father's occupation, the effects of family financial well-being on most health outcomes did not follow a clear gradient. With the exception of self-rated health and self-rated memory, people from average families reported similar or even better health than people from wealthy families. It is worth noting that only about 6% of respondents said that their family was well-off; thus, they represented children growing up in wealthy families. Our finding suggests that the marginal utility of additional income in childhood for health in adulthood is quite small at the very top of the income distribution. It is also possible that the respondents who grew up during the Great Depression could have distorted the "normal" role of income during childhood.

Our results also show that family financial well-being made little difference in cognitive functioning. Rather it was parents' education and occupation that remained significant even when childhood health and adult SES were accounted for. Susan Mayer reaches a similar conclusion about other adult outcomes in *What Money Can't Buy: Family Income and Children's Life Chances* (1997). A study of men's cognitive functioning in late middle age also pointed to the importance of parents' education and occupation (Turrell et al., 2002).

This study demonstrates the importance of social mobility for health. We see some evidence that adult SES is more important for those from a disadvantaged family background than for those from more privileged families. Similar mobility patterns were found for mortality (Mare, 1990), cognitive functioning (Turrell et al., 2002), and some health behaviors (Lynch, 2000). Together, these findings suggest that childhood is important, but that not all types of adult chronic disease are inevitably set or programmed in childhood (Turrell et al., 2002). Childhood disadvantage can be alleviated to some extent through upward mobility later in life.

Our findings also suggest that both women and men can benefit from social mobility through better education and better economic attainment, although the pathways may be somewhat different. The effects of childhood SES and adult SES on health were remarkably similar for women and men, as were the effects of social mobility on health. However, women had fewer opportunities for upward mobility, and they also had poorer physical and mental health. Given the similar health benefits of upward mobility for women and men, efforts to reduce gender inequality in SES could reduce gender inequality in health.

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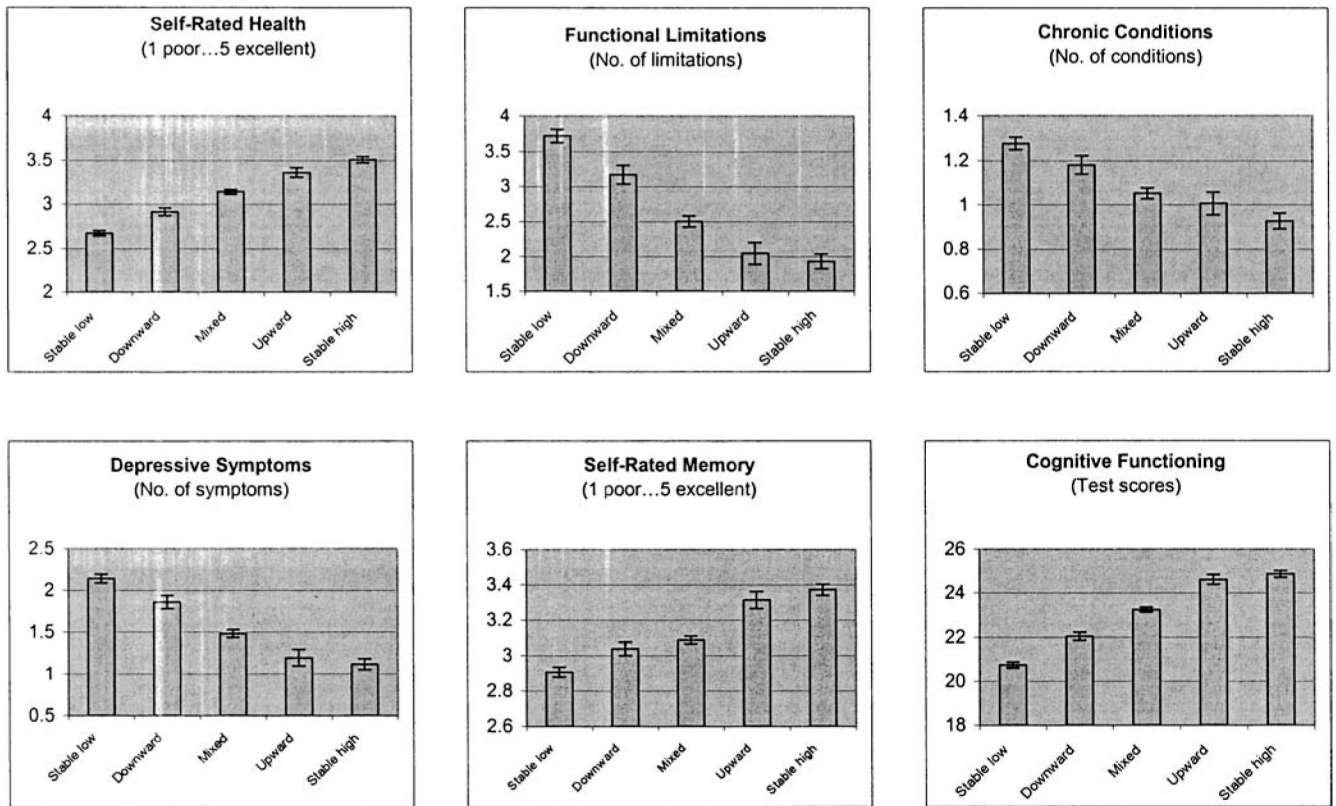


Figure 1. Social mobility and health outcomes (estimated means and 95% confidence intervals adjusted for gender, race/ethnicity, age, and childhood health).

Table 1
Descriptive Statistics of Variables (N = 19,949)

Characteristic	<i>M</i>	<i>SD</i>
Adult health		
Self-rated health (1–5) ^a	3.06	1.18
Functional limitations (0–12) ^a	2.60	3.15
Chronic conditions (0–6) ^a	1.11	1.06
Depressive symptoms (0–8) ^a	1.61	1.94
Self-rated memory (1–5) ^a	3.11	0.95
Cognitive functioning (0–35) ^a	22.98	5.27
Adult SES		
Education (years)	11.87	3.40
Household income (log)	10.19	1.47
Childhood health		
Self-rated health (1–5)	4.15	1.00
Childhood SES (%)		
Mother education ≥ 8 years	62	
Father education ≥ 8 years	55	
Father white-collar job	24	
Family financial well-being		
Poor	33	
Average	61	
Well-off	6	
Demographics (%)		
Female	57	
Race/ethnicity		
White	77	
Black	14	
Hispanic	7	
Other	2	
Age (years)	66.87	10.40

Note: SES = socioeconomic status.

^aThe number of cases varies for these variables owing to missing values.

Table 2
Unstandardized OLS Regression Coefficients of Childhood SES, Childhood Health, and Adult SES (N = 19,949)

Characteristic	Childhood Health			Adult Education			Adult Household Income		
	I	II	III	I	II	III	I	II	III
Demographics									
Female	-0.04**	-0.14**	-0.34**	-0.15**	-0.33**	-0.32**	-0.34**	-0.33**	-0.32**
Race									
Black (vs White)	-0.09**	-1.06**	-0.64**	-1.04**	-0.63**	-0.51**	-0.64**	-0.63**	-0.51**
Hispanic (vs White)	-0.15**	-3.45**	-0.80**	-3.40**	-0.79**	-0.40**	-0.80**	-0.79**	-0.40**
Other (vs White)	-0.03**	-0.34**	-0.47**	-0.33**	-0.47**	-0.43**	-0.47**	-0.47**	-0.43**
Age	-0.00**	-0.05**	-0.02**	-0.05**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**
Childhood SES									
Mother education ≥ 8 yrs	0.10**	1.29**	0.27**	1.26**	0.26**	0.12**	0.27**	0.26**	0.12**
Father education ≥ 8 yrs	0.08**	0.84**	0.15**	0.81**	0.14**	0.05**	0.15**	0.14**	0.05**
Father white-collar job	0.06**	1.40**	0.24**	1.38**	0.23**	0.07**	0.24**	0.23**	0.07**
Family financial well-being									
Average (vs poor)	0.19**	0.57**	0.08**	0.51**	0.07**	0.01**	0.08**	0.07**	0.01**
Well-off (vs poor)	0.25**	1.38**	0.21**	1.30**	0.18**	0.03**	0.21**	0.18**	0.03**
Childhood health									
Adult education									
Constant	4.21**	13.51**	11.72**	12.21**	11.34**	9.96**	11.72**	11.34**	9.96**
R ²	0.03	0.34	0.14	0.35	0.14	0.19	0.14	0.14	0.19

Notes: OLS = ordinary least squares; SES = socioeconomic status.

* $p < .05$

** $p < .01$.

Table 3
Unstandardized OLS Regression Coefficients of Health Outcomes on Childhood SES, Childhood Health, and Adult SES

Characteristic	Self-Rated Health			Functional Limitations			Chronic Conditions			Depressive Symptoms			Self-Rated Memory			Cognitive Functioning		
	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Demographics																		
Female	-0.01	-0.00	0.04*	1.05**	1.02**	0.92**	-0.07**	-0.07**	-0.09**	0.39**	0.38**	0.31**	0.03	0.03*	0.05**	0.61**	0.64**	0.88**
Race																		
Black (vs White)	-0.33**	-0.31**	-0.19**	0.46**	0.41**	0.12	0.21**	0.21**	0.15**	0.46**	0.44**	0.27**	-0.18**	-0.17**	-0.11**	-3.50**	-3.46**	-2.76**
Hispanic (vs White)	-0.35**	-0.31**	-0.05	0.12	0.04	-0.55**	-0.08**	-0.09**	-0.20**	0.84**	0.80**	0.42**	-0.23**	-0.21**	-0.04	-2.81**	-2.75**	-0.72**
Other (vs White)	-0.20**	-0.20**	-0.13*	0.38*	0.36*	0.21	0.01	0.00	-0.03	0.42**	0.41**	0.32**	0.02	0.02	0.04	-1.72**	-1.71**	-1.48**
Age	-0.02**	-0.02**	-0.01**	0.07**	0.07**	0.06**	0.02**	0.02**	0.02**	0.01**	0.01**	0.00	-0.01**	-0.01**	-0.00**	-0.19**	-0.19**	-0.16**
Childhood SES																		
Mother education ≥8 years	0.20**	0.18**	0.08**	-0.45**	-0.41**	-0.18**	-0.02	-0.01	0.03	-0.32**	-0.29**	-0.15**	0.13**	0.11**	0.05*	1.20**	1.15**	0.40**
Father education ≥8 years	0.16**	0.14**	0.08**	-0.41**	-0.38**	-0.24**	-0.12**	-0.11**	-0.09**	-0.17**	-0.15**	-0.06	0.05**	0.04*	0.00	0.75**	0.72**	0.25**
Father white-collar job	0.16**	0.15**	0.05**	-0.20**	-0.17**	0.05	-0.07**	-0.07**	-0.03	-0.07	-0.05	0.10**	0.10**	0.09**	0.03	1.08**	1.06**	0.24**
Family financial well-being																		
Average (vs poor)	0.19**	0.15**	0.11**	-0.42**	-0.34**	-0.27**	-0.09**	-0.08**	-0.06**	-0.31**	-0.26**	-0.21**	0.10**	0.08**	0.05**	0.13	0.05	-0.22**
Well-off (vs poor)	0.28**	0.22**	0.13**	-0.27*	-0.16	0.07	-0.07*	-0.05	-0.02	-0.24**	-0.19**	-0.06	0.27**	0.24**	0.18**	0.08	-0.02	-0.75**
Childhood health		0.23**	0.20**		-0.43**	-0.37**		-0.09**	-0.08**		-0.24**	-0.20**		0.14**	0.12**		0.42**	0.23**
Adult SES																		
Education			0.06**			-0.12**						-0.02**			0.04**			0.55**
Household income (log)			0.10**			-0.28**						-0.05**			0.03**			0.29**
Constant	3.95**	3.00**	1.24**	-1.93**	-0.09	4.64**	-0.18**	0.18**	1.00**	1.15**	2.17**	4.88**	3.37**	2.80**	1.96**	34.38**	32.61**	22.62**
N		19,944			15,667			19,907			18,009			18,053			17,492	
R ²	0.10	0.14	0.17	0.12	0.14	0.17	0.07	0.07	0.08	0.07	0.08	0.11	0.04	0.06	0.08	0.28	0.29	0.38

Notes: OLS = ordinary least squares; SES = socioeconomic status.

* $p < .05$

** $p < .01$.

Table 4

Cumulative SES and Health Outcomes

Cumulative SES	Self- Rated Health	Functional Limitations	Chronic Conditions	Depressive Symptoms	Self- Rated Memory	Cognitive Functioning
0	2.67 (2.64–2.70)	3.72 (3.63–3.82)	1.28 (1.25–1.31)	2.14 (2.09–2.19)	2.91 (2.88–2.93)	20.75 (20.62–20.88)
1	3.00 (2.98–3.03)	2.83 (2.74–2.91)	1.12 (1.10–1.15)	1.67 (1.62–1.73)	3.04 (3.01–3.06)	22.61 (22.48–22.73)
2	3.26 (3.23–3.29)	2.29 (2.20–2.38)	1.02 (0.99–1.05)	1.34 (1.29–1.40)	3.20 (3.17–3.22)	23.84 (23.71–23.97)
3	3.51 (3.47–3.54)	1.94 (1.83–2.04)	0.93 (0.89–0.96)	1.12 (1.05–1.18)	3.37 (3.34–3.41)	24.87 (24.71–25.02)

Notes: Numbers are estimated means (95% confidence interval) adjusted for gender, race/ethnicity, age, and childhood health. SES = socioeconomic status.