Associations of Childhood, Adult Socioeconomic Status with Health Outcomes among Middle-aged and Older Chinese

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Abstract

Using data from the first wave of the China Health and Retirement Longitudinal Study (CHARLS), a nationally representative sample of middle-aged and older Chinese, this study, firstly examines the effects of childhood, adult socioeconomic status on several health outcomes (self-rated health, chronic disease status, cognitive function, and ADL/IADL disability), secondly tests the effects of social mobility in terms of rural-urban residence and intergenerational education. I find that childhood socioeconomic status exerts long-term effects on later life health, and achieved conditions play more important roles for all the outcomes among middle-aged and older adults in China. The effects of childhood socioeconomic status are mediated by adult conditions for self-rated health, ADL/IADL disability, but not for cognitive function, manifesting indirect and direct mechanisms respectively. This study also verify that health-related behaviors have marginal explanatory power for the effects of socioeconomic status. The results on social mobility show that social mobility and health in later life are linked in complex ways. Considering life course perspective and concentrating on a nexus of individuals' life events are very significant.

Keywords

Health inequality; socioeconomic status; social mobility; China

Introduction

The gross inequality in health that we see between different countries and subgroups presents a big challenge to the world. The past decades have witness the rapid growth of a substantial research from a multidisciplinary perspective that identifies social factors at the root of much of these inequalities in health and that studies the relationship between socioeconomic status and health. These studies have repeatedly found that people with lower socioeconomic status have, on average, poor health. Recent studies have indicated that incorporating both childhood and adult socioeconomic status can better explain the relationship between socioeconomic status and health (Hayward & Gorman, 2004; Luo & Waite, 2005; Smith, Hart, Blane, Gillis, & Hawthorne, 1997),

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and that life course perspective on socioeconomic status and health helps us better understand the effects of social mobility (Bartley & Plewis, 2007; Campos-Matos & Kawachi, 2015; Poulton et al., 2002).

Existing studies have been based primarily on data from Western countries. While China shares distinctive social and economic backgrounds and is undergoing rapid social transition in the last few decades, researches in Chinese context may yield different results. In this paper I first review literature in this topic, then report empirical results, and finally conclude with the discussion of my results.

Background

Relationships between socioeconomic status and health

The relationship between socioeconomic status and health has been long recognized in many societies. A series of studies and review articles in this filed have confirmed that subgroup of higher socioeconomic status tender to report or be observed better health conditions (Deaton, 2003; Feinstein, 1993). This inverse relationship takes on complex figures when scholars using different indicators of socioeconomic status or different health outcome variables. Education is the most significant factor influencing cognitive performance among the elderly (Alley, Suthers, & Crimmins, 2007; Cagney & Lauderdale, 2002; Lee, Kawachi, Berkman, & Grodstein, 2003), while income and education are strongly associated with functional disability (Darin-Mattsson, Fors, & Kareholt, 2017; Zhong, Wang, & Nicholas, 2017). When predicting self-reported health, income showed better predictive power (von dem Knesebeck, Luschen, Cockerham, & Siegrist, 2003). Some scholars assess different indicators of socioeconomic status and their relative importance as determinants of different health outcomes (Braveman et al., 2005; Darin-Mattsson et al., 2017; Grundy & Holt, 2001; Naess, Claussen, Thelle, & Smith, 2005). Most of these studies were conducted in developed societies and examined limited health outcome variables.

Explanations for the associations broadly include material resources pathways in improving living quality and access to healthcare (Feinstein, 1993), behavioral pathways in forming and promoting healthy behaviors and lifestyles (Lynch, 2003), psychosocial pathways in dealing with daily-life risk and stress through self-control and social support (Schnittker & McLeod, 2005).

Life course perspective and the effects of social mobility

With the emergence of life course perspective, there is an increasing concentration and recognition that earlier experience in life has long-term effects on health at older ages (Galobardes, Lynch, & Smith, 2004; Galobardes, Lynch, & Smith, 2008; Pollitt, Rose, & Kaufman, 2005). Pathways linking childhood socioeconomic conditions to later life health can be direct or indirect (Preston, Hill, & Drevenstedt, 1998). Direct pathway suggests that disadvantaged experience during childhood has long-term negative effects on later life health, in dependent of achieved socioeconomic status in adulthood. Indirect pathway indicates that early life conditions affect later life health primarily

through achieved adult socioeconomic status, and the effects of childhood socioeconomic conditions will be mediated by adult socioeconomic conditions.

All these researches demonstrate that when examining the effects of an individual's socioeconomic status on health, both their current socioeconomic conditions and their lifetime trajectory should be taken into consideration. Studies on the effects of social mobility on health have not always produced clear-cut results. Some indicate that upward social mobility can be favorable to adult health outcomes and reduce health inequality (Bartley & Plewis, 2007; Luo & Waite, 2005). Some seem to indicate that upward social mobility can be as deleterious to health as downward social mobility (Hemmingsson, Lundberg, & Diderichsen, 1999). These inconsistent results might be a consequence of, on the one hand, the various ways in which social mobility has been manipulated in these empirical literature (Singhammer & Mittelmark, 2010), on the other hand, the use of different indicators of socioeconomic status (Galobardes, Shaw, Lawlor, Lynch, & Smith, 2006).

The present study

Most previous studies were based in Western developed social contexts, and few examined associations of health and socioeconomic status and social mobility in China. Another big limitation is that most studies have only examined one dimensions of health and have used limited measures of socioeconomic status, which are also the main reasons of producing inconsistent results. Considering the shortcomings of extant research, based on a nationally representative sample of the middle-aged and the elderly aged 45 or above in China, this study uses multidimension socioeconomic status measures from both childhood and adulthood and tests their associations with multiple health outcomes: self-rated health, chronic disease status, cognitive function, and ADL/IADL functional disability. By comparing the magnitude of the effects of childhood and adult socioeconomic status, I meanwhile examined the effects of two dimensions of social mobility in China: rural-urban residence, and intergenerational education mobility.

Method

Data

This study uses the baseline dataset of a national population-based longitudinal survey, the China Health and Retirement Longitudinal Study (hereafter CHARLS, http://charls.pku.edu.cn for details). The baseline national wave of CHARLS was conducted in 450 villages/communities, 150 counties/districts, in 28 provinces, and autonomous regions of mainland China between June 2011 to March 2012, and includes a total of 17708 adults aged≥45 years old from 10257 households. All samples were drawn in four stages (county, neighborhood, household, and respondent level). CHARLS data include rich information about demographic, family information, health status and functioning, health care and insurance, and income expenditures and assets, all of which are very helpful for studies on health among middle aged and older Chinses and enable me to finish this research.

In CHARLS baseline dataset, if one member of a household aged≥45, his or her spouse is also interviewed regardless to his or her age. I excluded respondents aged less 45 years and cases with missing data in dependent and independent variables. The final sample size for self-rated health is 14257, chronic disease 13732, cognitive function 11641, and ADL/IADL disability 14266.

Measurements

Outcome Variables

Self-rated health was assessed by asking respondents, "Would you say your health is: (1) very good, (2) good, (3) fair, (4) poor, or (5) very poor?" Previous literature have showed that self-rated health has high predictive validity for health behaviors, health care utilization, physical and cognitive disability, chronic disease, and mortality.

Chronic disease status in this paper is defined as self-reported diagnosis by a doctor of 14 chronic diseases. I dichotomized respondents as chronic disease status if respondents have as least one chronic disease.

The cognitive function of orientation, attention, episodic memory, and visuospatial abilities are assessed in CHARLS by four scores: items from Telephone Interview of Cognition Status(TICS-10) (orientation and attention), words recall (episodic memory), drawing a figure successfully (visual spatial ability), and one overall cognition score incorporating all previous three measurements. I use the overall cognition score in this study and it ranges from 0 to 21, representing respondents' cognitive function.

Functional disability is assessed by ADL and IADL. ADL disability is defined as self-reported difficulty with any of the following six activities: dressing, bathing, eating, toileting, getting in or out of bed, controlling urination and defecation. IADL disability is defined as self-reported with any of the following activities: doing household chores, preparing meals, shopping, making a phone call, taking medications, managing money. Answers on ADL and IADL are categorized as: have no difficulty, have difficulty but can still do it, have difficulty and need help, and cannot do it. ADL/IADL disability was defined as having difficulty in one or more ADL/IADL items.

Independent Variables

Childhood socioeconomic conditions were measured through the following items: urban-rural birthplace, the highest education of respondents' father.

Adult socioeconomic conditions were assessed by the similar two items: current urban-rural residence, respondents' highest education.

In CHARLS questionnaire, answers on education are all categorized from illiterate to doctoral degree. Considering the distribution and analysis effectiveness, I regrouped education into three categories: illiterate, capable of reading and writing or finished primary school, and complete junior high school and above.

Other adult socioeconomic status variables include household per capita income, total household wealth, and health insurance. Both household per capita income and total household wealth are

reconstructed into four categories: low, middle low, middle high, and high according to the 25, 50, and 75 percentiles. I dichotomize health insurance into having no health insurance and having at least one type of insurance.

Control variables include three demographic variables: age, gender, and marital status (married versus nonmarried). A set of health behavior variables are also examined in this study as mediators linking socioeconomic conditions to all kinds of health outcomes in later life. These variables included smoking, drinking, and activity participation in the last month.

Smoking behavior was categorized as never smoked, ever smoked but currently quit, currently smoke. Drinking behavior was categorized as ever took any alcohol in the past year and did not drink in the past year. Activity participation was categorized as participated in at least one social or physical activity in the last month, and no activity participation in the last month.

Statistical analysis

To examine the effects of childhood socioeconomic conditions, adult socioeconomic conditions and socioeconomic mobility on a set of health outcomes, I used ordered logistic regression model for self-rated health, binary logistic regression models for chronic disease and ADL/IADL functional disability, OLS regression model for cognitive function.

I estimated three additive models for each of these health outcomes adjusting for age, gender, and marital status. Model 1 examined the impacts of childhood socioeconomic conditions on health outcomes; Model 2 added adult socioeconomic conditions to Model 1; Model 3 further added health behavior factors.

Results

Table 1 reports descriptive sample statistics of variables analyzed in this study. Tables 2, 3, 4, 5, and 6 present findings from the multivariate regression analyses.

Table 2 shows that being born in the urban area, having a father with more education correspond to reduction in the likelihood of poor self-rated heath (Model 1). The magnitude of the childhood conditions decreases or even disappear when adult socioeconomic conditions variables are added into the Model 2. Higher education attainment, greater household per capita income, and greater total household wealth exhibit strong preventive effects on self-rated health net of childhood socioeconomic conditions. After controlling adult health behaviors in Model 3, better adult socioeconomic conditions remain significantly related to better self-rated health. Table 3 shows that only total household wealth is associated with the odds of chronic disease status. While healthier behaviors still correspond to reduction in the odds of chronic disease.

Table 4 reports that being born in urban area, having a father with more education significantly contribute to better cognitive function (Model 1). Models 2-3 indicate that both childhood and adult socioeconomic conditions are significant predictors of cognitive function, and that the magnitude of the effect of adult education attainment is the largest.

Tables 5 and 6 present findings on ADL/IADL disability. Both birthplace and father's education are significantly associated with the likelihood of functional disability in later life (Model 1). Being born in urban area, having a father with more education indicate a protective effect, while the childhood socioeconomic effects become insignificant when adult socioeconomic variables are included in Models 2 and 3. The magnitude of effects of respondent's education is larger for IADL than for ADL. I suppose the reason is that higher education can improve higher level tasks like grocery shopping and managing money, which is the very items measuring IADL disability.

A consistent finding for all health outcomes in the analysis is that health behavior factors had marginal explanatory power for the effects of socioeconomic conditions. Testing whether associations between heath and socioeconomic conditions are mediated by health behaviors demonstrates health-related behaviors variables failed to account for the link between socioeconomic conditions and health outcomes.

Comparing coefficients of birthplace and current residence, father's education and respondent's education yields effects of social mobility in terms of rural-urban mobility and intergenerational education mobility. Model 3 in Table 2 shows that downward educational mobility has stronger preventive effect on self-rated health than upward educational mobility because the magnitude of the effects of father's education is larger. Social mobility hardly has effects on chronic health status. For cognitive function (Model 3 in Table4), mobility into urban areas significantly increase scores in cognition test, and upward educational mobility predicts better cognitive function. For ADL/IADL disability, mobility into urban area and upward educational mobility also have positive effects.

Conclusion and Discussion

Using CHARLS first wave data, I examined how childhood, adult socioeconomic status, and social mobility in terms of rural-urban residence and intergenerational education affect self-rated health, chronic disease status, cognitive function and ADL/IADL disability among middle-aged and older adults in China. Drawing from life course perspective, this study (1) examines multiple health outcomes, (2) addresses the health effects of childhood and adult socioeconomic status, social mobility, and their mediating relationships, (3) examines pathway mediating effects of health-related behaviors, and (4) includes both the middle-aged and the elderly in China.

The main finding from this research is that childhood socioeconomic status has long-term effects on later life health, and that achieved status in adult exerts additional health impacts. The strength of the effects of childhood socioeconomic status varies in different measures of health, with strong associations found with self-rated health, cognitive function, and ADL/IADL disability and no associations with chronic disease status. After taking adult socioeconomic conditions variables into account, I observe strong explanatory power of adult socioeconomic status for all health outcomes. The effects of adult conditions do not mediate the effects of childhood conditions on health outcomes except for ADL/IADL disability, which indicates that childhood socioeconomic status may be directly associated with self-rated health and cognitive function in later life, while may affect ADL/IADL disability through an indirect mechanism. Both childhood and adult socioeconomic status play important roles on health for middle-aged and older adults in China.

The effects of social mobility vary for different health outcomes. Always living in urban area and stable high education level intergenerationally are the most protective categories for health outcome except for chronic disease status, while social mobility seems have no effects on chronic disease status. Upward mobility has the strongest protective effects on cognitive function and IADL disability, while upward mobility does not help compensate for the detrimental effect of early life disadvantaged conditions. A main limitation of this study is that I only assess the effects of social mobility in terms of rural-urban residence and intergenerational education mobility. I encourage additional research to more detailed mechanisms linking social mobility trajectories to health in later life in China.

In conclusion, this study examined a broader range of socioeconomic status and more health outcomes than most other studies. Previous studies have shown that health differences manifest differently according to the measurement of socioeconomic status and the specific health outcomes. Different variable selection may yield inconsistent results, accordingly, research results on the relationship between socioeconomic status and health based on limited measures should be interpreted with great caution. Further investigation to disentangle the relative contributions of childhood, adult socioeconomic status and social mobility, as well as the underlying mechanisms should be encouraged.

Table 1 Descriptive statistics

Variables	Self-rated Health	Chronic Disease	Cognitive Function	ADL/IADL Disability
Number of individuals	14257	13732	11641	14266
Childhood socioeconomic conditions				
Birthplace%				
Rural	89.93	89.79	88.25	89.92
Urban	10.07	10.21	11.75	10.08
Father's education%				
Illiterate	63.86	63.64	61.65	63.85
Primary school	29.78	29.94	31.44	29.79
Junior high school and above	6.36	6.42	6.91	6.36
Adult socioeconomic conditions				
Current residence%				
Rural	60.46	60.28	56.75	60.44
Urban	39.54	39.72	43.25	39.56
Respondent's education%				
Illiterate	27.82	27.57	23.83	27.81
Primary school	39.18	39.13	39.39	39.19
Junior high school and above	33.00	33.30	36.78	33.00
Household per capita income%				
Low	25.93	25.90	24.04	25.94

Middle low	25.30	25.14	24.65	25.30
Middle high	24.52	24.49	24.97	24.52
High	24.25	24.46	26.35	24.25
Total household wealth%				
Low	25.35	25.23	23.67	25.35
Middle low	24.96	24.86	23.99	24.97
Middle high	24.92	24.84	25.06	24.91
High	24.77	25.06	27.28	24.77
Insurance coverage%				
No	6.43	6.34	6.26	6.43
Yes	93.57	93.66	93.74	93.57
Demographic variables				
Mean age	59.47	59.47	59.01	59.47
Gender%				
Male	47.86	47.98	49.36	47.86
Female	52.14	52.02	50.64	52.14
Marital status%				
Married	87.36	87.46	88.40	87.35
Not married	12.64	12.54	11.60	12.65
Health behaviors variables				
Smoking%				
Never smoked	60.40	60.39	59.93	60.41
Ever smoked but currently quit	8.94	8.95	9.20	8.94
Currently smoke	30.66	30.66	30.87	30.64
Drinking%				
Drink in the past year	67.54	67.53	66.72	67.54
Not drink in the past year	32.46	32.47	33.28	32.46
Activity participation%				
No	50.20	50.37	48.20	50.21
Yes	49.80	49.63	51,80	49.79

Table 2 Ordered logistic regression coefficients of self-rated health for childhood and adult socioeconomic conditions

Variables	Model 1	Model 2	Model 3
Childhood socioeconomic conditions			
Birthplace (ref: rural)			
Urban	-0.387*** (0.052)	0.018 (0.058)	0.041 (0.058)
Father's education (ref: Illiterate)			
Primary school	-0.194*** (0.035)	-0.075* (0.036)	-0.063 (0.036)
Junior high school above	-0.364*** (0.066)	-0.212** (0.067)	-0.191** (0.067)
Adult socioeconomic conditions			
Current residence (ref: rural)			
Urban		-0.122** (0.037)	-0.133*** (0.037)
Respondent's education (ref: Illiterate)			
Primary school		0.024 (0.042)	0.020 (0.042)
Junior high school above		-0.190*** (0.050)	-0.178*** (0.051)
Household per capita income (ref: Low)			
Middle low		-0.126** (0.044)	-0.123** (0.044)
Middle high		-0.246*** (0.046)	-0.234*** (0.046)
High		-0.515*** (0.049)	-0.495*** (0.049)
Total household wealth (ref: Low)			
Middle low		-0.219*** (0.045)	-0.211*** (0.045)
Middle high		-0.368*** (0.046)	-0.367*** (0.046)
High		-0.637*** (0.049)	-0.630*** (0.049)
Insurance coverage (ref: No)			
Yes		0.117 (0.065)	0.134 (0.065)
Demographic variables			
Age	0.026*** (0.002)	0.020*** (0.002)	0.017*** (0.002)
Gender (ref: Male)			
Female	0.365*** (0.032)	0.341*** (0.034)	0.231*** (0.046)
Marital status (ref: Married)			
Not married	-0.006 (0.050)	-0.083 (0.051)	-0.075 (0.051)
Health behaviors variables			
Smoking (ref: Never smoked)			
Ever smoked but currently quit			0.442*** (0.064)
Currently smoke			0.053 (0.046)
Drinking (ref: Not drink in the past year)			
Drink in the past year			-0.450*** (0.039)
Activity Participation (ref: No)			
Yes			-0.240*** (0.032)
N		14257	

Cut-points are omitted in table for parsimony

*p<0.05; **p<0.01; ***p<0.001

Table 3 Logistic regression coefficients of chronic disease for childhood and adult socioeconomic conditions

Variables	Model 1	Model 2	Model 3
Childhood socioeconomic conditions			
Birthplace (ref: rural)			
Urban	-0.076 (0.061)	-0.043 (0.068)	-0.040 (0.068)
Father's education (ref: Illiterate)			
Primary school	0.012 (0.041)	0.008 (0.046)	0.006 (0.043)
Junior high school above	-0.067 (0.076)	-0.064 (0.077)	-0.063 (0.077)
Adult socioeconomic conditions			
Current residence (ref: rural)			
Urban		0.067 (0.044)	0.062 (0.044)
Respondent's education (ref: Illiterate)			
Primary school		0.187*** (0.050)	0.178*** (0.051)
Junior high school above		0.070 (0.059)	0.063 (0.060)
Household per capita income (ref: Low)			
Middle low		0.018 (0.052)	0.008 (0.053)
Middle high		0.030 (0.056)	0.019 (0.054)
High		-0.016 (0.057)	-0.034 (0.057)
Total household wealth (ref: Low)			
Middle low		-0.167** (0.045)	-0.167*** (0.054)
Middle high		-0.273*** (0.054)	-0.273*** (0.054)
High		-0.260*** (0.058)	-0.267*** (0.058)
Insurance coverage (ref: No)			
Yes		0.279*** (0.074)	0.280*** (0.074)
Demographic variables			
Age	0.031*** (0.002)	0.030*** (0.002)	0.028*** (0.002)
Gender (ref: Male)			
Female	0.191*** (0.037)	0.221*** (0.040)	0.220*** (0.055)
Marital status (ref: Married)			
Not married	-0.120* (0.050)	-0.116 (0.061)	-0.115 (0.061)
Health behaviors variables			
Smoking (ref: Never smoked)			
Ever smoked but currently quit			0.592*** (0.081)
Currently smoke			0.023 (0.054)
Drinking (ref: Not drink in the past year)			
Drink in the past year			-0.196*** (0.045)
Activity Participation (ref: No)			
Yes			-0.060 (0.038)
Constant	-1.154*** (0.129)	-1.330*** (0.172)	-1.205*** (0.179)
N		13732	

*p<0.05; **p<0.01; ***p<0.001

Table 4 OLS regression coefficients of cognitive function for childhood and adult socioeconomic conditions

Variables	Model 1	Model 2	Model 3
Childhood socioeconomic conditions			
Birthplace (ref: rural)			
Urban	1.888*** (0.095)	0.511*** (0.094)	0.475*** (0.093)
Father's education (ref: Illiterate)			
Primary school	1.168*** (0.067)	0.476*** (0.061)	0.458*** (0.061)
Junior high school above	1.397*** (0.123)	0.462*** (0.112)	0.421*** (0.111)
Adult socioeconomic conditions			
Current residence (ref: rural)			
Urban		0.351*** (0.063)	0.360*** (0.063)
Respondent's education (ref: Illiterate)			
Primary school		2.361*** (0.075)	2.348*** (0.075)
Junior high school above		3.753*** (0.087)	3.696*** (0.086)
Household per capita income (ref: Low)			
Middle low		0.321*** (0.078)	0.291*** (0.077)
Middle high		0.481*** (0.079)	0.435*** (0.0478)
High		0.909*** (0.083)	0.819*** (0.083)
Total household wealth (ref: Low)			
Middle low		-0.006 (0.079)	-0.020 (0.078)
Middle high		0.273** (0.079)	0.272** (0.079)
High		0.548*** (0.083)	0.503*** (0.082)
Insurance coverage (ref: No)			
Yes		0.625*** (0.112)	0.582*** (0.111)
Demographic variables			
Age	-0.096*** (0.003)	-0.052*** (0.003)	-0.052*** (0.003)
Gender (ref: Male)			
Female	-1.186*** (0.061)	-0.313*** (0.058)	-0.356*** (0.078)
Marital status (ref: Married)			
Not married	-0.683*** (0.098)	-0.362*** (0.089)	-0.370*** (0.088)
Health behaviors variables			
Smoking (ref: Never smoked)			
Ever smoked but currently quit			0.170 (0.107)
Currently smoke			-0.075 (0.077)
Drinking (ref: Not drink in the past year)			
Drink in the past year			-0.058 (0.065)
Activity Participation (ref: No)			
Yes			0.730*** (0.054)
Constant	17.535*** (0.206)	11.184*** (0.249)	11.000*** (0.257)
R^2	0.181	0.339	0.350
N		11641	

*p<0.05; **p<0.01; ***p<0.001

Table 5 Logistic regression coefficients of ADL disability for childhood and adult socioeconomic conditions

Variables	Model 1	Model 2	Model 3
Childhood socioeconomic conditions			
Birthplace (ref: rural)			
Urban	-0.667*** (0.097)	-0.122 (0.106)	-0.092 (0.106)
Father's education (ref: Illiterate)			
Primary school	-0.176** (0.054)	-0.022 (0.056)	-0.012 (0.056)
Junior high school above	-0.375** (0.120)	-0.162 (0.122)	-0.144 (0.123)
Adult socioeconomic conditions			
Current residence (ref: rural)			
Urban		-0.203*** (0.057)	-0.219*** (0.057)
Respondent's education (ref: Illiterate)			
Primary school		-0.048 (0.057)	-0.041 (0.058)
Junior high school above		-0.427*** (0.078)	-0.399*** (0.079)
Household per capita income (ref: Low)			
Middle low		-0.204** (0.060)	-0.195** (0.061)
Middle high		-0.235*** (0.064)	-0.220** (0.065)
High		-0.533*** (0.077)	-0.505*** (0.078)
Total household wealth (ref: Low)			
Middle low		-0.159** (0.061)	-0.157* (0.061)
Middle high		-0.231*** (0.064)	-0.230*** (0.065)
High		-0.611*** (0.077)	-0.603*** (0.078)
Insurance coverage (ref: No)			
Yes		-0.000 (0.095)	0.012 (0.095)
Demographic variables			
Age	0.057*** (0.002)	0.051*** (0.003)	0.049*** (0.003)
Gender (ref: Male)			
Female	0.357*** (0.047)	0.293*** (0.052)	0.287*** (0.069)
Marital status (ref: Married)			
Not married	0.096 (0.066)	0.020 (0.067)	0.040 (0.067)
Health behaviors variables			
Smoking (ref: Never smoked)			
Ever smoked but currently quit			0.422*** (0.089)
Currently smoke			0.035 (0.070)
Drinking (ref: Not drink in the past year)			
Drink in the past year			-0.240*** (0.060)
Activity Participation (ref: No)			
Yes			-0.328*** (0.048)
Constant	-5.174*** (0.162)	-4.227*** (0.215)	-3.962*** (0.223)
N		14266	

*p<0.05; **p<0.01; ***p<0.001

Table 6 Logistic regression coefficients of IADL disability for childhood and adult socioeconomic conditions

Variables	Model 1	Model 2	Model 3
Childhood socioeconomic conditions			
Birthplace (ref: rural)			
Urban	-0.726*** (0.088)	-0.160 (0.097)	-0.125 (0.097)
Father's education (ref: Illiterate)			
Primary school	-0.238*** (0.050)	-0.049 (0.052)	-0.038 (0.052)
Junior high school above	-0.360** (0.106)	-0.105 (0.108)	-0.087 (0.109)
Adult socioeconomic conditions			
Current residence (ref: rural)			
Urban		-0.151** (0.052)	-0.166** (0.052)
Respondent's education (ref: Illiterate)			
Primary school		-0.302*** (0.053)	-0.297*** (0.053)
Junior high school above		-0.698*** (0.071)	-0.670*** (0.071)
Household per capita income (ref: Low)			
Middle low		-0.153** (0.056)	-0.140* (0.056)
Middle high		-0.248*** (0.060)	-0.230*** (0.061)
High		-0.499*** (0.070)	-0.463*** (0.070)
Total household wealth (ref: Low)			
Middle low		-0.060 (0.057)	-0.055 (0.057)
Middle high		-0.140* (0.060)	-0.138* (0.060)
High		-0.513*** (0.070)	-0.499*** (0.070)
Insurance coverage (ref: No)			
Yes		0.117 (0.065)	0.063 (0.088)
Demographic variables			
Age	0.054*** (0.002)	0.045*** (0.002)	0.043*** (0.003)
Gender (ref: Male)			
Female	0.496*** (0.044)	0.344*** (0.048)	0.389*** (0.064)
Marital status (ref: Married)			
Not married	0.153* (0.050)	0.070 (0.062)	0.089 (0.063)
Health behaviors variables			
Smoking (ref: Never smoked)			
Ever smoked but currently quit			0.452*** (0.084)
Currently smoke			0.085 (0.065)
Drinking (ref: Not drink in the past year)			
Drink in the past year			-0.180** (0.055)
Activity Participation (ref: No)			
Yes			-0.381*** (0.044)
Constant	-4.760*** (0.150)	-3.576*** (0.197)	-3.365*** (0.205)
N		14266	

*p<0.05; **p<0.01; ***p<0.001

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