Poor and Unhealthy: Life Course Transition and Medicaid Coverage in the Later Life

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Extended Abstract to be considered for PAA2012 Annual Meeting Presentation

Background

As one of the most important social programs in the United States, Medicaid is need-based health insurance helping low income people to pay for their healthcare costs. Managed by state, each state administration mandates its own guidelines regarding eligibility and services. Medicaid sends healthcare payments directly to the service providers instead of providing cash allowance to the beneficiaries. However, some beneficiaries covered by Medicaid may also receive cash assistance from the Temporary Assistance for Needy Families program (TANF) or the Supplemental Security Income program (SSI) (Centers for Medicare and Medicaid Services website, 2011).

Population aging is an irreversible trend in the United States. The process of aging often concomitants with reduced income, declined health, and increased medical care expenses. Elders without savings and social support network are particularly vulnerable. Although Medicare offers universal coverage for the 65 and older, unmet needs exist. An indicator of poor financial and health status, elders covered by Medicaid have higher demands for assistance than the general Medicare population. Studies focusing on older adults' Medicaid coverage will inform researchers and policy makers about the lives of a very unique group in the social stratum. In the era that healthcare reform has become an urgent concern of the administration, this paper will contribute to the system of Medicaid by answering two questions. First, how do individuals' life course transitions, including their childhood and current life experiences, affect their later-life health and financial wellbeing as measured by Medicaid coverage? Second, how do we conceptualize marriage as a safety net to enhance older adults' financial security and health conditions? How do elders' own life course trajectories influence their spouses' coverage in Medicaid?

To examine the proposed questions, data of 1998 to 2008 Health and Retirement Study (HRS) are used for analysis. Discrete-time hazard models with time-varying covariates are constructed to appraise the event transition effects on the outcome variables. More descriptions on the data, research methods, and preliminary findings are presented in the following sections.

Literature Review

Over the decades, the life course framework has been broadly utilized in the aging studies. Integrating a multidisciplinary paradigm for the study of people's lives, it argues the importance of time, context, process, and meaning on human development (Bengtson and Allen 1993). Throughout the stages of life course, individuals experience socially defined events and roles, although these events do not necessarily proceed in a given time sequence (Giele and Elder 1998). The advantage and disadvantage effects of life course are cumulative. Empirical studies by Kahn and Pearlin (2006) stated that long-term financial strain is associated with undesirable health consequences of the older adults, even after current economic factors are held constant. A downward socioeconomic trajectory over the life is related to poorer mental health in men but not women at age 50 (Tiffin, Pearce, and Parker, 2005). The life course experiences can also be traced back to childhood. Sobolewski and Amato (2005) found that childhood economic hardship is a predictor of lower psychological wellbeing in adulthood. People with poor childhood health are also more likely to have inferior health conditions and work-limiting disability (Haas, 2007). Targeting at the Chinese oldest-olds, Yi, Gu, and Land (2007) demonstrated that better childhood health significantly reduces the risks of having functional and cognitive impairment in older ages. Likewise, being socioeconomically well-off in young ages is associated with lower mortality.

Assessment of life course cannot isolate from the discussion of family. Families are pivotal in each stage of life. Experiences in childhood and beyond intrinsically reflect transitions into and out from different family nexus. Marital transitions, including union formation and dissolution, have decisive impact on family lives.

It has been well documented that transition to a different marital status may lead to substantial changes in elder's health, economic, and social support. Being married enhances people's health and economic wellbeing, and its benefit accumulates over the stages of life course. Researchers stated that marriage has a protective effect on health for both spouses, although the gains are generally more observable for husbands than for wives (Grov, 1973; Hu and Goldman, 1990). Regardless of gender, married individuals have lower risks of dying, as well as better physical and mental health than their unmarried counterparts (Hughes and Waite, 2002; Lillard and Waite, 1995; Wyke and Ford, 1992). Not only marriage provides emotional and daily-care assistances between the spouses and other family members, studies also found that married tend to use medical facilities and services of higher quality, a critical determinant of accelerating disease recovery (Iwashyna and Christakis, 2003). Moreover, marriage creates an opportunity for augmenting personal economic security, especially for women (Hahn, 1993; Lillard and Waite, 1995; Umberson, 1987; Zick and Smith, 1991). Having adequate financial resources entails elders to afford necessities, leisure consumptions, and medical care services, all are essential for successful aging.

On the contrary, marital dissolution brings negative impacts to later-lives. Wu and Hart (2002) argued that transition to divorce is associated with a decline in self-reported health and functioning among men, and an increase in depression among both men and women. Becoming widowed is associated with a higher risk of mortality, morbidity, and psychological distress

(DeGarmo and Kitson, 1996; Elwert, and Christakis, 2008a, 2008b; Wade and Pevalin, 2004). Mortality rises sharply in the first year of widowhood, and the effect is stronger for men (Thierry, 2000). Among Medicare claimers, the death rates augmented considerably after lost of a spouse, and the risk elevated for up to two years (Jin and Chrisatakis, 2009). Experiencing widowhood is detrimental to one's mental health as well. Levels of depression and stress are much higher around the time of a spouse's bereavement (Barrett, 2000).

Except the adverse impacts on individuals' health, marital dissolution also results in economic hardships. Women are more likely to experience poverty than men after a marital disruption (Holden and Smock, 1991; Smock, 1993), and the cumulative disadvantage has a prolonged effect to older ages (Vartanian and McNamara, 2002). Economic stresses and health deterioration are intertwined. A higher score on financial stress scale is predictive of moderate to severe functional limitation and fair to poor health in an empirical study with seven-year time interval (Lantz, House, Mero, and Williams, 2005).

For the population with marital disruption, social support is of great consequence. Studies found that the social ties established or renewed following the death of a spouse affects the mortality of the elder (Subramanian, Elwert, and Christakis, 2008). Widowed men who participated in social networks maintained by their late wives receive more informal care compared to others. In addition, Elwert and Christakis (2006) asserted that although whites married to whites tends to suffer from a substantial and lasting widowhood effect, African American couples are better able to extend their survival advantages of marriage into widowhood. A plausible explanation is that the variations in the marital culture between the whites and African Americans may shape different support networks, and therefore causing the discrepancy in their health.

To conclude, couple's joint decision, financial resource pooling, and sense for spouse's welfare, etc., form a safety net to guard older adults' wellbeing. Having a greater level of later-life security through an intact marriage implies lower needs to receive support from alternative sources including children, extended families, markets, and welfare programs. Building upon the literature, the overarching hypotheses for this paper are:

(1) Medicaid can be deemed as a proxy of health and financial difficulties. Unmarried elders, as well as elders with childhood and current life course adversities, will have higher hazards to be covered. The effects of elders' adulthood experiences will be greater than the childhood's.

(2) Elders' own life course events also influence their spouses' Medicaid coverage. Because married couples share their household resources and patterns of living, one can use individual elders' characteristics to predict spouses' financial and health wellbeing.

(3) Since divorce may be an indication for inferior quality of marriage, those who lose a spouse due to divorce may undergo less emotional and health adversities than their widowed counterparts. This study hypothesizes that compared to the widowed, divorced elders are more likely to be covered by Medicaid.

Methods

Data and sample

The Health and Retirement Study (HRS) is a nationally representative panel survey studying older adults' health and economic wellbeing in their later-lives. The first wave of the HRS contains information on 7,607 respondents aged 51-61 in 1992, and their spouses, regardless of their age, were also interviewed (n=5,045). The follow-up surveys were conducted

every two years thereafter. In 1998, new interviews of elders born during wartime (1942-1947, WB sub-sample) and Depression (1924-1930, CODA sub-sample) were incorporated into the study. In 2004, the early baby boomer cohorts (1948-1953, EBB sub-sample) were added into the baseline survey. The 2010 survey is the most recent available data released for the public use.

To examine the proposed research hypotheses, data from the 1998 to 2008 surveys (the 4^{th} to 9^{th} Waves of HRS) are employed. Analyses based on the ten-year interval will warrant a sufficient amount of time for observing the event transitions. After excluding missing value, the 1998 sample consists of 14,580 observations. These baseline observations were followed-up until 2008 and considerable attritions are found. Table 1 summarizes the sample sizes and attritions for each study time point. Starting from the baseline survey, in 2008, the overall sample attrition rate has exceeded 40%. The finalized sample size in 2008 is 8,627.

[Insert Table 1 Here]

Figure 1 illustrates the importance of marital status on elders' receipt of Medicaid coverage. Throughout the 10 years interval, the rates of being covered by Medicaid only slightly increased. A breakdown by elders' marital status provides additional insight, however. Married elders have the lowest percentages received Medicaid. On the contrary, unmarried individuals had been more vulnerable in terms of their health and economic wellbeing.

[Insert Figure 1 Here]

Table 2 describes the 1998 sample, by elders' marital status. This table allows us to compare married and unmarried elders' baseline characteristics, and gets a sense about why the Medicare coverage presented in Figure 1 shows such a discrepancy between the two groups.

From this table, we can see that approximately 66% of the observations were married. Widowhood occupied more than 65% of the unmarried group, followed by 26% divorced and

8% had never been married. A close examination on the socioeconomic, health, and functioning characteristics of the married and non-married groups indicates that the former are better-off in all these aspects. As for the childhood adversities, about 8% and 11% of the married and non-married elders, respectively, had never lived with their fathers before age 16. Married group also had slightly a higher proportion than their unmarried counterparts to receive economic support from others in the young ages, and their parents tend to be better educated. Lastly, unmarried are more likely to be older, has greater percentages as female and minority, and has smaller family size than the married. These traits add more vulnerability to their health and economics.

[Insert Table 2 Here]

Measurements

There are four dependent variables in this project. *Whether individual ever covered by Medicaid between 1998 and 2008* is used to examine the occurrence of Medicaid coverage of all studied respondents. For the married subgroup, another three dependent variables are also included: (1) *Whether the spouse was covered by Medicaid;* (2) *Either the respondent or the spouse was covered by Medicaid; and (3) Whether both respondent and spouse were covered by Medicaid at any point in time between 1998 and 2008*. These variables are dichotomized as 1 if the event occurred, 0 if otherwise.

The explanatory variables include several life course aspects of the elderly respondents. The current life course experiences are measured by *Marital Status, Socioeconomic Status* (years of education, work for pay, and assets), *Self-rated Health*, and *Functionality* (number of Activity Daily Living difficulties[1] and number of Instrumental Activity Daily Living difficulties[2]). These variables are processed as time-varying covariates to capture the transitions in each wave of the

[1] Out of five ADL tasks: bathing, dressing, eating, getting in-and-out of bed, and walking across a room.
[2] Out of five IADL tasks: making phone calls, managing money, taking medications, shopping for groceries, and preparing hot meals.

survey. Variables of childhood adversities before age 16 are employed to assess early year life course. These include whether the respondent elders *Had poor or fair health; Had poor family SES, Had never lived with own father, and Ever received financial support from others.* Measurements of *whether father and mother had more than high school education* are utilized to examine the social economic standing of the family. These predictors are treated as unchanged overtime in the regression models.

Respondent elders' age, gender, race (white, black, and other), and number of household members are used for statistical controls.

Analytical strategies

In addition to the descriptive statistics, this study uses multivariate regression to test for the hypotheses. Because the HRS data involves two-year interval in each wave of the survey, the measurements of events are not continuous. To accommodate this feature of the data, discrete-time hazard regression is adopted to estimate the probabilities of becoming a Medicaid beneficiary.

This study fits separate models for each dependent variable. Statistical analyses only focus on the first-observed transition incidences. Repeated events of in-and-out from the Medicaid benefits, are not examined in this paper. The trajectory of elders' life course and Medicaid coverage is observed from 1998 to the year that outcome event happened, or right-censored without event occurrence by the end of the study time. Elders may withdraw from the survey due to death or any other reason before 2008. The 1998 sample (N=14,580) generates a total of 59,735 person-year observations for the 10 years study interval.

The discrete-time hazard model in logit form can be written as following:

$$\log\left(\frac{P_{it}}{1-P_{it}}\right) = \alpha_t + \beta_1 MarStatTransition + \beta_2 CurrentStatus + \beta_3 ChildhoodExperiences + \beta_4 ParentalEducation + \beta_x + \varepsilon$$

Where P_{it} is the conditional probability that respondent elder (or spouse) *i* has covered by Medicaid at time *t*, providing that the event has not yet occurred to that elder. *MarStatTransition* denotes elders' marital status transitions. *CurrentStatus* encompasses elders' current socioeconomic, health, and functional status. They are incorporated in the regression models as time-dependent covariates so the risks associated with time exposure can be adjusted. On the other hand, *ChildhoodExperiences* and *ParentalEducation* are fixed variables, assumed do not change over time. The β_x term corresponds to a vector of control variables, ε is the error term.

Preliminary Results

Table 3 summarizes the preliminary findings on life course transition and individuals' Medicaid coverage. Model 1 and Model 2 examine the current life status effects and focus on the socioeconomic and health aspects, respectively. Model 3 investigates the impact of childhood adversity and parental education, and Model 4 is the combinations of all factors. All four models take elders' marital status into account, and the *Year of Survey* variables are entered into regressions to appraise the survey year differential[3].

In all models, marital transition exerts strong predictive power on the outcome variables ($p<.001$). Married elders are far less likely than the unmarried to become Medicaid beneficiary. When examined separately, factors of current socioeconomic status, health, functionality,

[3] Assessment on survey year does not show significant differences. The effects of these variables are not presented in the Table 3.

childhood adversity, as well as parents' level of schooling all explain the financial and health transitions in later life. Nevertheless, in the complete model, the statistical power of childhood experiences and parental education are attenuated. In other words, current socioeconomic and health status are more important measurements than the early-life indicators. Women and minorities, not surprisingly, have higher risks to be the Medicaid population.

[Insert Table 3 Here]

Table 4 demonstrates how elders' own life course characteristics correlate with their spouses' Medicaid coverage. Three outcome variables are examined. The first model indicates that elders' socioeconomic status has tremendous impact on their spouses' health and economic outcome. When elders have more health and functional problems, their spouses also have higher risks to become Medicaid beneficiaries. Poor childhood SES also predict spouses' coverage after many years ($p<.05$).

In the second model, the propensity of either the elder or the spouse being covered by Medicaid is examined. The results are very similar to the first model. A main difference between the two analyses is, elders' childhood SES no longer has significant effect in the either covered model. Instead, grew up in a father absence household is significantly associated with a higher likelihood of either elders or spouses being poor and unhealthy in later years ($p<.01$). A further analysis is needed to address this phenomenon.

The last model evaluates households with both elders and spouses covered by Medicaid. Among married dyads, this type of combination signifies the most extreme hardship, implying that marriage itself does not provide a safety net to later life security. Compared to the first and second models, childhood adversities appear to be more influential. Moreover, none of the control variable shows significant effect in the regression. Lacking of statistical power of the

race variable is most noteworthy and more analysis will be performed in the final version of this study.

[Insert Table 4 Here]

Next step

In the next step of this study, the author will incorporate interaction terms to examine the racial effect addressed in Table 4. In addition, detailed analyses focused on the unmarried subgroups will be performed.

Table 1: Sample Attritions, 1998-2008

	1998	2000	2002	2004	2006	2008
Number of Observations	14,580	12,953	11,687	10,613	9,542	8,627
Percent Sample Attrition, Compared to 1998	--	11.16%	19.84%	27.21 %	34.55%	40.83%

Figure 1: Marital Status and Medicaid Coverage, 1998-2008

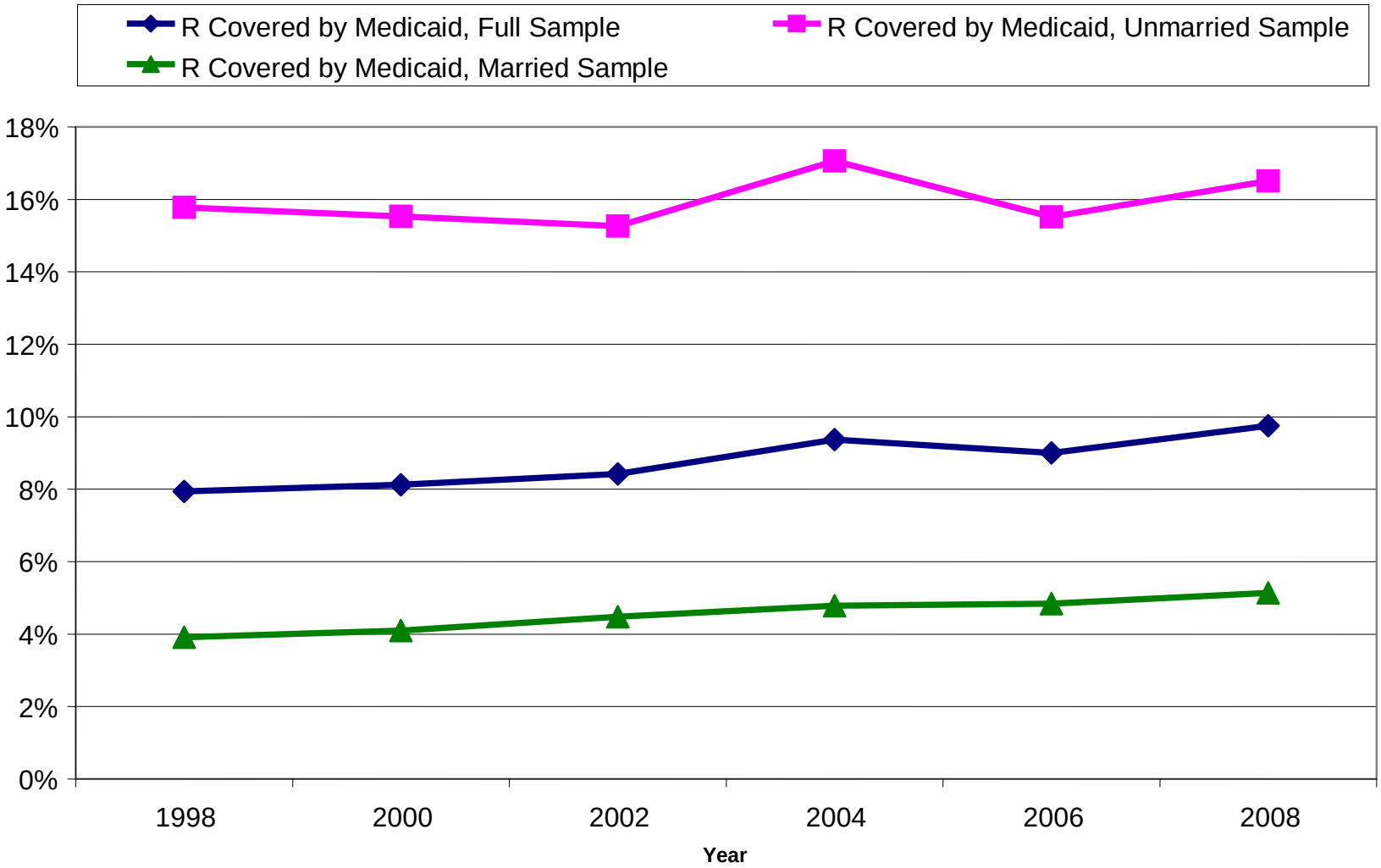

Table 2: Descriptive Statistics of 1998 Variables, by Marital Status

Variables	Married (N=9,628)	Un-married (N=4,952)	Total (N=14,580)
Dependent variable			
R covered by Medicaid	0.040 (0.196)	0.158 (0.365)	0.079 (0.270)
Spouse covered by Medicaid	0.039 (0.194)	--	--
Either R or spouse covered by Medicaid	0.057 (0.232)	--	--
Both R and Spouse covered by Medicaid	0.022 (0.147)	--	--
Explanatory variable			
Marital Status			
Married	--	--	0.660 (0.474)
Divorced	--	0.263 (0.440)	0.089 (0.285)
Widowed	--	0.656 (0.475)	0.223 (0.416)
Never married	--	0.077 (0.267)	0.028 (0.160)
Socioeconomic Status			
Years of education	12.121 (3.283)	11.207 (3.557)	11.811 (3.406)
Work for pay	0.422 (0.494)	0.257 (0.437)	0.366 (0.482)
Household asset			
Negative asset	0.019 (0.137)	0.039 (0.194)	0.026 (0.159)
Positive asset, 1st quartile	0.150 (0.357)	0.405 (0.491)	0.237 (0.425)
Postive asset, 2nd quartile	0.236 (0.425)	0.248 (0.432)	0.240 (0.427)
Positive asset, 3rd quartile	0.280 (0.449)	0.184 (0.387)	0.248 (0.432)
Positive asset, 4th quartile	0.314 (0.464)	0.123 (0.329)	0.249 (0.433)
Health and Functionality			
Good or better health, self-rated	0.719 (0.449)	0.601 (0.490)	0.679 (0.467)
Number of ADL difficulties	0.251 (0.785)	0.606 (1.241)	0.372 (0.979)
Number of IADL difficulties	0.211 (0.737)	0.550 (1.205)	0.326 (0.937)
Childhood Adversities, before age 16			
Poor or fair health	0.065 (0.246)	0.069 (0.254)	0.066 (0.249)
Poor family SES	0.316 (0.465)	0.328 (0.470)	0.320 (0.466)
No father involvement	0.079 (0.270)	0.107 (0.309)	0.089 (0.284)
Received financial help from others	0.119 (0.323)	0.093 (0.291)	0.110 (0.313)
Parental education			
Father high school graduated or above	0.245 (0.430)	0.129 (0.335)	0.206 (0.404)
Missing father education flag	0.101 (0.302)	0.136 (0.342)	0.113 (0.317)
Mother high school graduated or above	0.275 (0.446)	0.143 (0.350)	0.230 (0.421)
Missing mother education flag	0.080 (0.271)	0.111 (0.315)	0.090 (0.287)
Control variable			
Age	64.851 (9.457)	72.369 (11.567)	67.405 (10.825)
Women	0.509 (0.499)	0.769 (0.421)	0.597(0.490)
Race			
White	0.878 (0.328)	0.768 (0.422)	0.840 (0.366)
Black	0.101 (0.301)	0.210 (0.408)	0.138 (0.345)
Other	0.021 (0.144)	0.022 (0.147)	0.022 (0.145)
Number of household member	2.494 (1.037)	1.673 (1.279)	2.215 (1.190)

Note: Proportion / mean of observations with defined characteristics. Standard deviations in parentheses.

Table 3: Hazards of Ever Covered by Medicaid from 1998 to 2008, by Current Socioeconomic and Health Status, and Childhood Experiences

	Current		Childhood	Current+Childhood
	Model 1 *(a)*	**Model 2** *(b)*	**Model 3** *(c)*	**Model 4** *(d)*
Married	0.473***	0.316***	0.300***	0.474***
Socioeconomic Status				
Years of education	0.835***			0.849***
Work for pay	0.135***			0.175***
Household asset (REF: Negative asset)				
Positive asset, 1st quartile	2.148***			2.208***
Postive asset, 2nd quartile	0.503***			0.573***
Positive asset, 3rd quartile	0.317***			0.369***
Positive asset, 4th quartile	0.109***			0.142***
Health and Functionality				
Good or better health, self-rated		0.343***		0.657***
Number of ADL difficulties		1.204***		1.179***
Number of IADL difficulties		1.255***		1.178***
Childhood Adversities, before age 16				
Poor or fair health			1.589***	1.166*
Poor family SES			1.517***	1.039
No father involvement			1.310***	1.118*
Received financial help from others			0.808***	0.829**
Parental education				
Father high school graduated or above			0.584***	0.992
Missing father education flag			1.133*	0.986
Mother high school graduated or above			0.613***	0.978
Missing mother education flag			1.405***	1.153*
Control variable				
Age	0.981***	0.997	1.003	0.975***
Women	1.225***	1.145**	1.221***	1.155***
Race (REF: White)				
Black	1.648***	2.566***	2.365***	1.586***
Other	1.819***	3.156***	2.998***	1.820***
Number of household member	1.041**	1.142***	1.179***	1.022
-2 Log Likelihood	23033.338	27723.432	29673.946	22145.812
Number of event occurrence	5,047	5,047	5,047	5,047
Total number of person year	59,375	59,375	59,375	59,375

Note: Results presented in hazard ratios. Variables of marital status, work for pay, asset and health-functionality are time-varying covariates. Respondent years of education, childhood adversities, parental education, and control variables are fixed in 1998.

(a) Current socioeconomic status model.
(b) Current health and functionality model.
(c) Childhood adversity and parental education model.
(d) Full model combining *(a), (b),* and *(c).*

*p<.05; ** p<.01; ***p<.001.

Table 4: Respondent and Spouse's Medicaid Coverage from 1998 to 2008

	Spouse Covered Model 1	Either R or Spouse Covered Model 2	Both R and Spouse Covered Model 3
Socioeconomic Status			
Years of education	0.858***	0.859***	0.833***
Work for pay	0.545***	0.417***	0.197***
Household asset (REF: Negative asset)			
Positive asset, 1st quartile	3.039***	2.898***	3.750***
Postive asset, 2nd quartile	0.784*	0.797*	0.729
Positive asset, 3rd quartile	0.446***	0.484***	0.390***
Positive asset, 4th quartile	0.204***	0.235***	0.179***
Health and Functionality			
Good or better health, self-rated	0.753***	0.749***	0.605***
Number of ADL difficulties	1.085**	1.143***	1.116**
Number of IADL difficulties	1.089**	1.191***	1.108**
Childhood Adversities, before age 16			
Poor or fair health	1.123	1.009	1.318*
Poor family SES	1.137*	1.040	1.178*
No father involvement	1.147	1.227**	1.039
Received financial help from others	0.835*	0.844*	0.748*
Parental education			
Father high school graduated or above	1.140	1.139	1.194
Missing father education flag	0.908	1.005	0.821
Mother high school graduated or above	0.737**	0.761**	0.611**
Missing mother education flag	1.034	1.020	1.095
Control variable			
Age	1.000	0.990**	1.004
Women	1.099	1.030	1.154
Race (REF: White)			
Black	1.629***	1.976***	1.197
Other	1.549***	1.586***	1.294
Number of household member	1.013	1.008	1.022
-2 Log Likelihood	10095.747	12757.515	5797.610
Number of event occurrence	1,655	2,364	944
Total number of person year	37,911	37,911	37,911

Note: Results presented in hazard ratios. Variables of marital status, work for pay, asset and health-functionality are time-varying covariates. Respondent years of education, childhood adversities, parental education, and control variables are fixed in 1998.

*p<.05; ** p<.01; ***p<.001.