Marriage and Functional Health in Mid- and Late Life among People with Diabetes

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ABSTRACT

This study takes a life course perspective to examine the association between marriage and trajectories of functional health among people aged 50 years and older diagnosed with diabetes at their mid- and late life. Specifically, I investigate how union status and duration in current marriage are associated with the development of functional limitations after people are diagnosed with diabetes. Data are from the RAND HRS Version N data file and the 2012 tracker file. I focus on the newly diagnosed cases of diabetes from 1992 to 2012, and a total of 4,001 respondents were studied during the observation period from 1994 to 2012. Growth curve modeling techniques within a multilevel framework is used to assess how functional health varies by union status and current marriage duration over the life course. The analysis shows that marriage continues to protect functional health with diabetes but this health protection effect is curbed by past history of marital disruption as the first-time married fares significantly better in the average level of functional limitations after being diagnosed with diabetes, and the advantage persists over time. The divorced/separated and the widowed are particularly vulnerable to the deterioration of functional health after getting diabetes compared to their first-time married peers. While the divorced/separated fare significantly worse than the first-time married and the gap persists over time, the widowed become increasingly more disadvantaged throughout the life course. Current marriage duration is associated with a lower average level of functional impairments but a faster decline in functional health among the currently married after being diagnosed with diabetes.

INTRODUCTION

Marriage is an important social context for individual well-being. Research on marital status and health has generally established that married people have better physical as well as mental health, enjoy longer life expectancy (Rendall et al. 2011; Waite & Gallagher 2000). Numerous studies have shown that marriage protects people's physical health in mid- and late life by preventing them from getting various chronic health problems and by delaying the onset of chronic disease (Dupre & Meadows 2007; Pienta, Hayward & Jenkins 2000; Zhang & Hayward 2006). Yet, how marriage is associated with health after the onset of a chronic disease receives less attention in the current scholarship and thus is less understood.

As life expectancy continues to increase, individuals with chronic illness now tend to live longer with these chronic health problems than their predecessors, and the quality of life with chronic diseases has become a prominent interest to researchers as well as health practitioners (Crimmins 2004; Crimmins, Hayward & Saito 1994). As marriage is one of the most important social relationships to individual well-being, and many people living with chronic health conditions spend a significant part of their adult life in and out of marriage, it is important to investigate how marital experiences over the life course shape health after the onset of a chronic disease. Understanding how health develops over the marital life course for individuals with chronic health conditions should have informative implications for the quality of life and health management in mid- and late life, particularly for chronic disease patients.

In pursuit of this endeavor, this study works from a life course perspective to examine how marriage is associated with the development of functional health after individuals are diagnosed with diabetes in mid- and late life, using prospective data from the Health and Retirement Study (HRS), 1994-2012. The current study has four research objectives. First, I will examine how

current union status is associated with trajectories of functional limitations after the onset of diabetes, taking into account individuals' previous marital history. Secondly, I aim to assess the impact of current marriage duration on functional health among the currently married with diabetes. Thirdly, in light of the gendered nature of marriage, I will explore gender differences in the hypothesized relationships between these marital experiences over the life course and functional limitations after diagnosed with diabetes. Lastly, I will evaluate the roles of several major causal pathways suggested by theories in contributing to the hypothesized relationships, including socioeconomic resources, health behaviors, psychological strains and comorbidity.

DIABETES AND FUNCTIONAL LIMITATIONS

Diabetes is currently ranked as the 7th leading cause of death in the United States (Hoyert & Xu 2012). Yet, its significance is often understated compared to the 1st leading cause of death, cardiovascular disease. First of all, as diabetes is highly comorbid with cardiovascular disease, it is suggested to be the underlying cause for many deaths of cardiovascular diseases. In other words, the true mortality rate related to diabetes is underestimated (Bishop, O'Connor & Desai 2010). Additionally, obesity is a growing concern of public health in the U.S., and is a major risk factor for diabetes. Thus, the growing obese population is a major impetus to an increasing population with diabetes in the future (Garg et al. 2014). The development of functional limitations is a major health problem as diabetes progresses (Wray et al. 2005). As many people spend at least some time in their later life in marriage, the examination of the link between marriage and functional limitations after the onset of diabetes has important implications for the quality of life of individuals with the disease.

THEORETICAL AND EMPIRICAL BACKGROUND

Several theoretical frameworks explain the link between marital status and health and elucidate major causal pathways through which marriage or the lack of it influences health. These mechanisms are also important for managing a chronic disease and maintaining better health after disease onset. I work from a life course perspective and develop my arguments under these theoretical frameworks.

Martial Resource Model

The marital resource model posits that married people acquire resources protective of health from marriage, resources important for maintaining good health as well as managing diseases. First of all, married people accumulate economic resources via economies of scale, the pooling of assets and specialization of household and market labor in marriage, which can then be invested to acquire health-enhancing goods and services such as nutritious food and high-quality health care services (Waite 1995). These economic resources are even more crucial when individuals try to battle with chronic diseases. Managing chronic health problems can be a costly endeavor. For example, access to health insurance is pivotal to managing chronic illness as patients need to pay regular medical visits and procure medical treatments such as insulin shots or specialized medical examinations. Health insurance can be helpful in covering medical expenses. Research has shown that greater economic resources such as private health insurance with better coverage and white-collar jobs afford chronic disease patients more effective treatment designs (Lutfey & Freese 2005). As married people have greater economic resources to purchase quality health insurance plans, to pay regular medical visits, and adhere to medical regimens with few financial burdens, they are better equipped financially to tackle chronic diseases than their unmarried peers.

In addition to economic gains, married people also benefit from marriage through increased social resources. One major form of social resources in promoting married people's health is the social control of health behavior by their spouses. Marriage promotes salubrious health behaviors because married people, mostly the wives, monitor their spouses' health conditions, and make them adopt a healthier lifestyle, such as to quit smoking, to drink moderately, and to follow regular sleeping schedules. This spousal regulation of health behavior is particularly important for individuals living with chronic health conditions such as diabetes or cardiovascular disease. To properly control a chronic disease, patients need to faithfully adhere to oftentimes specialized medical regimens. Married people, particularly husbands, benefit from health reminders of their spouses to follow medical orders such as taking medications on time, keeping a healthy and balanced diet and exercising regularly (Waite & Gallagher 2000).

Married chronic disease patients greatly benefit from spousal regulations of health behavior since major chronic health conditions such as diabetes or cardiovascular disease have significant behavioral risk factors like smoking, heavy drinking or physical inactivity (Gallant, Spitze & Prohaska 2007). Such health regulations are less available to the unmarried, which makes controlling chronic diseases a more difficult task for them. Research has shown that social support, particularly from spouses, is crucial for chronic disease patients to follow complex medical regimens that provide more satisfactory treatment effects, and thus helpful for managing chronic diseases (Lett et al. 2005; Lutfey & Freese 2005; Nicklett & Liang 2010). Moreover, married people also benefit from greater social support extended through marriage, which can be very helpful when in sickness.

Lastly, marriage enhances health through providing emotional support. The emotional benefits of marriage not only work in health but also in sickness. Epidemiological studies have

identified stress as a major modifiable risk factor for the incidence and complication of major chronic diseases such as diabetes or cardiovascular disease (Lett et al. 2005; Von Korff et al. 2005). Thus, maintaining positive emotions is crucial for managing chronic diseases. The emotional support married people with chronic illness gain from their spouses can play a crucial role in buffering psychological distress associated with the disease. The sense of personal control and belonging married people get from marriage provide chronic disease patients with psychological strength for continued battles with chronic diseases. Thus, married people are emotionally better-off than their unmarried peers to manage chronic diseases (Umberson & Montez 2010).

It is clear that the marital resource model would predict that with the protective resources afforded by marriage, married people should be better-off in managing a chronic disease and thus have better health than the unmarried. Yet, an important lesson from the life course paradigm suggests that past life events or experiences may have a lasting effect on future outcomes (Elder & Giele 2009). Thus, an important question to ask is if and how past marital experience moderate the health benefits marriage. Thus, I distinguish the first-time married from the remarried among currently married individuals to assess the impact of past marital history. Additionally, recent studies have shown that cohabitation provides certain "marriage-like" resources that are protective of health, and yet does not benefit health as much as a legal marriage (Carr & Springer 2010; Liu & Reczek 2012). Therefore, I also examine what role cohabitation plays for functional health of people with diabetes in their mid- and late life compared to the first-time married

Also embedded in the life course perspective, an important question to ask is that given health-promoting resources accruing to marriage, whether being married longer protects health

after individuals get a chronic disease. The notion of cumulative processes suggests that the accumulation of resources over time in a position of advantage should further enhance individuals' well-being later in life. As a result, the theoretical expectation is that as people stay longer in a marriage, they should accumulate greater resources protective of health than those with shorter marriage duration. The current scholarship presents mixed empirical findings on the effect of marriage duration. For example, whereas Dupre & colleagues (Dupre, Beck & Meadows 2009; Dupre & Meadows 2007) find that longer marriage duration lowers risks of chronic disease onset and mortality, Zhang and Hayward (Zhang & Hayward 2006) show that current marriage duration is positively associated with the onset of cardiovascular diseases. Following the theoretical prediction of the marital resource model and the life course framework, I expect that longer marriage duration should be protective of functional health after the onset of diabetes.

The stress model

Divorce/separation and widowhood are considered rather stressful life events that cause immediate elevated stress around the occurrence of marital disruption. The elevated stress can thus cause direct physiological impairments in areas like the immunological, endocrine, metabolic and cardiovascular systems and indirectly compromise individuals' health via behavioral changes in adopting unhealthy life style such as smoking, binge drinking, irregular diet and loss of sleep (Amato 2000; Carr & Bodnar-Deren 2009). Individuals with chronic diseases can be particularly vulnerable to such immediate stress when experiencing marital loss. First, stress, a known risk factor of many chronic illnesses, can directly impose damage on chronic disease patients' already compromised physiological systems and further cause a downward spiral of their health. Moreover, stress-induced unhealthy behaviors such as smoking,

heavy drinking and abnormal diet, can also put chronic disease patients at a greater risk of developing a host of health complications (Bishop et al. 2010; Newschaffer, Liu & Sim 2010). In addition to short-term health damage, marital dissolution is also associated with a host of chronic stressors (e.g., economic hardships, negotiation with ex-spouse regarding shared parenting) that can cause long-term insults to mental as well as physical health (Amato 2010; Carr & Bodnar-Deren 2009). These chronic strains incurred by marital loss such as economic distress and reduced social support can be a major source of deterrents to chronic disease management (Baum & Posluszny 1999; Lutfey & Freese 2005). Thus, the stress model should predict that the previously married may be worse-off in managing a chronic disease and fare unfavorably in health after the disease onset. Also, embedded in the life course framework, stressful life events such as divorce or widowhood may have a lingering impact on individual well-being later in life even after individuals transition out of these events (Elder & Giele 2009), suggesting that although marriage may protect people's health, previous marital dissolutions should put the remarried at a higher risk of worse health than the first-time married. Consistent with the theoretical prediction, recent studies also show that remarriages present a greater health risk than continuous first marriage (McFarland, Hayward & Brown 2013; Zhang & Hayward 2006). Thus, I expect that compared to the first-time married, the remarried should have worse functional health after the onset of diabetes.

The selection model

The selection model posits that healthy individuals with salubrious lifestyles make more desirable marital partners compared to those with worse health conditions and deleterious health habits (Liu 2009). Individuals with health problems and unhealthy lifestyles such as excessive drinking and drug abuse are also more likely to experience marital breakups (Fu & Goldman

1996). According to this model, individuals with chronic diseases are expected to be less likely to enter marriage for apparent health problems and potential caretaking responsibilities that tend to fall upon the spouse. For married people with chronic health problems, the stress of managing the disease and the burden of caretaking on the spouse may take a toll on marital relationships, which in turn leads to divorce or separation (Burman & Margolin 1992). Alternatively, the marriage may dissolve due to premature mortality of the sick spouse. As a result, the selection model should predict that married people with chronic diseases are healthier than their unmarried counterparts due to the interplay of positive and adverse selection effects of health on marriage.

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The above discussion shows that as marriage is beneficial for health and marital dissolution compromises health, we should expect that health differentials by marital status exist among

people with chronic diseases. Guided by the theoretical frameworks, I present my first two sets of hypotheses:

Hypothesis 1: the first-time married are expected to report fewer functional limitations and a slower decline in functional health than the remarried, those living with unmarried partners, the divorced/separated, the widowed and the never-married after being diagnosed with diabetes.

Hypothesis 2: among the currently married, longer current marriage durations are expected to be positively associated with fewer functional limitations and a slower decline in functional health than shorter durations, net of current marital status, after being diagnosed with diabetes.

Gender variation

Gender differences in the relationship between marriage and health have been at the forefront of scholarly debate. Earlier feminist discourses portray marriage as an oppressive institution for women due to gendered social roles, and thus takes a toll on married women's health while benefitting men's, particularly mental health (Bernard 1982; Gove 1973; Gove & Tudor 1973). Yet, the current scholarship tend to agree that although men reap greater health advantage from marriage, marriage, in general, are conducive to better physical as well as mental well-being for both husbands and wives (Simon 2002; Waite & Gallagher 2000; Williams 2003). Exiting a marriage through divorce or widowhood also poses health hazards to men and women alike with noted gender difference. While men and women are psychologically distressed by divorce to a comparable degree, divorce tends to exert a greater toll on men's physical health and mortality than women (Amato 2010). Spousal loss also hurts men's physical health and mortality to a greater extent than women.

While men and women both benefit from marriage and suffer from marital loss, they do so in very different ways. Marriage promotes men's primarily through the adoption of salubrious health behavior and emotional support from their spouses, whereas women mostly benefit from the economic gains accruing to marriage (Umberson 1992; Waite & Gallagher 2000). In the case of managing a chronic disease such as diabetes, the social control of health behaviors is an important component for controlling the disease and maintaining health. The management of a chronic disease such as diabetes requires an adherence to complicated medical treatment plans, regular exercise and a specific diet (Lutfey & Freese 2005). Failure to properly maintain a salubrious lifestyle and adhere to a medical regimen could seriously exacerbate the disease. Since married men benefit more from social controls of health behaviors than women, we expect that the benefit of marriage in managing a chronic health problem should be larger for men than women (Umberson 1992). As for the unmarried, studies have shown that in general, women possess greater support networks from multiple sources than men, have greater health knowledge and are better at managing their own health than men. Unmarried men are less likely to receive social controls of health behaviors than unmarried women (Antonucci & Akiyama 1987; August & Sorkin 2010). Thus, compared to their male counterparts, unmarried women are equipped with greater psychosocial resources to manage a chronic health conditions. Building on the existing literature, I hypothesize that

Hypothesis 3: the gaps in levels of functional limitations and rates of decline in functional health between the first-time married and the other marital status groups are expected to be larger for men than for women.

Hypothesis 4: the protective effect of longer marriage duration for levels of functional limitations and rates of decline in functional health is larger for men than for women.

Lastly, the marital resource model and the stress model suggest that socioeconomic resources, health behaviors and psychological strains are important pathways through which marital status influences health. Additionally, I control for chronic diseases known to be comorbid with diabetes to test for this mechanism and reduce bias in health change due to comorbidity. Thus, I hypothesize that

Hypothesis 5: socioeconomic resources, health behaviors, psychological strains and comorbidity partly mediate the effect of current union status on the level of and rate of change in functional limitations.

Hypothesis 6: socioeconomic resources, health behaviors, psychological strains and comorbidity partly mediate the effect of current marriage duration on the level of and rate of change in functional limitations.

DATA AND METHODS

Data used in this project are from the 9 waves of the Health and Retirement Study (HRS) from 1994 to 2012, a household-based panel survey of a sample representative of the U.S. adults aged 50 years and older. The study regularly collects information on a wide range of topics such as health, work status, marital status and economic well-being. Information needed in the analysis is extracted from the RAND HRS Version N Data files, a consolidated dataset of all HRS respondents ever interviewed, and the 2012 tracker file, also created by RAND (RAND 2013). The panel nature of the HRS allows the current project to examine the association between marital experiences and health progression after the onset of diabetes over the life course. I restrict my analytic sample to respondents aged 50 and older. The first wave in 1992 is excluded in the analysis because of changes in question wording on functional limitations, making them incomparable with later waves (Haas 2008).

To track the development of functional health after the onset of diabetes, I focus on respondents who were diagnosed with diabetes by a doctor. To reduce the bias introduced by the duration in the disease and the severity of functional limitations, I only select newly diagnosed cases between two consecutive waves. Across all 11 waves from 1992 to 2012, a total of 4,011 cases aged 50 and older were diagnosed of having diabetes between waves. I deleted 10 cases with missing values on race/ethnicity, number of residents in the household or functional limitations. The final sample consists of 4,001 cases, contributing to a total of 14,459 person-periods. For the analysis of current marriage duration, 2,494 cases with no missing values on current marriage duration were used, totaling 8,613 person-periods. Cases missing on all the other covariates are flagged and controlled with a binary indicator.

Measures

Outcome

Functional limitations are indexed by a series of questions about respondents' mobility functions. Respondents were asked to indicate the level of difficulty in performing the following tasks: "walking several blocks", "jogging one mile", "walking one block", "sitting for about 2 hours", "getting up from a chair after sitting for long periods", "climbing several flights of stairs without resting", "climbing one flight of stairs without resting", "lifting or carrying weights over 10 lbs", "stooping, kneeling or crouching", "reaching arms above shoulder level", "pushing or pulling large objects", and "picking up a dime from the table". A binary indicator was created by RAND for each of the 12 tasks, where 0 indicates having no difficulty in performing a particular task and 1, at least some difficulty. A summary measure of functional limitations is created by summing up respondents' answers across all 12 questions. The logical value ranges from 0 to 12.

Marital History Variables

Current union status is a recoded variable using the information from the RAND HRS data files and includes the following categories: first-time married (the reference category), remarried, unmarried living with a partner, the divorced/separated, the widowed and the never-married. *Current marriage duration* is created by RAND, indicating the length of the current marriage in years. The analysis of current marital duration is limited to the first-time married and the remarried. All marital history variables are time-varying.

Socioeconomic Resources

Socioeconomic resources are indexed by household income, net assets and insurance status. *Household income* and *net assets* (excluding the secondary residence) are adjusted for household size by dividing the square root of household size and logged values are taken. RAND imputed cases with missing values on household income and net assets. *Insurance status* is a binary indicator indexing whether the respondent is under any health insurance plan (yes=1). All the socioeconomic variables are time-varying except education.

Health Behaviors

Health behaviors are measured by four variables: drinking, smoking, weight status and physical activity. *Drinking* is a recoded variable that includes abstainers, light to moderate drinkers (reference category), and heavy drinkers. Following past research, respondents who consume one to two drinks per day are categorized as light/moderate drinkers, and those consuming three drinks or more as heavy drinkers (Zhang & Hayward 2006). Smoking is a recoded variable that contains the following categories: non-smokers (reference category), past smokers, and current smokers. Weight status is recoded from respondents' BMI measures from the following scheme: BMI<18.5 (underweight), 18.5<=BMI <=24.9 (normal, reference category), 25<=BMI<=29.9 (overweight) and 30<=BMI (obese). *Physical activity* is a binary

indicator indexing whether respondents engage in vigorous physical activity at least more than once a week (yes=1). All the health behavior variables are time-varying.

Psychological Strains

I use two binary indicators to measure respondents' psychological strains. Respondents' depressive symptoms are measured by a short version of CES-D scale with 8 items: feeling depressed, feeling that everything is an effort, restless sleep, feeling lonely, feeling sad, could not get going, feeling happy and enjoying life. I use the summary measure created by RAND with higher scores indicating more depressive symptoms. A binary indicator was created. Respondents are categorized as depressed if they have three or more depressive symptoms on the summary CES-D measure. Previous research has shown that this dichotomization demonstrated satisfactory performance in identifying clinically depressed cases (Turvey, Wallace & Herzog 1999). Another binary indicator measures whether respondents have been diagnosed with any emotional, nervous or psychiatric problems (yes=1). Both measures are time-varying.

Comorbidity

I test for two chronic health conditions comorbid with diabetes: high blood pressure and cardiovascular disease. Both are measured by a time-varying binary indicator indexing whether respondents were diagnosed of the referred health condition (yes=1).

Sociodemographic Controls

A series of sociodemographic variables are controlled in the models, including *gender* (female=1), *race/ethnicity* including non-Hispanic White (reference category), non-Hispanic Black, Latinos and others, *nativity status* (U.S. born=1) and *educational attainment*, including less than high school (the reference group), high school graduate (including GED), some college

and college graduate or above. Table 1 presents descriptive statistics for all the variables used in the analysis.

[Table 1 about here]

Analytic Strategy

The multi-wave design of the HRS facilitates the investigation of health trajectories. To take advantage of the data, I use growth curve models within a multilevel framework to examine the effect of current union status and current marriage duration on trajectories of functional health. The analysis time is age centered at 50 years old. A person period file with 2-year intervals was created from 1994 to 2012. All the time-varying covariates are included in level one and all the time-invariant covariates are included in level two. I first run a baseline model that includes the sociodemographic controls and the marital history variables, and then test for gender differences in the hypothesized relationships. Next, I test for the four hypothesized mechanisms one by one and compare them to the baseline model to assess their relative contribution to the effect of the marital history variables on functional health trajectories. Full maximum likelihood estimation was employed to take into account all the information each respondent provides regardless of the number of waves he or she contributes. Growth curve models using this estimation method has the advantage of handling an unbalanced data structure. Additionally, following previous research, I control for sample attrition due to unobserved heterogeneity by including an indicator of the number of waves a respondent was observed and a binary indicator indexing whether respondents died during the observation period (Warner & Brown 2011).

RESULTS

Current Union Status

Table 2 presents results from the baseline model of current union status (model 1) and for gender differences (model 2). The baseline model shows that net of the sociodemographic controls, the remarried, the cohabitors and the divorced/separated are significantly higher in the initial level of functional limitations than the first-time married after being diagnosed with diabetes, whereas the widowed and the never-married show no significant difference in the initial level from the first-time married. As for the rate of change in functional limitations, of the three marital status groups with significantly higher initial level of functional limitations, only the cohabitors show a significantly slower rate of decline (indexed by the negative sign of the estimated coefficient for the age slope) than the first-time married, not the remarried or the divorced/separated. Although the widowed is not significantly different from the first-time married in the initial level of functional limitations after the onset of diabetes, they show a significantly faster rate of decline in functional health over time (indexed by the positive sign of the estimated coefficient for the age slope). The never-married demonstrate no significant difference in the rate of change from the first-time married. Results from model 1 partially support my first hypothesis on differences in the level of and rate of change in functional limitations by current union status. Model 2 tests for gender differences in trajectories of functional health by current union status. Despite the expected sign for most of the gender interaction terms, the results clearly show that differences in the initial level of and rate of decline in functional health by current union status after the onset of diabetes do not vary by gender. The results do not support hypothesis 3 on gender variations in the link between current union status and trajectories of functional health.

[Table 2 about here]

Testing for the Mechanisms

Tables 3.1-3.4 present respective results of tests for the four hypothesized mechanisms and table 3.5 displays the full model. I assess the respective contributions of the four mechanisms by comparing them to the baseline model in table 2. Gender interactions are not included as variations by gender are inconsequential.

Table 3.1 examines the role of socioeconomic resources in the link between current union status and trajectories of functional health after the onset of diabetes. Overall, the results in table 3.1 reveal that socioeconomic resources are not a major contributor to the gaps in trajectories of functional health by union status. The socioeconomic indicators do not explain the gaps in the initial level of functional limitations between the remarried, the cohabitors and the first-time married, and moderately explain the worse initial functional health of the divorced/separated by about 15% ($[(.808 - .680)/.824] \times 100\%$). None of the significant age slopes in the baseline model is explained by the socioeconomic indicators controlled in the model.

[Table 3.1 about here]

Table 3.2 assesses the role of health behaviors and the results show that health behaviors only moderately contribute to the trajectories of functional health by union status after the onset of diabetes. The four health behavior measures explain about 11%, 4.5% and 10.2% of the gaps in the initial functional health respectively for the remarried, the cohabitors and the divorced/separated in comparison to their first-time married counterparts. Additionally, they explain the slower decline over time in functional health for the cohabitors by only about 2.1% compared to the first-time married, and almost 7% of the faster decline for the widowed.

[Table 3.2 about here]

Table 3.3 evaluates the contribution of psychological strains in the link between current union status and growth trajectories of functional health after the onset of diabetes. Overall, the

results indicate that psychological strains are a major contributor to the hypothesized relationships, particularly for the divorced/separated. Controlling for the two mental health indicators explains approximately 34%, 30.6% and almost 39.5% of the gaps in the initial level of functional limitations respectively for the remarried, the cohabitors and the divorced/separated compared to the first-time married. Moreover, the two mental health measures explain about 31% of the slower decline in functional health for the cohabitors than their first-time married peers, and only 3.4% of the steeper decline of the widowed. The rate of decline for cohabitors becomes non-significant after the model controls for the two mental health measures.

[Table 3.3 about here]

Table 3.4 presents the test results for comorbidity, and shows that comorbidity is a minor contributor to differential trajectories of functional health by union status. The presence of high blood pressure and cardiovascular disease together only explains less than 10% of the gaps in the initial level of functional limitations for the remarried (3.5%) and the cohabitors (8.5%) compared to the first-time married and about 11.3% for the divorced/separated. Additionally, comorbidity only minimally explains cohabitors' slower decline over time in functional health by about 2%. Compared to the other mechanisms, comorbidity contributes more to widowers' steeper decline in functional health after being diagnosed with diabetes. The presence of high blood pressure and cardiovascular disease explains about 13.8% of their faster rate of decline.

[Table 3.4 about here]

The full model in table 4 shows that the four hypothesized mechanisms together completely explain the gaps in the initial functional health of the remarried and the divorced/separated compared to the first-time married and about 35.4% for the cohabitors. Moreover, the four mechanisms together explain about 27% of cohabitors' slower decline in functional health over

time compared to their first-time married counterparts and 10% of the widowed's faster rate of decline over time. Overall, the results from tables 3.1 to 3.4 support hypothesis 5 that the four hypothesized mechanisms play a mediating role in the link between current union status and trajectories of functional health.

Taken all together, my analysis for current union status shows that differences in trajectories of functional health by current union status primarily exist in the initial level and gender plays an inconsequential role in the hypothesized links. Although the widowed do not differ significantly from the first-time married in the initial level of functional limitation, they become more vulnerable to the deterioration of functional health over time after the onset of diabetes, to which comorbidity is a major contributor. Moreover, the health disadvantage observed here for the previously married and the remarried, and the significant role of psychological strains point to the lasting impact of marital losses.

[Table 3.5 about here]

Current Marriage Duration

Table 4 examines the link between current marriage duration and the development of functional health after the onset of diabetes and test for gender differences. Model 1, the baseline model, shows that controlling for current marital status and the sociodemographic covariates, current marriage duration is significantly associated with a lower initial level of functional limitations but is positively associated with the rate of decline in functional health, suggesting that longer years in current marriage is associated with a faster decline in functional health for the currently married after being diagnosed with diabetes. The results partially support hypothesis 2 on the link between current marriage duration and growth trajectories in functional health after being diagnosed with diabetes. Model 2 tests for gender differences in the link

between current marriage duration and trajectories in functional health. The analysis shows that no significant gender variation is observed for either the initial level of functional limitations or the growth rate. Hypothesis 4 is not supported.

[Table 4 about here]

Testing for the Mechanisms

Tables 5.1 to 5.4 show results of tests respectively for the hypothesized mechanisms. I assess their relative contributions to the link between current marriage duration and trajectories of functional health after the onset of diabetes by comparing them to the baseline model in table 4. Table 5.1 shows that socioeconomic resources do not explain the effect of current marriage duration on the initial level of functional limitations and only explain the link between current marriage duration and growth rate of functional limitations by around 6.3%.

[Table 5.1 about here]

Table 5.2 assesses the contribution of health behaviors, and the results show that health behaviors moderately explain the positive link between longer duration in current marriage and the rate of decline in functional health by approximately 12.5%. Table 5.3 evaluates the role of psychological strains. Comparing the two models in the table shows that psychological strains completely explain the link between longer duration in current marriage and a lower level of functional health. Additionally, the two mental health measures also significantly contribute to the positive association between current marriage duration and functional decline over time by approximately 31%.

[Tables 5.2 and 5.3 about here]

Table 5.4 shows that controlling for comorbidity only minimally explains the link between current marriage duration and the decline in functional health by about 6.3% after being

diagnosed with diabetes. Lastly, table 5.5 shows that controlling all four hypothesized mechanisms completely explains the association between longer duration in current marriage and a lower initial level of functional impairment after the currently married are diagnosed with diabetes and about 37.5% of the positive link between current marriage duration and the rate of decline in functional health over time. The above test results, in general, support hypothesis 6 on the roles of the hypothesized mechanisms.

[Tables 5.4 and 5.5 about here]

Overall, our analysis of current marriage duration demonstrates that longer years in current marriage predict a lower average level of functional limitations but a steeper decline in functional health over time after the onset of diabetes, and this link does not differ by gender. Moreover, psychological strains significantly contribute to the observed association whereas the other mechanisms play, at best, moderate roles.

DISCUSSION

The current study examines the contributions of current union status and current marriage duration to functional health after people are diagnosed with diabetes and attempts to answer if marriage still provides health benefits to people who live with diseases. The findings are, in general, consistent with theoretical expectations and existing empirical evidence on the continuing health protection of marriage in maintaining health and managing chronic diseases (Cornwell & Waite 2012; Idler, Boulifard & Contrada 2012; Rook & Zettel 2005).

Current Union Status

Overall, the analysis of current union status shows that marriage continues to protect health after people are diagnosed with diabetes as the first-time married fare significantly better than those who have experienced marital dissolution earlier in life. The divorced/separated report a

significantly higher initial level of functional limitations, and the gap persists over time as their functional health declines at a similar rate as the first-time married. The widowed, despite their comparable level of initial functional health to the first-time married after being diagnosed with diabetes, exhibit a significantly steeper decline over time and thus, the gap between the widowed and their first-time married counterparts widens throughout the life course. Moreover, the analysis shows that although marriage protects functional health after people get diabetes, such health benefits are curbed by past history marital dissolution as the remarried show significantly worse initial functional health and this disadvantage also remains over time. This finding is consistent with growing evidence on lesser health benefits of remarriage, and lends support to the lasting impact of previous marital dissolution on health (Carr & Springer 2010; Hughes & Waite 2009).

The older cohabitors and never-marrieds in the U.S. are suggested by previous research to be two very select groups (McFarland et al. 2013; Zhang & Hayward 2006), and my analysis also accords with this observation. Although the cohabitors show the worst initial functional health after being diagnosed with diabetes, the gap between the cohabitors and the first-time married shrinks over time. This may be an indication that nonmarital partnerships start to resemble legal marriages, at least in terms of health benefits for people at older ages (Musick & Bumpass 2012). Selection may be at work, too. As, in general, older cohabitors are still more disadvantaged and experience a higher mortality risk than the married (Brown, Lee & Bulanda 2006; Liu & Reczek 2012), those who survive chronic diseases to develop health complications may be a particularly robust group, who show fewer differences over time from the married. The never-married, on the other hand, do not differ significantly in trajectories of functional health from the first-time married after being diagnosed with diabetes. This may suggest that the lack of marital resources

do not seem to put the never-married at a higher risk of developing health complications than their first-time married peers in managing diabetes, resonating with recent research that found a shrinking health gap over historical time between the never-married and their married counterparts (Liu & Umberson 2008). Nevertheless, as the cohabitors, selection may also be at work here due to the never-married's vulnerability to premature death (Carr & Springer 2010). Overall, findings from analyses of current union status are consistent with previous research that stresses the association between marital history and health conditions that slowly develop over time such as functional limitations (Hughes & Waite 2009; Zhang & Hayward 2006). Additionally, although marital resources definitely play a role in health management with chronic diseases (Cornwell & Waite 2012), the findings appear to lend more support to the stress model as the remarried, the divorced/separated and the widowed fare significantly worse in the development of functional impairment after being diagnosed with diabetes than the first time married, whereas the never-married fare similarly as their first-time married counterparts.

Current Marriage Duration

Building on the notion of cumulative processes, I expect that being married longer should accumulate greater resources that enhance health over time, even when in disease. My analysis of current marriage duration does not support this theoretical prediction. Although being married longer is associated with significantly fewer functional limitations among the currently married after being diagnosed with diabetes, net of current marital status, more years in marriage is associated with a steeper decline in functional health over time as people live longer with diabetes in marriage. Psychological strains are a major contributor to the higher level of functional limitations and faster decline over time. This finding may seem at odds with theoretical expectations and recent empirical evidence health protections of longer marriage

durations (Dupre et al. 2009; Dupre & Meadows 2007), debates over the health effect of marriage duration is far from being concluded as others also found a positive association between longer marriage duration, and worse health (Hughes & Waite 2009; Zhang & Hayward 2006). With regard to the current finding, it is possible that as marriage provide greater survival advantage for married people with chronic diseases (King & Reis 2012; Rook & Zettel 2005), this also indicates that married people live longer with chronic diseases. Since living with and managing chronic diseases tend to incur psychological burdens to patients as well as caretakers, the psychological distress accumulated in the process of managing chronic diseases may very likely precipitate health complications associated with the disease over time (Egede 2004).

Major Contributions

A major contribution of the current study is the use of a population-based prospective sample representative of non-institutionalized civilian population aged 50 years and older to examine the relationship between marriage and health with a chronic disease of growing significance – diabetes. Although past research has generally established the positive relationship between being married and better heath prospects in managing chronic diseases, these studies often use region or hospital samples. Thus, the results may still be subject to issues of generalizability.

Secondly, the current study identifies specific populations that are particularly more vulnerable to the deterioration of functional health after getting diabetes: the remarried and particularly the previously married. My analysis shows that the divorced/separated report a significantly higher level of functional impairment than the first-time married once they are diagnosed with diabetes and such health disadvantage do not seem to attenuate with age. Economic resources, health behaviors and particularly psychological strains contribute to this gap. Because the divorced/separated tend to encounter economic hardship, reduced social

support and heightened psychological distress (Amato 2000), they are also at a greater risk of developing health complications associated with a chronic disease. As divorce becomes more prevalent at mid- and later life in recent years (Brown & Lin 2012), more attention needs to be paid to the management of chronic diseases among the divorced/separated. Additionally, the widowed becomes more disadvantaged over time in maintain health with diabetes as the gap in functional limitations between the widowed and their first-time married peers becomes larger as they age. Comorbidity is a primary contributor to their faster decline in functional health with diabetes. This may suggest that the widowed may be particularly vulnerable to chronic diseases comorbid with diabetes, which presents a greater challenge in maintaining their health.

Findings from the current study also have important implications for health practitioners dealing with chronic disease patients, and point to the importance of social contexts for maintaining health with chronic diseases. Psychological distress incurred by managing a chronic disease may be a particularly problematic risk factor for health deterioration for the divorced/separated, and the long-time married despite their survival advantage, whereas the widowed may need particular medical attentions to issues of managing several related chronic diseases. Better knowledge of past marital experiences of patients and the social context where patients manage a disease may help health practitioners provide better medical care to patients of different marital histories.

Limitations

Several limitations underlie the current study. First, as this research examines the development of functional health for people who are at least 50 years old and diagnosed with diabetes, the analytic sample is a select group of people who live long enough to develop diabetes. Because mortality risks are stratified by marital status (Rendall et al. 2011), it is

possible that some unmarried cases die before they can even develop any discernible symptoms for diabetes. Thus, the findings may likely underestimate the differentials in functional health trajectories by union status. This is particularly true for the cohabitors and the never-married. Future research should pay more attention to these two groups. Moreover, the timing of diagnosis may also bias the findings as some people may have been diagnosed at a later time when diabetes has been fully developed whereas others may have detected symptoms at the early stage before diabetes becomes full-fledged. Nonetheless, research has shown that the timing of diagnosis is also associated with marital status, and married people are more likely to get an earlier diagnosis of diseases than the unmarried (Neal & Allgar 2005). Thus, the link between union status and functional health with diabetes could also capture some effects of the timing of diagnosis. Lastly, the current study does not consider the duration of divorce and widowhood. Previous studies have demonstrated the link between divorce or widowhood duration and the incidence of chronic diseases (Dupre & Meadows 2007). Future research should take into account how the length of divorce or widowhood moderates the disadvantage of health maintenance with chronic diseases for the previously married.

In summary, findings from the current study reveal the significance of marital contexts for maintaining health while living with a chronic disease. Marriage continues to provide health benefits that facilitate the management of chronic illness, while past history of marital dissolution puts people at a greater risk of developing health complications. Future research should to examine the link between marital history and health maintenance with chronic diseases in a time of increasingly volatile marital life course.

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Table 1. Descriptive Statistics of the variables for analysis (N=14,459 person-periods)

	%
Current union status	
First-time married	43.13
Remarried	16.84
Cohabiting	2.66
Divorced/separated	10.15
Widowed	24.04
Never-married	3.18
Gender	
Men	46.20
Women	53.80
Race/ethnicity	
Non-Hispanic White	66.28
Non-Hispanic Black	18.33
Non-Hispanic, other races	2.70
Latinos	12.68
Nativity Status	
U.S. born	88.19
Immigrants	11.66
Missing	.15
Education	
Less than high school	31.59
High school graduate	35.02
Some college	18.80
College graduate or above	14.59
Insurance status	
Not insured	4.39
Insured	95.50
Missing	.11
Drinking	
Abstainers	78.80
Light/moderate drinkers	19.57
Heavy drinkers	1.38
Missing	.26
Smoking	
Non-smokers	40.71
Past smokers	48.29
Current smokers	10.43
Missing	.57
Weight status	
Underweight	.77
Normal	17.12
Overweight	36.21
Obese	44.53
Missing	1.36
Physical activity	
Not physically active	79.59
Physically active	20.22
Missing	.19

Table 1. Descriptive Statistics of the variables for analysis, continued

	%	
Depression		
Not depressed	66.51	
Depressed	24.36	
Missing	9.13	
Whether have emotional problems		
Yes	19.50	
No	80.34	
Missing	.16	
Whether have high blood pressure		
Yes	77.56	
No	22.33	
Missing	.11	
Whether have cardiovascular disease		
Yes	39.82	
No	60.07	
Missing	.11	
Whether died during observation period		
Yes	75.78	
No	24.22	
	Mean	Standard dev
# of functional limitations	4.08	3.09
Age	70.02	9.00
Current marriage duration [a]	38.30	15.34
Household income	49,008.66	503,460.98
Net assets	300,168.07	806,539.84
# of waves observed	5.10	2.38

[a] The total number of person-periods for current marriage duration is 8,613

Table 2. Estimated Coefficients for Current Union Status on Functional Limitations (N=4,001)

	Model 1		Model 2	
	Intercept	Age slope	Intercept	Age slope
Union status (first-time married=0)				
Remarried	.457 (.223)*	.006 (.011)	.329 (.306)	.016 (.014)
Cohabiting	1.313 (.369)***	-.048 (.019)*	1.363 (.516)**	-.049 (.027)
Divorced/separated	.808 (.244)***	-.005 (.012)	1.194 (.402)**	-.031 (.019)
Widowed	-.382 (.199)	.029 (.008)***	-.834 (.412)*	.047 (.015)**
Never-married	.661 (.416)	.006 (.018)	.206 (.697)	.028 (.030)
Union status × gender				
Remarried × female			.366 (.445)	-.030 (.022)
Cohabiting × female			-.089 (.735)	-.0004 (.039)
Divorced/separated × female			-.551 (.503)	.038 (.024)
Widowed × female			.603 (.471)	-.026 (.018)
Never-married × female			.692 (.867)	-.035 (.037)
Female (male=0)	1.494 (.185)***	-.016 (.008)*	1.393 (.252)***	-.010 (.011)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	.288 (.231)	-.013 (.010)	.290 (.230)	-.013 (.010)
Non-Hispanic Others	.662 (.518)	-.034 (.024)	.678 (.517)	-.035 (.024)
Latinos	.048 (.321)	.010 (.014)	.055 (.320)	.010 (.014)
Nativity status (immigrants=0)				
U.S. born	.638 (.317)*	-.002 (.014)	.644 (.316)	-.002 (.014)
Missing	2.122 (2.281)	-.082 (.095)	2.170 (2.278)	-.083 (.095)
Education (less than high school=0)				
High school graduate	-.650 (.237)**	-.002 (.010)	-.645 (.236)**	-.002 (.010)
Some college	-1.013 (.267)***	.002 (.012)	-1.015 (.266)***	.002 (.012)
College graduate or above	-1.855 (.297)***	.018 (.013)	-1.865 (.296)***	.018 (.013)
# of measurement occasions	-.254 (.035)***	.012 (.002)***	-.253 (.035)***	.012 (.002)***
Died during observations	.483 (.224)*	.019 (.009)*	.486 (.224)*	.018 (.009)*
Mean	2.542 (.433)***	.028 (.019)	2.573 (.441)***	.025 (.019)
Random Effects				
Level-2 intercept	10.875 (.601)***		10.809 (.600)***	
Level-2 slope	.013 (.001)***		.012 (.001)***	
Level-1 residual	2.935 (.044)***		2.935 (.044)***	
-2 log likelihood	64900.5		64890.0	

* p<.05 ** p<.01 *** p<.001; numbers in parenthesis are standard errors.

Table 3.1 Estimated Coefficients for Current Union Status, controlling for SE Resources, (N=4,001)

	Model 1 (baseline)		Model 2	
	Intercept	Age slope	Intercept	Age slope
Union status (first-time married=0)				
Remarried	.457 (.223)*	.006 (.011)	.482 (.221)*	.003 (.011)
Cohabiting	1.313 (.369)***	-.048 (.019)*	1.338 (.367)***	-.049 (.019)*
Divorced/separated	.808 (.244)***	-.005 (.012)	.680 (245)**	-.002 (.012)
Widowed	-.382 (.199)	.029 (.008)***	-.426 (.199)*	.030 (.008)***
Never-married	.661 (.416)	.006 (.018)	.538 (.414)	.008 (.018)
Household income (logged)[a]			-.131 (.033)***	.006 (.002)**
Net assets (logged)[a]			-.391 (.159)*	-.020 (.008)*
Insurance status (uninsured=0)				
Insured			.221 (.223)	-.012 (.016)
Missing			-.250 (1.269)	.006 (.056)
Female (male=0)	1.494 (.185)***	-.016 (.008)*	1.494 (.183)***	-.018 (.008)*
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	.288 (.231)	-.013 (.010)	.179 (.230)	-.014 (.010)
Non-Hispanic Others	.662 (.518)	-.034 (.024)	.659 (.513)	-.039 (.024)
Latinos	.048 (.321)	.010 (.014)	-.080 (.319)	.011 (.014)
Nativity status (immigrants=0)				
U.S. born	.638 (.317)*	-.002 (.014)	.642 (.313)*	-.002 (.014)
Missing	2.122 (2.281)	-.082 (.095)	2.005 (2.255)	-.069 (.094)
Education (less than high school=0)				
High school graduate	-.650 (.237)**	-.002 (.010)	-.565 (.235)*	-.002 (.010)
Some college	-1.013 (.267)***	.002 (.012)	-.869 (.266)**	.002 (.012)
College graduate or above	-1.855 (.297)***	.018 (.013)	-1.653 (.299)***	.021 (.013)
# of measurement occasions	-.254 (.035)***	.012 (.002)***	-.256 (.035)***	.012 (.002)
Died during observations	.483 (.224)*	.019 (.009)*	.439 (.222)*	.019 (.009)
Mean	2.542 (.433)***	.028 (.019)	8.889 (2.192)***	.261 (.110)*
Random Effects				
Level-2 intercept	10.875 (.601)***		10.490 (.591)***	
Level-2 slope	.013 (.001)***		.012 (.001)***	
Level-1 residual	2.935 (.044)***		2.936 (.045)***	
-2 log likelihood	64900.5		64797.2	

* p<.05 ** p<.01 *** p<.001; numbers in parenthesis are standard errors.

[a] Household income and net assets are logged and adjusted for household size.

Table 3.2 Estimated Coefficients for Current Union Status, Controlling for Health Behaviors (N=4,001)

	Model 1 (baseline)		Model 3	
	Intercept	Age slope	Intercept	Age slope
Union status (first-time married=0)				
Remarried	.457 (.223)*	.006 (.011)	.407 (.218)	.005 (.010)
Cohabiting	1.313 (.369)***	-.048 (.019)*	1.254 (.364)***	-.047 (.019)*
Divorced/separated	.808 (.244)***	-.005 (.012)	.725 (.240)**	-.003 (.012)
Widowed	-.382 (.199)	.029 (.008)***	-.361 (.196)	.027 (.008)***
Never-married	.661 (.416)	.006 (.018)	.620 (.405)	.004 (.017)
Drinking status (light/moderate=0)				
Abstainers			.123 (.138)	.011 (.007)
Heavy drinkers			.498 (.459)	-.039 (.023)
Missing			1.757 (1.061)	-.070 (.049)
Smoking status (non-smoker=0)				
Past smokers			.565 (.190)**	-.005 (.008)
Current smokers			.413 (.243)	.002 (.012)
Missing			.258 (.643)	-.017 (.035)
Weight status (normal=0)				
Underweight			.654 (.752)	.006 (.025)
Overweight			.116 (.168)	-.005 (.007)
Obese			.836 (.187)***	-.020 (.008)*
Missing			.905 (.383)*	-.022 (.018)
Physical activity (inactive=0)				
Physically active			-.438 (.116)***	-.015 (.006)**
Missing			-.668 (.836)	-.007 (.035)
Female (male=0)	1.494 (.185)***	-.016 (.008)*	1.473 (.187)***	-.016 (.008)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	.288 (.231)	-.013 (.010)	.260 (.222)	-.012 (.010)
Non-Hispanic Others	.662 (.518)	-.034 (.024)	.623 (.498)	-.035 (.023)
Latinos	.048 (.321)	.010 (.014)	.101 (.309)	.006 (.014)
Nativity status (immigrants=0)				
U.S. born	.638 (.317)*	-.002 (.014)	.487 (.307)	-.002 (.013)
Missing	2.122 (2.281)	-.082 (.095)	2.243 (2.195)	-.071 (.092)
Education (less than high school=0)				
High school graduate	-.650 (.237)**	-.002 (.010)	-.548 (.228)*	-.003 (.010)
Some college	-1.013 (.267)***	.002 (.012)	-.897 (.258)***	.004 (.011)
College graduate or above	-1.855 (.297)***	.018 (.013)	-1.591 (.289)***	.017 (.013)
# of measurement occasions	-.254 (.035)***	.012 (.002)***	-.198 (.034)***	.009 (.001)***
Died during observations	.483 (.224)*	.019 (.009)*	.616 (.218)**	.010 (.009)
Mean	2.542 (.433)***	.028 (.019)	1.696 (.465)***	.043 (.020)*
Random Effects				
Level-2 intercept	10.875 (.601)***		9.653 (.561)***	
Level-2 slope	.013 (.001)***		.011 (.001)***	
Level-1 residual	2.935 (.044)***		2.934 (.044)***	
-2 log likelihood	64900.5		64500.5	

* p<.05 ** p<.01 *** p<.001; numbers in parenthesis are standard errors.

Table 3.3 Estimated Coefficients for Current Union Status, Controlling for Psychological Strains (N=4,001)

	Model 1 (baseline)		Model 4	
	Intercept	Age slope	Intercept	Age slope
Union status (first-time married=0)				
Remarried	.457 (.223)*	.006 (.011)	.302 (.207)	.009 (.010)
Cohabiting	1.313 (.369)***	-.048 (.019)*	.911 (.353)**	-.033 (.019)
Divorced/separated	.808 (.244)***	-.005 (.012)	.489 (.231)*	-.001 (.011)
Widowed	-.382 (.199)	.029 (.008)***	-.549 (.191)**	.028 (.008)***
Never-married	.661 (.416)	.006 (.018)	.494 (.390)	-.001 (.017)
Depression status (not depressed=0)				
Depressed			1.022 (.115)***	.002 (.005)
Missing			-.113 (.197)	.060 (.008)***
Whether emotional problem (no=0)				
Having emotional problem			1.911 (.178)***	-.026 (.008)***
Missing			3.677 (1.435)*	-.094 (.057)
Female (male=0)	1.494 (.185)***	-.016 (.008)*	1.301 (.171)***	-.014 (.008)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	.288 (.231)	-.013 (.010)	.315 (.212)	-.012 (.010)
Non-Hispanic Others	.662 (.518)	-.034 (.024)	.454 (.475)	-.029 (.022)
Latinos	.048 (.321)	.010 (.014)	-.003 (.295)	.008 (.013)
Nativity status (immigrants=0)				
U.S. born	.638 (.317)*	-.002 (.014)	.545 (.291)	-.0004 (.013)
Missing	2.122 (2.281)	-.082 (.095)	.934 (2.092)	-.027 (.089)
Education (less than high school=0)				
High school graduate	-.650 (.237)**	-.002 (.010)	-.654 (.218)**	.008 (.009)
Some college	-1.013 (.267)***	.002 (.012)	-1.007 (.246)***	.013 (.011)
College graduate or above	-1.855 (.297)***	.018 (.013)	-1.753 (.274)***	.027 (.012)*
# of measurement occasions	-.254 (.035)***	.012 (.002)***	-.182 (.032)***	.009 (.001)***
Died during observations	.483 (.224)*	.019 (.009)*	.769 (.207)***	-.003 (.009)
Mean	2.542 (.433)***	.028 (.019)	2.018 (.402)***	.026 (.018)
Random Effects				
Level-2 intercept	10.875 (.601)***		8.492 (.506)***	
Level-2 slope	.013 (.001)***		.010 (.001)***	
Level-1 residual	2.935 (.044)***		2.867 (.043)***	
-2 log likelihood	64900.5		63793.2	

* p<.05 ** p<.01 *** p<.001; numbers in parenthesis are standard errors.

Table 3.4 Estimated Coefficients for Current Union Status, Controlling for Comorbidity (N=4,001)

	Model 1 (baseline)		Model 5	
	Intercept	Age slope	Intercept	Age slope
Union status (first-time married=0)				
Remarried	.457 (.223)*	.006 (.011)	.441 (.218)*	.004 (.010)
Cohabiting	1.313 (.369)***	-.048 (.019)*	1.202 (.364)**	-.047 (.019)*
Divorced/separated	.808 (.244)***	-.005 (.012)	.717 (.240)**	-.004 (.012)
Widowed	-.382 (.199)	.029 (.008)***	-.349 (.197)	.025 (.008)**
Never-married	.661 (.416)	.006 (.018)	.662 (.407)	.002 (.017)
Whether high blood pressure (no=0)				
Having high blood pressure			-.0001 (.155)	.027 (.007)***
Missing			5.382 (2.492)	-.145 (.077)
Whether cardiovascular disease (no=0)				
Having cardiovascular disease			.843 (.150)***	.014 (.007)*
Missing			3.872 (1.689)*	-.130 (.069)
Female (male=0)	1.494 (.185)***	-.016 (.008)*	1.487 (.180)***	-.014 (.008)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	.288 (.231)	-.013 (.010)	.180 (.225)	-.007 (.010)
Non-Hispanic Others	.662 (.518)	-.034 (.024)	.477 (.502)	-.024 (.023)
Latinos	.048 (.321)	.010 (.014)	.118 (.312)	.012 (.014)
Nativity status (immigrants=0)				
U.S. born	.638 (.317)*	-.002 (.014)	.622 (.308)*	-.061 (.094)
Missing	2.122 (2.281)	-.082 (.095)	1.828 (2.218)	-.002 (.010)
Education (less than high school=0)				
High school graduate	-.650 (.237)**	-.002 (.010)	-.573 (.230)*	-.002 (.010)
Some college	-1.013 (.267)***	.002 (.012)	-.932 (.259)***	-.001 (.011)
College graduate or above	-1.855 (.297)***	.018 (.013)	-1.804 (.289)***	.021 (.013)
# of measurement occasions	-.254 (.035)***	.012 (.002)***	-.197 (.034)***	.009 (.002)***
Died during observations	.483 (.224)*	.019 (.009)*	.502 (.219)*	.012 (.009)
Mean	2.542 (.433)***	.028 (.019)	2.389 (.437)***	-.004 (.019)
Random Effects				
Level-2 intercept	10.875 (.601)***		10.057 (.567)***	
Level-2 slope	.013 (.001)***		.012 (.001)***	
Level-1 residual	2.935 (.044)***		2.917 (.044)	
-2 log likelihood	64900.5		64466.8	

* p<.05 ** p<.01 *** p<.001; numbers in parenthesis are standard errors.

Table 3.5 Estimated Coefficients for Current Union Status, Full Model (N=4,001)

	Model 1 (baseline)		Model 6	
	Intercept	Age slope	Intercept	Age slope
Union status (first-time married=0)				
Remarried	.457 (.223)*	.006 (.011)	.294 (.199)	.004 (.010)
Cohabiting	1.313 (.369)***	-.048 (.019)*	.848 (.345)*	-.035 (.018)
Divorced/separated	.808 (.244)***	-.005 (.012)	.308 (.225)	.003 (.011)
Widowed	-.382 (.199)	.029 (.008)***	-.569 (.187)**	.026 (.008)**
Never-married	.661 (.416)	.006 (.018)	.391 (.372)	-.002 (.016)
Socioeconomic Resources				
Household income (logged)[a]			-.103 (.031)**	.004 (.002)*
Net assets (logged)[a]			-.416 (.153)**	-.009 (.008)
Insurance status (uninsured=0)				
Insured			.303 (.214)	-.018 (.016)
Missing			-.169 (1.231)	-.012 (.054)
Health Behaviors				
Drinking status (light/moderate=0)				
Abstainers			.166 (.133)	.005 (.006)
Heavy drinkers			.430 (.440)	-.037 (.023)
Missing			2.156 (1.034)*	-.087 (.048)
Smoking status (non-smoker=0)				
Past smokers			.333 (.171)	-.0004 (.007)
Current smokers			-.047 (.224)	.019 (.012)
Missing			.199 (.610)	-.022 (.033)
Weight status (normal=0)				
Underweight			.948 (.716)	-.011 (.023)
Overweight			.132 (.160)	-.003 (.007)
Obese			.748 (.177)***	-.013 (.008)
Missing			.815 (.370)*	-.015 (.017)
Physical activity (inactive=0)				
Physically active			-.448 (.113)***	-.010 (.006)
Missing			-1.094 (.812)	.011 (.034)
Psychological Strains				
Depression status (not depressed=0)				
Depressed			1.013 (.114)***	.0002 (.005)
Missing			-.033 (.195)	.053 (.008)***
Whether emotional problem (no=0)				
Having emotional problem			1.645 (.173)***	-.025 (.008)**
Missing			2.276 (1.395)	-.039 (.057)
Comorbidity				
Whether high blood pressure (no=0)				
Having high blood pressure			-.070 (.146)	.020 (.007)**
Missing			4.165 (2.352)	-.125 (.073)
Whether cardiovascular disease (no=0)				
Having cardiovascular disease			.736 (.142)***	.008 (.006)
Missing			4.168 (1.656)*	-.159 (.069)*

* p<.05 ** p<.01 *** p<.001; numbers in parenthesis are standard errors.

[a] Household income and net assets are logged and adjusted for household size.

Table 3.5 Estimated Coefficients for Current Union Status, Full Model, continued

	Mode 1		Model 6	
	Intercept	Age slope	Intercept	Age slope
Female (male=0)	1.494 (.185)***	-.016 (.008)*	1.238 (.169)***	-.010 (.008)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	.288 (.231)	-.013 (.010)	.156 (.202)	-.008 (.009)
Non-Hispanic Others	.662 (.518)	-.034 (.024)	.326 (.446)	-.027 (.021)
Latinos	.048 (.321)	.010 (.014)	.031 (.280)	.005 (.013)
Nativity status (immigrants=0)				
U.S. born	.638 (.317)*	-.002 (.014)	.443 (.275)	-.007 (.012)
Missing	2.122 (2.281)	-.082 (.095)	.701 (1.964)	.006 (.085)
Education (less than high school=0)				
High school graduate	-.650 (.237)**	-.002 (.010)	-.427 (.206)*	.004 (.009)
Some college	-1.013 (.267)***	.002 (.012)	-.721 (.234)**	.009 (.010)
College graduate or above	-1.855 (.297)***	.018 (.013)	-1.318 (.266)***	.030 (.012)*
# of measurement occasions	-.254 (.035)***	.012 (.002)***	-.105 (.031)***	.005 (.001)***
Died during observations	.483 (.224)*	.019 (.009)*	.767 (.198)***	-.010 (.008)
Mean	2.542 (.433)***	.028 (.019)	7.595 (2.115)***	.115 (.105)
Random Effects				
Level-2 intercept	10.875 (.601)***		6.979 (.451)***	
Level-2 slope	.013 (.001)***		.009 (.001)***	
Level-1 residual	2.935 (.044)***		2.846 (.043)***	
-2 log likelihood	64900.5		63049.3	

* p<.05 ** p<.01 *** p<.001; numbers in parenthesis are standard errors.

[a] Household income and net assets are logged and adjusted for household size.

Table 4 Estimated Coefficients for Current Marriage Duration among Currently Married (N=2,494)

	Model 1 (baseline)		Model 2	
	Intercept	Age slope	Intercept	Age slope
Remarried (first-time married=0)	.164 (.300)	.036 (.015)*	.162 (.301)	.036 (.015)*
Current marriage duration	-.020 (.009)*	.0016 (.0004)***	-.022 (.011)*	.0017 (.0004)***
Current marriage duration × female			.004 (.014)	-.0003 (.0006)
Current marriage duration × remarried				
Female (male=0)	1.446 (.223)***	-.013 (.011)	1.299 (.490)**	-.003 (.025)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	-.183 (.309)	.011 (.015)	-.184 (.309)	.011 (.015)
Non-Hispanic Others	.811 (.670)	-.056 (.034)	.815 (.670)	-.056 (.034)
Latinos	-.273 (.398)	.011 (.020)	-.273 (.398)	.011 (.020)
Nativity status (immigrants=0)				
U.S. born	.639 (.394)	-.024 (.019)	.640 (.394)	-.024 (.019)
Missing	-2.898 (4.681)	.026 (.165)	-2.917 (4.684)	.028 (.165)
Education (less than high school=0)				
High school graduate	-.288 (.299)	-.012 (.014)	-.290 (.300)	-.012 (.014)
Some college	-.748 (.336)*	-.006 (.016)	-.750 (.336)*	-.006 (.016)
College graduate or above	-1.415 (.360)***	.005 (.017)	-1.417 (.360)***	.005 (.017)
# of measurement occasions	-.223 (.043)***	.012 (.002)	-.224 (.043)***	.012 (.002)***
Died during observations	.193 (.286)	.037 (.013)***	.189 (.286)	.038 (.013)**
Mean	3.232 (.636)***	-.029 (.030)**	3.295 (.664)***	-.033 (.032)
Random Effects				
Level-2 intercept	10.124 (.693)***		10.136 (.695)***	
Level-2 slope	.015 (.002)***		.015 (.002)***	
Level-1 residual	2.650 (.053)***		2.649 (.053)***	
-2 log likelihood	38088.0		38087.8	

* p<.05 ** p<.01 *** p<.001; numbers in parentheses are standard errors.

Table 5.1 Estimated Coefficient for Current Marriage Duration, controlling for SE Resources (N=2,494)

	Model 1 (baseline)		Model 2	
	Intercept	Age slope	Intercept	Age slope
Remarried (first-time married=0)	.164 (.300)	.036 (.015)*	.196 (.298)	.032 (.014)*
Current marriage duration	-.020 (.009)*	.0016 (.0004)***	-.020 (.009)*	.0015 (.0004)***
Household income (logged)[a]			-.178 (.051)***	.008 (.101)*
Net assets (logged)[a]			-.350 (.169)*	-.016 (.010)
Insurance status (uninsured=0)				
Insured			.184 (.317)	-.011 (.025)
Missing			-1.394 (3.438)	.037 (.113)
Female (male=0)	1.446 (.223)***	-.013 (.011)	1.442 (.221)***	-.014 (.010)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	-.183 (.309)	.011 (.015)	-.317 (.308)	.012 (.015)
Non-Hispanic Others	.811 (.670)	-.056 (.034)	.739 (.664)	-.056 (.034)
Latinos	-.273 (.398)	.011 (.020)	-.396 (.397)	.012 (.020)
Nativity status (immigrants=0)				
U.S. born	.639 (.394)	-.024 (.019)	.665 (.389)	-.024 (.019)
Missing	-2.898 (4.681)	.026 (.165)	-2.723 (4.652)	.031 (.164)
Education (less than high school=0)				
High school graduate	-.288 (.299)	-.012 (.014)	-.1694 (.298)	-.014 (.014)
Some college	-.748 (.336)*	-.006 (.016)	-.556 (.336)	-.009 (.016)
College graduate or above	-1.415 (.360)***	.005 (.017)	-1.159 (.364)**	.006 (.017)
# of measurement occasions	-.223 (.043)***	.012 (.002)	-.231 (.042)	.012 (.002)***
Died during observations	.193 (.286)	.037 (.013)***	.114 (.284)	.039 (.013)**
Mean	3.232 (.636)***	-.029 (.030)**	9.493 (2.369)***	.135 (.138)
Random Effects				
Level-2 intercept	10.124 (.693)***		9.760 (.618)***	
Level-2 slope	.015 (.002)***		.014 (.002)***	
Level-1 residual	2.650 (.053)***		2.651 (.053)***	
-2 log likelihood	38088.0		38029.1	

* p<.05 ** p<.01 *** p<.001; numbers in parentheses are standard errors.

[a] Household income and net assets are logged and adjusted for household size.

Table 5.2 Estimated Coefficient for Current Marriage Duration, controlling for Health Behaviors (N=2,494)

	Model 1 (baseline)		Model 3	
	Intercept	Age slope	Intercept	Age slope
Remarried (first-time married =0)	.164 (.300)	.036 (.015)*	.148 (.293)	.031 (.014)*
Current marriage duration	-.020 (.009)*	.0016 (.0004)***	-.020 (.009)*	.0014 (.0004)***
Drinking status (light/moderate=0)				
Abstainers			.056 (.168)	.013 (.008)
Heavy drinkers			.292 (.580)	-.023 (.028)
Missing			1.136 (1.165)	-.041 (.058)
Smoking status (non-smoker=0)				
Past smokers			.308 (.235)	.006 (.011)
Current smokers			.159 (.319)	.013 (.018)
Missing			-.153 (.831)	-.002 (.049)
Weight status (normal=0)				
Underweight			.709 (1.210)	-.015 (.046)
Overweight			-.00001 (.214)	-.005 (.010)
Obese			.620 (.240)**	-.014 (.011)
Missing			1.061 (.498)*	-.039 (.027)
Physical activity (inactive=0)				
Physically active			-.628 (.1440)***	-.00001 (.007)
Missing			-1.305 (1.144)	.011 (.052)
Female (male=0)	1.446 (.223)***	-.013 (.011)	1.374 (.228)***	-.009 (.011)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	-.183 (.309)	.011 (.015)	-.163 (.298)	.011 (.015)
Non-Hispanic Others	.811 (.670)	-.056 (.034)	.708 (.647)	-.053 (.033)
Latinos	-.273 (.398)	.011 (.020)	-.161 (.384)	.004 (.109)
Nativity status (immigrants=0)				
U.S. born	.639 (.394)	-.024 (.019)	.539 (.382)	-.026 (.019)
Missing	-2.898 (4.681)	.026 (.165)	-3.007 (4.604)	.040 (.162)
Education (less than high school=0)				
High school graduate	-.288 (.299)	-.012 (.014)	-.199 (.290)	-.014 (.013)
Some college	-.748 (.336)*	-.006 (.016)	-.652 (.327)*	-.005 (.015)
College graduate or above	-1.415 (.360)***	.005 (.017)	-1.186 (.353)***	.005 (.016)
# of measurement occasions	-.223 (.043)***	.012 (.002)	-.167 (.041)***	.009 (.002)***
Died during observations	.193 (.286)	.037 (.013)***	.316 (.279)	.029 (.013)*
Mean	3.232 (.636)***	-.029 (.030)**	2.685 (.680)***	-.016 (.033)
Random Effects				
Level-2 intercept	10.124 (.693)***		8.987 (.649)***	
Level-2 slope	.015 (.002)***		.013 (.001)***	
Level-1 residual	2.650 (.053)***		2.668 (.053)***	
-2 log likelihood	38088.0		37877.8	

* p<.05 ** p<.01 *** p<.001; numbers in parentheses are standard errors.

Table 5.3 Estimated Coefficient for Current Marriage Duration, controlling for Psychological Strains (N=2,494)

	Model 1 (baseline)		Model 4	
	Intercept	Age slope	Intercept	Age slope
Remarried (first-time married =0)	.164 (.300)	.036 (.015)*	.136 (.281)	.031 (.014)*
Current marriage duration	-.020 (.009)*	.0016 (.0004)***	-.012 (.008)	.0011 (.0003)**
Depression status (not depressed=0)				
Depressed			1.045 (.152)***	.011 (.008)
Missing			.035 (.237)	.054 (.011)***
Whether emotional problem (no=0)				
Having emotional problem			1.858 (.235)	-.030 (.011)**
Missing			3.085 (2.703)	-.083 (.186)
Female (male=0)	1.446 (.223)***	-.013 (.011)	1.223 (.210)***	-.012 (.010)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	-.183 (.309)	.011 (.015)	-.009 (.289)	.005 (.014)
Non-Hispanic Others	.811 (.670)	-.056 (.034)	.608 (.625)	-.048 (.032)
Latinos	-.273 (.398)	.011 (.020)	-.071 (.371)	-.004 (.018)
Nativity status (immigrants=0)				
U.S. born	.639 (.394)	-.024 (.019)	.593 (.367)	-.023 (.018)
Missing	-2.898 (4.681)	.026 (.165)	-5.543 (4.456)	.115 (.158)
Education (less than high school=0)				
High school graduate	-.288 (.299)	-.012 (.014)	-.266 (.280)	-.003 (.013)
Some college	-.748 (.336)*	-.006 (.016)	-.657 (.313)*	-.002 (.015)
College graduate or above	-1.415 (.360)***	.005 (.017)	-1.318 (.336)***	.013 (.016)
# of measurement occasions	-.223 (.043)***	.012 (.002)	-.168 (.040)***	.009 (.002)
Died during observations	.193 (.286)	.037 (.013)***	.547 (.267)*	.012 (.012)***
Mean	3.232 (.636)***	-.029 (.030)**	2.321 (.596)***	-.009 (.029)
Random Effects				
Level-2 intercept	10.124 (.693)***		8.339 (.601)***	
Level-2 slope	.015 (.002)***		.013 (.001)***	
Level-1 residual	2.650 (.053)***		2.590 (.051)***	
-2 log likelihood	38088.0		37422.7	

* p<.05 ** p<.01 *** p<.001; numbers in parentheses are standard errors.

Table 5.4 Estimated Coefficient for Current Marriage Duration, controlling for Comorbidity (N=2,494)

	Model 1 (baseline)		Model 5	
	Intercept	Age slope	Intercept	Age slope
Remarried (first-time married=0)	.164 (.300)	.036 (.015)*	.134 (.294)	.029 (.014)*
Current marriage duration	-.020 (.009)*	.0016 (.0004)***	-.022 (.009)*	.0015 (.0003)***
Whether high blood pressure (no=0)				
Having high blood pressure			.195 (.188)	.016 (.010)
Missing			1.539 (40.576)	-.075 (1.310)
Whether cardiovascular disease (no=0)				
Having cardiovascular disease			1.242 (.198)***	-.002 (.009)
Missing			.335 (3.961)	.056 (.158)
Female (male=0)	1.446 (.223)***	-.013 (.011)	1.461 (.217)***	-.011 (.010)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	-.183 (.309)	.011 (.015)	-.206 (.301)	.014 (.015)
Non-Hispanic Others	.811 (.670)	-.056 (.034)	.513 (.650)	-.038 (.033)
Latinos	-.273 (.398)	.011 (.020)	-.001 (.387)	.002 (.019)
Nativity status (immigrants=0)				
U.S. born	.639 (.394)	-.024 (.019)	.655 (.382)	-.030 (.019)
Missing	-2.898 (4.681)	.026 (.165)	-2.242 (4.586)	.018 (.162)
Education (less than high school=0)				
High school graduate	-.288 (.299)	-.012 (.014)	-.253 (.291)	-.012 (.013)
Some college	-.748 (.336)*	-.006 (.016)	-.698 (.326)*	-.009 (.015)
College graduate or above	-1.415 (.360)***	.005 (.017)	-1.362 (.349)***	.006 (.016)
# of measurement occasions	-.223 (.043)***	.012 (.002)	-.162 (.041)***	.009 (.002)***
Died during observations	.193 (.286)	.037 (.013)***	.139 (.279)	.032 (.013)*
Mean	3.232 (.636)***	-.029 (.030)**	2.780 (.624)***	-.040 (.030)
Random Effects				
Level-2 intercept	10.124 (.693)***		9.343 (.654)***	
Level-2 slope	.015 (.002)***		.014 (.002)***	
Level-1 residual	2.650 (.053)***		2.640 (.052)***	
-2 log likelihood	38088.0		37807.7	

* p<.05 ** p<.01 *** p<.001; numbers in parentheses are standard errors.

Table 5.5 Estimated Coefficient for Current Marriage Duration, Full Model (N=2,494)

	Model 1 (baseline)		Model 6	
	Intercept	Age slope	Intercept	Age slope
Remarried (first-time married=0)	.164 (.300)	.036 (.015)*	.116 (.270)	.021 (.013)
Current marriage duration	-.020 (.009)*	.0016 (.0004)***	-.014 (.008)	.0010 (.0003)**
Socioeconomic Resources				
Household income (logged)[a]			-.121 (.049)*	.005 (.003)
Net assets (logged)[a]			-.438 (.164)**	-.004 (.009)
Insurance status (uninsured=0)				
Insured			.119 (.305)	-.005 (.024)
Missing			-1.840 (3.269)	.042 (.108)
Health Behaviors				
Drinking status (light/moderate=0)				
Abstainers			.077 (.162)	.007 (.008)
Heavy drinkers			.164 (.558)	-.022 (.027)
Missing			1.168 (1.144)	-.043 (.057)
Smoking status (non-smoker=0)				
Past smokers			.217 (.214)	.003 (.010)
Current smokers			-.155 (.298)	.023 (.017)
Missing			-.054 (.790)	-.020 (.046)
Weight status (normal=0)				
Underweight			1.130 (1.144)	-.033 (.043)
Overweight			.023 (.206)	-.003 (.009)
Obese			.558 (.229)*	-.009 (.011)
Missing			1.005 (.482)*	-.033 (.026)
Physical activity (inactive=0)				
Physically active			-.582 (.137)***	.001 (.007)
Missing			-1.268 (1.111)	.005 (.051)
Psychological Strains				
Depression status (not depressed=0)				
Depressed			1.017 (.151)***	.010 (.008)
Missing			.074 (.234)	.050 (.011)***
Whether emotional problem (no=0)				
Having emotional problem			1.530 (.228)***	-.026 (.011)*
Missing			2.566 (2.648)	-.106 (.184)
Comorbidity				
Whether high blood pressure (no=0)				
Having high blood pressure			.024 (.178)	.014 (.009)
Missing			-8.795 (40.149)	.255 (1.296)
Whether cardiovascular disease (no=0)				
Having cardiovascular disease			1.067 (.188)***	-.004 (.009)
Missing			-.030 (3.862)	.042 (.154)

* p<.05 ** p<.01 *** p<.001; numbers in parentheses are standard errors.

[a] Household income and net assets are logged and adjusted for household size.

Table 5.5 Estimated Coefficient for Current Marriage Duration, Full Model, continued

	Model 1		Model 6	
	Intercept	Age slope	Intercept	Age slope
Female (male=0)	1.446 (.223)***	-.013 (.011)	1.194 (.209)***	-.007 (.010)
Race/ethnicity (non-Hispanic White=0)				
Non-Hispanic Black	-.183 (.309)	.011 (.015)	-.115 (.274)	.008 (.014)
Non-Hispanic Others	.811 (.670)	-.056 (.034)	.239 (.589)	-.030 (.031)
Latinos	-.273 (.398)	.011 (.020)	.103 (.353)	-.013 (.018)
Nativity status (immigrants=0)				
U.S. born	.639 (.394)	-.024 (.019)	.566 (.346)	-.031 (.017)
Missing	-2.898 (4.681)	.026 (.165)	-4.803 (4.305)	.111 (.152)
Education (less than high school=0)				
High school graduate	-.288 (.299)	-.012 (.014)	-.068 (.265)	-.008 (.012)
Some college	-.748 (.336)*	-.006 (.016)	-.398 (.299)	-.007 (.014)
College graduate or above	-1.415 (.360)***	.005 (.017)	-.878 (.328)**	.012 (.016)
# of measurement occasions	-.223 (.043)***	.012 (.002)	-.087 (.038)*	.005 (.002)**
Died during observations	.193 (.286)	.037 (.013)***	.478 (.255)	.006 (.012)
Mean	3.232 (.636)***	-.029 (.030)**	8.658 (2.302)***	-.002 (.131)
Random Effects				
Level-2 intercept	10.124 (.693)***		6.819 (.533)***	
Level-2 slope	.015 (.002)***		.010 (.001)***	
Level-1 residual	2.650 (.053)***		2.584 (.051)***	
-2 log likelihood	38088.0		36972.2	

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

[a] Household income and net assets are logged and adjusted for household size.