THE EFFECT OF DIVORCE ON HEALTH IN MIDDLE AND OLDER AGES

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Abstract

A substantial literature finds adverse associations between divorce and men's health and mortality, but the results for women have been mixed. To our knowledge, no study of US data has estimated effects of divorce on self-reported health in middle and later life (after age 50), using longitudinal data and controlling for marriage/divorce selection on the basis of unobserved heterogeneity (including health selection). We use data from the Health and Retirement Study (HRS 1992-2010) to estimate effects of divorce on self-reported health and mental health in models that control of unobserved heterogeneity by including either individual fixed effects or, in matched husband-wife longitudinal data, couple fixed effects.

We find evidence of adverse effects of divorce on women's health, but mainly small and insignificant effects for men. After controlling for personal characteristics and individual fixed-effects, for women, divorce is associated with a 3.8 percentage point increase in the probability of self-reported bad health, a 5.1 percentage point increase in diagnoses of emotional, nervous or psychiatric problems and a 5.5 percentage point increase in the likelihood of (clinical) depression. For men divorce is associated with increased psychological problems and depression, but the effect is smaller than that for women.

Following married couples longitudinally, before and after divorce, controlling for personal characteristics and comparing husbands and wives using couple fixed-effects, divorce increases the probability of reporting bad health for wives by 5 to 6 percentage points, but has no effect on their husbands. Divorce also increases the likelihood that wives will be diagnosed with an emotional, nervous or psychological condition by nearly 13 percentage points, and the likelihood of depression by about 3 to 4 percentage points, while their husbands experience an increase in the likelihood of an emotional, nervous of psychological condition of 5.5 percentage points. On balance, our findings suggest that divorce at middle ages has more adverse health consequences for wives than their husbands, which could mean that self-reported health could be driven by mental health.

1 Introduction

A substantial social science literature has addressed the impact of marital status on mental and physical health (see Waite & Gallagher, 2000; Hughes & Waite, 2009; Bronselaer, De Koker and Van Peer, 2008 for reviews). Married persons have health advantages, and marital health advantages differ by gender, health outcome, and non-marital state. For example, marriage is related to longevity (Goldman, Korenman & Weinstein, 1995; Lillard & Waite 1995) and better health outcomes, such as a lower prevalence of cardiovascular disease and cancer (Goodwin et al. 1987, Zhang & Hayward 2006). However, there has been relatively little analysis of marital status transitions on physical health transitions. For example, Hughes and Waite (2009), note (p.344) "Fewer studies have examined the effect of changes in marital status on either mental or physical well-being. Studies that do most often link these changes to shifts in mental health."
Hughes and Waite study associations between marital histories and transitions and health status in mid-life, in a single year. They find significant associations between health status and different marital histories. As they note "…people with different levels of health may be more or less likely to marry, to experience divorce or widowhood, and to remarry. Poor health, especially poor mental health, can lead to marital dissatisfaction and divorce." (p. 356). Thus, marital status differences in health status in mid- and later-life likely represent a combination of selection and protection processes over the life course.

The purpose of the present paper is to use longitudinal data to describe associations between transitions in marital status and transitions in health at mid-life. Although adverse associations between divorce and health are well established, we investigate whether divorcing later in life is associated with declines in health. We focus on the middle aged and elderly in part due to increasing prevalence and incidence of divorce among people aged 50 and over (Brown & Lin 2012). Because the Health and Retirement Study (HRS) followed subjects for up to 20 years, we are able to assess both shorter-term and longer-term health changes following divorce. The

longitudinal design that follows couples longitudinally, even if they are no longer married, allows us to examine differences between spouses in the health impact of divorce. To our knowledge, we are the first to estimate differences between spouses in the effects of divorce on health. Specifically, these data allow us to answer the following questions.

- Following individuals as they age, do people who divorce at middle and older ages experience greater declines in physical and mental health than their married same-sex counterparts?
- Following individuals, do the effects of divorce differ between men and women?
- What are the health and social mechanisms that link divorce and health?
- Linking couples, are husbands more adversely affected by divorce at middle and older ages than their wives? Does divorce affect husbands' and wives' physical and mental health differently?

In section 2, we summarize the literature that offers theories and evidence linking divorce to health. Section 3 describes the data and section 4 the empirical methods. Summary statistics and results of multivariate models are presented in section 5. Section 6 describes robustness checks and section 7 concludes the paper.

2 Literature

The literature is clear that marital "health selection" contributes to the association between divorce and health (Lillard & Waite, 1995; Hughes & Waite, 2009; Bronselaer, De Koker & Van Peer, 2008). Nonetheless, several potential protective mechanisms have been identified.

2.1 Possible Causal Mechanisms Linking Divorce to Health

The literature on the link between marital status and health has identified three major causal mechanisms: direct emotional strain, economic strain and loss of social support.

A divorce and the difficult relationship leading up to it are likely to take an emotional toll, which can lead to mental and physical health problems. Bronselaer, De Koker & Van Peer (2008; p. 172) conclude that short-term health effects are linked to temporary uncertainty after divorce, but studies of longer-term consequences of divorce.

> "…consider divorce to be a process in which the dissolution of the partner relationship gives rise to all kinds of transitions (e.g. deteriorating financial situation, less social support, changing responsibilities, different regulation of health behaviors, ...) that are often perceived as stressful, and which have a long-term negative impact on individuals' health status."

Besides the emotional toll, divorce can take a financial toll, especially on women. Smock, Manning and Gupta (1999) argue that divorce reduces women's economic well-being: women's annual family income is projected to average about $47,000 ($1994) had they remained married compared to $17,000 in the divorced state. Older divorced women are five times as likely to be poor than married women with the same education level (Haider, Jacknowitz and Schoeni, 2003). Wise and Hurd (1989) also report that widowhood reduces wealth.

Thus, the evidence suggests that, women (especially) who were not prepared to be financially self-sufficient may have financial difficulties upon divorce that can be permanent. Health insurance access may also be a problem as wives may lose access to their ex-spouses employment-linked health insurance. All of these transitions could increase stress, which could lead to health problems. Divorce is associated with increased risk of disability (Pienta, Hayward and Rahrig, 2000) and mortality (e.g., Goldman, Korenman, Weinstein, 1995) compared to marriage.

Consistent with the "economics stress" hypothesis, data collected in the first wave of the HRS (only) showed that 52% of divorced women are worried 'a lot' about their retirement income, compared to 31% of the married women, 32% of divorced men and 25% of married men.

Thus, women may experience adverse health effects of divorce due to the associated emotional, mental and financial insults.

While economic differences would predict that effects of divorce may be worse for women than men, women may have denser and more readily accessible social support networks than men (Antonucci

and Akiyama, 1987). Married men may rely more on their wives for social and health support and care than the reverse. Since social support has been linked to health (e.g., Berkman and Syme, 1979; Sarason, Sarason and Gurung, 1997; Umberson & Montez, 2010), we would expect men to experience more adverse health effects of divorce due to their disadvantages in social support.

In sum, although we expect all three mechanisms to play a role, expected effects differ somewhat between men and women, so the relative impact of divorce on the health of men and women is difficult to predict. The literature has sought to investigate the effect of divorce on health empirically.

2.2 The effect of divorce on health

Kalmijn and Monden (2006) use data from two waves of the National Survey of Families and Households (N=4,526) to test the 'Escape Hypothesis', which predicts that ending a problematic marriage will have a less negative (or positive) impact on well-being, compared to ending a typical marriage. Kalmijn and Monden examine the determinants of changes in well-being as measured by the changes in depression, as measured by an abbreviated version of the Center for Epidemiologic Studies Depression Scale (CESD). After controlling for marital quality, the authors find weak evidence overall for the escape hypothesis: "…we find that at low levels of marital quality, there is indeed a smaller increase in depressive symptoms after divorce than at higher levels of quality. Even in poor marriages, however, the effect [of divorce] on depressive symptoms is positive, showing that people do not improve their well-being after divorce" (p. 1210).

Kalmijn and Monden (2006) find no significant interaction effect of divorce and marital conflict on the change in depressive symptoms. They find significant positive interactions between divorce and marital aggression on the change of depressive symptoms, which is inconsistent with the 'Escape Hypothesis'. Overall, their results suggest that a divorce has a negative effect on mental health, regardless of the quality of the marriage.

Averett, Argys and Sorkin (2012) analyze data from eight waves of Canadian National Public Health Survey, 1994-2008. They note that in Canada, health insurance status does not depend on marital status, as it may in the US, thus reducing or eliminating a possible mechanism for marital status effects on

health relative to the US. The authors study a range of health indicators including self-reported health, chronic conditions, physical limitations, mental health, BMI/overweight/obesity, and health-related behaviors. They find substantial evidence of health selection (Averett et al., Table 6) and conclude that selection largely explains the positive association between marriage and physical health for women. Nonetheless, models that include individual fixed effect to control for selection suggest that, for women, divorce (our focus) reduces alcohol consumption and has no adverse effects on mental health. For men, divorce increases smoking and depression, but reduces drinking. Although, like these authors, we estimate models with individual fixed effects for the US, we also analyze longitudinal data on the health of couples, before and after divorce, and include couple fixed effect in some analyses. This is not possible in the data Averett et. al (2012) analyze because, by design, the survey they study collected detailed health information for only one individual per household.

Kohn and Averett (2012) study the effects of marital status on health in 18 waves of the British Household Panel Survey (BPHS) 1991 to 2009. As with the Canadian data, the British setting removes health insurance as a mechanism that might link marriage to health. They estimate a dynamic model of health as a function of relationship status, with health in "period t" as the outcome, with covariates that include health in period "t-1" and marital status categories. They note that in the presence of marital health selection, the coefficients from an OLS regression version of this model would be biased by unobservables correlated with both lagged health and current marital status. Hence, Kohn and Averett (2012) use a mixed logit model to estimate the "health-related unobservable heterogeneity" for each individual in the sample, based on the history of the individual's observed health and marital states in the data, following Train (2003).

Their first-stage (mixed logit) models indicate substantial positive health selection into marriage, both at ages over 45 and under 45, for men and women (Table 5, p. 19): "this suggests that by the time the marriage market has cleared, the higher the health, the lower the utility from relationship other than marriage." Especially interesting for our purposes is the pattern of selection into divorce. Divorce

(relative to marriage) is more negatively selected for women of any age than men, and more negatively selected for older men than for younger men.

Kohn and Averett next estimate effects of marital status on an index of health in three sets of models: OLS, individual fixed effects, and models that includes both a lagged health index and their controls for health-related unobservables from their first-stage models. The first two approaches generally replicate results commonly found in the literature. Focusing on the effects of divorce (our interest): OLS models show that divorce is negatively associated with health of men and women in both age groups (>45 and <45). Adding individual fixed effects weakens this relationship somewhat, yet it remains significant for women of both age groups and for men under age 45. Dropping individual fixed effects and including lagged health and their controls for unobserved heterogeneity reduces the size of the divorce effects by an order of magnitude, and they become statistically insignificant, except the effect for younger males. However, we should also note that the size of other effects on health (e.g., age, education, and income) also fall greatly in size in the models with controls for health-related marital selectivity (compared to the OLS model), indicating that, like marital status, age, education and income have only very small (although often statistically significant) causal effects on health.[1]

In summary, the literature finds that the effect of divorce on mental health is negative regardless of the between-couple differences in the quality of the marriage, while significant within-couple variation in survival times exist. This suggest that it could be important to study the within couple differences in the effects of divorce on health.

The literature has studied the effect of divorce on health generally by comparing divorced men and women to their married same-sex counterparts. However, to our knowledge, no paper has estimated difference between husbands and wives in the effects of divorce on health in middle and older ages by following couples longitudinally, before and after divorce.

[1] A burgeoning literature that we do not review here documents spousal influence on smoking and smoking cessation behavior in the presence of marital health selection (e.g., McGeary, 2013 and Banks, Kelly and Smith 2013)

However, Mare & Palloni (1988) develop ”models for the multivariate analysis of survival processes when observations are naturally paired. These models include bivariate Tobit models for observations drawn from censored bivariate normal distributions, bivariate hazard models and models based on pair rank data.” Mare and Palloni show that couple data can be analyzed in a common framework for examining cross-spouse effects, controlling shared but unmeasured traits while simultaneously assessing the magnitude of their effects on survival, extending a sibling model developed by Chamberlain and Griliches (1977). Using a sample of couples from the National Longitudinal Survey of Mature Men, Mare & Palloni find that most of the variation in survival times lies within couples (between husbands and wives) rather than between couples. This suggests that within couple variation in health can be used to examine effects of divorce while controlling for characteristics common to husbands and wives.

3 Data

We use data from the Health and Retirement Study (HRS), sponsored by the National Institute on Aging and conducted by the University of Michigan's Institute for Social Research. The HRS is a biennial national longitudinal study that focuses on older Americans, their health, retirement, and economic status. Since 1992, HRS has collected data on individuals born between 1931 and 1941, and their spouses (HRS cohort) and individuals born before 1924 (AHEAD cohort). In 1998, individuals born between 1942 and 1947 (War-Baby cohort) and individuals born between 1924 and 1930 (CODA: Children of the Depression cohort) were added to the study. In 2004, the Early Baby Boomers cohort was added, which includes individuals born between 1948 and1953. The study has collected data on health, labor supply, income, assets, pensions, active savings and dissaving of assets, Social Security, retirement and a large variety of demographic characteristics for these cohorts. We use the publicly available RAND HRS Data[1] .

[1] The RAND HRS Data file is an easy to use longitudinal data set based on the HRS data. It was developed at RAND with funding from the National Institute on Aging and the Social Security Administration. RAND HRS Data, Version M. Produced by the RAND Center for the

For analyses of individuals and couples, we construct two samples: individuals married at the baseline interview and linked couples married at the baseline interview. The couple sample is restricted to couples for which both spouses were interviewed at least once while married and at least once after they divorced. Furthermore, we restrict the sample to respondents with complete information on our variables of interest (described below). Our individual sample includes 7983 women (479 who divorce) and 7883 (403 who divorce), for a total of 96,961person-year observations[1]. On average the individuals are observed in divorced state for 2.65 waves (2.74 waves for women, 2.53 waves for men). Our couple sample includes 388 divorcing couples, with 4,800 person-year observations.[2] On average the couples are observed in divorced state for 3.5 waves[3].

3.1 Measures

The HRS survey collects self-reported general health status for the respondents at each survey wave. For our analyses, we created a dichotomous variable indicating "bad health" for those who report health status as fair or poor (as opposed to good, very good or excellent) that we use as our primary physical health outcome variable. Self-reported health is predictive of survival and is generally regarded as a reliable measure of general health (Miilunpalo et al., 1997; McGee et al., 1998).

Because the HRS consists of middle aged and older people there is some mortality attrition. We also estimate models on a sample where have restored the first survey wave following death[4]. By classifying the deceased as in "bad" health, to test the sensitivity of our results to mortality attrition by classifying the deceased as in "bad" health.

Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (September 2013).

[1] 13,090 person-year observations were dropped due to mortality attrition (10%), 4,615 person-year observations were missing due to non-response (4%), 10,438 person-year observations were missing due to non-mortality attrition (including non-response leading to being dropped from the sample)(8%), leaving the remaining 96,961 person year observations (78%). As we explain below, we explore the sensitivity of some of our results to mortality selection.

[2] 413 couple-year observations were dropped from the sample due to mortality attrition of one spouse (13%), 179 couple-year observations were missing due to non-response of one spouse (5%), 310 couple-year observations were missing due to non-mortality attrition (9%), leaving the remaining 2,400 couple year observations (73%). As we explain below, we explore the sensitivity of some of our results to mortality selection.

[3] When studying couples we focus on the effect of divorce of the couple only, constraining them to remain divorced. Without constraining them to remain divorced, the people in the couple sample are observed in the divorced state for 2.68 waves on average (2.76 waves for wives and 2.59 waves for husbands).

[4] In our sample of individuals we add back 878 person-year observations for women and 1635 person-year observations for men, while we add back 38 person-year observations to our sample of couples.

The HRS also collects information about whether a respondent has ever had any of several conditions diagnosed by a doctor: psychological problems, heart conditions, diabetes, arthritis, cancer and high blood pressure. We use several of the health conditions indicators as controls to explore the mechanisms through which divorce could affect physical and mental health.

The HRS also codes a mental health index, using an abbreviated version of the Center for Epidemiologic Studies Depression (CESD) scale, a standard measure that is considered highly reliable (Radloff 1977). The CESD score ranges between 0 and 8, and is the sum of indicators of whether the respondent experienced each of several sentiments/conditions, such as "everything is an effort" and "felt sad", all or most of the time during the week before the interview. For our analyses we create a dummy variable to indicate a score of four or above on the abbreviated CESD scale to indicate a likelihood of clinical depression which corresponds to a score of 16 or more on the full CESD scale (Steffick, 2000).[1]

We also include controls for age (as well as a quadratic), years of education, census division[2], BMI (kilograms/meters squared), and dummy variables for black and Hispanic identification, smoking and HRS cohorts. We created a variable for adjusted household income, which is the sum of the incomes earned by the household head and the spouse[3], divided by the square-root of the household size, a standard equivalence scale (OECD, 2009). In models where we use the CESD-score as the outcome, we also control for the number of missing responses to CESD items.

4 Empirical Methods

The model that we estimate for individuals is:

$$Y_{it} = \beta_0 + \beta_1 DIV_{it} + \beta_2 WID_{it} + X_i'\beta_3 + X_{it}'\beta_4 + \varepsilon_{it}$$

[1] In 346 person-years, data are missing for at least one item used to construct the CESD scale. In 293 of these 346 cases, enough information was available to determine depression status with certainty no matter the responses to the missing items. In 53 cases, classification was indeterminate. For 27 of these 53 cases, we imputed values based on interpolation of item responses from surrounding interview waves. We dropped the other 26 cases from the analysis of depression. In our sample of couples, 4 person-years were missing information; we were able to impute 1 person-year from surrounding waves. Three person-years were dropped from the depression analysis. We included a dummy variable in the models to indicate the use of interpolated data.

[2] The publicly available HRS data set does not provide more detailed geographic information.

[3] The survey only asks income information of the household head and spouse and not from any other adults in the household, which makes our measure of household economic resources rather crude.

where the dependent variable, Y_{it}, can be a dichotomous outcome indicating, for example, whether the respondent reports being in fair or poor health, or an indicator for having been diagnosed with a psychological health condition, X_i is a vector of time-invariant characteristics for person i, X_{it} is a vector of time varying characteristics for person i at time t; DIV_{it} is a dummy that is 1, if the person is divorced or separated and 0 otherwise and WID_{it} is a dummy that is 1, if the person is widowed and 0 otherwise. We estimate these models using OLS, and we cluster the standard errors at the individual level, which addresses correlation of the standard errors for each individual and also corrects for potential heteroskedasticity of the error terms. We report results from linear probability models to facilitate comparisons between models with and without (individual or couple) fixed effects; marginal effects are undefined in logit models with fixed effects, while odds ratios are difficult to compare across models (Norton, 2012). Moreover, in our couple models, we are particularly interested in the effects of the interaction between gender and divorce, which are also not easily interpreted in non-linear models with fixed effects (Ai and Norton, 2003). Linear probability model coefficients have the advantage of easy interpretation and the coefficient itself is a parameter of interest (probability derivatives). Statistical significance of key coefficients did not differ between linear probability models and logistic regression models (see appendix tables Ia and Ib).

4.1 Individual Fixed Effects Model

The pooled linear probability model cannot control for all possible confounders of the health—marital status relationship. For example, health endowments upon which marital status may be selected may be unmeasured in the HRS. We attempt to capture unobserved individual specific effects by estimating fixed effects models such as

$$Y_{it} = \beta_0 + \beta_1 DIV_{it} + \beta_2 WID_{it} + X_i'\beta_3 + X_{it}'\beta_4 + \eta_i + \varepsilon_{it}$$

These models exploit the panel feature of the dataset to control for these unobserved individual specific effects by essentially estimating the effects of marital status by associating changes in health with changes in marital status. Initially, we estimate effects from relatively short-term changes: that is, changes between survey waves with intervals of approximately two years.

4.2 Couple Models

The model that we estimate for couples is:

$$Y_{ijt} = \beta_0 + Z_{ij}'\beta_1 + Z_{ijt}'\beta_2 + \beta_3 DIV_{jt} + \beta_4 Husband_{ij} + \beta_5 Husband_{ij} \cdot DIV_{jt} + \eta_j + \varepsilon_{ijt}$$

where the dependent variable, Y_{ijt}, is the outcome for person i in couple j at time t and $Husband_{ij}$ is a dummy indicating whether respondent i in couple j is the husband.

Z_{ijt} is a vector of time varying characteristics for person i in couple j at time t, Z_{ij} is a vector of time-invariant characteristics for person i in couple j and DIV_{jt} is a dummy that is 1, if the couple has divorced or separated and 0 if married. We focus on the effect of the divorce of the couple, and therefore constrain the husband and wife to have the same marital status, ignoring remarriage (which may be endogenous to health status in any case).We capture unmeasured time-invariant characteristics upon which couple's marital status is selected by using unobserved couple specific effects η_j in the couple fixed effects model and we cluster the standard errors at the individual level. Exploiting the panel feature of the dataset to control for these unobserved couple specific effects, we estimate the effects of marital status by taking differences between spouses' changes in health with divorce. This is different from individual fixed effects, because couple fixed effects estimate the spouses' changes in health after divorce relative to the couple average health, while individual fixed effects estimates changes in health relative to the individual's average health.

4.3 Couple Fixed Effects Model and Dynamic Effects

The previous model essentially compares the change in average health before and after divorce between spouses. However, effects of divorce on husbands and wives may change over time. To study the dynamics of the relationship between divorce and health, we estimate the following model.

$$Y_{ijt} = \beta_0 + Z_{ij}'\beta_1 + Z_{ijt}'\beta_2 + \beta_3 DIV_{jt} + \beta_4 Husband_{ij} + \beta_5 Husband_{ij} \cdot DIV_{jt} + \beta_6 Time_{jt} + \beta_7 Husband_{ij} \cdot Time_{jt} + \beta_8 Husband_{ij} \cdot Time_{jt} \cdot DIV_{jt} + \eta_j + \varepsilon_{it}$$

where the dependent variable, Y_{ijt}, is the outcome for person i in couple j at time t and $Husband_{ij}$ is a dummy indicating whether respondent i in couple j is the husband.

Z_{ijt} is a vector of time varying characteristics for person i in couple j at time t, Z_{ij} is a vector of time-invariant characteristics for person i in couple j, DIV_{jt} is a dummy that is 1, if the couple is divorced or separated and 0 if married and where $Time_{jt}$ measures the number of waves since the respondents' first interview. X_{ij} is a vector of time-invariant characteristics for person i in couple j, X_{ijt} is a vector of time varying characteristics for person i in couple j at time t; DIV_{jt} is a dummy that is 1, if couple j is divorced or separated at time t and 0 if married. In this model we also control for unobserved couple specific effects and cluster the standard errors at the individual level.

5 Results

5.1 Descriptive Statistics: Individual Sample

Table 1 reports weighted summary statistics by marital status for the individual sample. For men and women, age and education levels differ little between the married and the divorced or separated. Widows are a little older, while the partnered are a little younger. The divorced, partnered and widowed include a slightly higher percentage of black people: 10% of divorced women are black compared to 12%

of the partnered women, 9% of widowed women and 6% of the married women; among divorced men, 14% are black, compared to 14% of partnered men, 10% of the widowed men and 6% of the married men.

A larger percentage of divorced, widowed and partnered (compared to married) women report that their health is bad. Divorced, partnered and widowed women are more likely to be smokers than married women, but average BMI is similar across the four categories. Divorced, partnered and widowed men are also more likely than married men to be in bad health and to smoke.

On average, divorced, partnered and widowed women are more likely than married women to have been diagnosed with heart disease, psychological problems, stroke and lung disease. Cancer, diabetes, arthritis and high blood pressure seem to be equally prevalent among the married, partnered and the divorced, but more likely among the widowed. A similar relationship between marital status and health is found among men, although lung disease is equally likely among divorced, partnered and married men, while diabetes is more prevalent among divorced and widowed men.

On average, divorced, partnered and widowed men and women are about twice as likely as their married counterparts to report that they felt depressed (CESD $\geq$4).

Finally divorced and widowed women have lower mean adjusted household income[1] than married and partnered women, consistent with earlier literature (e.g., Smock, Manning and Gupta (1999) ,Wise and Hurd 1989, Hurd 1989). Divorced and widowed men have lower adjusted income than married and partnered men.

The descriptive statistics suggest partnered men and women resemble their divorced and widowed more when it comes to health conditions than their married counterparts.

[1] We top-coded the household income, adjusted for household size, at $300,000 (inflation adjusted to 2010).

5.2 Descriptive Statistics: Couples

Table 2 reports weighted summary statistics the subsample of couples in their married and divorced states. Since the summary statistics are shown for the same men and women in their married and divorced states, any differences in the means for time-constant variables reflect differences in the number of observations in each state. Both husbands and wives are more likely to report bad health after divorce, although the difference for men is very small. Both husbands and wives are less likely to be smoking in their divorced state. The wives are more likely to be depressed after divorce than before (CESD ≥ 4), while the husbands are less likely to be depressed after divorce than before. Both husbands and wives report a higher likelihood of having been diagnosed with psychological problems in the divorced state than in the married state.

Both husbands and wives are more likely to have been diagnosed with health conditions in their divorced state, which, at least in part, reflects their more advanced age in the divorced state. Finally, adjusted household income is lower for the wives after divorce but higher for husbands, compared to when they were married.

The numbers in Table 1 and 2 suggest both that divorce is associated with adverse health outcomes and that divorced persons have characteristics (such as racial identification) that are also associated with health. Therefore, in the following sections, we use regression models, at times including individual fixed effects, to estimates associations between marital status and health while controlling for potential confounders, both measured and unmeasured. We begin with estimates of effects of divorce controlling for exogenous characteristics and then add controls for potential mediating pathways to describe mechanisms through which divorce could affect health.

5.1 Results for the sample of individuals

5.1.1 Self reported health

Columns 1 and 5 of Table 3 show the results from a basic specification of the linear probability model of health for women and men, respectively.[1] In this specification, controls include only dummy variables for marital status (divorced or separated; widowed; the reference category is married/partnered) black and Hispanic identification (reference category is non-Hispanic white and other race/ethnicities, including Asian), a quadratic in age, years of education completed as well as dummy variables for the respondent's census division of residence and HRS cohort. The results indicate that the divorced state is associated with an increased likelihood of bad health of 10.5 percentage points for women and 8 percentage points for men. Being partnered is also associated with a 7.6 percentage point increase in bad health (relative to the married state), while being widowed is associated with about a four percentage point increase, a differences that is smaller than that associated with divorce. The results suggest that the effect of being partnered is more similar to being divorced than to being married. Other covariates have expected signs: blacks and Hispanics, and those with less education report worse health (Grossman, 1972a; 1972b; and 2000).

The models summarized in columns 2 and 6 add controls for BMI, current smoking status[2] and income to explore their possible roles as mechanisms or confounders of the marital status effects. Being divorced remains associated with a substantial increase in self-reported bad health, an 8.2 percentage point differential for women and 6.8 percentage point differential for men.[3] Current smokers are clearly in worse health, as are overweight persons (those with higher BMIs). The coefficient of income suggests that a $10,000 increase of adjusted household income is associated with a reduced probability of reporting bad health of 0.75 percentage points among women and 1 percentage points among men.[4]

[1] We use unweighted regressions, controlling for for black and Hispanic identification and census region, oversampled in the HRS survey design (Solon, Haider, & Woolridge, 2013).
[2] We also estimated a model with an additional control for having quit smoking; the marital status coefficients were not affected.
[3] We also estimated models with age-gender interactions as well as model income-gender, but found similar effects. Results available from the corresponding author upon request.
[4] In Appendix table II we report results from analyses where adjusted household income is the dependent variable.

We also estimated a similar set of regression models in which the outcome is the self-reported health variable as a 5-point Likert scale rather than the dichotomous indicator of bad health. The results reported in table III the appendix suggest similar effects of divorce, partnership and widowhood on general health.

The covariates we included in the models summarized in Table 3, although clearly related to health, are fairly limited and, therefore, may not capture fully the ways that marriage may select for health or health-related characteristics (such as income) and so, still overstate the causal impact of divorce. On the other hand, to the extent that differences in health behaviors controlled in columns 2 and 6 are caused by marital status rather than martial selection, the coefficients on marital status variables may understate the impact of marriage since these behaviors may be mechanisms by which marriage affects health (e.g., if marriage increases income or spouses encourage each other to exercise or reduce smoking; e.g., Korenman and Neumark, 1991; McGeary 2013; Banks et al. 2013). We attempt to control for selection by including individual-specific effects in the models, estimating associations between marital status and health from within-person changes in health and marital status. These models have the advantage of allowing controls for unmeasured time-invariant health-related characteristics that may be the basis of marital health selection, without (in some models) controlling for potential mechanisms.

Columns 3, 4, 7 and 8 of Table 3 show these results. For women, after controlling for individual-specific effects as well as health behaviors and income, the effect of being divorced or separated remains large (about 4.0 percentage points) and statistically significant. For men, the coefficient is small and negative (-1.7 percentage points), suggesting that divorce reduces slightly the probability of bad health for men, though the estimate is not statistically significant.

In the fixed-effect model, the coefficient of "current smoker" has an unexpected negative sign, indicating that quitting smoking increases "bad health". The likely explanation is that people in bad health are motivated to quit smoking (McGeary 2013).

After controlling for individual fixed effects, the effect of adjusted household income on both women's and men's health is reduced. An increase of $10,000 is associated with a modest reduction of the likelihood of reporting bad health of 0.14 percentage points for women and 0.19 for men.

5.1.2 Health Conditions

If divorce reduces self-reported health for women, we expect that we might also find that it increases the likelihood of being diagnosed with health conditions such as heart disease, lung disease, stroke and high blood pressure. We estimated models in which health conditions were the outcome (whether the respondent has ever been diagnosed with heart or lung conditions, diabetes, cancer, stroke, arthritis and high blood pressure).

Table 4 reports coefficients on marital status dummies from models that control for black and Hispanic identification (reference category is non-Hispanic white and other race/ethnicities, including Asian), a quadratic in age, years of education completed, BMI, smoking behavior and income as well as dummy variables for census and HRS cohort.[1] We find that divorce increases a woman's likelihood of being diagnosed with a lung condition (p=0.099) only. There are no other statistically significant or large effects of divorce on physical health conditions. However, the sign of the effect is negative for men for5 of the 7 conditions, butpositive for women for 6 of the 7 conditions.

Widowhood significantly increases the likelihood of diagnoses of lung conditions, diabetes and stroke for women and of high blood pressure and lung conditions for men. Widowhood reduces the likelihood of a diagnosis of arthritis for women and men. The coefficients on the partnered variable are not statistically significant most of the time, when they are they look similar to the coefficient on divorce (Appendix table Iva and IVb).

In short we found that divorce reduces self-reported health, we do not find that diagnoses of health conditions are much affected. This might be because clinical diagnoses might only be affected in the long term, or that the mechanisms through which divorce affects self-reported health do not lie in the physical realm conditions but in mental health.

[1] Full results shown in appendix tables IVa and IVb.

5.1.3 Mental health

As noted, there is a substantial literature on the effects of divorce or widow on mental health. Furthermore, mental health is of interest as a mechanism linking marital status and physical health. For example, evidence that divorce is associated with psychological problems and depression is a first step in establishing emotional stress as a mechanism through which divorce affects physical health. Of course, mental health is also of direct interest, quite apart from any role as a mechanism linking divorce to physical health. Mental health problems may also increase the risk of divorce if they put strain on a marriage.

Tables 5a (for women) and 5b (for men) show results for the individual fixed-effects models of mental health.[1] For women, divorce is associated with an increase of 5.1 percentage points in the probability of ever having been diagnosed with an emotional, nervous or psychiatric problem, with an increase of about five percentage points in the likelihood of depression after controlling for health behavior and income (column 2). The effects of divorce are statistically significant ($p<.01$). In column 4, we see that divorce is associated with a statistically significant increase of 5.5 percentage point in the likelihood of depression.[2] For men (Table 4b), after controlling for health behavior and income divorce is associated with a (statistically significant) increase of 3.4 percentage points increase in the probability of being diagnosed with psychological conditions (column 2) and a 3.1 point increase in the likelihood of depression (column 4).

Our results suggest that household income, although statistically significant in some models, has only a small effect on mental health. Thus, income is unlikely to be an important mediator of the effect of divorce on mental health.[3]

[1] Linear probability model results without fixed effects are available from the corresponding author on request.
[2] Results of regressions that use CESD score as the outcome in appendix table V suggest similar inferences.
[3] We also estimated models with age-gender interactions as well as models with income-gender interactions, but found similar effects. Results are available from the authors.

5.2 Potential Mechanisms that link divorce to health

To strengthen causal inferences and to help identify useful interventions we explore some mechanisms that could link divorce to health. Since we found evidence that divorce affects mental health, while it only affects physical health slightly if at all, we would like to link changes in mental and physical health conditions to changes in self-reported health associated with divorce. Table 6 summarizes the results from these models.[1] Based on the results in section 5.1, we would expect that if divorce is related to health through mental health conditions but not through physical health conditions, then the association between divorce and health would be largely explained by controlling for measures of mental health.

For references, table 6 shows the coefficients of the divorce variable from the OLS and fixed-effect models for women and men, respectively that exclude controls for mental health and physical health conditions. Row 1 corresponds to columns 2, 4, 6 and 8 from table 3, and show the results from models that control for demographic characteristics, health behaviors and income. In row 2 and 3 we add controls for mental health and physical health conditions respectively, and in row 4 we add both mental and physical health indicators. In the OLS models, mental health controls account for about half of the association between divorce and self-reported bad health for women and about two-thirds of the association for men. The remaining (partial) effect of divorce on self-reported health is not statistically significant. In the fixed effect models, mental health conditions explain only twenty percent of the association between divorce and health for women. The fixed-effect estimate of the effect of divorce for men is zero even without controls for mental health.

Physical health conditions alone (row 2), explain about one-third of the association between divorce and self-reported health in the OLS models for men and women. In models with individual fixed effects, for women, physical health explains about 10% of the divorce effect on self-rated health.

A modest adverse effect of divorce of about three percentage points remains unexplained for women in both the OLS models and models with individual fixed effects.

[1] We report the full results in appendix tables VIa and VIb.

5.3 Couple Models

So far we have estimated effects of marital status by comparing divorced individuals to their married counterparts, or comparing the same individuals in the married and divorced states. Data on couples allow us to study the difference between husbands and wives in the health effects of divorce. Couple fixed effects control for all characteristics common to husbands and wives, for example, the pre-divorce home environment. Tables 7, 8, 9 show the results.

5.3.1 Couple models of physical health

The OLS models[1] in column (1) of table 7 suggest that divorce is associated with a negative effect on health for wives: i.e., an increase in the probability of reporting "bad health" of 3.2 percentage points, however the effect is not significant.[2] The corresponding effect for husbands is zero. Although sizable at about 3.4 percentage points, the husband-wife difference in the effect is also not statistically significant ($p = 0.29$). Controlling for health behaviors and income in column (2) reduces the effect on wives' health. The coefficient of household income in column 2 suggests that an increase in adjusted household income of $10,000 reduces the likelihood of bad health by 1.85 percentage points.

Columns 3 and 4 show results from models that control for couple fixed effects. The results suggest that wives experience a statistically significant increase of 6.3 percentage points in the probability of bad health in the basic model, and 5.0 points in the model with health behavior controls. Divorce increases the husbands' likelihood of bad health by only two percentage points (which is not statistically significant).

Interestingly, the effect of household income is much larger than in our sample of individuals (e.g. reported in table 3). After controlling for couple fixed effects, our results suggest that each $10,000 increase in adjusted household income reduces the likelihood of bad health by about one percentage

[1] 70 Couples in our couple sample were partnered at baseline. We also ran couple models, where we controlled for partnered at baseline (relative to being married at baseline) as well as models where we dropped couples that were coupled at baseline, this did not affect the coefficients of the variables of interest. Results are available from the authors.

[2] We also ran models with age gender interactions, but this did not affect the coefficients of the marital status variables of interest. Results are available from the authors.

point.[1] However, despite a larger estimated impact of income on health, income explains little of the effect of divorce on health.

The results of models where we use health status, measured on a 5-point Likert scale, as the dependent variable, are broadly similar (see appendix table VII). Two differences are that, in the basic OLS model, the divorce effect for wives is statistically significant (p= 0.04) as is the difference between husbands and wives in the effect of divorce on health in the model with fixed effects (p = 0.10 in the basic model).

5.3.2 Couple models of mental health

Table 8 shows the results of the models of mental health, controlling for couple fixed effects. Divorce is associated with a 12.7 percentage point increase in the likelihood of having been diagnosed with psychological problems for wives in the basic model and 12.3 percentage points when health behavior and income are controlled. The effect of divorce on the likelihood of having been diagnosed with psychological problems is smaller for husbands, though still substantial: about 5.4 percentage points in both the basic model and in the model with health behavior controls. Effects of divorce are statistically significant for both husbands and wives, and the difference between husbands and wives of about 7 percentage points is also statistically significant ($p < 0.05$ in both models). The coefficient of adjusted household income indicates that an increase of adjusted household income of $10,000 reduces the likelihood of a psychological problem by 0.6 percentage points

For wives, divorce is associated with a 4.0 percentage point increase in the likelihood of depression ($p<0.10$). After controlling for health behaviors and income, the effect is reduced to 2.7 percentage points and is not significant. For husbands, the association between divorce and mental health is negligible in both models. The differences in the effects between husbands and wives are roughly -4.4 to -3.4 percentage points, but are not statistically significant (p-value=0.13 in the basic model and 0.24 after

[1] We also ran the models with gender-income interactions. Although the coefficient on divorce was not affected, the results show that wives are statistically significantly affected by the income shocks, with a coefficient in the same order of magnitude as the models without gender-income interactions. Models with gender-income interactions show that the wives experience the bulk of the income effect. Results from models with gender-income interactions and where income is the dependent variable are available from the corresponding author upon request.

controlling for health behaviors and income). These point estimates, although not significant, suggest that wives experience an increase in depression following divorce while their husbands experience no change (or perhaps a small reduction in depression). The coefficient on adjusted household income indicates that a $10,000 increase of household income reduces the likelihood of depression by 0.7 percentage points.

Tables VIII and IX of the appendix show the results of models where effects of divorce are allowed to vary with time divorced. Because it is difficult to interpret results of models with several interaction terms, we present results in figures 1, 2a and 2b. In Figure 1 we plotted the results from our model of 'Bad Health' using the regression coefficients[1]. The figure suggests that wives experience a slight shock to health upon divorce, while husbands experience slight improvement in health. Figure 2a shows the results from our model of psychological conditions and suggests that the likelihood of being diagnosed with a psychological conditions increases for both husbands and wives as they approach divorce. Furthermore, wives experience an abrupt increase in depression immediately upon divorce, while husbands remain on their previous trajectory.

Figure 2b shows the results from our model of depression (based on the CESD score) and suggests that depression increases for both husbands and wives as they approach divorce (slightly faster for husbands than for wives). Upon divorce, wives experience an abrupt increase in depression and a slight decrease in the period after divorce, while husbands experience an abrupt decrease upon divorce and a slight deterioration afterwards.

In our analyses of couples we have focused on the effect of divorce of the couple only, by constraining the couples to remain in divorced after their marital disruption. In our sample, 302 individuals remarry, 129 wives (33%) and 173 husbands (45%) out of the 488 divorcing couples in our sample. In appendix table xi and xii we explore a model in which we control for remarriage. The results suggest that divorce is equally bad for men and women's self-reported health, but that remarriage improves husbands' health only. The results for psychological conditions suggest that divorce is again

[1] We used regression results that included time-interactions (see Appendix tables xi and xii) for figures 1 and 2. We used the coefficients on Divorced x Husband, Divorce, Husband, Time, Time x Divorce, Time x Husband, Time x Divorce x Husband to plot these graphs. Time is measured in years since divorce and for the purpose of plotting this figure we assumed that divorce takes place between wave 5 and 6 (the mean wave in which the person first is interviewed as divorced is wave 6).

equally bad for both husbands and wives, but that remarriage greatly reduces the likelihood of being diagnosed with psychological conditions for husbands, while it increases for wives. The results for depression suggest that divorce is slightly worse for wives than for husbands (although the difference is not statistically significant), and remarriage improves depression slightly more for husbands than for wives.

Even though these results paint an interesting picture, we do not believe that this is the correct specification of the model, because remarriage is endogenous with health. Furthermore, we are interested in the effects of husbands and wives after controlling for couple fixed effects. Models that explore marital status changes beyond the initial divorce of the couple would also need to control for subsequent divorces, widowhood and remarriages. This is beyond the scope of our intention of comparing husbands and wives by controlling for couple fixed effects. In table 11a, b and c, we show (as an accounting exercise) that our results in tables 7 and 8 are a weighted average of the estimates we find when we control for remarriage. Due to the endogeneity of remarriage we believe that our earlier models are the correct models.

5.3.3 Mechanisms that link divorce to health in couple models

In Table 9 we report the coefficients of the divorce variables of several models that summarize how physical and mental health conditions act as mediators in the couple models of bad health.[1] Row 1 shows the results from columns 2 and 4 from table 7. In rows 2 and 3 we add controls for mental health and physical health conditions respectively. We see that, after controlling for couple fixed effects, adding controls for physical health (row 3) reduces the association between divorce and health for wives by 1.5 percentage points, but the effect remains statistically significant. Controlling for mental health reduces the size of the coefficient by half (and it is no longer statistically significant).

After we controls for both mental health and physical health, the point estimate for wives suggests that divorce is still associated with a two percentage point increase in self-reported bad health, although

[1] Appendix table X shows the full results

the coefficient is no longer statistically significant. For husbands, the point estimate suggests a 1.2 percentage point improvement in health after divorce, also not significant.

6 Robustness Checks

6.1 Mortality Attrition

In general, we find that divorce is associated with worse health and (especially) mental health outcomes for women than men, and for wives compared to their husbands. However, since the HRS dataset focuses on the middle-aged and elderly population and since our outcome variables are available only for survivors, our benign effects of divorce on men might have been affected by relatively higher male mortality at these ages (especially among divorced men). If compared to divorced women divorced men in bad health disproportionately attrit from the sample due to death (relative to their married counterparts in the individual sample), our results will be biased by sample (mortality) selection. We test the sensitivity of our results to mortality attrition by classifying the deceased as in "bad" health.

We use HRS data on the date of death to determine the first survey wave following death. We then restore this wave to the sample. Two potentially time-varying covariates require updating for the restored wave: age and region of residence. We use the age at death recorded by the HRS. We code regions of residence as the residence at their last interview. All other covariates in the basic model are time-invariant.

Table 10a shows the results for the sample of individuals. The OLS results show similar associations between divorce and "bad" health when we correct for mortality attrition. In our original OLS results, using the basic model, we found that divorce increased "bad" health by 10.5 percentage points for women and by 8 percentage points for men. When we categorize death as "bad" health, the results are similar: an effect of divorce of 10.5 percentage points for women and 6.9 percentage points for men. The association between widowhood and "bad" health is increased by the inclusion of death in the bad health state, from 4.2 percentage points (in table 3) to 5.6 percentage points for women, and from 3.8 to 5.6 percentage

points for men, consistent with the literature on "bereavement effects" of widowhood [Hu & Goldman, 1990]. The association between partnership and "bad" health is increased from 7.6 percentage points (in table 3) to 9.1 for women, and from 3.4 to 4.8 for men. We see the same phenomenon as we've observed in earlier analyses, that the people that are partnered resemble their divorced counterparts more than their married counterparts.

When controlling for individual fixed effects and mortality selection (the second and fourth columns of table 10a), however, the effect of divorce for women is smaller and no longer statistically significant. For men, after controlling for individual fixed effects, divorce is associated with a decreased likelihood of reporting bad health (or dying) of 5.6 percentage points (significant at the 5% level). This suggests that for men divorce significantly reduces the likelihood of bad health (including dying). We also see that after controlling for individual fixed effects divorce is the only marital status that is associated with "bad" health for men.

These results suggest that our earlier conclusion that divorce has more adverse health effects for women than men are not driven by selective mortality. The positive association of divorce for men is strengthened by the mortality-selection correction and becomes significant, and the difference between the effect of divorce for men and women remains robust and is similar in size (compare results here to those in table 3). The mortality-selection correction does dampen the estimated adverse effect for women by about 1.4 percentage points in models with individual fixed effects.

Table 10b shows the results for the sample of couples. In our original OLS results using the basic model we found that divorce increased bad health by 3.2 percentage points (not statistically significant) for wives and no effect for husbands. After categorizing death as bad health, divorce increases bad health by 4.1 percentage points for wives ($p<0.10$) and 1.0 percentage points for husbands (and remains insignificant for husbands).

When controlling for couple fixed effects and mortality attrition, the effect of divorce is increased to 6.9 percentage points ($p<0.05$) for wives from 6.3 percentage points (column 2 in table 7) and the effect for husbands is reduced to 1.5 percentage points (not significant). These results again suggest selective

mortality does not drive our earlier conclusion that divorce has more adverse health effects for women than men since there remains a significant adverse effect for wives but not their husbands. The mortality-selection actually dampens slightly (by about .6 percentage points) the estimated adverse effect of divorce for wives in models with couple fixed effects as well as the difference between husbands and wives (by 1.1 percentage points).

7 Conclusions

Hughes & Waite (2009) write that few studies have examined the effect of changes in marital status on mental and physical well being. We have sought to understand better how divorce affects physical and mental health, and whether effects differ between men and women. To our knowledge, this study is the first to estimate these associations in middle and later life in longitudinal data in the United States, comparing divorced individuals to their married counterparts, and to compare how the effects of divorce differ between spouses, using longitudinal data on couples followed before and after divorce.

We found evidence of adverse effects of divorce for women's health, but less evidence of an effect for men. On average, divorced women in our sample were about 10 percentage points, or over 50 percent, more likely to report being in "bad" (fair or poor) health than married women. Controlling for race, age, education, income, weight (BMI) and smoking reduces that difference to about eight percentage points or over 40 percent. These results suggest that, although some of the difference in self-reported health between divorced and married women reflects selection on health or socioeconomic characteristics related to health, most of the effect of divorce on health remains. Half of the divorce effect on "bad" health for women survives the inclusion of individual fixed effects, suggesting that both a causal impact of divorce and selection contribute to the health-divorce relationship. Finally, divorce at middle and older ages appears to be more detrimental to women's than men's health.

We found little evidence of an effect of divorce on diagnoses of physical health conditions for either men or women. Divorce, however, is associated with deterioration in mental health for both men and women, with women experiencing a larger effect. Interestingly, mental health conditions (depression)

and diagnoses explain a substantial part of the effect of divorce on self-reported "bad" general health for women, suggesting that mental health effects may underlie much of the effect of divorce on self-reported health. Mental health is a serious concern, and, over time, deterioration in mental health could impact physical health.

Our results from within-couple comparisons also suggest that wives experience adverse effects of divorce on physical and mental health but husbands do not. Although many of the effects for wives on physical health are statistically significant, the differences between husbands and wives in the divorce effect most often are not. Wives experience substantial and significant worsening of mental health following divorce, both diagnoses of psychological conditions and depression, while their husbands experience a smaller (statistically significant) increase in diagnoses of psychological conditions, but not depression. The difference in the effects of divorce on diagnoses of psychological conditions between husbands and wives is statistically significant.

Our models that allow the effects of divorce to vary over time suggest that wives experience a (self-reported) physical health "shock" at divorce, compared to their husbands. Wives also experience a mental health shock, while husbands do not. After the initial shock, wives' depression improves, suggesting an adaptive response. However, compared to when they were married, and unlike their husbands, wives remain worse off even several years following a divorce.

Our preferred estimates from models with fixed-effects are consistent with a causal adverse impact of divorce on health for women but not men. However, there are other plausible interpretations. First of all, fixed effects control only for unmeasured time-invariant characteristics. Yet estimated effects of divorce could be biased by reverse causality or selection on unobserved time-varying characteristics. For instance, a traumatic experience (such as the death of a child) could both destabilize a marriage and adversely affect health, leading to a spurious correlation between changes in health and changes in marital status. Or declines in health or health-related-characteristics that are uncontrolled in our models may lead to divorce (reverse causality).

Although both divorced men and women are more likely to be in bad health, models with individual fixed effects more consistently show an effect of divorce on health for women than men, suggesting a more important role of marital selection for men than women. Since mortality rates are generally higher for men than women at older ages, we considered whether greater mortality attrition from the sample among divorced males than divorced females might influence our estimates. However, when we tested the sensitivity of our results to differential mortality attrition by incorporating death in the "bad" health category we continued to find that women experience more detrimental effects from divorce than men (and some results suggested that men experience an improvement of health and mortality risk after divorce).

Theoretically, instrumental variables techniques could be used to improve causal inference, if valid instruments were available. For example, changes in divorce laws have been used as instruments for studies of the effects of divorce on socioeconomic status (e.g., Gruber 2004). The state-divorce-laws instruments could be implemented with the restricted HRS data that include the respondent's state of residence. However, while state divorce laws are plausibly valid instruments, states with strict divorce laws may differ from other states in many respects, such as in the generosity of their Medicaid programs, which could be related to health. So while these instrumental variable estimates are worth exploring, it is unlikely that they will convincingly establish a causal relationship between health and marital status (e.g., Moffitt, 2005).

Measurement of marital status may also be an issue. Divorces may drag on before they are finalized (though we do classify separated persons as divorced). Or the relationship may sour long before spouses file for divorce, which would affect the health in the married state. In part, this is a philosophical question about the meaning of "divorce." Still, classical measurement error will tend to bias downward the estimated effects of divorce.

In sum, we have found evidence that middle aged and elderly women experience adverse physical and mental health effects following divorce, compared to their married counterparts, while we found no such evidence for men. And among middle aged and older couples we find that divorce affects wives

more adversely than their husbands. More research is required to understand the pathways through which divorce in mid and later life affects health, and to understand why wives are more adversely affected by divorce than husbands. For example, the literature has explored the importance of social networks and social support for explaining health effects of marital status, especially widowhood (Berkman & Syme 1979; Berkman 1984; House et al. 1992; Umberson, Wortman & Kessler, 2009). Future work could use data available in the restricted HRS on the location of adult children (and other information) to explore social support as a mechanism or moderator.

Our results suggest that differences in mental health should have high priority since they are the most robust and account for a large portion of the effect of divorce on self-reported general health. Therefore, consideration should be given to social, psychological or medical interventions that could address divorce as a risk factor for women's mental health in later life, especially as the population ages and divorce becomes more prevalent at older ages (Brown & Lin 2012).

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Table 1. Summary Statistics, Individuals

Means (SD) and Proportions (% unless indicated)

	Women				Men			
	Divorced	Married	Partnered	Widowed	Divorced	Married	Partnered	Widowed
Bad Health	0.29	0.19	0.30	0.28	0.31	0.20	0.27	0.32
Psychological Condition	0.26	0.14	0.23	0.21	0.20	0.08	0.14	0.11
Depressed	0.26	0.12	0.21	0.22	0.20	0.08	0.16	0.24
CESD score	2.2	1.3	1.9	2.0	1.8	1.0	1.4	2.1
	(2.5)	(1.8)	(2.3)	(2.2)	(2.2)	(1.6)	(1.9)	(2.2)
BMI (kg/m2)	28.0	27.6	28.0	27.7	28.0	28.3	27.9	27.5
	(7.1)	(5.8)	(6.6)	(6.0)	(5.9)	(4.8)	(4.6)	(5.3)
Current Smoker	0.24	0.13	0.23	0.18	0.28	0.15	0.31	0.19
Adj. HH. Income[1]	0.29	0.49	0.40	0.27	0.40	0.52	0.46	0.35
	(0.32)	(0.46)	(0.40)	(0.32)	(0.45)	(0.48)	(0.44)	(0.41)
Heart Condition	0.16	0.13	0.17	0.21	0.27	0.22	0.21	0.36
Lung Condition	0.13	0.06	0.10	0.12	0.09	0.07	0.08	0.14
Diabetes	0.13	0.12	0.12	0.20	0.20	0.17	0.13	0.23
Cancer	0.08	0.10	0.12	0.14	0.09	0.10	0.06	0.17
Stroke	0.07	0.04	0.05	0.06	0.08	0.05	0.08	0.09
Arthritis	0.55	0.54	0.57	0.67	0.48	0.43	0.42	0.55
High Blood Pressure	0.46	0.43	0.40	0.56	0.53	0.46	0.47	0.57
Age (years)	61.0	61.4	59.4	68.4	62.8	62.5	60.1	70.9
	(6.3)	(7.1)	(6.6)	(7.3)	(6.9)	(7.9)	(7.3)	(7.9)
Education (years)	13.1	12.9	12.2	12.2	12.8	13.3	12.3	11.8
	(2.5)	(2.7)	(2.7)	(2.7)	(3.2)	(3.1)	(3.5)	(3.3)
Black	0.10	0.06	0.12	0.09	0.14	0.06	0.14	0.10
Hispanic	0.06	0.06	0.11	0.06	0.08	0.06	0.07	0.05
Person-Years[2]	1,310	44,168	1,217	5,285	1,006	41,175	1,224	1,576

1. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.
2. The sample includes 7983 females and 7883 males.

Table 2. Summary Statistics, Couples

Means (SD) and Proportions (% unless indicated)

	Women		Men	
	Divorced	Married	Divorced	Married
Bad Health	0.30	0.25	0.30	0.28
Psychological Condition	0.28	0.17	0.19	0.15
Depressed	0.24	0.21	0.16	0.19
CESD score	2.2	2.1	1.6	1.8
	(2.4)	(2.4)	(2.1)	(2.3)
BMI (kg/m2)	27.8	27.7	27.6	27.5
	(6.9)	(6.2)	(5.1)	(4.7)
Current Smoker	0.27	0.30	0.26	0.32
Adj. HH. Income[1]	0.30	0.36	0.41	0.36
	(0.33)	(0.36)	(0.45)	(0.36)
Heart Condition	0.16	0.13	0.28	0.17
Lung Condition	0.11	0.07	0.11	0.08
Diabetes	0.14	0.10	0.20	0.14
Cancer	0.11	0.06	0.11	0.03
Stroke	0.08	0.04	0.10	0.07
Arthritis	0.53	0.39	0.48	0.35
High Blood Pressure	0.41	0.29	0.53	0.39
Age (years)	58.7	52.3	63.7	57.8
	(8.3)	(7.9)	(7.4)	(7.4)
Education (years)	12.6	12.3	12.3	12.0
	(2.7)	(2.8)	(3.3)	(3.4)
Black	0.16	0.18	0.17	0.19
Hispanic	0.09	0.11	0.08	0.11
Person-Years[2]	1,358	1,042	1,356	1,044

1. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.
2. The sample includes 388 couples.

Table 3. The Effect of Divorce on Health of Individuals
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with and without Individual Fixed Effects
Dependent Variable = Self-reported "Bad" Health[3]

	Females				Males			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Divorced	0.105**	0.082**	0.039**	0.038**	0.080**	0.068**	-0.017	-0.017
	(0.019)	(0.018)	(0.016)	(0.016)	(0.022)	(0.021)	(0.018)	(0.018)
Widowed	0.042**	0.025**	0.008	0.008	0.038**	0.031*	-0.016	-0.016
	(0.011)	(0.011)	(0.008)	(0.008)	(0.018)	(0.018)	(0.014)	(0.014)
Partnered	0.076**	0.060**	-0.015	-0.014	0.034*	0.027	-0.01	-0.009
	(0.022)	(0.020)	(0.018)	(0.018)	(0.019)	(0.019)	(0.017)	(0.017)
Age	0.007**	0.007**	0.002	0.001	0.004	0.007*	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Age Squared/100	-0.004	-0.003	0.004*	0.005**	0	-0.002	0.008**	0.008**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Education	-0.036**	-0.029**			-0.029**	-0.023**		
	(0.001)	(0.001)			(0.001)	(0.001)		
Black	0.096**	0.063**			0.078**	0.068**		
	(0.013)	(0.013)			(0.013)	(0.013)		
Hispanic	0.094**	0.097**			0.068**	0.064**		
	(0.016)	(0.015)			(0.016)	(0.016)		
BMI		0.009**		0.002*		0.007**		-0.001
		(0.001)		(0.001)		(0.001)		(0.001)
Current Smoker		0.083**		-0.061**		0.078**		-0.069**
		(0.009)		(0.010)		(0.009)		(0.011)
Adj. HH. Income[4]		-0.075**		-0.014**		-0.100**		-0.019**
		(0.006)		(0.004)		(0.006)		(0.005)
Individual Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Person-Years	51,980	51,980	51,980	51,980	44,981	44,981	44,981	44,981
Persons	7,983	7,983	7,983	7,983	7,883	7,883	7,883	7,883

*** p<0.1; ** p<0.05**

1. Robust standard errors, clustered at the individual level.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table 4: The Effect of Divorce on Health of Individuals
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Individual Fixed Effects

	Women		Men	
Outcomes	**Divorced**	**Widowed**	**Divorced**	**Widowed**
Bad Health[3]	0.038**	0.008	-0.017	-0.016
Psych. Cond	0.051***	0.031***	0.034**	0.027***
Depression[4]	0.055***	0.083***	0.031*	0.115***
High Blood Pressure	0.013	0.005	-0.012	0.029**
Lung Condition	0.016*	0.011*	0.007	0.017*
Heart Condition	0.013	-0.001	-0.007	0.016
Diabetes	0.004	0.015**	-0.008	-0.011
Cancer	0.001	-0.007	-0.007	-0.005
Stroke	0.012	0.01*	0.003	-0.001
Arthritis	-0.008	-0.018**	-0.023	-0.022*

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the individual level.
2. Models include controls for partnered age, age square, education, bmi, smoking behavior, income, dummies for black, Hispanic, Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.
4. CESD information was imputed for 27 person-years. Depression model includes control for whether missing CESD information was imputed.

Table 5a. The Effect of Divorce on Mental Health of Individuals (Women)
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Individual Fixed Effects

Dependent Variable = Psychological Condition or Depression[3]

	(1)	(2)	(3)	(4)
	Psych. Cond	**Psych. Cond**	**Depression**	**Depression**
Divorced	0.052**	0.051**	0.057**	0.055**
	(0.014)	(0.014)	(0.019)	(0.019)
Widowed	0.031**	0.031**	0.084**	0.083**
	(0.007)	(0.007)	(0.009)	(0.009)
Partnered	0.051**	0.051**	0.035	0.035
	(0.015)	(0.015)	(0.022)	(0.023)
Age	0.021**	0.022**	-0.002	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Age Squared/100	-0.010**	-0.010**	0.002	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
BMI		0.000		-0.001*
		(0.001)		(0.001)
Current Smoker		-0.011		-0.029**
		(0.008)		(0.011)
Adj. HH. Income[4]		-0.002		-0.011**
		(0.003)		(0.005)
Individual Fixed Effects	Yes	Yes	Yes	Yes
Person-Years	51,980	51,980	46,862	46,862
Persons	7,983	7,983	7,707	7,707

p<0.1; **p<0.05

1. Robust standard errors, clustered at the individual level.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. CESD information was imputed for 27 person-years. Depression model includes control for whether missing CESD information was imputed.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table 5b. The Effect of Divorce on Mental Health of Individuals (Men)
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Individual Fixed Effects

Dependent Variable = Psychological Condition or Depression[3]

	(1) Psych. Cond	(2) Psych. Cond	(3) Depression	(4) Depression
Divorced	0.034**	0.034**	0.033*	0.031*
	(0.013)	(0.013)	(0.019)	(0.019)
Widowed	0.027**	0.027**	0.116**	0.115**
	(0.009)	(0.009)	(0.014)	(0.014)
Partnered	0.013	0.014	-0.003	-0.003
	(0.013)	(0.013)	(0.019)	(0.019)
Age	0.014**	0.014**	-0.006*	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)
Age Squared/100	-0.007**	-0.007**	0.005**	0.005*
	(0.002)	(0.002)	(0.002)	(0.003)
BMI		0.000		-0.003**
		(0.001)		(0.001)
Current Smoker		-0.009		-0.015*
		(0.006)		(0.009)
Adj. HH. Income[4]		-0.009**		-0.001
		(0.003)		(0.004)
Individual Fixed Effects	Yes	Yes	Yes	Yes
Person-Years	44,981	44,981	39,888	39,888
Persons	7,883	7,883	7,334	7,334

p<0.1; ** p<0.05

1. Robust standard errors, clustered at the individual level.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. CESD information was imputed for 27 person-years. Depression model includes control for whether missing CESD information was imputed.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table 6: The Effect of Divorce on Health of Individuals
Coefficients (Robust Standard Errors[1]) from Linear Probability Models with and without Individual Fixed Effects:
The Mediating Role of Physical and Mental Health

Dependent Variable = Self-reported "Bad" Health[2]

	(Females)		(Males)	
	(1)	(2)	(3)	(4)
	OLS	FE	OLS	FE
(1) No Mental or Physical Health Conditions[3]	0.082**	0.038**	0.068**	-0.017
	(0.018)	(0.016)	(0.021)	(0.018)
(2) Model (1) plus Mental Health Conditions[4]	0.040**	0.029*	0.024	-0.022
	(0.017)	(0.016)	(0.019)	(0.018)
(3) Model (1) plus Physical Health Conditions[5]	0.057**	0.033**	0.045**	-0.015
	(0.016)	(0.016)	(0.017)	(0.018)
(4) Model (1) plus Mental and Physical Health Conditions & Medical Conditions[6]	0.028*	0.026*	0.015	-0.019
	(0.015)	(0.015)	(0.016)	(0.018)

p<0.1; **p<0.05

1. Robust standard errors, clustered at the individual level.
2. Self-reported poor or fair health versus good, very good or excellent health.
3. Models correspond to columns (2), (4), (6), (8) from table 3
4. Controls include two mental health conditions (psychological conditions and depression). CESD information was imputed for 1 person-year. Model includes control for whether missing CESD information was imputed.
5. Controls include seven physical health conditions (heart condition, lung condition, diabetes, cancer, stroke, arthritis, High Blood Pressure).
6. Controls include mental health and physical health conditions included in models (2) and (3).

Table 7. The Effect of Divorce on Health of Couples
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with and without Couple Fixed Effects
Dependent Variable = Self-reported "Bad" Health[3]

	(1)	(2)	(3)	(4)
Divorced x Husband	-0.034	-0.010	-0.043	-0.030
	(0.032)	(0.031)	(0.027)	(0.027)
Divorced	0.032	0.011	0.063**	0.050**
	(0.026)	(0.025)	(0.020)	(0.020)
Husband	-0.004	-0.008	0.005	0.005
	(0.029)	(0.029)	(0.022)	(0.022)
Age	-0.001	-0.001	-0.005	-0.004
	(0.009)	(0.008)	(0.008)	(0.008)
Age Squared	0.006	0.007	0.01	0.009
	(0.007)	(0.007)	(0.007)	(0.007)
Education	-0.038**	-0.027**	-0.006	-0.007
	(0.004)	(0.004)	(0.005)	(0.005)
Black	0.038	0.02	-0.152	-0.16
	(0.034)	(0.031)	(0.107)	(0.103)
Hispanic	-0.047	-0.037	-0.089	-0.103
	(0.052)	(0.051)	(0.094)	(0.093)
BMI		0.008**		0.004**
		(0.002)		(0.002)
Current Smoker		0.108**		-0.008
		(0.025)		(0.025)
Adj. HH. Income[4]		-0.185**		-0.107**
		(0.027)		(0.021)
Couple Fixed Effects	No	No	Yes	Yes
Person-Years	4,790	4,790	4,790	4,790
Couples	388	388	388	388
Effect of Divorce on Husband	-0.002	0.001	0.020	0.020
SE	(0.028)	(0.026)	(0.023)	(0.023)

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table 8. The Effect of Divorce on Mental Health of Couples
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Couple Fixed Effects

Dependent Variable = Psychological Condition/Depression[3]

	(1)	(2)	(3)	(4)
	Psych. Cond.	**Psych. Cond.**	**Depression**	**Depression**
Divorced x Husband	-0.071**	-0.069**	-0.044	-0.034
	(0.029)	(0.028)	(0.029)	(0.029)
Divorced	0.127**	0.123**	0.040*	0.027
	(0.022)	(0.022)	(0.024)	(0.024)
Husband	-0.056**	-0.059**	-0.037	-0.039
	(0.026)	(0.025)	(0.025)	(0.025)
Age	-0.002	-0.003	0.002	0.002
	(0.008)	(0.008)	(0.009)	(0.009)
Age Squared	0.005	0.007	-0.002	-0.002
	(0.007)	(0.007)	(0.008)	(0.007)
Education	-0.013**	-0.014**	-0.019**	-0.019**
	(0.006)	(0.006)	(0.005)	(0.005)
Black	0.246**	0.229**	0.042	0.013
	(0.111)	(0.113)	(0.080)	(0.081)
Hispanic	-0.007	0.007	0.141**	0.151**
	(0.052)	(0.053)	(0.070)	(0.071)
BMI		0.004*		0.002
		(0.002)		(0.002)
Smoking Now		0.060**		0.074**
		(0.024)		(0.025)
Adj. HH. Income[4]		-0.002		-0.074**
		(0.020)		(0.021)
Couple Fixed Effects	Yes	Yes	Yes	Yes
Person-Years	4,790	4,790	3,965	3,965
Couples	388	388	388	388
Effect of Divorce on Husband	0.055**	0.054**	-0.003	-0.007
SE	(0.019)	(0.018)	(0.023)	(0.023)

p<0.1; ** p<0.05

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. CESD information was imputed for 1 person-year. Depression model includes control for whether missing CESD information was imputed.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table 9. The Effect of Divorce on Health of Couples
Coefficients (Robust Standard Errors[1]) from Linear Probability Models with and without Couple Fixed Effects:
The Mediating Role of Physical and Mental Health

Dependent Variable = Self-reported "Bad" Health[2]

	(1) OLS (Wives)	(2) FE (Wives)	(3) OLS (Difference)	(4) FE (Difference)	(5) OLS (Husbands)	(6) FE (Husbands)
(1) No Mental or Physical Health Conditions[3]	0.011	0.050**	-0.01	-0.03	0.001	0.02
	(0.025)	(0.020)	(0.031)	(0.027)	(0.026)	(0.023)
(2) Model (1) plus Mental Health Conditions[4]	-0.011	0.025	0.002	-0.016	-0.008	0.008
	(0.028)	(0.023)	(0.035)	(0.030)	(0.028)	(0.026)
(3) Model (1) plus Physical Health Conditions[5]	0.004	0.035*	-0.03	-0.044*	-0.026	-0.009
	(0.023)	(0.019)	(0.028)	(0.025)	(0.022)	(0.021)
(4) Model (1) plus Mental and Physical Health Conditions[6]	-0.004	0.020	-0.019	-0.033	-0.023	-0.012
	(0.026)	(0.022)	(0.033)	(0.028)	(0.025)	(0.025)

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Self-reported poor or fair health versus good, very good or excellent health.
3. Models correspond to columns (2), (4) from table 7.
4. Controls include two mental health conditions (psychological conditions and depression). CESD information was imputed for 1 person-year. Model includes control for whether missing CESD information was imputed.
5. Controls include seven physical health conditions (heart condition, lung condition, diabetes, cancer, stroke, arthritis, High Blood Pressure).
6. Controls include mental health and physical health conditions included in models (2) and (3).

Table 10a. The Effect of Divorce on Health of Individuals
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with and without Individual Fixed Effects
Including Death as "Bad" Health

Dependent Variable = Self-reported "Bad" Health[3]

	(1)	(2)	(3)	(4)
	(Female)	**(Female)**	**(Male)**	**(Male)**
Divorced	0.105**	0.024	0.069**	-0.056**
	(0.020)	(0.016)	(0.021)	(0.018)
Widowed	0.056**	0.023**	0.056**	0.008
	(0.011)	(0.008)	(0.017)	(0.014)
Partnered	0.091**	-0.001	0.048**	-0.014
	(0.022)	(0.018)	(0.020)	(0.018)
Age	0.042**	0.039**	0.096**	0.088**
	(0.003)	(0.003)	(0.005)	(0.003)
Age Squared/100	-0.031**	-0.024**	-0.069**	-0.058**
	(0.002)	(0.002)	(0.004)	(0.003)
Education	-0.036**		-0.030**	
	(0.001)		(0.001)	
Black	0.096**		0.078**	
	(0.013)		(0.013)	
Hispanic	0.091**		0.064**	
	(0.016)		(0.016)	
Individual Fixed Effects	No	Yes	No	Yes
Person-Years	52,858	52,858	46,616	46,616
Persons	7,998	7,998	7,923	7,923

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**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the individual level.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.

Table 10b. The Effect of Divorce on Health of Couples
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with and without Couple Fixed Effects
Including Death as "Bad" Health
Dependent Variable = Self-reported "Bad" Health[3]

	(1)	(2)
Divorced x Husband	-0.044	-0.054*
	(0.032)	(0.027)
Divorced	0.039	0.069**
	(0.026)	(0.020)
Husband	-0.005	0.005
	(0.029)	(0.022)
Age	-0.003	-0.007
	(0.009)	(0.008)
Age Squared	0.008	0.012*
	(0.008)	(0.007)
Education	-0.038**	-0.007
	(0.004)	(0.005)
Black	0.036	-0.179
	(0.034)	(0.110)
Hispanic	-0.049	-0.094
	(0.052)	(0.095)
Couple Fixed Effects	No	Yes
Person-Years	4,828	4,828
Couples	388	388
Effect of Divorce on Husband	-0.005	0.015
SE	(0.027)	(0.023)

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.

Table 11a. Decomposing the effect of Divorce on health
Coefficients from Linear Probability Models with Couple Fixed Effects
Dependent Variable = Self-reported "Bad" Health[3]

		Effect of Divorce (Table xi[1])	Effect of Divorce (Table 7)
Wives	$\boldsymbol{Divorce} + \%\boldsymbol{Remarried} \cdot \boldsymbol{Divorce\ x\ Remarriage}$	$0.043 + 33\% \cdot 0.015 = 0.048$	≈ 0.050
Husbands	$\boldsymbol{Divorce} + \boldsymbol{Divorce\ x\ Husband} + \%\ \boldsymbol{Remarried} \cdot (\boldsymbol{Divorce\ x\ Remarriage} + \boldsymbol{Divorce\ x\ Remarriage\ x\ Husband})$	$0.043 + 0.001 + 45\% \cdot (0.015 - 0.078) = 0.016$	≈ 0.020

1. Coefficients from model (4) in Appendix Table xi
2. Coefficients from model (4) in Table 7
3. Self-reported poor or fair health versus good, very good or excellent health.

Table 11b. Decomposing the effect of Divorce on Psychological Condition
Coefficients from Linear Probability Models with Couple Fixed Effects
Dependent Variable = Psychological Condition

		Effect of Divorce (Table xii[1])	Effect of Divorce (Table 8)
Wives	$\boldsymbol{Divorce} + \%\boldsymbol{Remarried} \cdot \boldsymbol{Divorce\ x\ Remarriage}$	$0.095 + 33\% \cdot 0.093 = 0.126$	≈ 0.123
Husbands	$\boldsymbol{Divorce} + \boldsymbol{Divorce\ x\ Husband} + \%\ \boldsymbol{Remarried} \cdot (\boldsymbol{Divorce\ x\ Remarriage} + \boldsymbol{Divorce\ x\ Remarriage\ x\ Husband})$	$0.095 + 0.025 + 45\% \cdot (0.093 - 0.124) = 0.056$	≈ 0.054

1. Coefficients from model (2) in Appendix Table xii
2. Coefficients from model (2) in Table 8

Table 11b. Decomposing the effect of Divorce on Depression
Coefficients from Linear Probability Models with Couple Fixed Effects
Dependent Variable = Depression

		Effect of Divorce (Table xii[1])	Effect of Divorce (Table 8)
Wives	$\boldsymbol{Divorce} + \%\boldsymbol{Remarried} \cdot \boldsymbol{Divorce\ x\ Remarriage}$	$0.037 - 33\% \cdot 0.046 = 0.022$	≈ 0.0278
Husbands	$\boldsymbol{Divorce} + \boldsymbol{Divorce\ x\ Husband} + \%\ \boldsymbol{Remarried} \cdot (\boldsymbol{Divorce\ x\ Remarriage} + \boldsymbol{Divorce\ x\ Remarriage\ x\ Husband})$	$0.037 - 0.022 - 45\% \cdot (0.046 + 0.019) = -0.014$	≈ -0.007

1. Coefficients from model (4) in Appendix Table xii
2. Coefficients from model (4) in Table 8

Figure 1. The Effect of Divorce on Health over Time (Couple Fixed Effects[1])

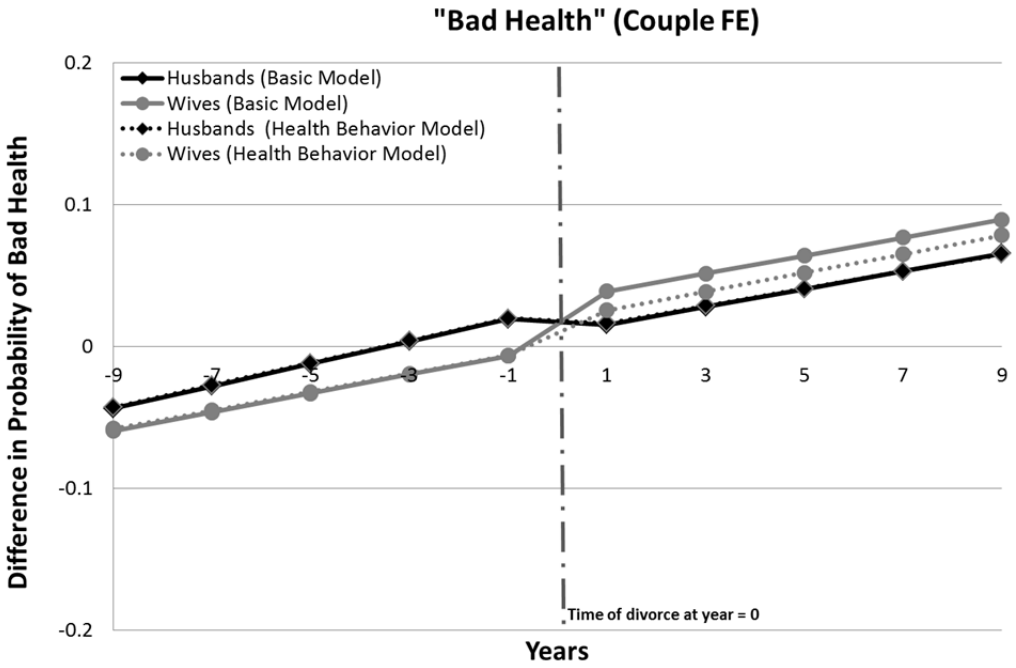
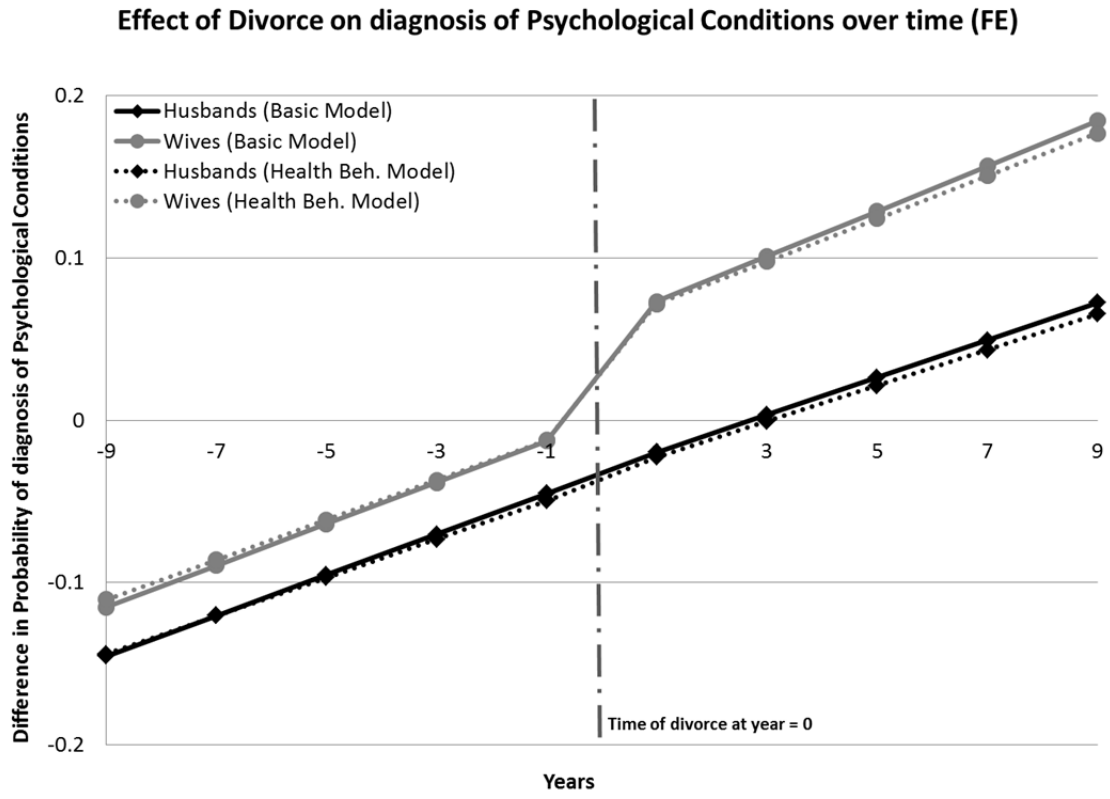


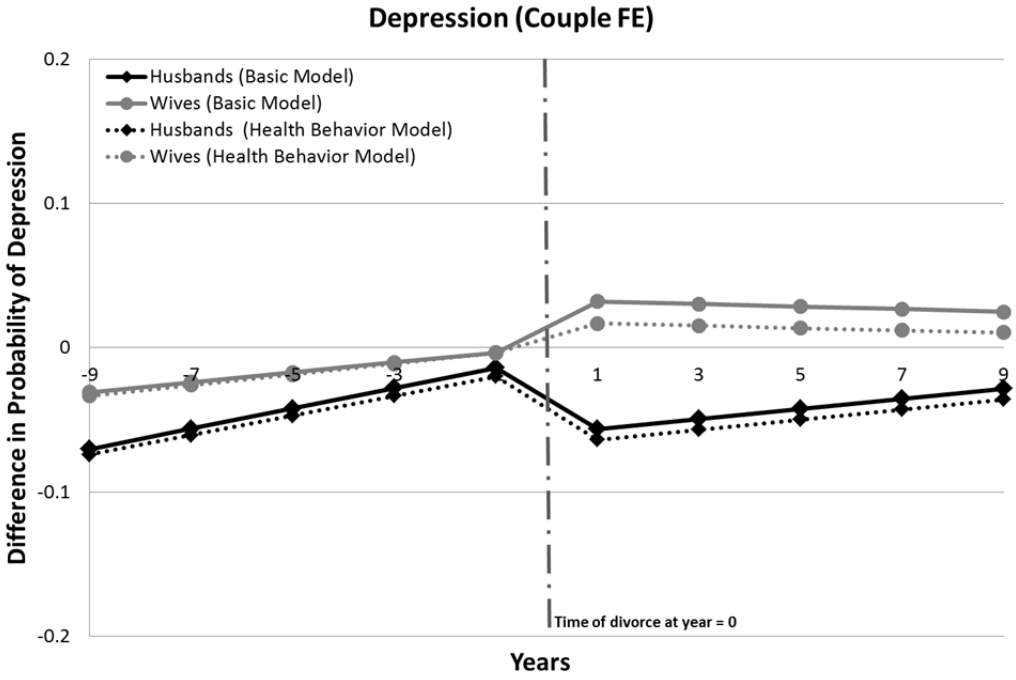
Figure 2a. Effect of Divorce on Psychological Conditions over Time



[1] Models also include dummies for Census region (9) and HRS cohort (3).

Appendix

Figure 2b. Effect of Divorce on Depression over Time



Appendix

Table Ia. The Effect of Divorce on Health of Individuals (Men and Women)
Coefficients (Robust Standard Errors[1]) from Logit Models[2] with and without Individual Fixed Effects

Dependent Variable = Self-reported "Bad" Health[3]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(Females)	(Females)	(Females)	(Females)	(Males)	(Males)	(Males)	(Males)
Divorced	0.622**	0.420**	0.260*	0.241	0.447**	0.340**	-0.339**	-0.333**
	(0.100)	(0.098)	(0.148)	(0.149)	(0.111)	(0.107)	(0.157)	(0.157)
Widowed	0.250**	0.09	-0.02	-0.01	0.198**	0.135	-0.325**	-0.301**
	(0.062)	(0.061)	(0.078)	(0.079)	(0.091)	(0.091)	(0.115)	(0.115)
Partnered	0.449**	0.348**	-0.165	-0.159	0.189*	0.157	-0.131	-0.113
	(0.117)	(0.110)	(0.170)	(0.171)	(0.106)	(0.107)	(0.177)	(0.178)
Age	0.061**	0.070**	0.058*	0.042	0.045*	0.069**	0.068*	0.061*
	(0.021)	(0.021)	(0.030)	(0.030)	(0.024)	(0.024)	(0.035)	(0.036)
Age Squared/100	-0.034**	-0.037**	0.031	0.040*	-0.015	-0.031*	0.03	0.033
	(0.017)	(0.017)	(0.024)	(0.024)	(0.019)	(0.018)	(0.027)	(0.027)
Education	-0.212**	-0.162**			-0.162**	-0.116**		
	(0.009)	(0.009)			(0.007)	(0.007)		
Black	0.533**	0.306**			0.411**	0.334**		
	(0.069)	(0.069)			(0.069)	(0.068)		
Hispanic	0.353**	0.364**			0.291**	0.221**		
	(0.086)	(0.082)			(0.086)	(0.084)		
BMI		0.056**		0.022**		0.044**		-0.002
		(0.004)		(0.007)		(0.004)		(0.009)
Current Smoker		0.546**		-0.505**		0.458**		-0.461**
		(0.053)		(0.093)		(0.051)		(0.085)
Adj. HH. Income[4]		-1.140**		-0.188**		-1.300**		-0.260**
		(0.102)		(0.079)		(0.090)		(0.084)
Individual Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Person-Years	51,980	51,980	20,413	20,413	44,981	44,981	19,265	19,265
Persons	7,983	7,983	2,783	2,783	7,883	7,883	2,859	2,859

p<0.1; ** p<0.05

1. Robust standard errors, clustered at the individual level.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Appendix

Table Ib. The Effect of Divorce on Health of Couples
Coefficients (Robust Standard Errors[1]) from Logit Models[2] with and without Couple Fixed Effects

Dependent Variable = Self-reported "Bad" Health[3]

	(1)	(2)	(3)	(4)
Divorced x Husband	-0.177	-0.036	-0.312	-0.198
	(0.173)	(0.178)	(0.211)	(0.209)
Divorced	0.177	0.027	0.548**	0.405**
	(0.141)	(0.143)	(0.162)	(0.163)
Husband	-0.033	-0.012	0.012	0.021
	(0.164)	(0.168)	(0.178)	(0.178)
Age	0.007	0.017	0.005	0.017
	(0.047)	(0.048)	(0.061)	(0.061)
Age Squared	0.020	0.018	0.038	0.030
	(0.040)	(0.041)	(0.052)	(0.051)
Education	-0.192**	-0.128**	-0.038	-0.041
	(0.023)	(0.023)	(0.035)	(0.036)
Black	0.172	0.033	-0.797	-0.909*
	(0.168)	(0.156)	(0.573)	(0.544)
Hispanic	-0.294	-0.281	-0.497	-0.585
	(0.278)	(0.268)	(0.629)	(0.644)
BMI		0.044**		0.032**
		(0.010)		(0.012)
Current Smoker		0.551**		-0.004
		(0.130)		(0.178)
Adj. HH. Income[4]		-2.122**		-1.348**
		(0.398)		(0.346)
Couple Fixed Effects	No	No	Yes	Yes
Person-Years	4,789	4,789	3,570	3,570
Couples	388	388	544	544

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Appendix

Table II. The Effect of Divorce on Income of Individuals
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Individual Fixed Effects
Dependent Variable = Adjusted Household Income[3]

	(1) (Females)	(2) (Females)	(3) (Males)	(4) (Males)
Divorced	-0.177**	-0.177**	-0.033*	-0.033**
	(0.015)	(0.015)	(0.017)	(0.017)
Widowed	-0.059**	-0.059**	0.009	0.009
	(0.007)	(0.007)	(0.010)	(0.010)
Partnered	0.027*	0.026*	0.040**	0.039**
	(0.015)	(0.015)	(0.016)	(0.016)
Age	0.030**	0.030**	0.042**	0.042**
	(0.003)	(0.003)	(0.003)	(0.003)
Age Squared/100	-0.021**	-0.021**	-0.029**	-0.029**
	(0.002)	(0.002)	(0.003)	(0.003)
Bad Health[4]		-0.013**		-0.016**
		(0.004)		(0.004)
Individual Fixed Effects	Yes	Yes	Yes	Yes
Person-Years	51,980	51,980	44,981	44,981
Persons	7,983	7,983	7,883	7,883

p<0.1; **p<0.05

1. Robust standard errors, clustered at the individual level.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.
4. Self-reported poor or fair health versus good, very good or excellent health.

Appendix

Table III. The Effect of Divorce on Health of individuals
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with and without Individual Fixed Effects

Dependent Variable = Self-reported Health Status (5-point Likert scale)

	(1) (Females)	(2) (Females)	(3) (Females)	(4) (Females)	(5) (Males)	(6) (Males)	(7) (Males)	(8) (Males)
Divorced	0.264**	0.180**	0.078**	0.081**	0.146**	0.107*	-0.103**	-0.098**
	(0.056)	(0.053)	(0.038)	(0.037)	(0.059)	(0.055)	(0.045)	(0.045)
Widowed	0.085**	0.021	-0.061**	-0.057**	0.049	0.027	-0.131**	-0.126**
	(0.028)	(0.027)	(0.019)	(0.019)	(0.045)	(0.045)	(0.031)	(0.031)
Partnered	0.193**	0.136**	-0.025	-0.02	0.090*	0.066	-0.005	-0.003
	(0.057)	(0.050)	(0.043)	(0.043)	(0.054)	(0.052)	(0.047)	(0.047)
Age	0.024**	0.022**	0.023**	0.016**	0.025**	0.033**	0.027**	0.022**
	(0.008)	(0.008)	(0.007)	(0.007)	(0.011)	(0.010)	(0.010)	(0.010)
Age Squared/100	-0.008	-0.004	0.007	0.011*	-0.007	-0.011	0.007	0.009
	(0.007)	(0.007)	(0.006)	(0.006)	(0.008)	(0.008)	(0.007)	(0.008)
Education	-0.106**	-0.079**			-0.088**	-0.067**		
	(0.004)	(0.004)			(0.003)	(0.004)		
Black	0.368**	0.232**			0.207**	0.169**		
	(0.031)	(0.030)			(0.034)	(0.033)		
Hispanic	0.234**	0.244**			0.116**	0.105**		
	(0.039)	(0.037)			(0.042)	(0.041)		
BMI		0.036**		0.010**		0.031**		0.005**
		(0.002)		(0.002)		(0.002)		(0.003)
Current Smoker		0.290**		-0.151**		0.283**		-0.131**
		(0.024)		(0.024)		(0.025)		(0.024)
Adj. HH. Income[3]		-0.288**		-0.017		-0.331**		-0.018
		(0.019)		(0.012)		(0.019)		(0.014)
Individual Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Person-Years	51,954	51,954	51,954	51,954	44,969	44,969	44,969	44,969
Persons	7,983	7,983	7,983	7,983	7,883	7,883	7,883	7,883

p<0.1; ** p<0.05

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Appendix

Table IVa. The Effect of Divorce on Physical Health conditions of Individuals (Women) Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Individual Fixed Effects

Dependent Variables: Doctor's diagnoses[3] for:

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	High Blood P.	**Lung**	**Heart**	**Diabetes**	**Cancer**	**Stroke**	**Arthritis**
Divorced	0.013	0.016*	0.013	0.004	0.001	0.012	-0.008
	(0.016)	(0.010)	(0.011)	(0.011)	(0.009)	(0.009)	(0.015)
Widowed	0.005	0.011*	-0.001	0.015**	-0.007	0.010*	-0.018**
	(0.009)	(0.006)	(0.007)	(0.007)	(0.005)	(0.005)	(0.009)
Partnered	0.006	-0.001	0.007	0.003	0.01	0.005	-0.01
	(0.018)	(0.011)	(0.014)	(0.013)	(0.014)	(0.009)	(0.018)
Age	0.018**	0.003	-0.014**	0.008**	-0.006**	-0.005**	0.035**
	(0.004)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.004)
Age Squared/100	0.004	0.002	0.020**	0.002	0.010**	0.008**	-0.009**
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
BMI	0.003**	0.001	0	-0.002**	-0.001	-0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	0.000	(0.001)
Current Smoker	-0.021**	-0.048**	-0.059**	-0.013*	-0.036**	-0.013**	-0.004
	(0.010)	(0.008)	(0.010)	(0.007)	(0.007)	(0.006)	(0.010)
Adj. HH. Income[4]	-0.005	-0.002	-0.002	-0.003	-0.008**	-0.007**	0.004
	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.005)
Person-Years	51,980	51,980	51,980	51,980	51,980	51,980	51,980
Persons	7,983	7,983	7,983	7,983	7,983	7,983	7,983

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. A dummy variable reflecting the answer to the question "Has a doctor ever told you that you have ...?"
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table IVb. The Effect of Divorce on Physical Health conditions of Individuals (Men)
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Individual Fixed Effects

Dependent Variables: Doctor's diagnoses[3] for:

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	High Blood P.	**Lung**	**Heart**	**Diabetes**	**Cancer**	**Stroke**	**Arthritis**
Divorced	-0.012	0.007	-0.007	-0.008	-0.007	0.003	-0.023
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Widowed	0.029**	0.017*	0.016	-0.011	-0.005	-0.001	-0.022*
	(0.014)	(0.010)	(0.014)	(0.011)	(0.012)	(0.009)	(0.013)
Partnered	-0.027	0.007	0.008	-0.011	-0.019	0.002	-0.036**
	(0.020)	(0.014)	(0.015)	(0.014)	(0.016)	(0.012)	(0.017)
Age	0.030**	-0.005*	-0.013**	0.017**	-0.020**	-0.011**	0.038**
	(0.005)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.005)
Age Squared/100	-0.007**	0.009**	0.023**	-0.003	0.025**	0.013**	-0.012**
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)
BMI	0.004**	0	-0.001	-0.005**	-0.002**	-0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Current Smoker	-0.057**	-0.072**	-0.069**	-0.032**	-0.035**	-0.020**	-0.020**
	(0.010)	(0.009)	(0.010)	(0.008)	(0.008)	(0.006)	(0.009)
Adj. HH. Income[4]	-0.003	-0.005*	0.001	-0.003	-0.004	-0.008**	-0.013**
	(0.005)	(0.003)	(0.005)	(0.004)	(0.004)	(0.003)	(0.005)
Person-Years	44,981	44,981	44,981	44,981	44,981	44,981	44,981
Persons	7,883	7,883	7,883	7,883	7,883	7,883	7,883

p<0.1; **p<0.05

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. A dummy variable reflecting the answer to the question "Has a doctor ever told you that you have ...?"
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Appendix

Table V. The Effect of Divorce on CESD index of Individuals (Men and Women)
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Individual Fixed Effects

Dependent Variable = CESD [0-8][3]

	(1) (Females)	(2) (Females)	(3) (Males)	(4) (Males)
Divorced	0.385**	0.375**	0.328**	0.326**
	(0.092)	(0.092)	(0.095)	(0.095)
Widowed	0.548**	0.544**	0.794**	0.793**
	(0.044)	(0.045)	(0.072)	(0.072)
Partnered	0.142	0.147	-0.075	-0.074
	(0.117)	(0.117)	(0.089)	(0.089)
Age	-0.022	-0.022	-0.062**	-0.060**
	(0.016)	(0.016)	(0.017)	(0.018)
Age Squared/100	0.019	0.018	0.052**	0.050**
	(0.013)	(0.013)	(0.013)	(0.013)
BMI		0		-0.005
		(0.004)		(0.005)
Current Smoker		-0.184**		-0.061
		(0.058)		(0.046)
Adj. HH. Income[4]		-0.070**		-0.019
		(0.025)		(0.023)
Person-Years	46,862	46,862	39,888	39,888
Persons	7,707	7,707	7,334	7,334

p<0.1; ** p<0.05

1. Robust standard errors, clustered at the individual level.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. CESD information was imputed for 27 person-years. Models includes control for whether missing CESD information was imputed.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table VIa. The Effect of Divorce on Health of individuals (Women)
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2,3] with and without Individual Fixed Effects:
The Mediating Role of Physical and Mental Health

Dependent Variable = Self-reported "Bad" Health[4]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Divorced	0.082**	0.040**	0.057**	0.028*	0.038**	0.029*	0.033**	0.026*
	(0.018)	(0.017)	(0.016)	(0.015)	(0.016)	(0.016)	(0.016)	(0.015)
Widowed	0.025**	0.002	0.006	-0.01	0.008	0.002	0.006	0
	(0.011)	(0.010)	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)
Partnered	0.060**	0.035*	0.034*	0.018	-0.014	-0.019	-0.016	-0.02
	(0.020)	(0.019)	(0.018)	(0.017)	(0.018)	(0.018)	(0.018)	(0.018)
Age	0.007**	0.004	0.004	0.003	0.001	-0.002	0	-0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Age Squared/100	-0.003	-0.001	-0.005**	-0.003	0.005**	0.007**	0.001	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Education	-0.029**	-0.024**	-0.024**	-0.021**				
	(0.001)	(0.001)	(0.001)	(0.001)				
Black	0.063**	0.065**	0.057**	0.056**				
	(0.013)	(0.012)	(0.011)	(0.011)				
Hispanic	0.097**	0.086**	0.132**	0.117**				
	(0.015)	(0.014)	(0.013)	(0.013)				
BMI	0.009**	0.008**	0.003**	0.003**	0.002*	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Smoking Now	0.083**	0.060**	0.057**	0.043**	-0.061**	-0.057**	-0.043**	-0.041**
	(0.009)	(0.008)	(0.008)	(0.007)	(0.010)	(0.010)	(0.010)	(0.010)
Adj. HH. Income[5]	-0.075**	-0.063**	-0.054**	-0.047**	-0.014**	-0.013**	-0.012**	-0.011**
	(0.006)	(0.006)	(0.006)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Psych. Cond		0.173**		0.109**		0.086**		0.066**
		(0.010)		(0.009)		(0.011)		(0.011)
Clinical Depression Likely		0.201**		0.173**		0.069**		0.066**
		(0.008)		(0.007)		(0.006)		(0.006)
Heart Condition			0.164**	0.144**			0.084**	0.078**
			(0.010)	(0.010)			(0.011)	(0.011)
Lung Condition			0.230**	0.202**			0.115**	0.107**
			(0.014)	(0.014)			(0.015)	(0.015)
Diabetes			0.155**	0.149**			0.081**	0.080**
			(0.010)	(0.010)			(0.011)	(0.011)
Cancer			0.066**	0.062**			0.103**	0.101**
			(0.010)	(0.010)			(0.013)	(0.013)
Stroke			0.179**	0.165**			0.139**	0.131**
			(0.017)	(0.016)			(0.018)	(0.018)
Arthritis			0.098**	0.083**			0.046**	0.045**
			(0.006)	(0.006)			(0.006)	(0.006)
High Blood Pressure			0.051**	0.043**			0.037**	0.036**
			(0.006)	(0.006)			(0.007)	(0.007)
Individual Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes
Person-Years	51,980	51,980	51,980	51,980	51,980	51,980	51,980	51,980
Persons	7,334	7,334	7,334	7,334	7,983	7,983	7,983	7,983

p<0.1; ** p<0.05

1. Robust standard errors, clustered at the individual level.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. CESD information was imputed for 27 person-years. Depression model includes control for whether missing CESD information was imputed.
4. Self-reported poor or fair health versus good, very good or excellent health.
5. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table VIb.The Effect of Divorce on Health of individuals (Men)
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2,3] with and without Individual Fixed Effects:
The Mediating Role of Physical and Mental Health

Dependent Variable = Self-reported "Bad" Health[4]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Divorced	0.068**	0.024	0.045**	0.015	-0.017	-0.022	-0.015	-0.019
	(0.021)	(0.019)	(0.017)	(0.016)	(0.018)	(0.018)	(0.018)	(0.018)
Widowed	0.031*	-0.002	0.014	-0.011	-0.016	-0.027**	-0.018	-0.028**
	(0.018)	(0.017)	(0.016)	(0.015)	(0.014)	(0.014)	(0.013)	(0.013)
Partnered	0.027	0.003	0.022	0.006	-0.009	-0.009	-0.006	-0.005
	(0.019)	(0.018)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Age	0.007*	0.005	0.003	0.002	-0.002	-0.004	0	-0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Age Squared/100	-0.002	0	-0.004	-0.003	0.008**	0.009**	0.002	0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Education	-0.023**	-0.020**	-0.020**	-0.018**				
	(0.001)	(0.001)	(0.001)	(0.001)				
Black	0.068**	0.069**	0.070**	0.069**				
	(0.013)	(0.012)	(0.011)	(0.011)				
Hispanic	0.064**	0.056**	0.112**	0.100**				
	(0.016)	(0.014)	(0.014)	(0.013)				
BMI	0.007**	0.006**	0.001	0.001	-0.001	-0.001	-0.001	0
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Smoking Now	0.078**	0.061**	0.064**	0.053**	-0.069**	-0.067**	-0.043**	-0.042**
	(0.009)	(0.009)	(0.008)	(0.008)	(0.011)	(0.010)	(0.010)	(0.010)
Adj. HH. Income[5]	-0.100**	-0.087**	-0.070**	-0.064**	-0.019**	-0.018**	-0.017**	-0.016**
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Psych. Cond		0.225**		0.139**		0.095**		0.071**
		(0.014)		(0.013)		(0.016)		(0.016)
Clinical Depression Likely		0.223**		0.188**		0.093**		0.089**
		(0.009)		(0.008)		(0.008)		(0.007)
Heart Condition			0.161**	0.149**			0.095**	0.093**
			(0.008)	(0.008)			(0.010)	(0.010)
Lung Condition			0.242**	0.219**			0.126**	0.118**
			(0.014)	(0.014)			(0.016)	(0.016)
Diabetes			0.150**	0.140**			0.057**	0.056**
			(0.009)	(0.009)			(0.010)	(0.010)
Cancer			0.091**	0.087**			0.108**	0.107**
			(0.010)	(0.010)			(0.012)	(0.011)
Stroke			0.159**	0.140**			0.095**	0.088**
			(0.014)	(0.014)			(0.016)	(0.016)
Arthritis			0.080**	0.070**			0.034**	0.033**
			(0.006)	(0.006)			(0.008)	(0.008)
High Blood Pressure			0.044**	0.037**			0.036**	0.035**
			(0.006)	(0.006)			(0.008)	(0.008)
Individual Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes
Person-Years	44,981	44,981	44,981	44,981	44,981	44,981	44,981	44,981
Persons	7,983	7,983	7,983	7,983	7,883	7,883	7,883	7,883

p<0.1; ** p<0.05

1. Robust standard errors, clustered at the individual level.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. CESD information was imputed for 27 person-years. Depression model includes control for whether missing CESD information was imputed.
4. Self-reported poor or fair health versus good, very good or excellent health.
5. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table VII. The Effect of Divorce on Health of Couples
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with and without Couple Fixed Effects
Dependent Variable = Self-reported Health Status (5-point Likert scale)

	(1)	(2)	(3)	(4)
Divorced x Husband	-0.115	-0.037	-0.137*	-0.085
	-0.088	-0.082	-0.073	-0.071
Divorced	0.145**	0.075	0.235**	0.180**
	-0.07	-0.064	-0.053	-0.051
Husband	0.001	-0.012	0.035	0.029
	-0.082	-0.078	-0.061	-0.06
Age	-0.014	-0.016	-0.031	-0.028
	-0.025	-0.023	-0.022	-0.021
Age Squared	0.027	0.033*	0.044**	0.042**
	-0.021	-0.02	-0.019	-0.018
Education	-0.115**	-0.079**	-0.011	-0.019
	-0.012	-0.011	-0.014	-0.014
Black	0.08	0.013	-0.278	-0.336
	-0.087	-0.077	-0.26	-0.247
Hispanic	-0.111	-0.069	-0.125	-0.152
	-0.134	-0.129	-0.245	-0.24
BMI		0.034**		0.024**
		-0.005		-0.005
Current Smoker		0.408**		0.073
		-0.064		-0.065
Adj. HH. Income[4]		-0.600**		-0.390**
		-0.072		-0.057
Couple Fixed Effects	No	No	Yes	Yes
Person-Years	4,786	4,786	4,786	4,786
Couples	388	388	388	388
Row 1 + Row 2	0.03	0.038	0.097*	0.095
SE	-0.073	-0.068	-0.059	-0.058

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table VIII. The Effect of Divorce on Health of Couples over Time
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Couple Fixed Effects

Dependent Variable = Self-reported "Bad" Health[3]

	(1)	(2)	(3)	(4)
Divorced x Husband	-0.018	0.003	-0.026	-0.007
	(0.041)	(0.041)	(0.038)	(0.039)
Divorced	0.03	0.014	0.032	0.018
	(0.029)	(0.029)	(0.028)	(0.028)
Husband	0.016	0.011	0.025	0.022
	(0.027)	(0.027)	(0.024)	(0.024)
Time	0.017*	0.017*	0.017*	0.018*
	(0.010)	(0.010)	(0.009)	(0.009)
Time X Divorce	-0.005	-0.005	-0.003	-0.004
	(0.010)	(0.010)	(0.009)	(0.009)
Time X Husband	-0.003	-0.002	-0.004	-0.003
	(0.013)	(0.013)	(0.011)	(0.011)
Time X Divorce X Husband	-0.002	-0.004	-0.001	-0.003
	(0.014)	(0.014)	(0.013)	(0.013)
Age	-0.005	-0.004	-0.005	-0.003
	(0.010)	(0.010)	(0.009)	(0.009)
Age Squared	0.009	0.008	0.008	0.007
	(0.009)	(0.009)	(0.008)	(0.008)
Education	-0.021**	-0.019**	-0.006	-0.007
	(0.005)	(0.005)	(0.005)	(0.005)
Black	0.043	0.022	-0.153	-0.161
	(0.044)	(0.041)	(0.109)	(0.106)
Hispanic	-0.038	-0.046	-0.094	-0.108
	(0.063)	(0.059)	(0.094)	(0.094)
BMI		0.005**		0.003*
		(0.002)		(0.002)
Current Smoker		0.038		-0.009
		(0.027)		(0.025)
Adj. HH. Income[4]		-0.152**		-0.112**
		(0.021)		(0.021)
Couple Fixed Effects	No	No	Yes	Yes
P-value t-test:Row 4 = Row6	0.876	0.873	0.902	0.974
Person-Years	4790	4790	4790	4790
Couples	388	388	388	388

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table IX. The Effect of Divorce on Mental Health of Couples over Time
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Couple Fixed Effects

Dependent Variable = Psychological Condition or Depression[3]

	(1)	(2)	(3)	(4)
	Psych. Cond.	**Psych. Cond.**	**Depression**	**Depression**
Divorced x Husband	-0.003	-0.005	-0.068	-0.056
	(0.035)	(0.035)	(0.045)	(0.045)
Divorced	0.031	0.033	0.087**	0.071**
	(0.025)	(0.025)	(0.035)	(0.035)
Husband	-0.036	-0.040*	-0.016	-0.016
	(0.024)	(0.024)	(0.033)	(0.033)
Time	0.022**	0.021**	0.020*	0.020*
	(0.008)	(0.008)	(0.011)	(0.011)
Time X Divorce	0.009	0.008	-0.021**	-0.021**
	(0.008)	(0.008)	(0.011)	(0.011)
Time X Husband	0.002	0.003	-0.008	-0.008
	(0.012)	(0.012)	(0.013)	(0.013)
Time X Divorce X Husband	-0.015	-0.014	0.009	0.009
	(0.012)	(0.012)	(0.013)	(0.013)
Age	0.001	0.001	0.000	0.000
	(0.008)	(0.008)	(0.010)	(0.009)
Age Squared	-0.002	0.000	0.000	0.000
	(0.008)	(0.008)	(0.009)	(0.009)
Education	-0.013**	-0.014**	-0.019**	-0.018**
	(0.006)	(0.006)	(0.005)	(0.005)
Black	0.243**	0.227**	0.043	0.010
	(0.110)	(0.112)	(0.081)	(0.082)
Hispanic	-0.016	-0.002	0.141**	0.142**
	(0.054)	(0.054)	(0.070)	(0.070)
Couple Fixed Effects	Yes	Yes	Yes	Yes
P-value t-test:Row 4 = Row6	0.211	0.235	0.172	0.172
Person-Years	4,790	4,790	3,965	3,965
Couples	388	388	387	387

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. CESD information was imputed for 1 person-year. Depression model includes control for whether missing CESD information was imputed.

Table X. The Effect of Divorce on Health of Couples
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with and without Couple Fixed Effects: The Mediating Role of Physical and Mental Health
Dependent Variable = Self-reported "Bad" Health[3]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Divorced x Husband	-0.01	0.002	-0.03	-0.019	-0.03	-0.016	-0.044*	-0.033
	(0.031)	(0.035)	(0.028)	(0.033)	(0.027)	(0.030)	(0.025)	(0.028)
Divorced	0.011	-0.011	0.004	-0.004	0.050**	0.025	0.035*	0.02
	(0.025)	(0.028)	(0.023)	(0.026)	(0.020)	(0.023)	(0.019)	(0.022)
Husband	-0.008	0.014	0.016	0.027	0.005	0.025	0.027	0.038
	(0.029)	(0.031)	(0.026)	(0.030)	(0.022)	(0.025)	(0.021)	(0.025)
Age	-0.001	0	0.004	0.004	-0.004	0.003	0.001	0.006
	(0.008)	(0.009)	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)	(0.009)
Age Squared	0.007	0.004	-0.003	-0.003	0.009	0.002	-0.001	-0.005
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)
Education	-0.027**	-0.021**	-0.020**	-0.017**	-0.007	-0.006	-0.006	-0.006
	(0.004)	(0.004)	(0.003)	(0.004)	(0.005)	(0.006)	(0.005)	(0.006)
Black	0.02	0.045	0.033	0.044*	-0.16	-0.185*	-0.147**	-0.175**
	(0.031)	(0.028)	(0.027)	(0.026)	(0.103)	(0.103)	(0.071)	(0.080)
Hispanic	-0.037	-0.004	0.044	0.052	-0.103	-0.133	-0.052	-0.089
	(0.051)	(0.046)	(0.042)	(0.040)	(0.093)	(0.113)	(0.077)	(0.099)
BMI	0.008**	0.006**	0	0	0.004**	0.002	-0.001	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Current Smoker	0.108**	0.071**	0.077**	0.055**	-0.008	-0.01	0.002	-0.003
	(0.025)	(0.024)	(0.021)	(0.022)	(0.025)	(0.026)	(0.023)	(0.025)
Adj. HH. Income[4]	-0.185**	-0.151**	-0.144**	-0.120**	-0.107**	-0.090**	-0.090**	-0.078**
	(0.027)	(0.022)	(0.022)	(0.020)	(0.021)	(0.021)	(0.020)	(0.020)
Psych. Cond		0.189**		0.114**		0.162**		0.108**
		(0.028)		(0.026)		(0.025)		(0.025)
Clinical Depression Likely		0.271**		0.235**		0.207**		0.185**
		(0.023)		(0.023)		(0.021)		(0.021)
Heart Condition			0.132**	0.110**			0.106**	0.082**
			(0.030)	(0.030)			(0.026)	(0.026)
Lung Condition			0.233**	0.185**			0.171**	0.157**
			(0.040)	(0.038)			(0.031)	(0.033)
Diabetes			0.152**	0.139**			0.116**	0.118**
			(0.032)	(0.031)			(0.025)	(0.026)
Cancer			0.069*	0.049			0.085**	0.069**
			(0.038)	(0.038)			(0.032)	(0.034)
Stroke			0.206**	0.145**			0.125**	0.077*
			(0.040)	(0.043)			(0.041)	(0.047)
Arthritis			0.153**	0.119**			0.134**	0.102**
			(0.021)	(0.020)			(0.019)	(0.019)
High Blood Pressure			0.044**	0.025			0.046**	0.033*
			(0.020)	(0.019)			(0.017)	(0.018)
Couple Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes
Person-Years	4,790	3,965	4,790	3,965	4,790	3,965	4,790	3,965
Couples	388	387	388	387	387	387	387	387
Effect of Divorce on Husband	0.001	-0.008	-0.026	-0.023	0.02	0.008	-0.009	-0.012
SE	(0.026)	(0.028)	(0.022)	(0.025)	(0.023)	(0.026)	(0.021)	(0.025)

p<0.1; ** p<0.05

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.

Table XI. The Effect of Divorce on Health of Couples
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with and without Couple Fixed Effects
Dependent Variable = Self-reported "Bad" Health[3]

	(1) OLS	(2) OLS	(3) FE	(4) FE
Divorced x Husband	-0.013	0.015	-0.016	0.001
	(0.037)	(0.035)	(0.031)	(0.030)
Divorced	0.042	0.012	0.060**	0.043**
	(0.028)	(0.027)	(0.021)	(0.020)
Husband	-0.004	-0.008	0.005	0.004
	(0.029)	(0.029)	(0.022)	(0.022)
Divorced x Remarried	-0.042	-0.061	-0.066	-0.078*
	(0.050)	(0.048)	(0.041)	(0.040)
Divorced x Remarried x Husband	-0.034	-0.003	-0.001	0.015
	(0.039)	(0.037)	(0.030)	(0.030)
Age	-0.002	-0.002	-0.006	-0.005
	(0.009)	(0.008)	(0.008)	(0.008)
Age Squared	0.007	0.008	0.012*	0.01
	(0.007)	(0.007)	(0.007)	(0.007)
Education	-0.038**	-0.027**	-0.006	-0.007
	(0.004)	(0.004)	(0.005)	(0.005)
Black	0.038	0.02	-0.151	-0.16
	(0.033)	(0.031)	(0.107)	(0.103)
Hispanic	-0.048	-0.037	-0.087	-0.102
	(0.052)	(0.051)	(0.093)	(0.093)
BMI		0.008**		0.004**
		(0.002)		(0.002)
Smoking Now		0.107**		-0.007
		(0.025)		(0.025)
Adj. HH. Income[4]		-0.182**		-0.106**
		(0.028)		(0.021)
Couple Fixed Effects	No	No	Yes	Yes
Person-Years	4,790	4,790	4,790	4,790
Couples	388	388	388	388
Effect of Divorce on Husband	0.029	0.026	0.045	0.044
SE	(0.030)	(0.029)	(0.025)	(0.025)

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. Self-reported poor or fair health versus good, very good or excellent health.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.

Table XII. The Effect of Divorce on Mental Health of Couples
Coefficients (Robust Standard Errors[1]) from Linear Probability Models[2] with Couple Fixed Effects

Dependent Variable = Psychological Condition/Depression[3]

	(1)	(2)	(3)	(4)
	Psych. Cond.	**Psych. Cond.**	**Depression**	**Depression**
Divorced x Husband	-0.03	-0.025	-0.033	-0.022
	(0.030)	(0.030)	(0.032)	(0.032)
Divorced	0.099**	0.095**	0.052**	0.037
	(0.023)	(0.022)	(0.025)	(0.025)
Husband	-0.055**	-0.058**	-0.039	-0.041
	(0.026)	(0.025)	(0.025)	(0.025)
Divorced x Remarried x Husband	-0.122**	-0.124**	-0.01	-0.019
	(0.047)	(0.047)	(0.039)	(0.039)
Divorced x Remarried	0.093**	0.093**	-0.059**	-0.046
	(0.036)	(0.036)	(0.029)	(0.029)
Age	-0.002	-0.003	0.001	0
	(0.008)	(0.008)	(0.009)	(0.009)
Age Squared	0.006	0.007	-0.001	0
	(0.007)	(0.007)	(0.008)	(0.007)
Education	-0.012**	-0.014**	-0.019**	-0.019**
	(0.006)	(0.006)	(0.005)	(0.005)
Black	0.241**	0.224**	0.052	0.021
	(0.107)	(0.110)	(0.078)	(0.080)
Hispanic	-0.016	-0.002	0.152**	0.160**
	(0.052)	(0.052)	(0.070)	(0.070)
BMI		0.004*		0.002
		(0.002)		(0.002)
Smoking Now		0.061**		0.075**
		(0.024)		(0.025)
Adj. HH. Income[4]		-0.011		-0.066**
		(0.020)		(0.021)
Couple Fixed Effects	Yes	Yes	Yes	Yes
Person-Years	4,790	4,790	3,965	3,965
Couples	388	388	388	388
Effect of Divorce on Husband	0.07	0.07	0.019	0.015
SE	(0.020)	(0.020)	(0.025)	(0.025)

**** p<0.1; ** p<0.05***

1. Robust standard errors, clustered at the couple level in OLS models and at the individual level in models with Couple Fixed Effects.
2. Models also include dummies for Census region (9) and HRS cohort (3).
3. CESD information was imputed for 1 person-year. Depression model includes control for whether missing CESD information was imputed.
4. Income in $100,000 of head and spouse/partner, if present, divided by the square root of the household size.