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Spousal Health Effects
The Role of Selection

James Banks, Elaine Kelly, and James P. Smith

Partner selection is a potentially important and underresearched aspect of levels and inequality of health in all countries. If the healthy marry the healthy and the unhealthy the unhealthy and the health of partners matters as seems likely, then partner selection will exacerbate health inequalities in a population. Health histories of partners may matter for at least three reasons (Monden 2007; Oreffice and Quintana-Domeque 2010; Silventoinen et al. 2003). First, individuals may select their partners in part based on observable and unobservable aspects of their potential partner's prior health. Second, partner selection may depend on factors such as education and health behaviors (smoking, drinking, and exercise), which are correlated with current and future health. Third, couples typically share a common lifestyle and the same household environment. Health outcomes may therefore become more correlated over time as partners are exposed to similar environmental risks, whether through choice or unexpected shocks.

Partner selection may matter as well for international differences in health outcomes. In some countries, partner selection is at the discretion of parents and may be heavily influenced by customs and only take place within

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narrowly defined and highly stratified groups. Even in industrialized countries with similar levels of average incomes, heterogeneity and geographic mobility may vary a good deal, producing quite different degrees of partner selection. The case we analyze in this chapter—England and the United States—is a good example since the United States is a more heterogeneous country (if only due to their immigration history and size), and there is much more geographical mobility in the United States than in England (Banks et al. 2012).

There are two aspects of the existing scientific infrastructure that have limited research on this question. Until recently, our major surveys have been focused on individuals, or when there was information on couples there would be only a single household reporter for both individuals in the partner/spousal unit. That is a major limitation, especially when we need to know prepartnership data about both people (Smith 2009). The partner/spouse data in our analysis were reported by each partner about themselves. Secondly, comparable cross-national data did not exist. These two limitations do not restrict our research here since our two data sets for England and the United States (the English Longitudinal Survey for England [ELSA] and the Health and Retirement Study for the United States [HRS]) made international data comparability an essential part of their design. Both surveys also included in their later waves detailed childhood health and background histories that allow us to investigate prepartnership information on health and other relevant traits.

This chapter is divided into four sections. The next section highlights the main attributes of the English and American data we use in this research. Section 7.2 summarizes our results on the nature of the association between spouses and partners in terms of their prepartnership health and socioeconomic status (SES) backgrounds as well as their contemporary health status and health behaviors at the time of the two surveys. The third section examines models of marital dissolution as affected by prior-to-relationship childhood health and the pre- and postmarital patterns of partnership smoking behavior. The final section highlights our main conclusions.

7.1 Data

This research primarily uses data from two surveys—the English Longitudinal Survey of Aging (ELSA) and the American Health and Retirement Survey (HRS). Both collect longitudinal data on health, economic status, work, and well-being from a representative sample of the English and American populations age fifty and older. The ELSA and HRS are strong in the measurement of socioeconomic variables and health (self-reported subjective general health status, prevalence and incidence of physical and mental disease during the post-age-fifty adult years) and salient health behaviors (smoking, alcohol consumption, and physical activity). An impor-

tant advantage of both data sets for our research in this chapter is that each spouse/partner reports separately about their own health status and health behaviors as well as many aspects of their prepartnership lives, including their family SES and their childhood health.

One limitation of ELSA and HRS is that data collection only begins at age fifty (and even later for older cohorts at the time of the initial baseline interview). Fortunately, this limitation was recognized, and both HRS and ELSA included very similar retrospectively reported childhood health histories.[1] In addition to a subjective question rating their childhood health before age sixteen on the standard five-point scale from excellent to poor, respondents in both surveys were asked about the occurrence of a set of common childhood illnesses. If the condition did exist, they were asked the age of first onset. The age fifty restriction is also recognized later in the chapter when we use two data sets that represent the entire adult age distribution in the two countries—Understanding Society in England and the Panel Survey of Income Dynamics in the United States.

The list of childhood illnesses that were asked was very similar in the two surveys but not identical—some diseases were asked in one survey but not the other.[2] Even within these sets of childhood conditions, there are differences in wording or inclusion that must be taken into account. The following childhood diseases have basically the same wording in both surveys—asthma, diabetes, heart trouble, chronic ear problems, severe headaches or migraines, and epilepsy or seizures. For the common childhood infectious diseases, HRS respondents were asked about mumps, measles, and chicken pox separately while ELSA respondents were asked a single question about all infectious disease with the question wording mentioning these three diseases, but also including polio and tuberculosis (TB).[3]

1. ELSA fielded their childhood health history between its wave 3 and wave 4 core interviews between February and August 2007. The HRS childhood health history was initially placed into an Internet survey in 2007 for those respondents who had Internet access and who agreed to be interviewed in that mode. The remainder of HRS respondents received the same childhood health history as part of the 2008 core interview. For details about the nature of these histories see Smith (2009) and Banks, Oldfield, and Smith (2012).

2. For example, the following childhood conditions and diseases were asked in ELSA but not in HRS—broken bones and fractures; appendicitis; leukemia or lymphoma; cancer or malignant tumor. The following conditions were asked in HRS but not in ELSA—difficulty seeing even with glasses or prescription lenses; a speech impairment; stomach problems; high blood pressure; a blow to the head; head injury or trauma severe enough to cause loss of consciousness or memory loss for a period of time.

3. The biggest difference between the two surveys involves allergies and respiratory problems. In HRS respondents were asked about respiratory disorders, which included bronchitis, wheezing, hay fever, shortness of breath, and sinus infections and were separately asked about any allergic conditions. ELSA respondents were asked about allergies including hay fever and then separately about respiratory problems. Thus, hay fever shows up in a different category in the two surveys. The other difference of possible significance concerns the category of emotional and psychological problems, which included two questions about depression and other emotional problems in HRS and one question about emotional, nervous, or psychiatric problems in ELSA. In addition to any impact of these wording differences, the form in which the questions

Both HRS and ELSA have measures of the family background of respondents although the measures are more similar in concept than in execution between the surveys. In the HRS, we know the occupation of the father when the respondent was sixteen years old, the education of both mother and father, whether each parent is alive, and if not, the age of death, and the economic status of the family during the respondent's childhood years.[4]

In ELSA, we have information on the occupation of the father when the respondent was fourteen years old, the education of both parents, whether each parent is alive, and if not the age of death, and some more limited information on the economic status of the respondent's family in childhood. Finally, in both surveys when there was only a single lifetime relationship, we know the pre- and postrelationship patterns of the smoking behavior of both partners.

7.2 Selection Effects of Partners

7.2.1 Relationships between Spousal Attributes

Table 7.1 documents estimated relationships between early and later life attributes of spouses in terms of health outcomes, health behaviors, and SES background in both England (using ELSA) and the United States (using HRS). Health outcomes are provided separately for the childhood years and for contemporary health outcomes at the time of the HRS and ELSA surveys. In this research, we are using the 2006 (for the health information) and 2008 (to retrieve the childhood health information) waves of HRS and the 2006 ELSA wave when the life history module was administered.

Much of the literature on intercouple correlations in health has focused on height and weight, where studies consistently find strong positive associations (Tambs et al. 1992; Tambs et al. 1991; Oreffice and Quintana-Domeque 2010; Silventoinen et al. 2003). A smaller literature focuses on health conditions and finds positive correlations for the majority of conditions considered (Di Castelnuovo et al. 2009; Wilson 2002; Monden 2007).

Table 7.1 lists age-adjusted associations between spouses/partners in anthropometric measurements, their health conditions and self-reported health in both adulthood and childhood, the standard list of health behaviors (exercise,

were asked also differed between the two surveys. HRS respondents were asked separate questions about each condition while ELSA respondents were shown a "show card," which contained a list of conditions and then asked to identify any that they may have had before age sixteen. The show card format could lead to lower reported prevalence if respondents that had multiple conditions only identify a subset from show cards, while they would have answered in the affirmative to each of the questions individually had they been asked.

4. The HRS respondents were asked the following question, "Now think about your family when you were growing up, from birth to age sixteen. Would you say your family during that time was pretty well off financially, about average, or poor?" The categories of response were pretty well off financially, about average, or poor.

Table 7.1 Estimated relationship of woman's attribute with partner attribute

	ELSA	HRS		ELSA	HRS
Adult health			Adult behaviors		
Diabetes	.023	.041***	Exercise mod	.316***	.146***
HBP	.020	.047***	Ever smoke	.229***	.198***
Cancer	–.019	.013	Now smoke	.329***	.265***
Lung	.049**	.085***	Quit smoking	.194***	.120***
			Drinks lots	.442***	.305***
Major	.076***	.069***	Overweight	.144***	.205*
Minor	.084***	.089***	Obese	.121***	.151***
Stroke	–.005***	–.024***	BMI	.257***	.285***
Heart conditions	.045**	.029*			
Arthritis	.103***	.114***			
Ex VG	.323***	.197***			
Fair/Poor	.248***	.195***			
Pain	.196***	.103***			
Childhood health			Background		
Height	.240***	.213***			
Major	.141***	.005	Ed partners years	.549***	.482***
			Ed Parents years	NA	.603***
Minor	.035*	.080***	SES as a kid	NA	.080***
Poor	.063**	.013	Father profess	.294***	.132***
Excel	.115***	.051***	Mom died	.020	.034**
Ear	–.016	–.009	Dad died	.018	.030**
Respiratory	.056**	.031*	Mom disease	.078**	NA
Allergies	.032	.010	Father disease	.080***	NA
Month ill	.009	NA	Parents unemployed *	.017	NA
			Black	NA	.923***
Month not in school	–.026	.022	Hispanic	NA	.823***
Emotion problem kid	.128*	.020	Ed Mothers	NA	.457***
Depression	NA	.028	Ed Fathers	NA	.400***
Diabetes	NA	–.002**			
Disability	NA	–.001			
Learning Disability	NA	.057***			
Contagious disease	.126***	.057***			

Notes: Woman's attribute is the outcome—the model contains her male partner's attribute (coefficients in table) and a quadratic in both partners' ages. The sample consists of all current relationships.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

drinking, smoking, and body mass index [BMI]–type outcomes), as well as their SES background during childhood and parental attributes both now and in childhood. The estimated coefficients in table 7.1 are all derived from a series of regressions of the female attribute on that of her male partner's attribute in the same domain in a model that also includes age quadratics in both partners' ages. We also estimated a parallel set of models where the male partner trait was the outcome variable and the female partner trait was the regressor (still including the two age quadratics). The coefficient estimates were as expected given the male and female differences in the range of the specific outcomes. None of the substantive conclusions of this chapter is affected by which spouse is used as the right-hand-side explanatory trait.

Our adult health indicators consist at this point of adult self-reports of specific diseases and general health status on the standard five-point scale from excellent to poor. In keeping with existing work on the spousal correlations in health conditions (Monden 2007; Di Castelnuovo et al. 2009), both partners' age-adjusted specific disease prevalences are positively associated across spouses. These associations appear generally to be somewhat higher in the United States compared to England. In our view, we would characterize these associations as positive but not particularly large.

We tend to find the reverse country level relationship when we examine reports of childhood disease, in that in this case, the spousal association in childhood disease appears to be definitely higher in England. This seems particularly true for emotional issues as a child and contagious diseases such as mumps, chicken pox, and measles, which are far more positively associated in England compared to the United States. While we can only measure this in the US data, learning disabilities as children exhibit one of the stronger associations across partners. Even the more objective height measure, often used as an indicator of childhood nutrition, is somewhat more positively associated across partners in England.

There are much higher partner relationships between health measures that rely on subjective reports on health than on reports of disease, and these correlations now tend to be distinctly higher in England than in the United States. For example, the association across spouse/partners in reporting age-adjusted adult health as excellent or very good is 0.32 in England compared to 0.20 in the United States. Similarly, being in excellent or poor health as a child has an association that is twice as large in England compared to the United States. If fair or poor childhood health is used instead, the association is three times larger in England. Since the existence of adult disease appears on average to be slightly more positively correlated in the United States compared to England, the higher association in subjective reports of health suggests that health reporting thresholds of spouse/partners are more similar in the more culturally homogenous England than in the more heterogeneous America.

When we examine adult health behaviors (exercise, smoking, drinking,

and indicators of obesity), the results are strikingly uniform in that these health behaviors are strongly positively associated across partners and much more so in England compared to the United States. Couples in England are much more likely to both smoke, drink, and engage in vigorous exercise, if not together at least as a parallel common part of their lives. The only exception to that cross-national comparison is that the BMI-type measures such as obesity and being overweight are slightly more closely related in the United States. That may indicate that types and quantities of food are more commonly consumed among partners in the United States. This greater similarity in health behaviors in England is interesting in that health outcomes across partners/spouses appear somewhat more positively correlated in the United States.

One particularly interesting relationship in the adult behaviors subsegment of table 7.1 concerns quitting smoking. When one of the partners quits smoking, the odds are more than 50 percent larger in England compared to the United States that the other partner will also quit smoking. Part of the much higher similarity among partners in currently smoking compared to ever smoking most likely reflects the fact that "ever" includes a long period of time that the partners were not together and their behaviors could not influence each other. We will model these patterns of smoking behavior in the next section.

Turning to the family background variables on which the most research has been done (Mare 1991; Pencavel 1998), the association in education of partners is slightly higher in England compared to the United States (0.55 compared to 0.48). In the United States in HRS we also know the education of the parents of both partners. The education of the parents is even more positively associated than that of the partners (about 0.6). In fact, the education of both partners' mothers and both partners' fathers are also highly positively associated (0.46 and 0.40 respectively), indicating that much more so than in health social background is highly socially stratified.

Not surprisingly, other aspects of partners' SES backgrounds also appear to be positively associated. One difficulty in making these cross-national comparisons in the domain of family background is that there are only a few background variables that are strictly comparably defined in HRS and ELSA. One such variable that is reasonably comparably defined is whether the father of the respondent had an occupational code labeled professional. In ELSA, a respondent's father is defined as professional if the respondent defines his main job as "manager or senior official in someone else's business," "running their own business," or "profession or technical." This association across partners is twice as high in England compared to the United States.

Table 7.1 presents measures of association of partners only adjusting for their ages. There may be other characteristics that matter in influencing the strength of this association. For example, spousal attributes (at least for first

marriages) may be more positively associated the older one is when one gets married. This may partially reflect a more mature judgment in choosing a partner, an ability to obtain more information on the potential partner, or a greater realization of the consequences of early life influences on adult life outcomes. Similarly, these early life associations may vary with whether this is a first marriage or not since a previous marriage failure may lead to choosing a different set of traits in a partner. To investigate these conjectures, we reran these models that underlie table 7.1, controlling for age at marriage of both partners and whether this is a first marriage. Age of partner was not statistically significant, so we concentrated on the changing association of these spousal attributes with the number of lifetime relationships.

Table 7.2 displays changes in partner relationships by the number of relationships for the United States while table 7.3 does the same for England. Because sample sizes in HRS are higher than in ELSA, we present a three-way partnership classification in HRS (1, 2, 3+) and a two-way partnership classification in ELSA (1, 2+). These models are estimated separately by these relationship categories, and once again also include an age quadratic for both partners.

The most distinct pattern we find, and it is present in both countries, is that associations in SES background clearly fall in multiple marriages. In the United States, even the association of education of partners is half as large in three-plus relationships compared to single relationships that endure. The same is true, if to a lesser degree, in the size of this association in education of parents and in education of mothers and fathers of partners. If not as sharp, a similar pattern is found in England. While there is a slight decline in the association between partners in race and much more so in Latino ethnicity with multiple partnerships in the United States, the association remains highly positive in all marriage groups in the US sample in these age cohorts. Most of the recent increase in intermarriage across race and ethnicity postdated the age groups in the age fifty-plus HRS sample.

In terms of adult health behaviors, we find a quite uneven pattern with more similarity in some behaviors (smoking) but less of an association in others (drinking a lot). In the United States and England, childhood health is generally more positively associated in first relationships while the opposite is true for adult health.

7.3 Marriage Models

The theoretical impact of health on the probability of marriage or cohabitation is ambiguous. Healthier individuals will attract a higher "price" on the marriage market, but marriage provides a form of insurance that is of greater benefit to the less healthy. Lillard and Panis (1996) used the Panel Survey of Income Dynamics (PSID) to show that among men better health (on a composite measure) is associated with greater hazard of marriage and

Table 7.2 **Estimated relationship of woman's attribute with partner attribute by number of partnerships—HRS**

	1st	2nd	3+		1st	2nd	3+
Adult health				Adult behaviors			
Diabetes	.054***	.005	.007	Exercise mod	.150***	.128***	.190***
HBP	.066***	–.004	.028	Ever smoke	.208***	.143***	.092*
Cancer	.015	.026	-.049	Now smoke	.243***	.217***	.415***
Lung	.044**	.101***	.275***	Quit smoking	.126***	.077***	.151***
Major	.070***	.052*	.084	Overweight	.012	.065**	.048
Minor	.080***	.100***	.114**	Obese	.151***	.154***	.152***
Stroke	–.022*	–.043***	.001	BMI	.284***	.270***	.313***
Heart condition	.017	.056**	.055	Drinks a lot	.304***	.317***	.286***
Arthritis	.104***	.158***	.083*				
Ex VG	.218***	.165***	.114**				
Poor	.202***	.178***	.166***				
Pain	.085***	.137***	.134**				
Childhood health				Background			
Height	.229***	.161***	.185***	Ed spouse years	.541***	.351***	.262***
Major kid	–.000	.001	.025	Ed parents years	.628***	.547***	.547***
Minor kid	.085***	.085***	.024	SES as a kid	.082***	.062***	.110
Poor kid	.005	.026	.043	Father profess	.131***	.100**	.210***
Excel kid	.054***	.044	.044	Mom died	.050***	.032	.060
Emotion problem as kid	.010	.027	.028	Black	.935***	.928***	.902***
Depress kid	.008	.022	.136	Hispanic	.872***	.676***	.549***
Drugs and booze	–.005*	–.007*	-.019**	Ed mothers	.486***	.340***	.373***
Respiratory	.021	.045	.057	Ed fathers	.436***	.297***	.233***
Disability kid	–.021**	.057	.009				
Learn disability kid	.075**	.035	.036				
Kid contagious	.066***	.037	.009				

Notes: Woman's attribute is the outcome—the model contains her partner's attribute (coefficients in table) and a quadratic in both partners' ages. The sample consists of all current relationships.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Table 7.3 **Estimated relationship of woman's attribute with partner attribute by number of partnerships—ELSA**

	1st	2+		1st	2+
Adult health			Adult behaviors		
Diabetes	.016	.047	Exercise mod	.312***	.326***
HBP	.026	–.016	Ever smoke	.213***	.236***
Cancer	–.019	–.022	Now smoke	.307***	.347***
Lung	.054**	.085***	Quit smoking	.193***	.191***
Asthma	.027	.087*	Drinks lots	.442***	.387***
Major	.067***	.106**	Overweight	.160***	.074
Minor	.082***	.087**	Obese	.116***	.137**
Stroke	–.006	–.006	BMI	.282***	.159**
Heart condition	.040*	.058			
Arthritis	.101***	.120***			
Ex VG	.320***	.197***			
Poor	.224***	.342***			
Pain	.221***	.114***			
Childhood health			Background		
Height	.256***	.177***	Parents argue	.082***	.023
Major kid	.151**	.110	Ed spouse years	.578***	.460***
Minor kid	.024	.069			
Poor kid	.072***	.034	Father profess	.310***	.232***
Excel kid	.117***	.105**	Mom died	.023	.032
Ear kid	–.007	–.038	Dad died	.021	–.002
Respiratory kid	.082**	.007	Mom disease	.068**	.069
Allergies kid	.007	.091	Father disease	.086***	.032
Asthma kid	–.003	.025			
Emotion problem as kid	.134*	.117			
Kid contagious	.098***	.204***			

Notes: Woman's attribute is the outcome—the model contains her partner's attribute (coefficients in table) and a quadratic in both partners' ages. The sample consists of all current relationships.

***Significant at the 1 percent level.

** Significant at the 5 percent level.

*Significant at the 10 percent level.

a lower hazard of divorce. However, once they condition on socioeconomic characteristics, healthier men are less likely to marry, supporting the insurance hypothesis. The results therefore point toward strong positive selection into marriage on the basis of factors correlated with health (such as income and education), which dominate the negative selection generated by the insurance motivation. Fu and Goldman (1994) also find evidence of selection with risky behavior such as smoking and drug taking, and physical characteristics such as obesity and short stature delaying entry into marriage.

Data limitations mean that there is far less work on the impact of childhood health on marriage. That is principally because there are few panels that go from childhood to the later life years collecting prospective health

Table 7.4 Models of marriage outcomes for women

VARIABLES	Ever cohabit (1)	Multiple marriages (2)	Ever divorced (3)	Age first cohabit (4)
	A. Marriage female—England			
Female major kid	–0.015	0.078**	0.092**	–0.584**
Female minor kid	0.007	0.031**	0.036**	–0.339**
F Dad died < 70	0.008	–0.010	–0.001	–0.122
F Mom died < 70	0.002	–0.001	0.023	–0.147
Female father prof	0.010	0.026	0.003	0.073
Female ed normed	–0.007***	–0.014***	–0.011***	0.556***
Observations	4,305	3,860	4,146	4,143
R-squared	0.015	0.041	0.060	0.086
	B. Marriage female—United States			
Female major kid	0.003	0.060***	0.080***	–0.122*
Female minor kid	0.001	0.032***	0.025**	–0.069
F Dad died < 70	0.000	0.008	–0.004	–0.169
F Mom died < 70	0.011**	0.010	0.017	0.013
Female father prof	–0.006	–0.002	0.000	0.325
Female ed	–0.000	–0.000	0.003*	0.216**
Observations	9,391	9,391	9,391	9,001
R-squared	0.001	0.012	0.014	0.076

Notes: Models also include age quadratics of both partners. Robust standard errors in parentheses.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

outcomes and fewer still that collect information on both partners. These constraints are relaxed with the data we use in this study.

Tables 7.4 (for women) and 7.5 (for men) summarize results from our models estimating effects of childhood health and background variables on a set of marriage-related outcomes in the two countries. The English models are in the A panels of these tables and the American models are in the B panel. The marriage outcomes we investigate include whether a respondent ever cohabited (including marriage), experienced multiple marriages/cohabitatons, were ever divorced, and the age of first cohabiting or marriage. Separate models are estimated for women and men in both England and the United States.

In addition to an age quadratic and constant term (not displayed in the tables), these models include controls for having a major illness and a minor illness as a child, whether one's mother or father died before age seventy, whether one's father was in a professional job when one was a child, and education of respondent. In England the education variable is labeled "Ed normed," which is equal to the number of years of education minus the

Table 7.5 **Models of marriage outcomes for men**

VARIABLES	Ever cohabit (1)	Multiple marriages (2)	Ever divorced (3)	Age first cohabit (4)
	A. Marriage male—England			
Male major kid	–0.021	0.016	0.037	0.616
Male minor kid	0.001	0.018	0.018	–0.155
M Dad died < 70	–0.005	0.035**	0.046***	–0.191
M Mom died < 70	0.011	0.002	0.004	–0.347*
Male father prof	0.002	0.012	0.007	0.233
Male ed normed	–0.000	–0.009***	–0.013***	0.273***
Observations	3,344	3,055	3,187	3,185
R-squared	0.001	0.021	0.042	0.038
	B. Marriage male—United States			
Male major kid	–0.036**	0.015	0.046*	0.457
Male minor kid	–0.008	0.001	–0.003	–0.013
M Dad died < 70	–0.004	0.014	0.010	0.000
M Mom died < 70	–0.010	–0.013	–0.015	0.051
Male father prof	0.009	0.000	0.006	0.506**
Male ed	0.001	–0.001	0.001	0.069**
Observations	6,585	6,585	6,585	6,266
R-squared	0.031	0.001	0.053	0.057

Notes: Models include an age quadratic and constant term. Robust standard errors in parentheses.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

compulsory school-leaving age. Hence, normed is equal to 0 if the cohort member left school at the compulsory school-leaving age, –1 if they left the year before, and 1 if they left the year after. This is to take into account the change in the compulsory schooling age implemented in 1947. The estimated effects of the other variables in these models are not sensitive to the inclusion of own years of schooling as a control variable.

Among English and American men and women, illness during childhood has little effect on whether one ever cohabited, in large part since most people in age group fifty and over have had at least one relationship.[5] The only exception to this generalization is that having experienced a major illness during childhood reduced the probability of cohabiting/marriage among American men.

In contrast, we find statistically significant effects of both major and minor illnesses during childhood on whether one has had multiple partner-

5. The fraction who had been in a relationship are: .962 (American men), .991 (American women), .968 (English men), and .971 (English women).

ships or has even been divorced for both English and American women (see table 7.4). We also find that these childhood illnesses reduced the age of first relationship for women in both countries. Table 7.5 shows that these effects of childhood illness on our measures of relationship stability are much weaker for men, particularly in England. The only exception is that major childhood illness increases the probability of divorce among American men.

Why would childhood illness effects on relationship stability be there for women but not for men? The fact that this gender difference exists in both countries suggests that the explanation is not specific to unique aspects of the culture of each country, but lies instead in gender roles. One gender role that may well come into play is that within relationships, especially in these age groups; women are the caregivers and are a force in improving the health of their spouses. Poor health in childhood for women, which eventually will be transmitted to poorer health in adulthood, may make the relationship less stable since not only might women find it more difficult to help their partners but their male partners may not be willing to provide the help needed with the adult health problems of the woman.[6]

7.3.1 Smoking Models

In this section, we analyze patterns of smoking behavior pre- and post-marriage to assess the influence of partners on smoking behavior. Table 7.6 summarizes basic patterns of pre- and postmarriage smoking behavior as revealed in the HRS for the United States and in ELSA for England, and shows that on almost all dimension the countries are very similar.

The birth cohorts in HRS and ELSA, and especially the men, were clearly heavy smokers in the past who also exhibited significant quitting behavior, a part of which, at least in the United States, no doubt was induced by the Surgeon General's report. In both countries, about two-thirds of men and two-fifths of women were ever smokers. Current smoking behavior is much lower than ever smoking, with about 10 percent of men and women still smoking in both samples.

Most smoking behavior is initiated before marriage. Among men who ever smoked, 87 percent in the United States and 96 percent in England started before marriage. For women ever smokers, there is a more sizable difference with 68 percent starting before marriage in the United States, compared to 88 percent in England. This is the most sizable cross-country difference in table 7.6, and is also reflected in the proportion of women who start smoking before marriage (27 percent in the United States compared to 38 percent in

6. Differences in the effects of individual characteristics on marriage by gender are not limited to childhood health. Oreffice and Quintana-Domeque (2010) find strong interspousal correlations in height and weight, but additional penalties from poor health characteristics vary by gender. Shorter men are more likely to marry shorter, heavier women with a lower level of education. The husbands of heavier women tend to be shorter, poorer, and less educated. The marriage market does not additionally penalize short women or heavier men.

Table 7.6 **Patterns of smoking behaviors pre- and postmarriage in the United States and England**

	United States		England	
	Men (%)	Women (%)	Men (%)	Women (%)
Ever	62.4	39.0	62.7	43.4
Now	10.8	8.3	10.9	10.1
Both partners never smoked	27.9	27.9	26.1	26.1
Fraction of smokers who quit	82.7	78.7	82.7	76.8
Start before marriage	55.4	27.3	59.9	38.1
Fraction of smokers who started < marriage	87.1	67.9	95.5	87.9
Smoked after marriage	58.6	36.9	52.4	37.4
Smokers before marriage who married smokers	33.9	68.5	44.5	69.9
Nonsmokers before marriage who married smokers	21.0	51.6	28.7	53.8

Source: Calculations by authors from the HRS and ELSA.

England). In England, among those who started smoking before marriage, the average time before (first) marriage was 5.0 years for women and 8.6 years for men. A significant fraction of those who smoked before marriage continued that behavior after the start of their marriage.

The final two rows show the smoking behavior of this sample before marriage so that it reflects smoking selection associated with marriage. In the United States, among male smokers before marriage, 34 percent of them married a smoker while among male nonsmokers before marriage, 21 percent married a smoker. The corresponding numbers for American women are as follows—among female smokers at marriage 69 percent married a smoker, while for female nonsmokers 52 percent married a smoker. Thus, while there is a distinct positive association at marriage between smoking behaviors of partners, it remains the case that many nonsmokers also marry smokers. This is especially true for American women, which may not be surprising since so many men smoked during that time period in the HRS birth cohorts.

The corresponding numbers for England in table 7.6 show similar assortative mating in premarital smoking behavior for English women, with 70 percent of English female smokers at the time of their marriage also married smokers compared to only 54 percent for female nonsmokers marrying smokers. Assortative mating for English men is of a similar magnitude, with 45 percent of male smokers marrying smokers compared to only 29 percent for male nonsmokers.

Table 7.7 presents results of models estimating the relationship between postmarriage and current smoking behavior to smoking before marriage of both partners in the United States. In addition to our standard age quadratics, our American models also include controls for education (three

Table 7.7 **Models of smoking behavior in United States**

	Married men currently smoke	Married women currently smoke	Married men smoke > marriage	Married women smoke > marriage
Male smoked < marriage	0.116***	0.025***	0.770***	0.070***
Female smoked < marriage	0.020	0.089***	0.044	0.785***
Male and female smoked < marriage	0.009	0.043	–0.036	–0.048*
Ed 0–11	0.050***	0.064***	0.020	0.062***
Ed 16+	–0.065***	–0.039***	–0.058***	–0.069***
African American	0.063***	0.000	0.072***	0.009
Hispanic	–0.024	–0.031	–0.006	–0.055**
Constant	–0.077	–0.154**	0.221***	–0.191*

Source: Data from the HRS.

Note: Models also include an age quadratic.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

dummy variables for years of education—0–11 years, 12–15 years, and 16 or more years with the middle group serving as the reference group), African American race, and Hispanic ethnicity. Our corresponding English models are presented in table 7.8 with the only difference being the absence of the two American ethnicity variables and the use of the education normed variable instead of the American education dummies.

Consider the American models first. Among men, African Americans smoke more, both at the time of the administration of our HRS sample and postmarriage, while there are no statistically significant between-group differences for African American women. These differences are much smaller for Hispanics, with the only statistically significant difference existing for Latinas who smoked somewhat less after marriage. Education differences in smoking are well established in the United States (Goldman and Smith 2011) and these patterns are replicated in table 7.7. Smoking is highest among the least educated and lowest among the most educated for both genders. We find a similar negative effect of education in the English models in table 7.8.

Our main interest in the models in table 7.7 concerns estimated effects of own and spousal premarriage smoking. In terms of ever smoking after marriage, not surprisingly, smoking before marriage is a very strong predictor for both men and women. When we examine current smoking, the estimated effects of premarriage smoking are considerably smaller, illustrating once again the significant degree to which these generations quit smoking.

Perhaps the most interesting result in table 7.7 is the asymmetric gender effects of premarriage partner smoking in the United States. Controlling for male partner premarriage smoking, female partner premarriage smoking has no statistically significant effect on postmarriage male smoking. In sharp contrast, the estimated effects of male partner premarriage smoking remain statistically significant and nontrivial, even after we control for female premarriage smoking. To put it simply, at least in the domain of smoking, men influence women while women do not influence men, on average, to the same degree. By marrying a male smoker, women's health could be influenced in two ways—first, the widely cited negative effects of exposure to second-hand smoke, and in addition, the enhanced probability of becoming a smoker.

The parallel results for England are presented in table 7.8. The own sex premarriage estimates on current smoking are evidence of significant quitting behavior in England as well. The other lagged premarriage coefficients are similar to what they were in the United States. In England, if both partners smoked it was apparently more difficult for both women and men to cease their smoking after marriage. As for the United States, the estimated effects of male premarital smoking on female smoking are larger than the estimates for the effects of female smoking on male smoking. However, the magnitudes are smaller, and only the association between male premarital smoking and female smoking after marriage is statistically different from zero.

Table 7.8 **Models of smoking behavior in England**

	Married men currently smoke	Married women currently smoke	Married men smoke > marriage	Married women smoke > marriage
Male smoked < marriage	0.138***	0.014	0.751***	0.055***
Female smoked < marriage	–0.009	0.189***	0.036	0.662***
Male and female smoked < marriage	0.061*	0.015	0.052	0.136***
Ed normed	–0.008**	–0.014***	–0.009***	–0.013***
Constant	0.096	0.691**	–0.221	0.102
Observations	1,616	1,613	1,586	1,606

Source: Data from the ELSA.

Note: Models also include an age quadratic.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Table 7.9 Models of quitting behavior

	United States		England	
	Married men quit smoking	Married women quit smoking	Married men quit smoking	Married women quit smoking
Partner smokes now	–0.277***	–0.337***	–0.336***	–0.310***
Partner quit	–0.004	–0.032	0.041*	0.095***
Ed normed	NA	NA	0.008	0.025***
Ed 0–11	–0.054**	–0.100***	NA	NA
Ed 16+	0.084***	0.031	NA	NA
Constant	0.953***	1.169***	0.689	–0.668

Note: Sample consists of ever smokers.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Table 7.9 contains our models for quitting smoking behavior for residents of both countries. We restrict the sample in these models for each gender to those that ever smoked and add categorical variables for your partner's smoking behavior (never smoked, still smokes, quit smoking) with never smoked the reference group in the models. In both countries relative to partners who never smoked, individuals are less likely to quit if their partners are currently smoking, with the magnitudes of these effects quite similar in both countries. We find a stronger influence of partner behavior in England compared to the United States in that having a partner who quits smoking is positively associated with you also quitting smoking in England for both men and women. We find no such relationship in our American models.

7.3.2 Smoking Models for Younger Cohorts

Attitudes toward smoking have changed dramatically since the ELSA and HRS cohorts started smoking and formed partnerships. In this section, we use alternative sources of data to consider whether our results hold for younger cohorts and the extent to which partnership sorting by smoking behavior has changed. Data for England comes from Understanding Society, a United Kingdom–wide longitudinal survey covering 40,000 households. We use data on smoking behavior from the second wave, conducted in 2010. Information on marriage and cohabitation is available. The American data come from the 2007 wave of the Panel Survey of Income Dynamics (PSID), the premiere all age group income panel in the United States.

Table 7.10 shows patterns of smoking behavior pre- and postmarriage, for cohorts aged 50+ and 30–49 in both countries. The A panel of table 7.10 has data for England, while the B panel contains the American results. Comparing the first two columns of table 7.10 panel A and 7.10 panel B to the ESLA and HRS figures in table 7.6 for essentially the same age group

Table 7.10 **Patterns of smoking behaviors pre- and postmarriage in the United States and England**

	Men 50+ (%)	Women 50+ (%)	Men 30–49 (%)	Women 30–49 (%)
	A. England			
Ever	68.5	53.8	61.3	52.4
Now	17.1	16.0	29.0	22.6
Both partners never smoked	18.9	18.9	25.6	25.6
Fraction who quit	76.6	68.3	52.8	57.0
Start before marriage	58.9	42.5	52.7	44.5
Fraction of smokers who started < marriage (ever)	85.9	79.0	91.5	84.5
Smoked after marriage	56.7	47.3	52.2	43.6
Smokers before				
Marriage who married smokers	47.1	65.3	53.8	67.9
Nonsmokers before marriage who married smokers	35.8	54.1	32.6	46.7
	B. United States			
Ever	53.1	33.4	33.6	26.4
Now	13.3	7.3	15.4	11.1
Both partners never smoked	36.7	36.7	55.5	54.1
Fraction who quit	74.9	78.1	54.2	58.0
Start before marriage	43.6	23.8	29.2	21.9
Fraction of smokers who started < marriage (ever)	82.1	71.3	86.9	83.0
Smoked after marriage	42.5	27.8	26.0	20.6
Smokers before				
Marriage who married smokers	33.7	60.5	39.3	52.8
Nonsmokers before marriage who married smokers	17.7	38.7	14.4	23.4

Sources: For panel A, Understanding Society, wave 2. Respondents in England who have partners, have nonmissing partnership and smoking information, and whose partners have nonmissing partnership and smoking information. For panel B, sample is from the PSID.

(ages 50+) shows that levels of previous and current smoking among the 50+ are somewhat higher in Understanding Society than in ELSA. In contrast, they are generally somewhat lower in PSID than in HRS, but the general patterns remain remarkably the same. The American result is not surprising in that the PSID sample of 50+ is younger than the HRS sample.

The comparison between the two age-defined birth cohorts in Understanding Society and PSID gives the combined effect of differences by age and cohort. As expected, the proportion who ever smoked is lower for those ages 30–49 than for those 50+, with a difference of 6.3 percentage points for men and 0.8 percentage points for women in England, and even larger in the PSID where it is a difference of 19.5 percentage points for men and 7.0 percentage points for women, most likely reflecting the large secular decline in male smoking in the United States. The proportions that smoke now are higher for the younger cohort, in part because the probability of quitting rises with age.

The final two rows show the relationship between smoking and partner selection. Even though the shares that smoked before marriage are very similar across the two cohorts, the difference in proportion of smokers and nonsmokers who married a smoker is much higher for those age 30–49 than for those 50+, indicating greater premarital smoking selection in partners in the younger cohorts. While this is true in both countries, it is especially the case in England.

Table 7.11 decomposes the last two rows in table 7.10 into those with compulsory education or less and more than compulsory education in England, and for those with less than a high school degree and with a college degree or more in the United States. For both birth cohort groups, the proportions of smokers who married smokers and nonsmokers who married smokers are lower for those with more than compulsory education. This in part reflects lower overall smoking rates among the more educated. Within cohort differences by education level show no large changes.

For both education groups in England, smoking selection is greater for the younger cohort, with higher proportions of smokers marrying smokers and lower proportions of nonsmokers marrying smokers. The largest cross-cohort differences are in the (increased) proportions of male smokers that marry smokers and the (reduced) proportions of female nonsmokers that marry nonsmokers. The change in the former does not differ by education level; the change in the latter is much larger for more educated women. The remaining two groups, female smokers and male nonsmokers, are most likely to marry someone with the same smoking behavior, and this increases only slightly over time. One explanation is that female smoking has always been undesirable to men who do not smoke. Over time and cohorts, this has strengthened slightly. The bigger change is in women's attitudes to men who smoke.

Table 7.12 provides models of smoking behavior in Understanding Society and the PSID that correspond to the models in tables 7.7 and 7.8. The own

Table 7.11 Partner selection and smoking behavior, by age and education

Understanding Society in England	Compulsory only		More than compulsory	
	Men (%)	Women (%)	Men (%)	Women (%)
Age 50+				
Smokers at marriage who married smokers	50.0	65.7	43.9	63.5
Nonsmokers before marriage who married smokers	41.5	56.4	33.8	53.0
Age 30–49				
Smokers at marriage who married smokers	56.5	68.1	51.5	66.8
Nonsmokers before marriage who married smokers	37.6	52.5	30.6	44.2
Panel Survey of Income Dynamics in USA	**Less than 12**		**16 or more**	
	Men (%)	Women (%)	Men (%)	Women (%)
Age 50+				
Smokers at marriage who married smokers	50.0	69.2	39.5	59.6
Nonsmokers before marriage who married smokers	25.0	47.5	26.4	31.1
Age 30–49				
Smokers at marriage who married smokers	38.5	90.0	23.3	50.0
Nonsmokers before marriage who married smokers	19.2	38.7	12.6	19.5

effects in ELSA and 50+ Understanding Society cohorts are roughly similar, although own premarriage smoking has a larger effect on current smoking in Understanding Society, particularly for women. The partner effects are more consistently significant in the female smoking models.

As would be expected, the association between smoking and own premarriage smoking are stronger for the younger Understanding Society cohort, as the quit rate increases over time. However, the associations with partner's smoking behavior are also stronger and similar across men and women in the younger age group. For current smoking, this may be explained by increasing quit rates as cohorts age. However, the result for smoking after marriage suggests an increased responsiveness to partner behavior. This still largely remains not the case in the United States for the younger cohort in that they largely remain uninfluenced by a partner's smoking. The main exception is that when both partners smoked before marriage, married women are much more likely to be current smokers.

Table 7.13 provides models of quitting behavior that mirror those for the HRS and ELSA in table 7.9. As in table 7.9, there is a strong negative association between quitting smoking and having a partner that currently

Table 7.12 Models of smoking behavior by age

	50+				30–49			
	Married men currently smoke	Married women currently smoke	Married men smoke > marriage	Married women smoke > marriage	Married men currently smoke	Married women currently smoke	Married men smoke > marriage	Married women smoke > marriage
				Understanding Society for England				
Male smoked < marriage	0.150***	0.055**	0.731***	0.074***	0.366***	0.071***	0.851***	0.104***
Female smoked < marriage	0.048	0.205***	0.031	0.798***	0.055*	0.279***	0.125***	0.743***
Male and female smoked < marriage	0.050	0.040	–0.014	–0.088**	0.070*	0.084**	–0.100***	–0.007
Ed normed	–0.013***	–0.009***	–0.008***	–0.008***	–0.012***	–0.015***	–0.002	–0.008***
Constant	0.597	–0.187	–0.324	–0.434	0.257	0.251	0.272	–0.460
Observations	1,376	1,375	1,132	1,279	1,689	1,688	1,491	1,541
				United States—PSID				
Male smoked < marriage	0.228***	0.039**	0.769***	0.065**	0.395***	0.025	0.710***	0.030
Female smoked < marriage	0.031	0.180***	0.028	0.633***	0.013	0.304***	–0.017	0.618***
Male and female smoked < marriage	–0.055	–0.077	0.031	0.116*	0.022	0.102*	0.137**	0.176***
Ed 0–12	0.273***	–0.005	0.005	0.102**	0.227***	0.092**	0.119**	0.037
Ed 16 plus	–0.039	–0.047**	–0.125***	–0.040*	–0.030	–0.044***	–0.053**	–0.047**
Constant	0.031	0.032***	0.092***	0.078***	0.028***	0.026***	0.043***	0.046***

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Table 7.13 Models of quitting behavior

	Age 50+		Age 30–49	
	Married men quit smoking	Married women quit smoking	Married men quit smoking	Married women quit smoking
	England—Understanding Society			
Partner smokes now	–0.416***	–0.317***	–0.442***	–0.386***
Partner quit	–0.032	–0.010	0.029	0.092***
Ed normed	0.010**	0.015***	0.015***	0.011***
Constant	1.555*	–0.224	0.634	0.411
	United States—PSID<set panel head>			
Partner smokes now	–0.305***	–0.331***	–0.313***	–0.333***
Partner quit	0.083**	0.041	0.093	0.060
Ed 0–11	–0.332***	0.043	–0.237***	–0.288***
Ed 16 plus	0.032	0.063	0.027	0.083
Constant	0.768***	0.801***	0.604***	0.665***

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

smokes. The association is stronger for the Understanding Society over 50 cohort than in ELSA. By contrast, the association between quitting and a partner quitting is only statistically significant for the age 30–49 sample in Understanding Society and the 50+ sample in the PSID.

7.4 Conclusion

In this chapter, we investigated the issue of partner selection in the health of individuals who are at least fifty years old in England and the United States. Such an investigation is now possible since data sets such as ELSA and HRS interview both partners in the relationship and also ask questions about central prepartnership variables that include family background and childhood health.

We find a strong and positive association in family background variables including education of partners and their parents. Adult health behaviors such as smoking, drinking, and exercise are more positively associated in England compared to the United States. Childhood health indicators are also positively associated across partners. In general, these correlations are more positive for first than for subsequent partnerships. Especially for women, poor childhood health is associated with future marital disruptions in both countries.

Because of the better availability of the necessary data, we investigated more closely the pre- and postpartnership smoking behavior of couples. There exists strong positive assortative mating in smoking in that smokers

are much more likely to partner with smokers and nonsmokers with nonsmokers. This relationship is far stronger in England compared to the United States. In the United States, we find evidence of asymmetric partner influence in smoking in that men's premarriage smoking behavior influences his female partner's postmarriage smoking behavior, but there does not appear to be a parallel influence of women's premarriage smoking on their male partner's postmarital smoking. These relationships are much more parallel across genders in England.

In the age cohorts in our samples, there was historically strong quitting behavior in smoking. Once again, we find stronger evidence of spousal influence in England as being partnered with a smoker who quit smoking makes it more likely for the partner to quit as well. This relationship does not exist in the United States.

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Comment

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In this remarkable chapter, we learn that the health of spouses is positively correlated. To illustrate with a few examples from the analysis, consider a simple regression of a wife's health outcome on her husband's (adjusting for the ages of both partners): in the United States, if the husband has arthritis the wife is 10 percentage points more likely to have this condition; if the husband is in fair or poor health, then his wife is about 20 percentage points more likely to be similarly disposed. These associations are similar, but slightly larger, in the United Kingdom and are noted for adult health, adult behaviors (such as smoking), childhood health (as measured by height), and background (such as education). It is also interesting to note that these associations are larger for the first relationship than subsequent ones. So much for the idea that first love is a little foolish.

There are several implications of these findings that are worth exploring. The first, and most salient, is the linkage to Nicholas Christakis's work on "Mortality after the Hospitalization of a Spouse," which was published in the *New England Journal of Medicine* and summarized in many news outlets (Christakis and Allison 2006). In this work, Christakis's team makes three points: First, that having a sick spouse is about one fourth as bad for a partner's health as having a spouse actually die. Second, some spousal diseases, such as hip fracture or psychiatric conditions, were nearly as bad for partners as if the spouse actually died. Third, the period of greatest risk is over the short run, within thirty days of a spouse's hospitalization or death, when the

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