Do Birds of the Same Feather Who Flock Together Also Have Better Health Together? Educational Assortative Mating and Physical Health

Kate H. Choi
Department of Sociology
University of Western Ontario

Amy Hsin
Department of Sociology
Queens College
CUNY

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SHORT ABSTRACT

Educational assortative mating has long been a subject of widespread general interest among social demographers. This interest is motivated by the fact that patterns of educational assortating mating serve as an indicator of the distance across social class groups and as mechanisms through which socioeconomic inequality are maintained within and across groups. Although the pervasiveness of educational homogamy and trends in educational assortative mating are well documented, there is little empirical research identifying the ways in which assortative mating patterns give rise to social inequality. To address this gap, this paper examines how marital sorting influences the health status of individuals as a way to determine whether highly educated individuals accrue greater health advantages by marrying a spouse with higher levels of education.

EXTENDED ABSTRACT

Do Birds of the Same Feather Who Flock Together Also Have Better Health Together? Educational Assortative Mating and Physical Health

Educational assortative mating – the tendency of people to choose spouses of similar educational characteristics – has long been a subject of widespread general interest among social demographers (Choi and Mare 2012; Garfinkle et al. 2002; Mare 1991; Qian and Zhou 2009). This interest is motivated by the fact that patterns of educational assortating mating serve as an indicator of the distance across social class groups and as mechanisms through which socioeconomic inequality are maintained within and across groups (Garfinkel et al. 2002).

Past empirical work on educational assortative mating have focused their efforts on documenting the pervasiveness of educational homogamy and documenting how patterns of educational assortative mating changes over time (Mare 1991; Mare and Schwartz 2006; Schwartz and Mare 2006; Rockwell 1976; Choi and Mare 2012). These studies have consistently found that educational homogamy (i.e., the tendency for individuals to choose a partner with the same level of education) is the normative preferred marital arrangement and that educational homogamy has been on the rise over the past 5 decades (Mare 1991; Mare and Schwartz 2006; Schwartz and Mare 2005). This finding provides evidence in support of the view that there are significant barriers to marriage between persons with unequal amounts of formal schooling and that this barrier is increasingly becoming less permeable over time (Mare 1991; Mare and Schwartz 2006; Schwartz and Mare 2005). Interestingly, to date, there is very little research examining the ways in which assortative mating patterns give rise to social inequality.

To address this gap, this paper examines whether and how marital sorting patterns influence the health outcomes of individuals as a way to determine whether highly educated individuals accrue greater health advantages by marrying a spouse with higher levels of education. Specifically, we use data from the Health and Retirement Survey (HRS) to document how health statuses, namely self-rated health and limitations in physical functioning-, vary by patterns of marital sorting Second, we empirically examine whether individuals with higher levels of education accrue greater health benefits by marrying someone within their own educational class; whereas, individuals with lower levels of education accrue greater health benefits by marrying up educationally. Third, given longstanding observations about the differential health benefits of marriage, we also investigate whether health consequences of educational assortative mating differs depending on the gender of the spouse with higher levels of education. This will help ascertain whether the health benefits of marriage accrue mostly through social support – a traditionally female sphere- or economic resources – a traditionally male sphere. Finally, we consider how marital quality, health behaviors, and household income – often viewed as the key explanations linking marital status and heath- contributes to the relationship between educational assortative mating and physical health.

Understanding how marital choice influences physical health outcomes will allow us to gain more concrete insights about whether and how educational assortative mating influences the reproduction of social inequality. Additionally, documenting health disparities by patterns of marital sorting will allow us to empirically assess the long-term consequences of marital choice, namely the selection of a spouse with certain characteristics. This insight will, in turn, contribute to the marriage debate by disentangling the types of marriages that should be encourages from those that should not be encouraged and move the debate away from its current all or nothing

state (i.e., encourage all marriages vs. leave it as is because the marital benefit arises largely due to positive selectivity).

The abstract is organized as follows. In the next section, we review prior work describing the health advantage of marriage. The third section predicts variations in health status depending on marital sorting. This is followed by a description of data and methods. We then summarize our preliminary results; discuss the implications of our findings for future health in the United States; and conclude with a description of future plans.

BACKGROUND

Significance of Marriage for Physical Wellbeing

Prior work has consistently shown that married people are generally healthier than their unmarried counterparts (House et al. 1988; Kiecolt-Glaser and Newton 2001; Liu and Umberson 2008). These studies have attributed the marital advantage in health to three explanations.

First, the health advantage of marriage may partly arise due to selection- the fact that healthier people are generally more likely to marry and stay married than people in poor health (Liu and Umberson 2006).

Second, married people are healthier than unmarried people may be because they are more economically advantaged than their unmarried counterparts (Becker 1981; Liu and Umberson 2008; Ross et al. 1990; Waite and Gallager 2000). Marriage increases the amount of economic resources available to a couple by increasing household productivity through gender specialization and by allowing them to enjoy the benefits of economies of scale (Becker 1981). These resources, in turn, promote each spouse's health by increasing their ability to access health care facilities and to receive quality care, improving their nutrition, and enhancing their ability to purchase health insurance and obtain preventative health care (Ross et al. 1990; Liu and Umberson 2008).

Finally, marriage may also have beneficial effects on health by increasing access to social support. Directly, the social support provided by a spouse may promote the health of married individuals by helping individuals deal with stressful situations (Waite 1995). Indirectly, the social relationship with their spouse will promote better health by providing individuals with a sense of obligation to another being, which, in turn, inhibits risky behaviors and promotes healthier ones (Waite 1995). For some individuals, especially men, having a relationship with a spouse also means that they will have someone to monitor their health behaviors and to encourage self-regulation (Waite 1995).

It should, however, be noted that although married individuals generally have better health than unmarried individuals, the health benefits of marriage do not accrue to all marriages, and instead, accrue only to a subset of marriages (Umberson et al. 2006). Past studies have made efforts to ascertain why certain marriages accrue health benefits while others do not. Yet, we still know little about what are the demarcating factors that distinguish these marriages because most of the literature on this topic has focused on marital quality and its implication (e.g., Burman and Margolin 1992; Umberson 2006; Williams 2003). Although these studies offer important insights about the interconnectedness of marriage and health, they primarily focus on the health benefits that accrue through social support. The empirical paper will contribute to the literature by examining how marital choice influences health outcomes via the various mechanisms identified in the literature.

Educational Assortative Mating and Physical Wellbeing: Variations by Education

In this section, we hypothesize how marital selection, availability of economic resources, and access to social support – often viewed as explanatory factors linking marriage and health

outcomes – varies depending on marital sorting patterns. When doing so, we will pay close attention to how the relationship between educational assortative mating and health status varies depending on the respondent's own level of education.

The *marriage selection model suggests* that most individuals in the marriage market will wish to optimize their chances of ending up with a spouse who are both highly educated and have good health (Kalmijn 1994). Yet, their ability to actualize this desire will likely depend on their own educational and health characteristics (holding other characteristics constant). That is, potential spouses who have high health and educational status will receive more marriage proposals and are more likely to have their marriage proposals accepted than those who have low health and educational status (Kalmijn 1994). Therefore, those with high health and educational status will end up together while the candidates with poorer health status will be "stuck" together (Kalmijn 1994). On the basis of this explanation, we expect that highly educated individuals in educationally homogamous unions (i.e., spouses with the same level of education) will be the ones most positively selected in terms of health. In contrast, lesser educated individuals who entered into an educational heterogamy (i.e., they married up) will be more positively selected in terms of health than less educated individuals who entered into an educational homogamy (i.e., married a spouse with equally lower levels of education).

The economic resources model also leads us to believe that the impact of educational assortative mating on health statuses will likely differ depending on the respondent's own level of education. More specifically, highly educated individuals in an educational homogamy will have greater access to economic resources than those in educational heterogamy because they (as a couple) will have higher joint income that their counterparts in an educationally heterogamous union[1]. In contrast, among individuals with lower levels of education, the availability of economic resources will be greater among those who married up educationally than those who married a spouse with the same lower levels of education.

The social support suggests that educational assortative mating can also influence each spouse's health by altering the couple's marital quality. Spouses in educationally homogamous unions (i.e., share same level of education) are more likely to have shared life experiences, attitudes, and behaviors; and as a result, they tend to have greater marital satisfaction and less marital conflict than spouses in educationally heterogamous unions (Luo et al. 2005). Consequently, spouses in educational homogamy will have better physical health because they receive greater social support from their spouses, which reduces their stress during difficult times and lowers the likelihood that they will be exposed to marital stress.

Taken together, these hypotheses lead us to believe that highly educated individuals in homogamous unions (i.e., spouses have the same level of education) will have better health than other individuals because they likely are the more positively selected in terms of health, have greater access to resources; and have more social support than their counterparts who are in educationally heterogamous unions. Yet, among individuals with lower levels of education, it is unclear whether individuals in educational homogamy will have better health outcomes than

[1] Among dual income families, the joint income will be higher because each spouse has higher income. Among single earner families, the spouse (who does not plan to enter the job market) are more likely to obtain a spouse with higher earnings because their high levels of education is going to signal the fact that they will bring more resources to the home production (Becker 1981).

their counterparts in educational heterogamy. The proposed empirical analysis will test the hypotheses mentioned in this section.

Educational Assortative Mating and Physical Wellbeing: Variations by Gender

Prior work suggests that the marriage benefits the health of men and women in different ways (Liu and Umberson 2008). Women are traditionally assigned the role of homemaker/caregiver; and therefore, marriage traditionally benefits the health of women by giving them access to greater economic resources (Liu and Umberson 2008). In contrast, men are traditionally assigned the role of breadwinner; and as such, marriage traditionally benefits men's health by providing them access to a caregiver who can monitor their health behavior in times of health and look after them in times of illness (Becker 1981; Waite 1995). Following this logic, we may expect that the impact of educational assortative mating on health will differ depending on the gender of the spouse with the higher levels of education and the relative importance of economic resources versus social support as mechanisms in the process by which marriage influences health. More specifically, if the health benefits to marriage accrues mostly through economic benefits, then we may expect that hypergamous couples (i.e., husband's education > wife's education) will have better health than hypogamous couples (i.e., husband's education < wife's education). If the health benefits of marriage accrue mostly through social support, then we may expect hypogamous couples (i.e., wife's education >husband's education) to have a greater health advantage than hypergamous couples (i.e., wife's education < husband's education).

DATA AND METHODS

Data

To document variations in health statuses by assortative mating patterns, we use data from the Health and Retirement Survey (HRS), a biennial longitudinal survey of over 20,000 men and women over the age of 50 in the United States. The HRS began in 1992 as a longitudinal study of a individuals born between January 1, 1931 and December 31, 1941 and their spouses, regardless of their age (Juster 1995). During follow-up interviews, they included additional birth cohorts of elderly adults so that the survey would be representative of elderly adults over the age of 50 (and their spouses) in each survey wave. The survey includes detailed information about the health, economic status, and family life in later life.

This dataset is well suited for this project because of four reasons. First, the HRS includes measures of the major domains of physical health, including self-reported health and limitations to physical movement, and mortality, for the respondent and the current spouse of the respondent (Wallace and Herzog 1995; Hayward 2002). Second, the HRS also collected detailed information about the respondent's lifetime socioeconomic experiences, including their income and wealth for the survey period (Hayward 2002). Third, they also collected reports on the respondent's adult family relationships, including information about marital quality and marital conflict in 1994 and 2002 (Hayward 2002). Fourth, they collected information about health behaviors, which has been identified as the primary determinant by which married individuals influence their spouse's health (Hayward 2002; Waite 1995).

Sample

We plan to restrict our analysis to the original cohort of respondents (i.e., those who are born between January 1, 1931 and December 31, 1941) who are continuously married to their first spouse between 1992 and 2004. We decided to limit our analytical sample to the original cohort of respondents because an important objective of this sample is to determine whether

marital quality mediates the relationship between educational assortative mating and health status (before and after retirement) and HRS asked respondent to rate their marital quality in 1994 (before retirement) and 2002 (after retirement). We decided to exclude respondents in remarriages because we are constructing our measure of assortative mating using information about respondent's and current spouse's education and the inclusion of remarried individuals could potentially include the health consequences that permeate from the marital sorting patterns of previous unions. Additionally, we will restrict our data to respondents who are not missing information on key characteristics, namely respondent's and spouse's education, economic statuses, health behaviors, health statuses (i.e., self-reported health and limitations in physical functioning). Together, these restrictions yield a total sample size of 2,860 respondents, which is comprised of 1,417 respondents who entered into educational homogamy (i.e., spouses share the same level of education) and 1,443 respondents who entered into educational heterogamy (i.e., spouses have different levels of education). Of the 1,443 respondents in heterogamous unions, 808 of respondents are hypogamous unions (i.e., wife's education >husband's education) and 635 are in hypergamous unions (i.e., wife's education<husband's education)

Measurements

Dependent variable

Self-reported health. The HRS asked respondents to rate their health at the time of survey. Using information from these reports, we construct a categorical variable classifying respondents into five categories of self-rated health: poor, fair, good, very good, and excellent health.

Physical functioning. The HRS asked respondents detailed questions about physical functionality. These questions serve as the basis for the construction of 3 dichotomous variables capturing whether respondents are experiencing limitations across three dimensions of physical functionality. *Limitations in physical mobility* is a dichotomous variable that is coded 1 if the respondent is experiencing difficulty walking several blocks, walking one block, walking across the room, climbing several flights of stairs and climbing one flight of stairs and 0 otherwise. *Limitations in large muscle movement* is a dichotomous variable coded 1 if the respondent is experiencing difficulty sitting for 2+ hours, getting up from a chair, stooping or kneeling or crouching, or pushing/pulling a large object. *Limitations with gross motor skill* is dichotomous variable that is coded 1 if they have limitations walking one block, walking across the room, climbing one flight of stairs, and bathing.

Independent variable

Educational assortative mating. We first classify each spouse in the following 4 categories of education (i.e., <12, 12, 13-15, 16+). Once constructed, we cross-classify husband's and wife's education. Spouses are classified as *educationally homogamous couples* if the spouses shared the same level of education and *educationally heterogamous couples* if spouses had different levels of education.

Analytical Plan

The analysis has two parts. The first part describes disparities in self-rated health, prevalence in chronic illnesses, and limitations in physical functioning between couples in educationally homogamous unions and couples in educationally heterogamous unions. It also documents variations in the current and lifelong economic circumstances as well as differences in marital quality between couples in educationally homogamous unions and couples in educationally heterogamous unions. These analyses will be followed by empirical efforts to

disentangle whether the relationship between educational assortative mating and health status differs depending on respondent's level of education.

The second part is the multivariate analyses. To describe how health statuses vary by educational assortative mating patterns, we employ four additive models for each outcome variable. Specifically, to model variations in self rated health, we use ordered logistic regression models. The first model will describe health disparities between individuals in educationally homogamous unions and individuals in educationally heterogamous unions, net of demographic controls. The second model will add economic resources into the existing model to examine the extent to which economic resources mediates the relationship between educational assortative mating and health status. The third model will add marital quality and health behaviors to the existing model to investigate the extent to which social support from the spouse mediates the relationship between educational assortative mating and health status. We estimate variations in limitations in physical functioning using logistic regression models. All analyses will be weighted and will account for clustering within households and geographic regions.

We will conduct all descriptive and multivariate analyses for a pre-retirement period (1996) and a post-retirement period (2002) on the basis of a large body of work indicating that marriage becomes a more central social context following retirement as older adults experience a decline in competing demands (Moen 2004). To ensure proper temporal ordering, our pre-retirement analyses will capture educational assortative mating and basic demographic controls in 1992; mediating variables in 1994; and health status in 1996 and our post-retirement analyses will measure educational assortative mating in 1992; the demographic controls in 2000; mediating variables in 2002; and health status in 2004.

PRELIMINARY RESULTS AND FUTURE STEPS

Our preliminary results, presented in Table 1, reveal that individuals whose education differed from their spouses have better health than those who married a spouse within their educational group. For example, 62% of individuals whose spouse had different levels of education report having very good or excellent health, as compared to 59% of individuals who married a spouse within their educational group. It should be noted that although the magnitude of the disparities is small, the same pattern permeates across the distinct dimensions of health. The small effects could arise because the health consequences of marriage differ depending on levels of education and these differences may be masking existing differences.

Next, we examined whether health consequences of educational assortative mating vary depending on the respondent's level of education. With these analyses, we are particularly interested in determining whether individuals with higher levels of education accrue greater health benefits by marrying someone within their own educational class; whereas, individuals with lower levels of education accrue greater health benefits by marrying up educationally. Table 2 presents the results. Consistent with our expectations, we find that high school dropouts who married within their educational group have worse health than high school dropouts who married up educationally. For example, 32% of high school dropouts who married another high school dropout report excellent or very good health, as compared with 44% of dropouts who married up educationally. Likewise, a greater percentage of high school dropouts who married another high school dropout report having functional limitations than those who married up educationally. For example, whereas 58% of high school dropouts who married within their educational group report experiencing difficulty with large muscle movement in 1992, only 50% of respondents in heterogamous union report experiencing similar problems. Contrary to our

expectations, we find that college graduates who married within their educational group have worse outcomes than college graduates who married down educationally. These effects are particularly pronounced with respect to limitations in physical functioning. For example, a fifth of college graduates who married within their educational group report experiencing problems with mobility, which compares to 13% among college graduates who married down educationally. We will conduct more rigorous analysis to better understand this unexpected result.

For the subset of heterogamous couples with lower levels of education, we find evidence that the impact of educational assortative mating differs depending on the gender of the spouse with the higher levels of education. High school dropouts in hypogamous unions (husband's education <wife's) fare better in terms of self-rated health and all three measures of physical limitations than their peers in hypergamous unions (i.e., husband's education > wife's). For example, 45% of respondents in unions where wives average more schooling than their husbands report experiencing difficulty with large muscle movement, as compared with 58% of respondents in unions where husbands average more schooling than the wife. This findings suggest that among those with lower levels of education, the health benefits of marriage accrues more via social support (a traditionally female sphere which can benefit more from wife's resources) than through economic resources (a traditionally male sphere). We will further test this idea in future drafts of the paper. Coupled with earlier results on health disparities by marital sorting pattern without regard to gender, these findings suggest that high school dropouts in hypogamous unions (wife's education >husband's) fare the best and high school dropouts in homogamous unions (wife's education = husband's) fare the worst in terms of health[2].

In sum, our preliminary results point to significant variation in health status by marital sorting across the distribution of respondent's education. While these findings are robust across distinct measures of health, they do not uniformly conform to hypothesis derived from existing theories of marriage and past empirical work on the linkage between marriage and health. We will conduct further analysis to better understand the factors that give rise to these unexpected findings. We will also conduct more rigorous analysis to determine how economic resources, social support, and selectivity contribute to the relationship between educational assortative mating and health.

[2] We would have liked to conduct analogous analysis for college graduates. Unfortunately, we do not know whether the impact of educational assortative mating on health varies depending on the gender of the spouse with the higher level of education because we only 52 highly educated respondents in hypogamous unions which too few to obtain reliable estimates

Table 1

Table 1. Variations in Health Statuses by Marital Sorting Patterns

	HOMOGAMY	HETEROGAMY		
		ALL	HYPER	HYPO
	(Wife =Husb)	Wife ≠Husb	Wife < Husb	Wife > Husb
Self-rated health				
Poor (%)	4	3	3	3
Fair	12	11	11	10
Good	25	25	24	26
Very Good	37	40	38	42
Excellent	22	22	24	19
Total	100	100	100	100
Limitations in Physical Mobility				
% Limited in Mobility	31	29	27	32
% Limited in large muscle mov	47	45	42	49
% Limited gross motor skills	11	10	9	11
N	1417	1443	808	635

Notes: Weighted percentages; Health Statuses were collected in 1996; Education was collected in 1992.

Table 2.
Variations in Health Statuses by Marital Sorting and Respondent's Education

	HOMOGAMY	HETEROGAMY		
		ALL	HYPER	HYPO
	(Wife =Husb)	Wife ≠Husb	Wife < Husb	Wife > Husb
A. Less than 12 years of schooling				
Self-rated health				
Poor (%)	12	5	6	4
Fair	28	20	25	16
Good	28	32	29	34
Very Good	22	32	32	31
Excellent	10	12	8	15
Total	100	101	100	100
Limitations in Physical Mobility				
% Limited in Mobility	44	37	45	31
% Limited in large muscle mo	58	50	58	45
% Limited gross motor skills	25	17	22	13
N	406	283	116	167
B. Between 12 and 15 years of schooling				
Self-rated health				
Poor (%)	1	3	2	6
Fair	10	7	3	8
Good	21	20	24	31
Very Good	41	37	49	39
Excellent	26	32	22	15
Total	99	99	100	99
Limitations in Physical Mobility				
% Limited in Mobility	34	29	28	30
% Limited in large muscle mov	49	43	38	49
% Limited gross motor skills	10	8	7	10
N	117	297	172	125
C. 16 years or more of schooling				
Self-rated health				
Poor (%)	0	0	0	0
Fair	3	7	8	5
Good	21	19	20	15
Very Good	39	43	40	54
Excellent	37	30	31	27
Total	100	99	99	101
Limitations in Physical Mobility				
% Limited in Mobility	20	13	11	23
% Limited in large muscle mov	38	33	30	44
% Limited gross motor skills	4	4	4	5
N	357	261	209	52

Notes: Weighted percentages; Unweighted Ns; We combined 12 and 13-15 to ensure large enough sample sizes. Health Statuses were collected in 1996; Education was collected in 1992.