IS IT REALLY ABOUT TIME AND GENDER?: SPOUSAL EMPLOYMENT AND BEHAVIORAL INVESTMENTS IN HEALTH*

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ABSTRACT

Employed individuals generally exhibit better health than their non-employed counterparts. But wives garner health advantages if their husbands are employed or earn high incomes, although husbands typically experience worse health if their wives are employed or earn high levels of income. I employ the Health and Retirement Study (HRS) to test whether these relationships hold when predicting changes in health behaviors between 1998 and 2000. The HRS provides a nationally representative sample of adults aged 51 or older, who may hold the most traditional values regarding the roles for men and women in marriage and employment settings. Contrary to prior work, I find that (1) employment is inconsistently related to changes in health behaviors for men and women, (2) having a husband who works or earns high levels of income is seldom associated with changes toward healthier behaviors for women, and (3) having a wife who works or earns high levels of income is inconsistently associated with changes in husbands' health behaviors for men. I discuss reasons why the intersection among gender, marriage, employment, and behavioral investments in health is inadequately explained by current sociological theory.

I plan to make three major changes to this research before the meetings in April. First, I will revise the text to ensure that the organization of the paper and presentation of the hypotheses are clear. This will incorporate a more thorough discussion of the possible reasons for differences between my findings and those presented in other research. Second, I intend to re-examine the results presented herein with methods that specifically account for intra-spousal correlations, such as hierarchical or fixed effects models. Finally, I hope to incorporate all of the available panels of data (up to six panels for some individuals between 1992 and 2002) to better examine whether changes in marital status affects changes in behaviors.

Marriage and work are central institutions in the lives of U.S. adults that have important ramifications for health. Although much research examines the relationships between different dimensions of these institutions on health in isolation, a growing body of work suggests that health may be affected by the complex intersections among employment, marriage, and gender roles. I advance work in this area by examining how husbands' and wives' hours working outside of the household and employment related income shape their own and their partners' abilities and proclivities to undertake various behavioral health investments.

In general, those who are employed or earning more money have better physical and mental health and lower mortality risks than their unemployed or less affluent counterparts, although this relationship is typically stronger for men than for women (Adler et al. 1994; Feinstein 1993; Kessler and McRae 1982; Macintyre and Hunt 1997; Stolzenberg 2001). However, some work finds that although wives benefit from their husbands' employment and earnings, husbands may actually have worse health if their wives' work outside the home or earn high levels of income (Kessler and McRae 1982; McDonough 1999; Rosenfield 1992; Stolzenberg 2001)—although some research finds exceptions to this trend (e.g., Booth 1977). I advance prior research in two ways.

First, I further elaborate theories on the social stratification of health by examining how key social institutions intersect with gender to influence health behaviors. Although some scholarship suggests that marriage may contribute to, and time in the labor force may detract from, the time and social support available for promoting healthy behaviors (Stolzenberg 2001; Waite and Gallagher 2000), little research directly examines this assertion (see Umberson 1987, 1992; Krueger Chapter 5, for important exceptions).[1] Second, I examine how the social and economic dimensions of employment intersection with marriage and gender. To my knowledge,

Stolzenberg (2001) provides the only examination of the number of hours spent working outside of the labor force on individual and spousal health. However, he includes a family income measure that aggregates all income within the household, rather than individual earned income variables. Others exclude measures for employment status (McDonough et al. 1999) or income (Booth 1977) altogether.

INSTITUTIONS AND HEALTH STRATIFICATION

Institutions generally define social roles that entail obligations, opportunities, and rewards; provide routines that foster interaction and provide integration into social structures that provide meaning for individuals; and promote or hinder effective action by situating individuals in hierarchies that can confer power, prestige, or even stigma (Weber 1947; Durkheim 1951; Goffman 1961, 1963). Work and marriage are complex institutions that are central to the lives of most adults and that serve to meet a variety of social and personal needs. Further, many institutions, including marriage and employment, often implicitly or explicitly hold different expectations, advantages, and stresses for men and women (Friedan 1963; Hochschield and Machung 2003; West and Zimmerman 1987). Work, marriage, and gender each intricate relationships with each other and with a variety of socially significant outcomes, including health. As such, untangling these relationships may elucidate our understanding of the stratification of health in society. I focus on social and economic capital—or resources that influence individuals' abilities or proclivities to act in ways that affect their life chances—within marriage and employment.

Social Capital

Following Bourdieu (1986: 248), I use the term social capital to refer to "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or

less institutionalized relationships of mutual acquaintance or recognition – or in other words, to membership in a group…" Thus, social capital refers to resources that derive from social relationships rather than characteristics of the individual per se, although these resources may shape outcomes of individual significance, such as better health. Social capital may work through mechanisms including obligations, expectations, and trust; channels of information dispersion; and norms and effective sanctions to influence various outcomes, including access to material resources, increased levels of social status and prestige, higher quality human capital, or even improvements in health (Coleman 1988; Durkheim 1951; Portes 1998). Social interactions such as marriage and work typically entail obligations, expectations, and norms for time-use, which may differ by gender ((Bourdieu 1977; Hochschild 1997; Hochschild and Machung 2003).

Within households, women may often take care of ongoing household routines, including cooking, cleaning, childrearing, and care for emotional and physical health (Friedan 1963; Hochschild and Machung 2003; West and Zimmerman 1987). Wives may regulate the health behaviors of their husbands by preparing nutritious meals or by encouraging regular exercise, the avoidance of binge drinking, smoking cessation, or regular doctor visits (Umberson 1987, 1992; Waite and Gallagher 2000). These many obligations may take a considerable amount of time, which may detract from the time available to work in the paid labor force. Research typically portrays men as absent from daily household routines; experiencing demoralization, sadness, anxiety, hopelessness, or helplessness if requested to undertake housework or care for others; or as viewing themselves as having a negligible role in managing others' health (Hochschield and Machung 2003; Rosenfield 1992; Umberson 1987).

Employment similarly entails time demands, although those commitments may be somewhat more structured than household demands (Gove 1972; Gove et al. 1983). In general,

workers often exhibit better health than their nonworking counterparts—a finding known as the "healthy worker effect"—for three reasons (Kasl and Jones 2000; Monson 1986; Rogers et al. 2000; Seccombe and Amey 1995; Sorensen et al. 2004). First, contact with peers at the workplace may facilitate positive social interactions with co-workers who may be able to provide information about or support for healthy lifestyles. Second, regular employment often imposes structure upon the day and promotes routines that foster stability and provides individuals with a sense of purpose. Finally, employers may support healthy lifestyles by providing access to company gyms, adequate health insurance, or information about the benefits of health regimens.

Compared to women, men may have more of their personal identities wrapped up in work roles. Thus, men may derive greater health benefits from employment than women and might feel more pressure to make enough money to support their family (McDonough et al. 1999; Stolzenberg 2001). However, women have increasingly entered the labor force over the last several decades, and often look forward to rewarding careers (Hochscheild and Machung 2003). Thus, employment may provide many of the same health benefits for women as for men.

Retirement is a major event in an older worker's life. Retirement is a transition that may provide an increase in time and a period of role expansion, wherein individuals who can afford to retire may have more time to participate in new activities, make new friends, and develop new interests (see Chapter 4 and Costa 1996; Hayward et al. 1989). These positive experiences may renew individuals' interests in their life and their health. Both men and women may benefit from retirement, and more importantly, both husbands and wives should benefit if their spouses retire. Husbands may change toward better health when their wives retire, especially if wives then have more time to care for the health of others. Further, wives may benefit if their husbands retire, if their husbands achieve renewed interests in health, which may support the health of their wives.

Economic Capital

Economic capital indicates individuals' positions in the monetary marketplace, as defined by the financial resources that they can access to influence their life-chances (DiMaggio and Mohr 1985; Weber 1947). Economic resources can be particularly helpful in promoting healthy behaviors by purchasing access to gyms and athletic equipment, or visits to doctors or clinics that provide preventive exams, inoculations, and support for smoking and drinking cessation (Adler et al. 1994; Feinstein 1993). I focus specifically on employment related income herein.

Employment related income indicates a flow of economic resources that are immediately available without mortgaging a home or liquidating other assets, even though it may be saved or invested (Krueger et al. 2003; Smeeding and Weinberg 2001). High levels of income can provide immediate access to recreational facilities, health clinics, or programs that seek to limit smoking or drinking behaviors. McDonough et al. (1999) find that although wives' mortality risks decrease as their husbands' incomes increase, husbands' mortality risks *increase* as their wives' incomes increase. This finding leads McDonough and colleagues to suggest that husbands may feel that their wives' incomes pose a threat to their role as breadwinners.

Prior research, however, has failed to completely parse the effects of the time spent working outside of the household and the economic returns to that employment, on health. Although Stolzenberg (2001) examines the hours worked for pay by husbands and wives, he fails to include separate income measures for men and women—an important failure when attempting determine whether husbands' and wives' incomes differentially affect each others' health. However, McDonough et al. (1999) excludes measures for employment status altogether, thus calling into question whether it is truly a spouses' income or employment that affects the respondent's health.

Behavioral Investment in Health

Few scholars directly examine how socioeconomic resources convert into health; here I expand on the ideas put forth in Chapter 2. I follow some economists who suggest that health is a good that depreciates with age, although that depreciation may be slowed or reversed through investment, should individuals have the requisite resources (Grossman 1972; Sickles and Taubman 1997). But individuals may need preferences, knowledge, and time for health investments, in addition to economic resources (Nussbaum and Sen 1993; Sen 1992). A key conceptual problem limits much work on health investments. Research that examines relationships between SES and health statuses overlooks the mechanisms that lead individuals to undertake behaviors that influence their health. Health statuses—such as mortality, morbidity, or disability—partially reflect accidental factors, congenital conditions, or genetic predispositions toward illness in addition to behavioral health investments. Occasionally, people can purchase better healthcare directly with economic resources, although those who achieve the best health routinely undertake health promoting or disease preventing behaviors (McGinnis and Foege 1993; McGinnis et al. 2003).

The idea of a "healthy lifestyle" suggests that individuals have a broad philosophy of life that shapes their attitudes and behaviors in ways that knowingly or inadvertently affect their health (Bruhn 1988). For my purposes, healthy lifestyles have four major dimensions. First, a healthy lifestyle implies that individuals' behaviors can influence their health. Although health statuses, such as obesity, self-rated health, or mortality are better suited for establishing absolute levels of health in our society, they also reflect conditions that individuals may be unable to control. Second, healthy lifestyles suggest that behaviors may indicate underlying tastes or preferences that support health promotion. When asked, people often recognize that their health

is comprised of many factors, including stress, various health behaviors, and their prior disease or disability history (Benyamini et al. 1999; Idler et al. 1999). As such, a health lifestyle emerges from the confluence of multiple behaviors that influence different dimensions of health.

Third, individuals may intentionally or unintentionally behave in ways that influence their health for reasons that are unrelated to their health (Gadamer 1996). Individuals may smoke, drink, or exercise, not because of health concerns, but because they enjoy undertaking those activities with their friends, to reduce their sense of stress, to alleviate boredom, or because those behaviors are built into the fabric of their quotidian lives.[2] Fourth, lifestyles may be influenced by social relationships or cultural factors, and do not simply result from rational actors attempting to maximize their health. Chapter 4 of this dissertation examines in greater detail the social, cultural, and economic dimensions of SES that may shape healthy lifestyles. This chapter focuses on the interrelationships among gender, economic resources, and health investments.

Hypotheses

Twelve hypotheses follow from the above discussion. These hypotheses then frame my analyses in this chapter:

Hypothesis 1: The hours worked outside the home will positively affect changes in women's health behaviors.

Hypothesis 2: Higher levels of income will have a positive effect on women's changes in health behaviors.

Hypothesis 3: The hours worked outside the home will positively affect changes in men's health behaviors.

Hypothesis 4: Higher levels of income will have a positive effect on men's changes in

health behaviors.

Hypotheses 1 through 4 address the perspective that both men and women benefit from participation in the labor force and by having higher levels of income (McDonough et al. 1999; Stolzenberg 2001). However, an important caveat remains: individuals who work more than 40 hours per week may have less time to invest in health promoting and disease preventing activities (see Chapter 3 of this dissertation).

Hypothesis 5: Wives' hours spent working outside the home will negatively affect husbands' changes in health behaviors.

Hypothesis 6: Wives' higher incomes will negatively affect changes in husbands' health behaviors.

Hypotheses 5 and 6 test the idea that men may experience higher levels of stress, mental illness, and mortality, if their spouses work outside of the home or earn higher incomes (Kessler and McRae 1982; McDonough et al. 1999; Rosenfield 1992; Stolzenberg 2001). Prior theoretical work suggests that both the wives' hours spent working outside the home and income may have negative impacts on husbands' health. Husbands whose wives work more hours may receive less health related personal attention, and may be required to undertake more housework. Further, husbands whose wives earn more money may have increased levels of stress and lower levels of self esteem, due to the perceived challenge to their role as the chief breadwinner.

Hypothesis 7: Husbands' hours spent working outside the home will positively affect wives' changes in health behaviors.

Hypothesis 8: Husbands' higher incomes will positively affect changes in wives' health behaviors.

Hypotheses 7 and 8 address the perspective that wives' health typically benefits from

their husbands' employment and higher incomes. Both McDonough et al. (1999) and Stolzenberg (2001) suggest that the effect of husbands' employment on wives' health will diminish after accounting for his earned income, although McDonough and colleagues fail to control for employment status and Stolzenberg does not control for husbands' and wives' incomes separately.

Hypothesis 9: Retirement will have a positive effect on changes in women's health behaviors.

Hypothesis 10: Retirement will have a positive effect on changes in men's health behaviors.

Hypothesis 11: Husbands' retirement will have a positive effect on wives' health behaviors.

Hypothesis 12: Wives retirement will have a positive effect on husbands' health behaviors.

Hypotheses 9 through 12 suggest that retirement may be beneficial for those who can afford to do so. Wives' retirement may benefit husbands, who may subsequently receive more attention to their health. Husbands' retirement may benefit wives, by providing support for renewed interests in health.

DATA AND METHODS

Data

Here I expand on the discussion in Chapter 3 to detail analyses that specifically examine relationships among gender, marital status, and behavioral health investments. I employ the 1998 and 2000 waves of the Health and Retirement Survey (HRS) to examine the effects of SES on changes in health behaviors over a two year period (SRC 2003b). The 1998 HRS provides a

nationally representative sample of U.S. adults aged 51 and older, and over-samples blacks and Hispanics (SRC 2003a). The HRS collects extensive data on the social, economic, and health characteristics of aging individuals, and takes numerous steps to ensure that the data are accurate, the frequency of missing values is minimized, and that few individuals are lost to follow-up across waves (Moon and Juster 1995). Further, 77.5% of those in the 1998 HRS were interviewed previously; I use their responses from prior years to impute missing data where logically appropriate. Although some characteristics may change over time, data from prior waves provide more accurate insight into current values than might imputation with multiple regression or hot-deck methods. Further, 1940 individuals were lost to follow-up in the 2000 HRS—956 refused re-interview and 984 were presumed dead.[2] I dropped those individuals as well as another 4.5% of the sample due to missing data on key characteristics, leaving 15,489 individuals in the analyses.[3]

Variables and Measurement

Dependent Variables. I use seven dependent variables to indicate behavioral investments in health (see Cockerham et al. 2002 for a similar approach). I include four health promoting behaviors—regular vigorous physical activity, receipt of flu shots, preventive blood cholesterol exams, and preventive cancer screens—and two negative health behaviors—binge drinking and smoking levels. These six variables are measured identically in both 1998 and 2000. Many of these behaviors suggest direct interests in health; the others behaviors that might be undertaken for more social reasons show persistent relationships with mortality (Rogers et al. 2000). Finally, I also calculate a healthy lifestyle scale from these six items.

Physical activity is coded as 1 for individuals who have participated in regular vigorous physical activity three times a week or more on average over the last 12 months, and 0 otherwise.

Although self-reported measures of physical activity have only modest correlations with objective measures of activity, this variable is valuable because it asks individuals about consistent activity several times a week that spans an entire year; correlates with better self-rated health (r=.275), indicating that it does indeed capture an investment in health; and differentiates between the most active and inactive individuals.

Flu shot receipt is coded as 1 if individuals have received one since the prior interview and 0 otherwise. Receipt of a preventive blood-cholesterol test is coded dichotomously and compares those who have had the procedure since the last interview to those who have not. The preventative cancer exams are assessed differently for men and women. For women, the variable is coded 1 if they check their breasts for lumps on a monthly basis, had a mammogram since the last interview, or had a pap smear since the last interview to search for cancer; and 0 otherwise. For men, the variable is coded 1 if they have had a prostate exam to search for cancer since the last interview, and 0 otherwise. The number of days binge drank indicates the number of days that individuals had four or more drinks on a single occasion over the last three months. The cigarettes smoked variable codes the number of cigarettes smoked in a typical day.

Finally, I created a summary indicator to assess the degree to which individuals had healthy lifestyles in 1998 and 2000. I calculate the healthy lifestyle factor by standardizing each of the six health behavior variables, reversing the smoking and binge drinking variables, and taking the mean for each year. Although the Chronbach alphas are relatively low for these measures $(\alpha_{1998} = 0.379;\ \alpha_{2000} = 0.375)$, the composite indicator provides clearer insight into the socioeconomic factors that are associated with the most or least healthy lifestyles than do separate analyses of each behavior. Nevertheless, this comes at the expense of understanding the unique relationships between individual and spousal socioeconomic indicators and changes in

specific health behaviors.

Independent Variables. The independent variables come from the 1998 or earlier waves of the HRS. Social capital measures include hours spent working outside of the home per week and retirement status, for both individuals and their spouses. Employment status is coded categorically as not currently working (referent), works 1 to 20 hours per week, works 21 to 40 hours per week, and works 41 or more hours per week. This coding scheme distinguishes among those who typically work part-time, full-time, and more than full-time hours, and is similar to that used in other studies (Stolzenberg 2001). Retirement status is coded dichotomously as retired or not retired (referent). Employment and retirement statuses are not mutually exclusive—5.1% of the sample is both retired and employed, and 20% of the sample is neither retired nor employed.

I focus on employment related income to capture the economic returns to work. The HRS collects detailed information on the types and amounts of income earned. For these analyses, I aggregate income received from self-employment, wages, professional activities, tips, and other work related sources, separately for husbands and wives. Because these variables are highly skewed, I standardize them to minimize heteroskedasticity—although I found similar results when using variables measured in the original dollar values or logged transformations.[4]

I also control for a variety of factors that may be associated with income, employment, marriage, and the propensity to undertake particular health behaviors. I include education as the number of years of formal schooling reported by individuals. No persistent differences in the final results emerged when including a term for education squared (results not shown); thus, I retained only the linear variable. Sociodemographic factors include race/ethnicity, sex, age, and whether married or living with a partner. Race/ethnicity is coded categorically as non-Hispanic

white (referent), non-Hispanic black, or Hispanic.[5] I code marital status dichotomously as 1 for those who are married or cohabiting, and 0 for all others. Much work finds that marriage provides health benefits, and some work finds that marriage and cohabitation are similarly beneficial (Rogers 1995; Waite and Gallagher 2000; Wu et al. 2003). Of note, I dropped 250 individuals who reported cohabiting with a member of the same sex. I know of no work at the national level that examines whether work, household, and gender roles are similar for heterosexual and homosexual roles, and there are too few cases to undertake extensive analyses here. Sex is coded dichotomously as male and female (referent). The sample includes individuals aged 51 and older. Late-middle aged or older individuals are ideal for this analysis because many of the health behaviors I examine are recommended at those ages. I control for age as a linear term that ranges from 51 to 106.[6]

I also control for a diverse array of health factors. Self-reported childhood health is measured on a five-point scale, ranging from excellent (1) to poor (5). Childhood health correlates with some adult health outcomes and may limit school achievement at younger ages (Smith and Kington 1997). Work related physical activity is dichotomous and compares individuals who work in jobs that require physical effort, lifting heavy loads, or crouching, stooping, or kneeling all or most of the time, to those who do not work or work at sedentary jobs (referent). Because the physical activity outcome may include work-related effort, and because work-related activity provides fewer health benefits than leisure-time activity (Rothenbacher 2003), I control for this in my models. Functional ability is coded as 1 for those who have no limitations and 0 for individuals who have difficulty or are unable to jog or run for about a mile, walk several blocks, walk one block, sit for several hours, get up from a chair, climb several flights of stairs, climb one flight of stairs, stoop, kneel, or crouch, reach for things that are higher

than shoulder level, push or pull large objects, or pick up a dime off a flat surface.

I also control for four chronic conditions that may shape individuals' propensities to undertake health behaviors; each measure is coded 1 if individuals have ever been told by a doctor that they have the condition and 0 otherwise.[7] First, lung disease captures those who have ever been diagnosed with emphysema, chronic bronchitis, or other chronic lung disease other than asthma. Second, a history of cancer identifies individuals who have ever been told by a doctor that they had cancer or a malignant tumor, excluding minor skin cancer. Third, high blood pressure indicates those who have been diagnosed with high blood pressure or hypertension. Finally, individuals are coded as having a heart condition they have ever been told by a physician that they have had a heart attack, coronary heart disease, angina, congestive heart failure, or other heart problems.

Analyses

I use logistic, negative binomial, and linear regression models to examine the relationships between SES and health behaviors, depending on the structure of the dependent variable. Logistic regression is ideal for providing estimated coefficients and standard errors for the dichotomous dependent variables (Pampel 2000). But the count dependent variables are marked by distributions with many zeros, no negative values, and long tails for the positive values. Although Poisson regression is often used for analyses of count-data, negative binomial regression models are advantageous when the variance of the dependent variable is greater than the mean, a circumstance known as "overdispersion." Negative binomial models estimate over-dispersion parameters that, when significant, indicate that model violates the assumptions required by Poisson regression and that estimates from negative binomial models are preferable. The coefficients from negative binomial models can be interpreted as the log of the count-units

of the dependent variable. Finally, I use standard linear regression when examining changes in the healthy lifestyle factor over time.

I use a lagged dependent variable—controlling for the behavior in 1998 while predicting the same behavior in 2000—to examine the effect of the other independent variables on *change* in the dependent variable (Hughes and Waite 2002; Ross and Wu 1995). This approach incorporates the panel design of the HRS and provides evidence for a stronger causal argument between the independent and dependent variables. Nevertheless, two caveats are worth noting. First, the lagged variable approach affords little insight on individuals who acted identically in 1998 and 2000. Lagged variables provide better insight into causal processes by examining the effect of characteristics in 1998 on changes in behaviors between 1998 and 2000, but at the expense of understanding the effect of SES on those who act the same over time and for whom causal inferences are more questionable. Second, the coefficients estimate the effect of covariates in 1998 on changes in behaviors between 1998 and 2000, rather than on the absolute levels of the behavior in 2000. Thus, a positive coefficient may indicate a higher likelihood of increasing a behavior or a lower likelihood of decreasing that behavior.

I present my results by including the hours worked and retirement status in a first set of models, and then include the income measures to ascertain whether pecuniary resources account for the relationship between employment and changes in health behaviors. When comparing models that use the maximum likelihood method to estimate relationships, Hosmer and Lemeshow (2000) suggest using a chi-square test, calculated as c^2=-2[(log likelihood of model A)-(log likelihood of model B)], where model A is a baseline model, model B includes additional variables, and the degrees of freedom equal the number of variables added. Standard F-tests allow me to compare improvements in model fit when using linear regression. I use Stata

8.2 software to weight the estimates and to adjust the standard errors for the stratified and clustered sampling frame (SRC 2003c; StataCorp 2003).

When examining sex differences in the effect of partner characteristics on health behaviors, I use data from both married and single individuals. But, the effects of partner characteristics are relevant only to those who are married. McDonough et al. (1999) provide a method for comparing married to single individuals, while estimating the effects of variables that apply only to those who are coupled. For example, the effect of the respondent's income (INC_R) and marital status (MS_R), and the spouse's income (INC_S) in 1998 on some health behavior (HB_R) in 2000 are estimated by the following:

$$HB_R = b_1 MS_R + b_2 INC_R + b_3 INC_S MS_R \qquad (1)$$

The health behavior in 2000 is regressed on marital status (a dummy variable where 1 indicates married or cohabiting and 0 indicates single), the respondent's income, and the product of marital status and the spouse's income. For unmarried individuals, the equation reduces to:

$$HB_R = b_2 INC_R \qquad (2)$$

For those who are married the expression becomes:

$$HB_R = b_1 MS_R + b_2 INC_R + b_3 INC_S MS_R \qquad (3)$$

If equation 2 is subtracted from equation 3, then the difference in the likelihood of undertaking a given health behavior in 2000 between those who are married and those who are single depends on the activity status of the spouse:

$$HB_R = b_1 MS_R + b_3 INC_S MS_R \qquad (4)$$

Those who are married differ from single individuals by an average amount $(b_1 MS_R)$ plus a deviation that depends on their partner's income $(b_3 INC_S MS_R)$. Thus, the effect of spouses' characteristics on individuals' behaviors are conditional on marital status. I use Stata

8.2 software to weight the estimates and to adjust the standard errors for the stratified and clustered sampling frame (SRC 2003c; StataCorp 2003).

RESULTS

Table 5-1 presents the means and standard errors for the sample covariates, by sex and marital status. Several trends emerge. First, on average, some health behaviors increase between 1998 and 2000, although others decline. Physical activity declines between the two waves: 32% of single females are physically active in 2000 compared to 35% in 1998. Conversely, flu shot receipt increases—62% of single females receive flu shots in 2000, compared to 53% in 1998. Second, some behaviors are more typical among females whereas others are more common among males. Compared to females, more males reported undertaking regular vigorous physical activity, smoking more cigarettes per day, and binge drinking more days in the last three months. Alternately, females reported receiving flu shots, preventive cancer screens, and generally healthy lifestyles more than males. Third, married individuals typically report healthier behaviors than their single counterparts. For example, in 2000, 32% of single women reported physical activity compared to 43% of married women, and 45% of single men reported physical activity compared to 51% of married men. Fourth, the socioeconomic characteristics also show marked variations by sex. Although 68% of single women and 59% of married women are not working outside of the household in 1998, only 57% of single men and 44% of married men

Table 5-1: Descriptive Statistics for Sample Covariates, By Sex, U.S. Adults Aged 51 and Older, 1998-2000.

	Single Females		Married Females		Single Males		Married Males	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
Health Behaviors								
Physical activity, 1998	.35	.01	.45	.01	.47	.02	.54	.01
Physical activity, 2000	.32	.01	.43	.01	.45	.02	.51	.01
Flu shot, 1998	.53	.01	.50	.01	.46	.02	.48	.01
Flu shot, 2000	.62	.01	.62	.01	.57	.02	.60	.01
Cholesterol test, 1998	.73	.01	.76	.01	.66	.02	.74	.01
Cholesterol test, 2000	.73	.01	.78	.01	.69	.02	.79	.01
Cancer screen, 1998	.85	.01	.91	.01	.64	.02	.72	.01
Cancer screen, 2000	.83	.01	.92	.01	.67	.02	.75	.01
Number of cigarettes smoked, 1998	.25	.08	.37	.05	2.86	.43	2.22	.17
Number of cigarettes smoked, 2000	.19	.05	.25	.04	2.60	.38	1.69	.13
Days binge drank, 1998	2.96	.19	2.41	.17	5.34	.43	3.33	.16
Days binge drank, 2000	2.58	.19	2.11	.15	4.40	.32	2.79	.14
Healthy Lifestyle, 1998	.01	.01	.08	.01	-.19	.02	-.05	.01
Healthy Lifestyle, 2000	-.04	.01	.07	.01	-.20	.02	-.03	.01
Socioeconomic Characteristics								
Respondent Hours Worked								
Not currently working	.68	.01	.59	.01	.57	.02	.44	.01
1 to 20 hours per week	.06	.00	.09	.01	.06	.01	.07	.00
21 to 40 hours per week	.20	.01	.24	.01	.21	.01	.25	.01
41 or more hours per week	.06	.00	.08	.00	.16	.02	.24	.01
Partner Hours Worked								
Not currently working			.50	.01			.55	.01
1 to 20 hours per week			.07	.00			.09	.01
21 to 40 hours per week			.22	.01			.26	.01
41 or more hours per week			.20	.01			.10	.01
Retirement Status								
Respondent retired	.46	.01	.30	.01	.51	.02	.46	.01
Partner retired			.53	.01			.25	.01
Individual Income								
Respondent income	-.16	.01	-.09	.01	.12	.05	.35	.03
Partner income			.35	.03			.01	.01
Years of Education								
Respondent	11.60	.09	12.50	.09	11.88	.11	12.71	.11
Partner			12.52	.11			12.23	.08
Sociodemographic Status								
Race/Ethnicity								
Non-Hispanic white	.78	.01	.89	.01	.78	.02	.88	.01
Non-Hispanic black	.15	.01	.05	.00	.15	.02	.06	.01
Hispanic	.07	.01	.06	.01	.07	.01	.06	.01
Age	69.71	.25	62.86	.20	66.06	.45	63.86	.21
Baseline Health Status								
Childhood health	1.89	.02	1.79	.02	1.78	.03	1.77	.02
Work is physically active	.12	.01	.14	.01	.21	.02	.21	.01
Functionally able	.23	.01	.29	.01	.36	.02	.38	.01
Lung disease	.10	.01	.07	.00	.10	.01	.07	.00
Cancer	.11	.01	.10	.00	.09	.01	.09	.00
High blood pressure	.51	.01	.41	.01	.44	.01	.43	.01
Heart condition	.20	.01	.13	.00	.21	.01	.21	.01
Number	3,579		5,264		1,051		5,595	

Source: 1998 and 2000 HRS

fall into this category. Further, only 6% of single women and 8% of married women work more than 40 hours per week, but 16% of single men and 24% of married men work that many hours. Concomitantly, men more often report being retired, having higher incomes, and more years of education than women.

Table 5-2 presents logistic, negative binomial, and linear regression coefficients for the effect of the social dimensions of SES on the health behaviors, by sex. These coefficients are calculated from models that include interactions between sex and the individual and partner characteristics, and control for the demographic and health controls (Appendix B, Table B-1, presents the full set of coefficients). Thus, the effect of the socioeconomic variables on males and females is estimated in the same model, although I calculate the effects for each sex separately in Table 5-2. These models examine the effect of individual and spousal hours spent working in the labor force and retirement on changes in the health behaviors, without controlling for the effect of employment related income.

Model 1 presents logistic regression coefficients for the effect of hours worked and retirement, on changes in physical activity between 1998 and 2000. For women, their own and their husbands' hours spent working outside of the household is unrelated to changes in physical activity. But women who are retired or who have retired husbands have higher odds of changing toward physical activity. For men, the hours spent working in the labor force is associated with changes in physical activity. Relative to men who are not currently working, males who work between 1 and 20 hours per week have .340 higher log-odds of changing toward physical activity. Although wives' hours spent working outside the home are unrelated to changes in

Table 5-2: Logistic, Negative Binomial, and Linear Regression Coefficients for the Effects of the Social Dimensions of Socioeconomic Status on Changes in Health Behaviors, By Sex, U.S. Adults Aged 51 and Older, 1998-2000.[a]

	Model 1 Physical Activity[b]		Model 2 Flu Shot[b]		Model 3 Cholesterol Exam[b]		Model 4 Cancer Screen[b]		Model 5 Cigarettes Smoked[c]		Model 6 Days Binge Drank[c]		Model 7 Health Lifestyle[d]	
	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males
Respondent Hours Worked														
Not currently working	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
1 to 20 hours per week	0.089	0.340**	0.044	-0.063	0.027	0.249	0.396***	0.093	-0.552***	-0.811**	0.748*	0.117	0.022	0.030
21 to 40 hours per week	0.052	0.205	0.055	-0.268**	0.085	0.256	0.211	-0.065	-0.324	-0.517***	0.470	0.016	0.021	0.017
41 or more hours per week	0.042	0.206*	0.138	-0.598***	0.256*	0.069	0.272	-0.262	-0.411	-0.624***	1.064**	-0.173	0.038*	-0.034
Partner Hours Worked														
Not currently working	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
1 to 20 hours per week	0.123	-0.069	-0.215	0.001	0.009	-0.029	0.489**	0.113	0.707	0.332	0.579	-0.425	-0.007	0.028
21 to 40 hours per week	-0.039	-0.055	-0.276	-0.012	-0.016	-0.245**	0.033	-0.026	0.037	0.068	0.147	-0.350*	-0.036*	-0.014
41 or more hours per week	0.057	-0.043	-0.285	0.066	-0.251	-0.101	-0.185	-0.197	-0.039	0.319	-0.733*	-0.509**	-0.037*	-0.008
Retirement Status														
Respondent retired	0.166**	0.244**	0.142*	0.119	0.035	0.412***	0.108	0.344***	-0.036	-0.158	0.196	0.271	0.020**	0.051**
Partner retired	0.244**	0.097	0.232*	0.191**	0.224*	0.021	-0.155	0.075	-0.396	0.058	-0.167	-0.086	0.027	0.012
Individual Income														
Respondent income														
Partner income														
Years of Education														
Respondent	0.037***	0.023**	0.019	0.052***	0.045***	0.072***	0.087***	0.078***	-0.035	-0.047*	-0.034	-0.019	0.009***	0.013***
Partner	0.018*	0.015	0.034**	-0.003	0.000	0.014	0.025	0.034**	-0.084**	-0.017	0.069	-0.030	0.003*	0.002
Marital status (1=married)	-0.121	-0.084	-0.090	0.229	0.239	0.321*	0.300	-0.111	0.781	-0.158	-0.460	-0.242	0.031	0.048

Source: 1998 and 2000 HRS, N=15,488

* $p \leq 0.10$ ** $p \leq 0.05$ *** $p \leq 0.01$ (two-tailed tests)

[a]These estimates are calculated from models that interact the respondent and partner data with sex; these models further control for age, race/ethnicity, and baseline health status (coefficients not shown)

[b]This model presents logistic regression coefficients

[c]This model presents negative binomial regression coefficients

[d]This model presents linear regression coefficients

husbands' physical activity, retired men have .244 higher log-odds of changing toward physical activity than non-retired men.

Model 2 provides logistic regression coefficients for flu shot receipt, for females and males. As with physical activity, women's own and husbands' hours spent working outside the home are unrelated to changes in flu shot receipt. But women who have retired or who have retired husbands experience higher odds of changing toward flu shot receipt than women who are not retired or who have husbands who are not retired. But, employment may be deleterious for men in the case of flu shot receipt. Working 21 or more hours per week has a negative effect on changes in flue shot receipt for men, although their wives' hours spent working outside the home is unrelated to changes in husbands' flu shot receipt. Further, men's retirement is unrelated to changes in flu shot receipt, although husbands whose wives have retired have higher odds of changing toward flu shot receipt.

Model 3 shows the logistic regression coefficients for cholesterol exams. Compared to women who are not working outside the home in 1998, women who work for 41 or more hours per week have higher odds of changing toward blood cholesterol exams. However, husbands' hours in the labor force are unrelated to changes in wives' cholesterol exam receipt. Further, women's retirement is unrelated to changes in their cholesterol exam behavior, although wives benefit if their husbands are retired. Among males, their own hours in the labor force are unrelated to changes in cholesterol exam receipt between 1998 and 2000, although husbands whose wives work 21 to 40 hours per week have lower odds of changing toward cholesterol exam receipt than husbands whose wives are not working outside the home. Further, retired men have higher odds of changing toward cholesterol exam receipt than non-retired men.

Model 4 presents logistic regression coefficients for cancer screen behaviors. Among

women, working between 1 and 20 hours outside the household or having a husband who works a similar number of hours, increases the odds of changing toward cancer screen behaviors. But women's own or husbands' retirement is unrelated to changes in cancer screen receipt. Further, men's own and wives' hours in the labor force have no effect on changes in their cancer screen behaviors. But, compared to non-retired men, retired men have .344 higher log-odds of changing toward preventive cancer screen behaviors.

Model 5 provides negative binomial regression coefficients for changes in the number of cigarettes smoked per day. For women, working 1 to 20 hours per week results in a -.552 log-count change in the number of cigarettes smoked per day. However, husbands' hours spent working and women's and their husbands retirement statuses are unassociated with changes in the number of cigarettes smoked per day. Among men, the number of hours worked outside the house on changes in cigarette smoking is more pronounced. Relative to men who are not working in 1998, those who work 1 to 20 hours reduce their daily cigarette consumption by .811 log-counts, those who work 21 to 40 hours reduce their daily cigarette consumption by .517 log-counts, and those who work 41 or more hours reduce their daily cigarette consumption by .624 log counts. But, wives' hours in the labor force, and personal and wives' retirement statuses are unrelated to changes in the numbers of cigarettes smoked per day between 1998 and 2000.

Model 6 shows negative binomial regression coefficients for changes in the number of days individuals reported binge drinking in the last 3 months. Among women, the number of hours spent working outside of the household has a positive effect on changes in the frequency of binge drinking. But having a husband who works 41 or more hours per week is associated with a -.733 change in the number of days spent binge drinking for women. Women's own and their husbands' retirement statuses are unrelated to changes in binge drinking. Among men, the

number of hours spent working outside of the home is unrelated to changes in the frequency of binge drinking between 1998 and 2000. However, men whose wives who work 20 or more hours per week tend to reduce their frequencies of binge drinking between 1998 and 2000 more than men whose wives do not work outside of the household.

Model 7 provides unstandardized linear regression coefficients for changes in the composite healthy lifestyle measure. Working 41 or more hours per week is associated positively with changes in healthy lifestyles between 1998 and 2000 among women, relative to women who were not working outside of the household in 1998. Having a husband who works 21 or more hours per week has a negative effect on changes in healthy lifestyles, relative to women whose husbands are not working in 1998. Retirement promotes positive changes in healthy lifestyles for women, although wives are unaffected by their husbands' retirement. Among men, their own and their wives' hours spent working outside the home show no significant relationship with changes in healthy lifestyles between 1998 and 2000. But retired men change toward healthier lifestyles more than their non-retired counterparts.

Table 5-3 examines whether any relationships between the hours spent

Table 5-3: Logistic, Negative Binomial, and Linear Regression Coefficients for the Effects of the Social and Economic Dimensions of Socioeconomic Status on Changes in Health Behaviors, By Sex, U.S. Adults Aged 51 and Older, 1998-2000.[a]

	Model 1 Physical Activity[b]		Model 2 Flu Shot[b]		Model 3 Cholesterol Exam[b]		Model 4 Cancer Screen[b]		Model 5 Cigarettes Smoked[c]		Model 6 Days Binge Drank[c]		Model 7 Health Lifestyle[d]	
	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males
Respondent Hours Worked														
Not currently working	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
1 to 20 hours per week	0.111	0.364***	0.029	-0.067	-0.002	0.207	0.296*	0.050	-0.527***	-0.838**	0.792*	0.134	0.020	0.029
21 to 40 hours per week	0.101	0.242*	0.016	-0.263**	0.021	0.181	-0.061	-0.137	-0.280	-0.564***	0.427	-0.074	0.017	0.016
41 or more hours per week	0.119	0.266**	0.075	-0.583***	0.164	-0.038	-0.096	-0.364**	-0.354	-0.742***	0.981**	-0.183	0.031	-0.034
Partner Hours Worked														
Not currently working	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
1 to 20 hours per week	0.126	-0.062	-0.217	-0.017	0.013	-0.079	0.449**	0.096	0.756	0.321	0.538	-0.531*	-0.007	0.024
21 to 40 hours per week	-0.032	-0.057	-0.278*	-0.089	-0.012	-0.391***	-0.070	-0.053	0.092	-0.068	0.225	-0.666***	-0.036*	-0.023
41 or more hours per week	0.065	-0.037	-0.288	-0.055	-0.241	-0.332**	-0.339	-0.252	0.059	0.128	-0.505	-0.924***	-0.037*	-0.023
Retirement Status														
Respondent retired	0.164**	0.233**	0.142*	0.113	0.034	0.437***	0.121*	0.352***	-0.044	-0.129	0.197	0.312	0.020**	0.051**
Partner retired	0.240*	0.090	0.233*	0.195**	0.219*	0.050	-0.114	0.087	-0.421	0.007	-0.245	-0.032	0.027	0.012
Individual Income														
Respondent income	-0.118	-0.059*	0.094	-0.015	0.142	0.122**	0.748***	0.103*	-0.119	0.031	0.146	0.026	0.011	0.000
Partner income	-0.011	-0.015	0.005	0.171*	-0.006	0.380***	0.188**	0.107	-0.084	0.349	-0.224**	0.619***	0.000	0.021
Years of Education														
Respondent	0.039***	0.027**	0.017	0.052***	0.044***	0.064***	0.081***	0.073***	-0.031	-0.052**	-0.030	-0.031	0.009***	0.012***
Partner	0.019*	0.015	0.034**	-0.006	0.000	0.007	0.017	0.032	-0.076**	-0.023	0.085*	-0.044	0.003*	0.002
Marital status (1=married)	-0.132	-0.082	-0.079	0.258	0.248	0.367**	0.365	-0.100	0.700	-0.109	-0.560	-0.082	0.032	0.052*

Source: 1998 and 2000 HRS, N=15,488

* $p \leq 0.10$ ** $p \leq 0.05$ *** $p \leq 0.01$ (two-tailed tests)

[a]These estimates are calculated from models that interact respondent and partner variables with sex; these models further control for age, race/ethnicity, and baseline health status (coefficients not shown)

[b]This model presents logistic regression coefficients

[c]This model presents negative binomial regression coefficients

[d]This model presents linear regression coefficients

working in the labor force or retirement status and changes in health behaviors are due to differences in employment related income. Again, I calculate the effects separately for males and females; although the estimates come from models that include interactions between the socioeconomic variables and sex (Appendix B, Table B-2 presents the full set of coefficients, including those for the demographic and health controls).

Model 1 presents logistic regression coefficients for changes in physical activity. Among women, controlling for income has little effect on the relationship between changes in physical activity and hours spent in the labor force and retirement, and income is unrelated to changes in physical activity. But, among men, increasing personal income has a negative effect on changes in physical activity. Indeed, after accounting for this negative relationship, the effect of hours spent working and changes in physical activity becomes more pronounced.

Model 2 shows logistic regression coefficients for changes in flu shot receipt between 1998 and 2000. After controlling for income, the effect of husbands who work 21 to 40 hours per week on changes in wives' flu shot receipt becomes negative and significant. Otherwise, the factors that shape changes women's flu shot receipt remain unchanged. Among men, the effects of their own and wives' time spent working and retirement statuses on changes in their flu shot receipt remain unchanged. But, as their wives' incomes increase, husbands have higher odds of changing toward flu shot receipt between 1998 and 2000.

Model 3 provides logistic regression coefficients for changes in preventive blood cholesterol exam receipt between 1998 and 2000. After controlling for income, the positive relationship between hours in the labor force and changes in cholesterol exam receipts among women drops from significance, even though personal and spousal income is unrelated to changes in cholesterol exam behavior for women. Among men, the negative relationship

between their wives' hours in the labor force and changes in cholesterol exam receipt becomes more pronounced after controlling for income, although their wives' incomes have a positive relationship with changes in their cholesterol exam receipt. Thus, men may less often undertake cholesterol exams if their wives work, although their wives' increased incomes can compensate for that effect.

Model 4 shows logistic regression coefficients and examines changes in cancer screen behaviors. For women, including their own and their husbands' incomes partially reduces the positive relationship between their own hours in the labor force and changes their own cancer screening behaviors. Further, the effect of their retirement status becomes marginally significant, suggesting that retirement has a positive effect on changes in cancer screening among women after accounting for the lower income among retired individuals. Finally, high personal and husbands' incomes have a positive effect on changes in cancer screening behaviors for women. Among men, the effect of working 41 or more hours per week exhibits a negative relationship with changes in cancer screening behaviors after accounting for the higher incomes earned by men who work many hours. Indeed, men's personal incomes demonstrate a positive relationship with changes in cancer screening behaviors.

Model 5 presents negative binomial regression coefficients that examine changes in the numbers of cigarettes smoked per day. Among both men and women, income is unassociated with changes in the number of cigarettes smoked per day, and controlling for personal and spousal income has no effect on the relationship between the numbers of hours worked and changes in smoking. Model 6 provides negative binomial regression coefficients that investigate changes in the frequency of binge drinking between 1998 and 2000. Among women, the negative relationship between husbands' hours in the labor force and the frequency of binge drinking

drips from significance, once accounting for the higher incomes earned by husbands who work more hours per week. Indeed, increasing levels of husbands' incomes has a negative effect on changes in wives' binge drinking. Among men, controlling for wives' incomes makes the negative relationship between wives' hours in the labor force and changes in binge drinking. However, men whose wives earn higher levels of income tend to increase their levels of binge drinking more than men whose wives earn less money.

Finally, Model 7 shows unstandardized linear regression coefficients that examine changes in the composite healthy lifestyle factor. For women, the positive effect of hours spent working outside of the home on changes in healthy lifestyles drops from significance after controlling for income. However, the negative effect of husbands' hours spent working and change in their wives health lifestyles persists. Personal and husbands' income is unrelated to changes in health lifestyles for women. Among men, the relationships between hours in the labor force, wives' hours spent working, and retirement status remains unchanged after controlling for personal and wives' income. Further, changes in men's healthy lifestyles are unaffected by their personal and spouse's incomes.

CONCLUSION

In general, I find inconsistent support for most of the hypotheses. Hypothesis 1 suggested that working outside of the house would prompt women to undertake healthier behaviors. Although the findings for cigarette smoking support this assertion, employment is associated with a higher likelihood of increasing the frequency of binge drinking between 1998 and 2000, and hours in the labor force are unassociated with changes in women's other health behaviors. Hypothesis 2 posited women who earn more money should be more likely to improve their health behaviors over time. I find a positive relationship between women's personal income and

changes in cancer screen behaviors, but non-significant relationships for the remaining health behaviors. Hypothesis 3 postulates that men should receive health benefits from the hours they spend working; the models for physical activity and the number of cigarettes smoked per day support this claim. However, as men's hours at work increase, their odds of changing toward flu shot receipt decrease, even after controlling for their income levels. Hypothesis 4 suggests that men who have higher incomes should invest in their health more than men with lower incomes. I find support for this when examining cholesterol exam and cancer screen behaviors, although the effect of income indicates the opposite scenario in the case of physical activity.

Collectively, hypotheses 1 through 4 address the idea that both men and women will benefit by being employed and earning higher incomes (Adler et al. 1994; Feinstein 1993; Kessler and McRae 1982; McDonough 1999; Stolzenberg 2001). My results support this perspective in a few cases, although these relationships are inconsistent. Indeed, in some cases, men and women undertake less healthy behaviors if they are working or if they earn higher levels of income. Further, there is little consistent support for the idea that working more than 40 hours per week detracts from the time available to invest in one's health, as was outlined in Chapter 3 (see also Hochschild 1997; Stolzenberg 2001).

Hypotheses 5 and 6 suggested that wives' hours worked outside the home and earned income, respectively, would foster changes toward less healthy behaviors in their husbands. Although men tend to change toward fewer cholesterol screening behaviors between 1998 and 2000 if their wives work, men also tend to change toward lower levels of binge drinking if their wives work. Further, men tend to change toward higher levels of drinking if their wives incomes increase, but they also change toward flu shot receipt and preventive blood cholesterol exams. Although prior research is nearly unanimous in suggesting that men have worse health if their

wives work or earn higher incomes (Kessler and McRae 1982; McDonough 1999; Rosenfield 1992; Stolzenberg 2001), I find little support for this relationship when examining changes in health behaviors among adults aged 51 and older. Indeed, although I would expect adults in late middle age and older to hold more traditional expectations regarding work and gender roles than younger adults, my findings suggest that these values may not affect behavioral investments in health in a systematic way.

Hypotheses 7 and 8 indicate that women should change toward better health behaviors if their husbands are employed or are earning higher incomes, respectively. My results provide little support for hypothesis 7: husbands' hours reduce the likelihood of changing toward flu shot receipt and healthy lifestyles in general, although wives may increase their levels of cancer screening behaviors if their husbands work. However, I find modest support for hypothesis 8. My analyses show a positive relationship between husbands' income and improvements in wives' cancer screening behaviors and binge drinking reduction efforts. Although prior research suggests that women's health improves if their husbands are employed and earning higher incomes (McDonough 1999; Stolzenberg 2001), I find that husbands' income is only beneficial in some cases, and the number of hours in the labor force may even be detrimental.

Finally, hypotheses 9 through 12 posit that both men and women will improve their health behaviors if they or their spouses are retired. I find the most support for these hypotheses; retirement status is an often overlooked dimension of socioeconomic position. In general, both men and women change toward healthier behaviors if they are retired—only cigarette smoking and binge drinking show no relationships with retirement status. Further, in several cases, men or women improve their health behaviors between 1998 and 2000 if their partner is retired, although this relationship is less consistent across the various activities. Nevertheless, retirement

is never significantly detrimental to men or women. As such, it appears that retirement—at least for those who can afford to retire—provides individuals with an opportunity to undertake new health behaviors, expand their interests in life, and generally undertake healthier lifestyles (Costa 1996; Hayward et al. 1989).

Prior work has established a persistent relationship between education and health behaviors (Ross and Wu 1995; Krueger Chapter 3). Nevertheless, I find it striking that this relationship remains even after controlling for individuals' and partners' hours of employment and incomes. Although the economic returns to education may have less persistent links to health behaviors, education may clearly provide tastes and preferences for, and knowledge about, the value of healthy lifestyles (Bourdieu 1986; Ross and Wu; Adler et al. 1994; Feinstein 1993).

Previous scholarship suggests that both men and women will achieve better mental and physical health, and lower mortality risks, if they are employed and earning higher incomes, although wives may benefit from their husbands employment and earnings, whereas men might be disadvantaged if their wives work or earn high incomes (Kessler and McRae 1982; Rosenfield 1992; McDonough 1999; Stolzenberg 2001). However, I find little persistent support for this relationship when examining health behaviors. This is important, as some scholars suggest that household dynamics may be particularly important for supporting healthy lifestyles and sanctioning poor health behaviors (Hughes and Waite 2002; Stolzenberg 2001; Umberson 1987, 1992; Waite and Gallagher 2000). Thus, the relationships between marriage, employment, and gender may not health through the time available for health promotion as some have suggested (e.g., Stolzenberg 2001), but rather by increasing stress levels due to violating possible social norms (Hochschild and Machung 2003; Kessler and McRae 1982; Rosenfield 1992).

My findings should invigorate research that examines the relationships between multiple

dimensions of socioeconomic status (SES) and a broad array of health indicators (Braveman and Cubbin 2003). Otherwise, claims about the "optimal" indicators of socioeconomic status may obscure important conceptual differences in outcomes including health behaviors, mental illness, stress, morbidity, and mortality (Daly et al. 2002, 2003). Sweeping conclusions about the relationship between socioeconomic position and health may overshadow our understanding of the mechanisms that lead from specific dimensions of SES to health; how SES interacts with other domains of life—including marriage, religion, or neighborhood ties—to affect health; and how SES may (or may not) work differently for men and women.

ENDNOTES

1. Other scholars suggest that the stress associated with being unable to meet one's material needs, achieve socially valued goals, or buffer one's self or family against economic deprivation may underpin the relationship between socioeconomic position and health outcomes (Adler et al. 1994; Feinstein 1993; McDonough et al. 1999; Theorell 2000). Much prior research in this area focuses on stress (Booth 1977), the closely related mental health (Gove 1972; Kessler and McRae 1982; Rosenfield 1992), or physical health (McDonough et al. 1999; Stolzenberg 2001), but no studies, to my knowledge, examine behavioral investments in health.

2. Individuals may refuse re-interview or die due to factors that correlate with SES and various health behaviors, thus potentially introducing selection bias. I test for this possibility for the models with dichotomous outcomes by estimating multinomial logistic regression models that compare four possible outcomes in 2000: did not undertake the behavior, undertook the behavior, refused re-interview, and presumed dead (results not shown). Although comparisons with the models presented in this paper are complicated by differences in sample size, the results were substantively identical. Future work could incorporate more panels of data and fixed effects

models to further control for self-selection bias.

3. I also excluded individuals that fell into several other categories. First, I dropped individuals who were of "other" race/ethnic background, as that group may combine Asians, Native Americans, and others with quite diverse health behaviors. Second, I dropped spouses of sample persons who fell outside of the eligible age range. Indeed, these individuals are not assigned weights, as they are not statistically representative of a well-defined population (SRC2003c). Nevertheless, I am able to attribute their characteristics to their spouses who are in the HRS eligible sample, thus allowing me to examine the effect of spousal characteristics on changes in health behaviors. Third, I drop 250 individuals from couples that consist of two males or two females. Although heterosexual cohabiting relationships may be similar to married relationships (Wu et al. 2003), I am aware of no national level studies that examine differences among heterosexual and homosexual couples. Further, there are too few cases to examine those relationships here.

4. Households typically have access to many more sources of income than those that derive from employment (Krueger et al. 2003; Smeeding and Weinberg 2001). For example, the HRS also includes income from means tested aid, disability related aid, veteran benefits, retirement accounts, interest bearing accounts, trust funds, and alimony. For my purposes, I examine only those pecuniary resources that derive directly from employment.

5. Some literature finds that Hispanics, and especially immigrants, have better health than non-Hispanic blacks, even for the same level of socioeconomic status. But preliminary analyses that control for whether individuals speak a non-English language at home, to proxy for immigrant status, find no significant difference.

6. Separate analyses (not shown) included dummy variables to test for cohort differences, given

the large age range in the sample. Although there were some inconsistent differences across the health behaviors, the cohort variables did not suggest any particular theoretically relevant pattern and did not change the substantive results. Thus, I dropped them from the final analyses. Further, I also tested for non-monotonic relationships between age and changes in the dependent variables (results not shown). Evidence of non-linear effects of age on some of the health behaviors emerged, although the patterns were neither consistent nor meaningful. Again, because they did not affect the substantive results, I dropped them from the analyses.

7. Although some individuals may have conditions that have not been diagnosed by doctors, these variables are particularly valuable because knowledge about particular illnesses may affect behavior. Individuals who have been diagnosed with a disease may have receive important information about how to control their illness from their doctor; advice that may influence their health behaviors in the future. Further, after diagnosis, some individuals may improve their health behaviors to limit future consequences, whereas others may become fatalistic and reduce their health investments. Individuals who undertake various preventive health behaviors may appear to have worse health; those who undertake routine cancer screens may be more likely to be diagnosed with cancer, although at earlier stages than those who do not undertake preventive behaviors. For these variegated reasons, I control for the effects of prior poor health on health investments in the future.

REFERENCES

Adler, Nancy E., Thomas Boyce, Margaret A. Chesney, Shelden Cohen, Susan Folkman, Robert L. Kahn, and S. Leonard Syme. 1994. "Socioeconomic Status and Health: The Challenge of the Gradient." *American Psychologist* 49(1):15-24.

Antonovsky, Aaron. 1984. "The Sense of Coherence as a Determinant of Health." Pp. 114-129 in J. D. Motarazzo, S. M. Weiss, J. A. Herd, N. E. Miller, and S. M. Weiss, eds, *Behavioral Health: A Handbook of Health Enhancement and Disease Prevention.* New York: John Wiley and Sons.

Barbeau, Elizabeth M., Nancy Kreiger, and Mah-Jabeen Soobader. 2004. "Working Class Matters: Socioeconomic Disadvantage, Race/Ethnicity, Gender, and Smoking in NHIS 2000." *American Journal of Public Health,* 94:269-78.

Baum, F. E., and A. M. Zeirsch. 2003. "Social Capital." *Journal of Epidemiology and Community Health.* 57:1-5.

Becker, Gary S. 1975. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education,* 2nd ed. New York: National Bureau of Economic Research.

Benyamini, Yael, Elaine E. Leventhal, and Howard Leventhal. 1999. "Self-Assessments of Health: What do People Know that Predicts their Mortality?" *Research on Aging,* 21(3):477-500.

Berkman, Lisa F. and Breslow L. 1983. *Health and Ways of Living: The Alameda County Study.* London: Oxford University Press.

Berkman, Lisa F., and Thomas Glass. 2000. "Social Integration, Social Networks, Social Support, and Health." Pp. 137-74 in *Social Epidemiology*, edited by Lisa F. Berkman and Ichiro Kawachi. New York: Oxford University Press.

Blumer, Herbert. 1969. *Symbolic Interactionism: Perspective and Method*. Berkeley, CA: University of California Press.

Booth, Alan. 1977. "Wife's Employment and Husband's Stress: A Replication and Refutation." *Journal of Marriage and the Family.* 39:645-50.

Bond Huie, Stephanie, Patrick M. Krueger, Richard G. Rogers, and Robert A. Hummer. 2003. "Wealth, Race, and Mortality." *Social Science Quarterly*, 84(3):667-84.

Bourdieu, Pierre. 1977. *Outline of a Theory of Practice.*Trans. R. Nice. New York: Cambridge University Press.

-------. 1984. *Distinction: A Social Critique of the Judgement of Taste.* Trans. R. Nice. Cambridge, MA: Harvard University Press.

-------. 1986. "The Forms of Capital." Pp. 241-258 in J. G. Richardson, ed., *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood Press.

-------. 1990. *The Logic of Practice.* Trans. Richard Nice. Stanford, CA: Stanford University Press.

-------. 2001. *Masculine Domination.* Trans. Richard Nice. Stanford, CA: Stanford University Press.

Braveman, Paula, and Catherine Cubbin. 2003. "Optimal SES Indicators Cannot be Prescribed Across All Outcomes." *American Journal of Public Health,* 93:12-3.

Braveman, Paula, and Sofia Gruskin. 2003. "Poverty, Equity, Human Rights and Health." *Bulletin of the World Health Organization.* 81(7):539-545.

Bruhn, John G.1988. "Life-Style and Health Behavior." Pp. 71-86 in D. S. Gochman, ed., *Health Behavior: Emerging Research Perspectives.* New York: Plenum Press.

Bryson, Bethany. 1996. "'Anything But Heavy Metal': Symbolic Exclusion and Musical Dislikes." *American Sociological Review*, 6:884-99.
Calhoun, Craig. 2000. "Pierre Bourdieu." Pp. 696-730 in G. Ritzer, ed., *The Blackwell Companion to Major Social Theorists*. Malden, MA: Blackwell.
Cattell, Vickey. 2001. "Poor People, Poor Places, and Poor Health: The Mediating Role of Social Networks and Social Capital." *Social Science and Medicine,* 52:1501-16.
Chapin, Charles V. 1924. "Deaths Among Taxpayers' and Non-Taxpayers' Income Tax, Providence, 1865." *American Journal of Public Health* 16:647-651.
Chay, Kenneth Y., and Michael Greenstone. 2004. "Does Air Quality Matter? Evidence from the Housing Market." Working Paper, Department of Economics, Massachusetts Institute of Technology.
Cockerham, William C. 2000. "The Sociology of Health Behavior and Health Lifestyles." Pp. 159-172 in *Handbook of Medical Sociology*, edited by Chloe Bird, Peter Conrad, and Allen Fremont. Upper Saddle River, NJ: Prentice Hall.
Cockerham, William C., M. Christine Snead, and Derek F. DeWaal. 2002. "Health Lifestyles in Russia and the Socialist Heritage." *Journal of Health and Social Behavior,* 43(4): 42-55.
Coleman, James S. 1988. "Social Capital and the Creation of Human Capital." *American Journal of Sociology*. 94(Supplement): S95-S120.
Conley, Dalton. 1999. *Being Black, Living in the Red: Race, Wealth, and Social Policy in America*. Berkeley, CA: University of California Press.
Costa, Dora L. 1996. "Health and Labor Force Participation of Older Men, 1900-1991." *The Journal of Economic History.* 56(1): 62-89.
Crimmins, Eileen M. and Yasuhiko Saito. 2001. "Trends in Healthy Life Expectancy in the United States, 1970-1990: Gender, Racial, and Educational Differences." *Social Science and Medicine,* 52(11): 1629-1641.
Crossley, Nick. 2001. *The Social Body: Habit, Identity, and Desire.* Thousand Oaks, CA: Sage.
Daly, Mary C., Greg J. Duncan, Peggy McDonough, and David R. Williams. 2002. "Optimal Indicators of Socioeconomic Status for Health Research." *American Journal of Public Health*, 92:1151-7. [Initially published as Duncan et. al; published correction appears in *American Journal of Public Health*, 2002, 92:1212]
-------. 2003. "Daly et al. Respond." *American Journal of Public Health*, 93:13.
DiMaggio, Paul. 1982. "Cultural Capital and School Success: The Impact of Status Culture Participation on the Grades of U.S. High School Students." *American Sociological Review,* 47:189-201.
DiMaggio, Paul, and John Mohr. 1985. "Cultural Capital, Educational Attainment, and Marital Selection." *American Journal of Sociology*, 90:1231-61.
Drentea, Patricia, and Paul J. Lavrakas. 2000. "Over the Limit: The Association Among Health, Race and Debt." *Social Science and Medicine* 50:517-29.
DuPertuis, Leslee L., Carolyn M. Aldwin, and Raymond Bossé. 2001. "Does the Source of Support Matter for Different Health Outcomes. *Journal of Aging and Health*, 13:494-510.
Durkheim, Emile. 1951. *Suicide: A Study in Sociology.* Trans. J. A. Spaulding and G. Simpson. Glencoe, IL: The Free Press.
Ellison, Christopher G., Robert A. Hummer, Shannon M. Cormier, and Richard G. Rogers. 2000. "Religious Involvement and Mortality Risk among African American Adults." *Research on Aging*, 22: 630-67.
Estes, Carroll L. 2001. *Social Policy and Aging: A Critical Perspective.* Thousand Oaks, CA:

Sage.
Feinstein, Jonathan S. 1993. “The Relationship Between Socioeconomic Status and Health: A Review of the Literature.” *The Milbank Quarterly* 71(2): 279-322.
Flippen, Chenoa A. 2001. “Residential Segregation and Minority Home Ownership.” *Social Science Research.* 30: 337-62.
Friedan, Betty. 1963. *The Feminine Mystique.* New York: Norton.
Frolich, Katherine L., Ellen Corin, and Louise Potvin. 2001. “A Theoretical Proposal for the Relationship Between Context and Disease.” *Sociology of Health and Illness* 23: 776-97.
Gadamer, Hans-Georg. 1996. *The Enigma of Health: The Art of Healing in a Scientific Age.* Trans. Jason Gaiger and Nicholas Walker. Stanford, CA: Stanford University Press.
Ghez, Gilbert R., and Gary S. Becker. 1975. *The Allocation of Time and Goods Over the Life Cycle.* New York: Columbia University.
Giddens, Anthony. 1991. *Modernity and Self-Identity: Self and Society in the Late Modern Age*. Stanford, CA: Stanford University Press.
Goffman, Erving. 1961. *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates.* Garden City, NY: Anchor Books.
-------. 1963. *Stigma: Notes on the Management of Spoiled Identity.* New York: J. Aronson.
Gove, Walter R. 1972. “The Relationship Between Sex Roles, Marital Status, and Mental Illness.” *Social Forces* 51:34-44.
Gove, Walter R., Michael Hughes, and Carolyn Briggs Style. 1983. “Does Marriage Have Positive Effects on the Psychological Well-Being of the Individual?” *Journal of Health and Social Behavior.* 24:122-31.
Grossman, Michael. 1972. “On the Concept of Health Capital and the Demand for Health.” The *Journal of Political Economy,* 80(2): 223-255.
Grzywacz, Joseph G. and Nadine F. Marks. 2001. "Social Inequalities and Exercise During Adulthood: Toward an Ecological Perspective." *Journal of Health and Social Behavior.* 42(2): 202-220.
Gusfield, Joseph R. 1993. “The Social Symbolism of Smoking and Health.” Pp. 49-68 in *Smoking Policy: Law, Politics, and Culture*, edited by Robert C. Rabin and Stephen D. Sugarman. New York: Oxford University Press.
Hamper, Ben. 1991. *Rivethead: Tales From the Assembly Line.* New York: Warner Books.
Hausman, J. A. 1978. “Specification Tests in Econometrics.” *Econometrica,* 46(6):1251-71.
Hayward, Mark D., William R. Grady, Melissa A. Hardy, and David Sommers. 1989. “Occupational Influences on Retirement, Disability, and Death.” *Demography.* 26(3): 339-409.
Hayward, Mark D. and Melonie Heron. 1999. “Racial Inequality in Active Life Among Adult Americans.” *Demography.* 36(1): 77-91.
Heckman, James J. 1979. “Sample Selection as a Specification Error.” *Econometrica* 47:153-62.
Higgins, Millicent. 2000. “Epidemiology and Prevention of Coronary Heart Disease in Families.” *American Journal of Medicine.*108: 387-95.
Hochschild, Arlie Russell. 1997. *The Time Bind: When Work Becomes Home and Home Becomes Work.* New York: Metropolitan Books.
Hochschild, Arlie Russell, with Anne Machung. 2003. *The Second Shift: Working Parents and the Revolution at Home.* New York: Penguin Books.
Hosmer, David W., and Stanley Lemeshow. 2000. *Applied Logistic Regression.* New York: Wiley.

House, James S., Karl R. Landis, and Debra Umberson. 1988. “Social Relationships and Health.” *Science,* 241(4865):540-45.
House, James S., Debra Umberson, and Karl R. Landis. 1988. “Structures and Processes of Social Support.” *Annual Review of Sociology,* 14:293-318.
Hughes, Mary Elizabeth, and Linda J. Waite. 2002. “Health in Household Context: Living Arrangements and Health in Late Middle Age.” *Journal of Health and Social Behavior,* 43: 1-21.
Hummer, Robert A., Richard G. Rogers, Charles B. Nam, and Christopher G. Ellison. 1999. “Religious Involvement and U.S. Adult Mortality.” *Demography,* 36:273-85.
Hummer, Robert A., Richard G. Rogers, Samit Amir, D. Forbes, and W. Parker Frisbie. 2000. “Adult Mortality Differentials between Hispanic Subgroups and non-Hispanic Whites.” *Social Science Quarterly* 81: 459-76.
Idler, Ellen L., Shawna V. Hudson, Howard Leventhol. 1999. “The Meanings of Self-Rated Health: A Qualitative and Quantitative Approach.” *Research on Aging,* 21(3):458-476.
Irvine, Leslie. 1999. *Codependent Forevermore: The Invention of Self in a Twelve Step Group.* Chicago, IL: University of Chicago Press.
Jenkins, Richard. 1982. “Pierre Bourdieu and the Reproduction of Determinism.” *Sociology* 16:270-281.
Juster, F. Thomas, and Richard Suzman. 1995. “An Overview of the Health and Retirement Study.” *Journal of Human Resources* 30(5):S7-S56.
Kasl, Stanislav V, and Beth A. Jones. 2000. “The Impact of Job Loss and Retirement on Health.” Pp. 118-36 in *Social Epidemiology*, edited by Lisa F. Berkman and Ichiro Kawachi. New York: Oxford University Press.
Kaufman, Jay S., Richard S. Cooper, and Daniel L. McGee. 1997. “Socioeconomic Status and Health in Blacks and Whites: The Problem of Residual Confounding and the Resiliency of Race.” *Epidemiology* 8: 621-628.
Kaufman, Jay S., Andrew E. Long, Youlian Liao, Richard S. Cooper, and Daniel L. McGee. 1998. “The Relation Between Income and Mortality in U.S. Blacks and Whites.” *Epidemiology* 9(2): 147-155.
Kawachi, Ichiro. 2001. “Social Capital for Health and Human Development.” *Development,* 44:31-35.
Kawachi, Ichiro, and Lisa F. Berkman. 2000. “Social Cohesion, Social Capital, and Health.” Pp. 174-90 in *Social Epidemiology*, edited by Lisa F. Berkman and Ichiro Kawachi. New York: Oxford University Press.
Kawachi, Ichiro, and Bruce P. Kennedy. 2002. *The Health of Nations: Why Inequality is Harmful to Your Health.* New York: The New Press.
Kawachi, Ichiro, Bruce P. Kennedy, and Roberta Glass. 1999. “Social Capital and Self-Rated Health: A Contextual Analysis.” *American Journal of Public Health,* 89:1187-93.
Kawachi, Ichiro, Bruce P. Kennedy, Kimberly Lochner, and Deborah Prothrow-Stith. 1997. “Social Capital, Income Inequality, and Mortality.” *American Journal of Public Health,* 87:1491-8.
Kessler, Ronald C., and James A. McRae, Jr. 1982. “The Effect of Wives’ Employment on the Mental Health of Married Men and Women.” *American Sociological Review,* 47:216-27.
Krueger, Patrick M., Richard G. Rogers, Robert A. Hummer, Felecia B. LeClere, and Stephanie A. Bond Huie. 2003. “Socioeconomic Status and Age: The Effect of Income Sources and Portfolios on Adult Mortality in the United States.” *Sociological Forum,* 18(3): 465-82.

Krueger, Patrick M., Richard G. Rogers, Cristobal Ridao-Cano, and Robert A. Hummer. 2004. "To Help or to Harm? Food Stamp Receipt and Mortality Risk Prior to the 1996 Welfare Reform Act." *Social Forces,* 82: forthcoming.

Land, Kenneth C., and Stephen T. Russell. 1996. "Wealth Accumulation Across the Adult Life Course: Stability and Change in Sociodemographic Covariate Structures of Net Worth Data in the Survey of Income and Program Participation, 1984-1991." *Social Science Research* 25: 423-62.

Lareau, Annette. 2002. "Invisible Inequality: Social Class and Childrearing in Black Families and White Families." *American Sociological Review* 67: 747-76.

Lewin-Epstein, Noah, and Ephraim Yuchtman-Yaar. 1991 "Health Risks of Self-Employment." *Work and Occupations* 18(3):291-312.

Lindström, Martin, Bertil S. Hanson, and Per-Olof Östergren. 2001. "Socioeconomic Differences in Leisure-Time Physical Activity: The Role of Social Participation and Social Capital in Shaping Health Related Behaviour." *Social Science and Medicine*, 52:441-51.

Link, Bruce G., and Jo Phelan. 1995. "Social Conditions as Fundamental Causes of Disease." *Journal of Health and Social Behavior,* Extra Issue. Pp. 80-94.

-------. 2002. "McKeown and the Idea that Social Conditions are Fundamental Causes of Disease." *American Journal of Public Health,* 92:730-2.

Lynch, John, and George Kaplan. 2000. "Socioeconomic Position." Pp. 13-35 in *Social Epidemiology*, edited by Lisa F. Berkman and Ichiro Kawachi. New York: Oxford University Press.

Macinko, J., and B. Starfield. 2001. "The Utility of Social Capital in Research on Health Determinants." *Milbank Quarterly*. 79:387-427.

Macintyre, Sally, and Kate Hunt. 1997. "Socio-Economic Position, Gender, and Health: How do They Interact?" *Journal of Health Psychology* 2:315-334.

Manning, Wendy D., and Pamela J. Smock. 2002. "First Comes Cohabitation and Then Comes Marriage?" *Journal of Family Issues.* 23(8):1065-87.

Marx, Karl. 1977. *Capital: A Critique of Political Economy.* Trans. Ben Fowkes. New York: Vintage Books.

Mayer, Thomas F. 1994. *Analytical Marxism.* Thousand Oaks, CA: Sage.

McDonough, Peggy, David R. Williams, James S. House, and Greg J. Duncan. 1999. "Gender and the Socioeconomic Gradient in Mortality." *Journal of Health and Social Behavior,* 40:17-30.

McGinnis, Michael J., and William M. Foege. 1993. "Actual Causes of Death in the United States." *Journal of the American Medical Association* 270(18):2207-2212.

McGinnis, Michael J., Pamela Willimas-Russo, and James R. Knickman. 2002. "The Case for More Active Policy Attention to Health Promotion." *Health Affairs* 21(2): 78-93.

McMullin, Julie Ann, and John Cairney. 2003. "Self-Esteem and the Intersection of Age, Class, and Gender." *Journal of Aging Studies*, 18:75-90.

Merline, Alicia C., Patrick M. O'Malley, John E. Schulenberg, Jerald G. Bachman, and Lloyd D. Johnston. 2004. "Substance Abuse among Adults 35 Years of Age: Prevalence, Adulthood Predictors, and Impact of Adolescent Substance Abuse." *American Journal of Public Health,* 94:96-102.

Minkler, Meredith. 1981. "Research on the Health Effects of Retirement: An Uncertain Legacy." *Journal of Health and Social Behavior.* 22(2):117-130.

Monson, Richard R. 1986. "Observations on the Healthy Worker Effect." *Journal of*

Occupational Medicine. 26(6): 425-433.
Moon, Marilyn and F. Thomas Juster. 1995. "Economic Status Measures in the Health and Retirement Study." *The Journal of Human Resources.* Supplement: 1995.

Musick, Marc A., A. Regular Herzog, and James S. House. 1999. "Volunteering and Mortality Among Older Adults: Findings From a National Sample." *Journals of Gerontology, Social Sciences.* 54B:S173-S180.
Myers, George C., Thomas Juster, and Richard M. Suzman. 1997. "Introduction." *The Journals of Gerontology, Series B,* 52B(Suppl.): v-viii.
Nussbaum, M., and Amartya Sen. 1993. *The Quality of Life.* NY: Oxford University Press.

Oliver, Melvin L., and Thomas M. Shapiro. 1995. *Black Wealth/White Wealth: A New Perspective on Racial Inequality.* New York: Routledge.
Pampel, Fred C. 2000. *Logistic Regression: A Primer.* Thousand Oaks, CA: Sage.

-------. 2001. "Cigarette Diffusion and Sex Differences in Smoking." *Journal of Health and Social Behavior.* 42: 388-404.
-------. 2002. "Inequality, Diffusion, and the Status Gradient in Smoking." *Social Problems,* 49:35-57.

Portes, Alejandro. 1998. "Social Capital: Its Origins and Applications in Modern Sociology." *Annual Review of Sociology.* 24:1-24.
Putnam, Robert D. 1993. *Making Democracy Work: Civic Traditions in Modern Italy.* Princeton, NJ: Princeton University Press.
Robert, Stephanie A. 1999. "Socioeconomic Position and Health: The Independent Contribution of Community Socioeconomic Context." *Annual Review of Sociology* 25:489-516.

Robert, Stephanie A., and James S. House. 1994. "Socioeconomic Status and Health over the Life Course." Pp. 253-74 in R. P. Abeles, H. C. Gift, and M. G. Ory, eds., *Aging and Quality of Life.* New York, NY: Springer Publishing Company.
-------. 1996. "SES Differentials in Health by Age and Alternative Indicators of SES." *Journal of Aging and Health* 8(3):359-88.
Rodgers, Bryan, Ailsa E. Korten, Anthony F. Jorm, Helen Christensen, Scott Henderson, and Patricia A. Jacomb. 2000. "Risk Factors for Depression and Anxiety in Abstainers, Moderate Drinkers, and Heavy Drinkers." *Addiction,* 95:1833-45.
Rodgers, Willard, and Baila Miller. 1997. "A Comparative Analysis of ADL Questions in Surveys of Older People." *Journals of Gerontology Series B,* 52B(Suppl.):21-36.
Rogers, Richard G.. 1995. "Marriage, Sex, and Mortality." *Journal of Marriage and the Family,* 57:515-26.
-------. 1996. "The Effects of Family Composition, Health, and Social Support Linkages on Mortality." *Journal of Health and Social Behavior.* 37:326-38.
Rogers, Richard G., Robert A. Hummer, and Charles B. Nam. 2000. *Living and Dying in the USA: Behavioral, Health and Social Differentials of Adult Mortality.* New York: Academic.
Rogers, Richard G., Robert A. Hummer, and Patrick M. Krueger. 2004. "Adult Mortality." In Handbook of Population, edited by Dudley Poston and Mike Micklin. New York: Klewer Academic/ Plenum Publishers. (forthcoming)
Rose, Richard. 2000. "How Much Does Social Capital Add to Individual Health? A Survey Study of Russians." *Social Science and Medicine,* 51:1421-35.

Rosenfield, Sarah. 1992. “The Costs of Sharing: Wives’ Employment and Husbands’ Mental Health.” *Journal of Health and Social Behavior.* 33:213-25.

Ross, Catherine E. 2000. “Walking, Exercising, and Smoking: Does Neighborhood Matter?” *Social Science and Medicine*, 51:265-74.

Ross, Catherine E., and Chia-Ling Wu. 1995. "The Links Between Education and Health." *American Sociological Review*. 60(5): 719-745.

Rothenbacher D., A. Hoffmeister, H. Brenner, and W. Koenig. 2003. “Physical Activity, Coronary Disease, and Inflammatory Response.” *Archives of Internal Medicine*, 163: 1200-5.

Rumbaut, R.G. 1977. “Ties that Bind: Immigration and Immigrant Families in the United States.” Pp. 3-45 in *Immigration and the Family: Research and Policy on U.S. Immigrants*, edited by A. Booth, A.C. Crouter, N. Landale. Mahwwah, NJ: Erlbaum.

Sallis, J.F., T. L. Patterson, M.J.Buono, C.J.Atkins, P.R.Nader. 1988. “Aggregation of Physical Activity Habits in Mexican-American and Anglo Families.” *Journal of Behavioral Medicine*, 11:31-41.

Satariano, William A., Thaddeus J. Haight, Ira B. Tager. 2002. “Living Arrangements and Participation in Leisure-Time Physical Activities in an Older Population.” *Journal of Aging and Health*, 14(4):427-51.

-------. 2000. “Reasons Given by Older People for Limitation or Avoidance of Leisure-Time Physical Activity.” *Journal of the American Geriatrics Society*, 48:505-12.

Seccombe, Karen, and Cheryl Amey. 1995. “Playing by the Rules and Losing: Health Insurance and the Working Poor.” *Journal of Health and Social Behavior.* 36(2): 168-181.

Seeman, Teresa E., Martha L. Bruce, and Gail J. McAvay. 1996. “Social Network Characteristics and Onset of ADL Disability: MacArthur Studies of Successful Aging.” *Journal of Gerontology: Social Sciences*, 51B(4):S191-S200.

Sen, Amartya. 1977. “Rational Fools: A Critique of the Behavioral Foundations of Economic Theory.” *Philosophy and Public Affairs*, 6:317-44.

-------. 1992. *Inequality Reexamined.* Cambridge: Harvard University Press.

Sickles, Robin C., and Paul Taubman. 1997. “Mortality and Morbidity Among Adults and the Elderly.” Pp. 559-643 in M. R. Rosenzweig and O. Stark, eds., *Handbook of Population and Family Economics: Volume 1A.*Amsterdam: Elsevier.

Simmel, Georg. 1957. “Fashion.” *American Journal of Sociology*, 62: 541-58

-------. 1978. *The Philosophy of Money.* Trans. Tom Bottomore and David Frisby. Boston, MA: Routledge and Kegan Paul.

Smeeding, Timothy M., and Daniel H. Weinberg. 2001. “Toward a Uniform Definition of Household Income.” *Review of Income and Wealth* 47:1–24.

Smith, James P. 1995. “Racial and Ethnic Differences in Wealth in the Health and Retirement Study.” *Journal of Human Resources* 30(5):S158-S183.

-------. 1997. “Wealth Inequality Among Older Americans.” *Journals of Gerontology Series B*, 52B(Suppl.):74-81.

Smith, James P., and Raynard Kington. 1997. “Demographic and Economic Correlates of Health in Old Age.” *Demography* 34(1):159-70.

Smock, Pamela J. 2000. “Cohabitation in the United States: An Appraisal of Research Themes, Findings, and Implications.” *Annual Review of Sociology.* 26:1-20.

Snijders, Tom A. B., and Roel J. Bosker. 1999. *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling.* Thousand Oaks, CA: Sage.

Soldo, Beth J., Michael D. Hurd, Willard L. Rodgers, and Robert B. Wallace. 1997. "Assets and Health Dynamics Among the Oldest Old: An Overview of the AHEAD Study." *Journals of Gerontology, Series B,* 52B(Suppl.): 1-20.

Sorensen, Glorian, Elizabeth Barbeau, Mary Kay Hunt, and Karen Emmons. 2004. "Reducing Social Disparities in Tobacco Use: A Social-Contextual Model for Reducing Tobacco Use among Blue-Collar Workers." *American Journal of Public Health,* 94:230-9.

Sorlie, Pauld D. and Eugene Rogot. 1990. "Mortality by Employment Status in the National Longitudinal Mortality Study." *American Journal of Epidemiology.* 132(4): 983-992.

StataCorp. 2003. *STATA Statistical Software: Release 8.2*. College Station, TX: STATA Corp.

Stolzenberg, Ross M. 2001. "It's about Time and Gender: Spousal Employment and Health." *American Journal of Sociology,* 107:61-100.

[SRC] Survey Research Center. 2003a. *Health and Retirement Survey 1998: Final Core Data Release, Version 2*. Computer file and documentation. Ann Arbor, MI: Institute for Survey Research.

-------. 2003b. *Health and Retirement Survey 2000: Final Core Data Release, Version 1*. Computer file and documentation. Ann Arbor, MI: Institute for Survey Research.

-------. 2003c. *Health and Retirement Survey Tracker File: Final, Version 3.1.* Computer file and documentation. Ann Arbor, MI: Institute for Survey Research.

Theorell, Töres. 2000. "Working Conditions and Health." Pp. 95-117 in *Social Epidemiology,* edited by Lisa F. Berkman and Ichiro Kawachi. New York: Oxford University Press.

Turner, Bryan. 2003. "Social Capital, Inequality, and Health: The Durkheimian Revival." *Social Theory and Health.* 1:4-20.

Umberson, Debra. 1987. "Family Status and Health Behaviors: Social Control as a Dimension of Social Integration." *Journal of Health and Social Behavior,* 28(3):306-19.

-------. 1992. "Gender, Marital Status, and the Social Control of Health Behavior." *Social Science and Medicine.* 34(8):907-17.

U.S. Department of Commerce. 1980. *Standard Occupational Classification manual.* Washington, DC: Office of Federal Statistical Policy Standards.

[US DHHS] U.S. Department of Health and Human Services. 2000. *Healthy People 2010: Understanding and Improving Health*, 2nd ed. Washington D.C.: U.S. Government Printing office.

Veenstra, Gary. 2000. "Social Capital, SES and Health: An Individual Level Analysis." *Social Science and Medicine.* 50:619-29.

-------. 2002. "Social Capital and Health (Plus Wealth, Income Inequality, and Regional Health Governance." *Social Science and Medicine*, 54:849-68.

Venters, M.H., D.R.Jacobs, Jr., R. V. Luepker, L.A. Maiman, and R.F. Gillum. 1984. "Spouse Concordance of Smoking Paterns:The Minnesota Heart Study." *American Journal of Epidemiology*, 120:608-16.

Wacquant, Loïc. 2001. "Durkheim and Bourdieu: The Common Plinth and its Cracks." *International Journal of Contemporary Sociology*, 38:12-27.

-------. 2004. *Body and Soul: Notebooks of an Apprentice Boxer.* New York: Oxford University Press.

Waite, Linda J. 1999. “At Risk on the Cusp of Old Age: Living Arrangements and Functional Status Among Black, White and Hispanic Adults.” *Journal of Gerontology: Social Sciences*, 54B(3): S136-S144.
Waite, Linda J. and Maggie Gallagher. 2000. *The Case for Marriage: Why Married People Are Happier, Healthier, and Better off Financially.* Doubleday.
Wallace, Robert B., and A. Regular Herzog. 1995. “Overview of the Health Measures in the Health and Retirement Study.” *Journal of Human Resources,* 30(suppl.): S85-S107.
Weber, Max. 1947. *The Theory of Social and Economic Organization.* Trans. A. M. Henderson and T. Parsons. New York: The Free Press.
West, Candace, and Don H. Zimmerman. 1987. “Doing Gender.” *Gender and Society.* 125-51.
Wheaton, Blair. 1990. “Life Transitions, Role Histories, and Mental Health.” *American Sociological Review.* 55(2): 209-233.
Wickrama, K. A. S., Rand D. Conger, Lora Ebert Wallace, Glen H. Elder, Jr. 1999. “The Intergenerational Transmissions of Health-Risk Behaviors: Adolescent Lifestyles and Gender Moderating Effects.” *Journal of Health and Social Behavior*, 40(3):258-72.
Willis, Paul. 1977. *Learning to Labor: How Working Class Kids Get Working Class Jobs.* New York: Columbia University Press.
Wilson, Sven E. 2002. “The Health Capital of Families: An Investigation of the Inter-Spousal Correlation in Health Status.” *Social Science and Medicine.* 55:1157-72.
Wilson, William J. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago, IL: University of Chicago Press.
Wright, Erik Olin. 2000. “Class, Exploitation, and Economic Rents: Reflections on Sorensen's ‘Sounder Basis’.” *American Journal of Sociology.* 105(6):1559-71.
Wu, Bei and Frank Porell. 2000. "Job Characteristics and Leisure Physical Activity." *Journal of Aging and Health.* 12(4): 538-559.
Wu, Zeng, Margaret J. Penning, Michael S. Pollard, and Randy Hart. 2003. “‘In Sickness and In Health’ Does Cohabitation Count?” *Journal of Family Issues,* 24:811-38.
Zelizer, Vivian. 1989. “The Social Meaning of Money: ‘Social Monies’.” *American Journal of Sociology,* 95:342-77.