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UNDERSTANDING HEALTH INEQUALITY THROUGH THE STUDY OF

LIVING ARRANGEMENTS

BY

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UNDERSTANDING HEALTH INEQUALITY THROUGH THE STUDY OF

LIVING ARRANGEMENTS

By

Tze-Li Hsu

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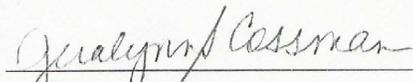
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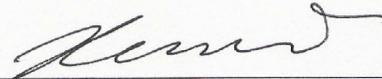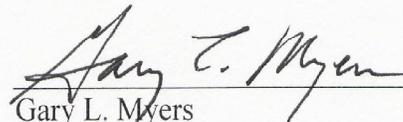Title of Study: UNDERSTANDING HEALTH INEQUALITY THROUGH THE
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Candidate for Degree of Master of Science

Promoting population health is an essential task for sustainable development. This study explores the association between socioeconomic status and perceived health in the United States, with special attention on the influence of living arrangements. It also improves the existing explanations of causal mechanisms underlying the impact of SES on health among Americans over 50. Using the first and seventh waves of Health and Retirement Study to run ordered logistic regression, this research addresses the importance of living arrangements and social capital on self-reported health. Income and education are both important predictors of self-reported health. In addition, living arrangements and household social capital also affects self-reported health after controlling individuals' characteristics and SES indicators. These effects do not appear to mediate the socioeconomic effects on self-reported health. Future research should highlight better measures of living arrangements and social capital, as well as explore longitudinal analyses.

Key Words: living arrangement, household social capital, SES, and self-reported health

DEDICATION

I would like to dedicate this research to my parents, Ke-Nan Hsu and Ju-Chun Wang, and my younger brother Sam.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Specific Aims

Population health is an essential aspect of the development of human capital because

the quality of a nation's health directly impacts the nation's welfare and its capacity to be

productive. Therefore, promoting population health is an essential task for sustainable

development in any country. Health care is an important social issue in many countries

because there is a link between socioeconomic inequality and discrepancies in health

access (The Universal Declaration of Human Rights, 1948, Article 25).[1] Since health

care is examined as a basic human right, it is imperative for nations to ensure all citizens

have easy and equal access to medical resources. There is a pressing need for sound

policies that seek to minimize the undesirable consequences of health inequality. This

study attempts to explore the association between socioeconomic status (SES) and

perceived health in the United States, while giving special attention to the influence of

living arrangements. Although a distinguished legacy of research has demonstrated the

SES-health status relationship, the causal mechanisms underlying SES–health

relationships are not definitive. In the United States, there is a burgeoning body of

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[1] The Universal Declaration of Human Rights, 1948, Article 25: "(1) Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or lack of livelihood in circumstances beyond his control."

literature that has focused on the impact of SES on health (e.g., Ross and Wu, 1996: 107; Wilkinson, 1996 and 2000; Deaton, 1999; Turner, 2004; Abercrombie, Hill, and Turner, 2006: 179) as well as the impact of one's living arrangements on health outcomes (e.g. Hughes and Waite, 2002). One way SES may affect an individual's perceived health is through one's living arrangement. To date, though, an examination of living arrangements as a mediator for the relationship between SES and health remains virtually unexplored. It is also reasonable to suppose that the SES-health relationship differs across the lifecycle. While the SES-health relationship is well established for adults and infants in most epidemiological studies, the relationship has not been studied in advanced age populations. Therefore, this study uses the 1992 and 2004 Health and Retirement Study (HRS) to address the question of whether one's living arrangement (never married and living alone, living with spouse, living with partner, and miscellaneous forms of household) mediate the SES health link in midlife and older age. This study aims to improve existing explanations of the causal mechanisms underlying the impact of SES on health with a specific focus on living arrangements among Americans over 50. In addition, with increasing numbers of Americans from the "baby boom" generation reaching old age, it becomes increasingly important to identify the full range of factors that bear on their health status (Hays, 2002: 136).

A distinguished legacy of research has demonstrated a strong relationship between SES and health problems (e.g. Wilkinson, 1992 and 1996; Daly et al., 1998; Kawachi, 1999; Marmot, 1999a; Robert and House, 2000; Macinko et al., 2003; Eichenlaub, 2006). Even though SES has been accepted as an important variable by most researchers, it is

still a vague indicator that is difficult to define and conceptualize. In *Unequal Health*,

Budry (2003) suggests that social scientists have identified three components of social

class—income, education, and occupation—often used to measure the impact of social

inequality on health. Most epidemiological researchers have found lower SES groups

have more health problems and mortality (Marmot, 1999a; Robert and House, 2000), but

none have explicitly distinguished the financial (e.g., income or wealth) from the non-

financial (e.g., education and occupation) dimensions of SES. Over time, research has

reinforced and supported findings showing a positive relationship between education and

health. People who have more education tend to enjoy a longer and healthier life

(Kitagawa and Hauser, 1973; Kramarow, Pastor, and Gorina, 2000; Lauderdale, 2001).

The United States is experiencing increasing amounts of social inequality, much of which

can be linked to education (Hout, Arum, and Voss, 1996). America may be the land of

opportunity, but it is also a land of inequality (Lareau, 2003: 3). The link between

education and health is fundamental to the analysis of problems of health inequality.

This suggests that financial dimensions of SES alone are not sufficient to predict the

SES-health relationship.

Other non-financial measures of social status consist of various forms of capital—

human, social, occupational, and material etc. (Bourdieu, 1986). An individual's health

is not determined solely by biology: social, economic, cultural, and other factors may also

be important. Indeed, the National Institutes of Health held a major conference

highlighting evidence that health depends on socially-generated environments and

experiences that transcend individual biology (Hughes and Waite, 2002). "Health

inequality", a term coined by LaLonde[2], refers to instances where the health statuses of two demographic groups differ despite comparable access to healthcare services. LaLonde's definition suggests that in addition to the influence of biological factors, health is determined by factors such as the environment, lifestyle, and one's access to healthcare services.[3] Researchers have also found that the impact of SES on health is conditioned by the type of living arrangement (LaLonde, 1974; Hughes and Waite, 2002; Russel and Porter, 2003).

To date, distinguished epidemiological and health researchers have mainly focused on disentangling the multiple ways in which socioeconomic status may influence health outcomes, however, only one study (i.e. Hughes and Waite, 2002) has paid attention to the influence of living arrangements. Hughes and Waite (2001:1) theorize that individuals experience role-based household relations as sets of resources and demand. Their theory was supported in their analysis where they found that some living arrangements show better health than others due to varying availability of resources and support associated with them.

Some people who report poor health are constrained by lower-income, and therefore those "with limited income and often restricted mobility, must depend almost exclusively on the local neighborhood and as a resource of companions" (Russel and Porter, 2003: 368). People living in some arrangements show better health than persons in other living arrangements (Hughes and Waite, 2002: 1). "Married couples living alone or with

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[2] The LaLonde report is a 1974 report produced in Canada entitled a new perspective on the health of Canadians.
[3] The material in this paper is derived mainly from Wikipedia, the free encyclopedia. (http://en.wikipedia.org/wiki/Health_inequality)

children are the most advantaged; single women living with children appear disadvantaged on all health outcomes; and, men and women in other household types are disadvantaged on some health outcomes" (Hughes and Waite, 2002: 1). Hughes and Waite have also asserted that "social context formed by household may be important to the social etiology of health." They also qualified the well-known link between martial status and health: "The effect of marital status on health depends on household context" (Hughes and Waite, 2002: 1). This study extends Hughes and Waite's (2002) study by disaggregating these patterns by gender and race.

An important limitation in this body of literature is that most research has focused predominantly on the impact of the individual's socioeconomic status on health except one (i.e. Hughes and Waite, 2002). The impact of socioeconomic status should also be considered at the household and community levels (e.g., Krieger and Fee, 1994). Individual-level SES measures can capture exposure to occupational health risks while household-level SES measures reflect standards of living. At the community-level, SES measures can provide information about levels of community development and infrastructure (Williams and Collins, 1995). The relationship between SES and standards of living is a reciprocal relationship; the community-level socioeconomic characteristics can affect one's level of education, income, and occupation (Wilson, 1987; Foster and McLanahan, 1996) and the individual and family characteristics can affect the type of community in which one chooses to live (Robert, 1998). Living in a community with poor socioeconomic profiles may adversely affect the health-promoting attitudes and behaviors of community members. These members are often influenced by low SES

neighbors, who are less likely to practice health-promoting behaviors. For example, when comparing individuals with high SES neighbors (Robert, 1998) to those living in a community with low SES, those living in the latter community have a greater likelihood of smoking, even after controlling for individual SES (Reijneveld, 1998). Because the HRS does not collect data on community characteristics (e.g. crime rates, type of neighborhoods, availability of health facilities, the presence of public / private schools, the percent of census tract poverty, the percent of state poverty, etc.), this study uses measures of socioeconomic characteristics (e.g. individual's income and education) at the individual and household levels to examine the relationship between SES and health outcomes in the United States.

There are three reasons why socioeconomic status should be measured at both the individual and household levels. First, for many individuals (especially the elderly), healthcare access may be tied to both individual and household socioeconomic status, as evidenced by Hughes and Waite's (2002) research. Second, the illness of a family or household member may demand the time and energy of other members who take care of them. Third, the illness of a family or household member can also have a huge impact on the economic well-being of the other members in the family or household because financing the medical care to cover the illness can impose huge costs on the rest of the household, both in terms of the loss of income and the costs of treatment.

To examine health inequalities as they relate to living arrangements, this study uses the individual as the unit of analysis to assess the extent to which household structures or living arrangements affect the relationship between health and SES. Because living with

a spouse and living alone are very different lifestyles, living conditions will also be

included to examine whether it has different implications for health.

Statement and Significance of the Problem

To fill this research void, this study will further complement studies examining the

relationship between SES and heath outcomes in the United States. Specifically, the

objective of this research is to determine whether an individual's perceived health varies

according to one's living arrangement, household resources, and household social capital.

It is important to distinguish among different forms of living arrangements because their

residents may face qualitatively different demands and resources. Ordered logistic

regression using the 1992 and 2004 Health and Retirement Study is used to test the

household structure and household resource hypotheses. To operationalize the

framework depicted in Figure 1, this study borrows from theories spanning a variety of

social science disciplines to test the following hypotheses:

1. The likelihood of being in a higher good-health category increases with the levels
   of individuals' income and education.

2. The household structure hypothesis suggests that household structure and the type
   of living arrangement affects individual's self-reported health. After controlling
   for living arrangements, differences in sociodemographic and socioeconomic
   characteristics will be greatly reduced or eliminated, and those living in the
   categories of, spouse absent, partnered, separated, divorced, widowed, and never

married will be less likely than their counterparts who are married and living with spouse to be in a higher good-health category.

3. The household resources hypothesis suggests that like any other social tie, the household-based social ties can bring instrumental, informational, and emotional supports for members in a household (Hughes and Waite, 2002: 3). This study uses respondents' marital capital (duration of current marriage), occupational capital (years of tenure at current job) and religious capital (frequency of religious service attendance) as proxies for household social capital. After controlling for these measures, gaps in perceived health among different socioeconomic groups will be greatly reduced or eliminated.
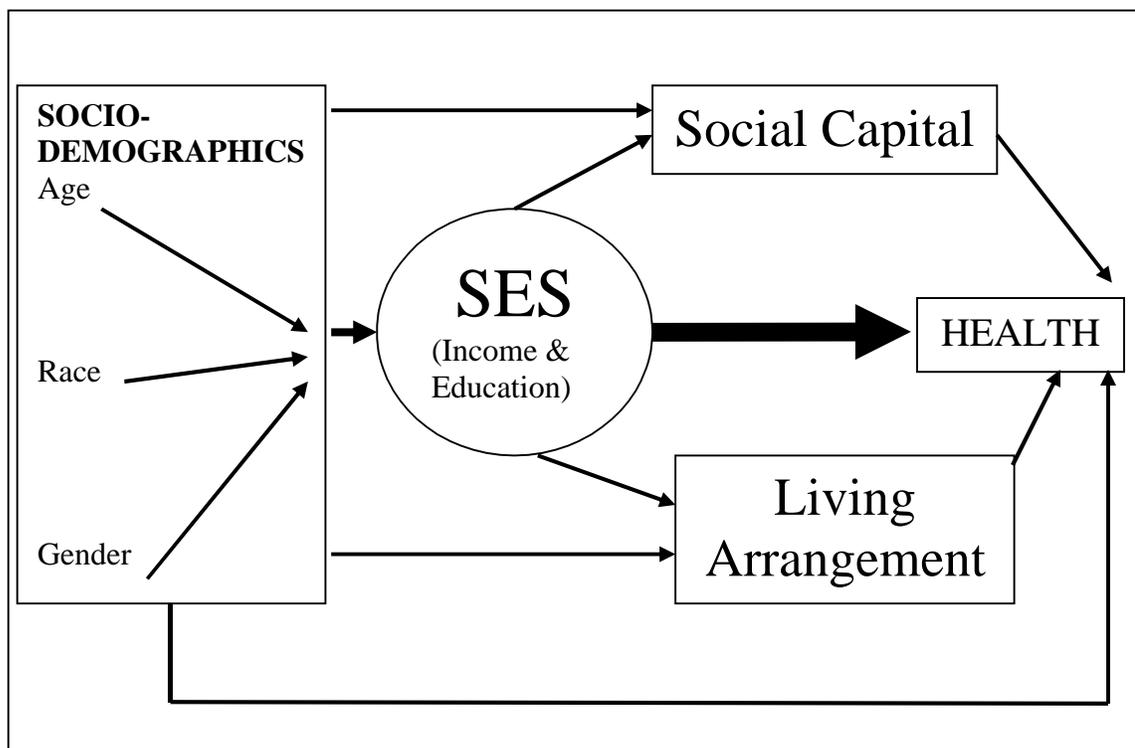
Figure 1. The Conceptual Framework

CHAPTER II

REVIEW OF THE LITERATURE

Background

The review of literature covers four major areas: (1) the individual and social

determinants of social (mainly income and education) inequality, (2) the determinants of

income and health inequality, with special attention given to the influence of living

arrangements, (3) the relevance of household social capital and living arrangements to

health inequality, and (4) the association between living arrangements and individual's

health outcomes.

In the late 1970s, the U.S experienced a series of economic shocks and demographic

changes causing economic inequality, and in turn, health inequality to rise sharply

(Russell Sage Foundation, 2004). [4] In most societies, an individual's life chances are

shaped to some degree by family resources—income, education, social connections, and

political influence—which can directly affect health outcomes (Cockerham, 2005: 12).

According to Cockerham (2007), "one's lifestyle is a reflection of types and amounts of

goods and services one uses or consumes" (102). There are many interpretations of

Weber's concept of life chances. Dahrendorf (1979: 73) interprets life chances as the

"probability of finding satisfaction for interests, wants, and needs" whereas in

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[4] The information is selected from http://www.irp.wisc.edu/research/inequality/causeconseq.htm.

Cockerham's view, Weber's notion of life chances refers to the probability of acquiring a particular lifestyle, which means the person must have the financial resources, status, rights, and social relationships that support the chosen lifestyle (Weber, 1978; Cockerham, 2007).

SES has been regarded as one of the best proxies for inequality as it represents the social impacts of economic activity and the economic impacts of social activity. Marmot (1999b) identified three points that are central to the discussion on socioeconomic and health inequalities: (1) inequalities pertain to the systematic differences between groups, not simply differences among individuals, (2) there is a social gradient in health and disease, and (3) the relationship between socioeconomic status and health is marginally related to health selection.[5] Indeed, from Marmot's perspective, it is more accurate to say that social inequality perpetuates in society over time because the measure of socioeconomic status creates the disparity between individuals. Financial and mental supports from family or household members are two essential components of an individual's health. Health inequality is a complicated issue, and health status may have a reciprocal relationship with income inequality (Mullahy, Robert and Wolfe, 2004: 523), as well as living arrangements (Hughes and Waite, 2002).

Trends of increasing social inequality provide an important basis in understanding the causes and consequences of disparity in the US, but the most important challenge for

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[5] SES differentials in health may also result from health selection. It is possible that the selection mechanisms may also be present in the HRS dataset. Those with poor health are selected into lower SES through lower educational attainment, reduced or withdrawal from labor force participation, thereby reducing their wage income and wealth accumulation. This process of health selection can start as early as childhood. Poor health lowers one's income and limit one's earning potential (Macinko, Shi, Starfield, and Wulu, 2003).

medical sociologists is to define and measure these concepts about equity, equality, inequality, and disparity as they relate to health. Extensive literature shows that both social integration (the structural dimension of social relations) and social support (the sustaining content of social relations) positively influence health (Hughes and Waite, 2002; Berkman and Glass, 2000; House, Umberson, and Landis, 1988; Seeman, 1996; Thoits, 1995). Both social integration and social support can be indicated by someone's living arrangements. Although this literature provides insight into the potential links between household structure and health, neither focuses explicitly on the social environment formed by the household (Hughes and Waite, 2002: 2).

Roots of Social Inequality

To study health inequality, researchers need to focus on individual characteristics, how the social environment affects people's income and wealth, and how to reduce or eliminate health inequality in society. There are several individual characteristics that affect wage and wealth inequalities in America, including age, gender, race, education attainment, and occupation (2006 American Community Survey). Social inequality also has a geographic component, as illustrated by the Income, Earnings, and Poverty report (2006 American Community Survey) which indicates that wage and wealth differentials resulting from the different distributions of productivity and different opportunities in society are reflected in the geographical differences in social inequality that vary over time. Health inequality is rooted in these economic inequalities and health status may have a reciprocal relationship with income inequality (Mullahy, Robert and Wolfe, 2004).

SES can be regarded as one of the best proxies for inequality because it can be used to represent the social impacts of economic activity and the economic impacts of social activity.

To sum up, social inequality is a complicated issue, but research on social inequality helps researchers understand the causes and consequences of social disparity in detail. Trends in social inequality summarize and analyze the social problem of disparity over time and in different geographical areas, and therefore researchers should take into account the effects of globalization on social inequality. For researchers, the medical sociological approach can be used to achieve a more integrated understanding of the mechanisms behind various sociodemographic- and socioeconomic-related inequalities by incorporating other societal-level (e. g. household social capital), family-level (e. g. relationship quality), and individual-level variables (e. g. age, gender, and race) that contribute to these inequalities. Therefore, this study will use gender, race, and age as the control variables because health issues also relate to a variety of social and income inequalities that predict health outcome.

Income and Health Inequality

While there is little disagreement about the existence of inequality, the Black Report (1980) debates focus mainly on the validity and nature of explanations of inequality in health (Abercrombie, Hill, and Turner, 2006: 179). Research since the Black Report has confirmed the importance of class differences. Wilkinson's research (1996) shows through a comparative study, that Scandinavian societies, characterized by extensive

welfare state programs, had better health outcomes than both Britain and the U.S. (Abercrombie, Hill, and Turner, 2006: 179). In addition, Wilkinson (2000) concluded that the degree of social hierarchy (vertical separation) and social cohesion (horizontal separation) determines the national health status. Although these statistical correlations between income inequality and health are impressive, they have been subject to significant criticism: (1) income inequality is a proxy for a variety of conditions operating through individual and collective, material and psycho-social pathways; (2) relative rather than absolute income inequality appears to be important and poor self-estimates in hierarchical organizations may play a role in health differences; and (3) income inequality reflects the level of welfare services different societies provide for their citizens (Abercrombie et al., 2006; Turner, 2004; Wilkinson, 2000).

Deaton (1999) is concerned with what it means to talk about inequality in health, and whether, according to some useful definition of the concept, health inequality in the United States is rising in tandem with the rise of income inequality, and he also investigates the possibility that income inequality itself is a health hazard, a hypothesis advocated by Richard Wilkinson (1996). Also, proximity of education creates a convergence of health inequalities because the effects of schooling on health outcomes diminish as people age (Ross and Wu, 1996: 107).

Since the type of living arrangement varies by the level of income, it is also important to consider the health implications of living arrangements. Indeed, there is ample evidence that family members take into account all sources of income available to the family in deciding not only how much each member might work in a market setting,

13

but also how to structure living arrangements (Smeeding, 1996: 51). Midlife experience

of providing informal care to family members or formal health care to non-relatives

affects one's preferences about living arrangements (Hays, Gold, Flint, and Winer, 1999).

The findings of Hays's (2002) study suggest demographic factors, especially gender and

race, as powerful influences on late-life living arrangements. Therefore, it is not

surprising for them to find that older men are most likely to live with a spouse, whereas

older women are more likely to live alone or with non-spouse others (Hays, 2002: 140-

141).

Education and Health Inequality

Of the many social developments that have occurred during the last couple of

decades, human and cultural capital such as educational achievement and attainment are

displacing economic capital as the principal stratifying forces in most industrial societies

(Grusky and Ku, 2008). Therefore, it is reasonable to suppose that inequalities in

educational opportunity and outcomes have implications on health inequality. The

analysis of stochastic decision tree model of education attainment by Morgan (2007) and

Lucas (2001) suggests that educational attainment can play an important role in social

inequality. Consequently, it is not surprising to find that people who have more

education tend to enjoy a longer and healthier life (Kitagawa and Hauser, 1973;

Kramarow, Pastor, and Gorina, 2000; Lauderdale, 2001) because they have more control

resources and power that enables them to maintain and reproduce their advantageous

positions in society.

Education is usually seen as affecting society not only through socialization, but also through "a system of allocation conferring success to some and failure to others" (Meyer, 1977: 55). According to Meyer (1977), education restructures the whole population, creating and expanding elites, and redefining the rights and obligations of its members. Consequently, "institutional arrangements structure the connections between social origin and educational attainment, between educational attainment and early labor force placements, and between early and later placements in the labor force" (Kerckhoff, 1995: 323). Therefore, institutional arrangements are related to students' backgrounds and the environment in schools because both the educational systems and family background play an important role in creating educational inequality in society (Kerckhoff, 1995; Meyer 1977).

Both family background and educational system creates inequality. With respect to family background, the research by Lucas (2001) suggests that social background advantages seem to work to effectively and continuously secure for the children of advantage advantaged locations of their own (p. 1681). In his attempt to provide a general explanation for social background-related inequality, Lucas's (2001: 1624) findings found support for the "effectively maintained inequality" in education. With respect to the educational system, inequality is created through the various types of tracking structures.

Though a distinguished legacy of research has demonstrated the persistent association between education and health, causal mechanisms underlying education–health relationships have remained less well understood. The link between health and

education is of particular significance because it has strengthened over time (Kitagawa and Hauser, 1973; Kramarow, Pastor, and Gorina, 2000; Lauderdale, 2001). Therefore, identifying and understanding factors that contribute to education-related health differences should remain an important field of study to medical sociologists. A substantial amount of research suggests that health differences are due in part to the differences in behavior and access to healthcare across educational groups. The better educated tend to have healthier behaviors and lifestyles, to be less likely to participate in self-destructive behaviors such as high tobacco use, poor diet, excess alcohol use, lack of exercise, and to be active (Pampel and Rogers, 2004). On average, individuals with higher levels of education experience longer and better quality lives than those with little education (Adler and Newman, 2002; Smith, 2004). The literature reviewed here suggests that different allocation selection outcomes can have important implications on student's success in society. It is therefore likely that the emphasis on the educational system as an agent of allocation has relevance to health outcomes.

Social Capital and Health Inequality

Variations in resources, social capital, and household context vary according to one's living arrangement (Wilkinson, 1992 and 1996; Subramanian, Kim and Kawachi, 2002; Hughes and Waite, 2002; Eichenlaub, 2006). Moreover, how social capital relates to family structure/living conditions affect the process of people's health in advance (Wilkinson, 1992 and 1996; Subramanian, Kim and Kawachi, 2002; Eichenlaub, 2006). Bourdieu divides capital into four arenas: economic, cultural, social, and symbolic,

claiming these capitals are a kind of social power because they empower individuals to maintain or preserve their advantageous class positions. Bourdieu's definition of social capital suggests an influence of socioeconomic status on the possession of a network of more or less institutionaled relationsihps. Therefore, Bourdieu's concept of "habitus" and his emphasis on the cultural and socio-economic specificity of social capital can be used to conceptualize and identify the health effects of social class, focusing specifically on how various structural forces (ethnicity, class, immigration) intersect within the context of a health encounter. This conceptualization enables Bourdieu to direct the researcher's focus to the continuing struggle of converting from one or more types of capital to power.

From Bourdieu's perspective, lifestyles and various SES-related inequalities in health and illness are determined by the "class-related" habitus and the scope of various forms of capital. Consumption and lifestyles are shaped by the habitus, which disposes people to act in particular ways and by the availability of various types of capital. Bourdieu emphasizes the importance of symbolic power as a crucial source of power and a major cause of social inequality. This notion of symbolic power offers a practical instrument for examining the health effects of social class. Most researchers argue that the type of living arrangement affects people's health outcomes because the different tastes or habitus routinely guides an individual's choices and options in his or her daily life (Hughes and Waite, 2002).

Social networks associated with living arrangements can also be used to attain other things in life like physical safety, good health, companionship, social esteem, etc (De

17

Graaf and Flap, 1988: 453). By studying the role of human and social capital

simultaneously, De Graaf and Flap (1988) were able to show that higher socioeconomic

position of the contact is related to better job search outcomes because the higher the

status of the contact is, the more information the contact possesses and the more

influence the contact can exert on behalf of the individual seeking help. This suggests

that an individual's knowledge about and access to economic opportunities and social

supports may depend on his or her social networks (Ellen and Turner, 1997: 840). Taken

together, Bourdieu's concept of social capital can be extended to the determinants of

health outcomes because social capital can promote health through the provision of

household resources and social support through extrafamilial networks.

The importance of group and organizational membership for the health of

individuals is seen in the growing interest in the concept of social capital. Bourdieu

(1986) views social capital largely as a resource that accrues to individuals as a result of

their membership in groups which affects individual accesses to information, resources,

and social supports. Turner (2004: 13) defines social capital as "the social investments of

individuals in society in terms of their membership in formal and informal groups,

networks, and institutions." Both Bourdieu and Turner's view of social capital suggests

that social capital also plays a pivotal role in an individual's perception of health. The

positive influences of social capital on health are derived from "enhanced self-esteem,

sense of support, access to group and organizational resources, and its buffering qualities

in stressful situations" (Cockerham, 2007: 87). The importance of social capital in health

outcomes can be found in a well-known public health study in the 1950s and 1960s of a

small Italian American community in Roseto, Pennsylvania by Lasker and her colleagues (1994). Heart attacks in this community were 50 percent less than in four surrounding towns mainly related to a tradition of strong family and social tie, religious service participation, and marriage within the same ethnic group (Lasker, Egolf, and Wolf, 1994). More recently, Lundborg (2005) on Swedish adolescents found that levels of social capital were correlated with the probability of smoking and illicit drug use. This suggests that social capital affects health inequality in many ways, and those social networks, household members, and living arrangements are related to individual's health outcomes.

Social stratification is a process generating a hierarchy of individuals by wealth, power, and prestige (Hao and Johnson, 2000). "One's position in the hierarchy can be manifested in education, occupation, income and wealth, and social class" (Hao and Johnson, 2000; 601). Therefore, different socioeconomic statuses give rise to different lifestyles and life chances which affect individual's health. According to Weber's concept of "life chances," health inequalities are generated by unequal access to resources and different life-styles such as different types of living arrangements and social classes that can either constrain or enhance the level of social capital available to an individual. As a result, this study conceptualizes family structure, marriage duration, current work duration, and social ties through social capital theory (Coleman, 1988) to delineate the effects of income, education, social capital, and living arrangements on health. Social capital theory is based on an individual decision-making model, but it explicitly considers the context of social structure and organization, as well as normative and cultural factors (Hao and Johnson, 2000: 604). As articulated by Coleman (1988,

19

1990) and others (e.g., Portes and Sensenbrenner, 1993), social capital represents a unique type of resources, generated only from social relationships that facilitate certain types of actions and constrains others. Social capital can assume three forms: (1) reciprocal obligations, expectations, and trust; (2) information that provides the basis for rational action; and (3) norms and effective sanctions that govern behavior and, in particular, induce action in the interest of a collectivity, such as family, kinship, or ethnic community (Hao and Johnson, 2000: 604).

Social capital is embedded in structural relations (Hao and Johnson, 2000). Coleman (1988) argues that social capital is facilitated by closure in the structure of social relations. In the family, closure is achieved when both horizontal (conjugal) and vertical (generational) structures are present and family members retain reciprocal social relationships with each other. As such, in a single-person household, neither horizontal nor vertical structures are present and social relationships are lacking, leading to the absence of family social capital. Couple-only families and families consisting only of a single parent and children also lack one of the structural relationships in the family. The loss in social capital, however, depends on the cultures and norms in which the family is situated (Hao and Johnson, 2000; 604). Individuals invest in social capital by strengthening family, kin, and friendship ties and by providing support to others in the network in order to generate reciprocal obligations and trust with the hope of receiving future help during periods of economic deprivation and poor health (Hao and Johnson, 2000). Thus, social capital theory is also pivotal to the SES-health relationship because social capital provides resources and support to individuals in any society.

20

Living Arrangements and Health Inequality

Another mechanism explaining the SES-health relationship is living arrangements. Both living arrangements and income have been proposed to predict and to explain the effect of health inequality. Each applies different logical explanations to the influence of socioeconomic inequality and therefore carries different implications. So, researchers need to focus on both income and health inequalities as the main causes of social stratification. These two types of inequalities have grown ever since the mid-1970s, surged more sharply in the 1980s, and then stabilized in the 1990s (Neckerman and Torche, 2007; Card and DiNardo, 2002; Nielson and Alderson, 2001; Katz and Autor, 1999; Morris and Western, 1999). Since Pakulski and Waters considered income as a key indicator of the effect of class membership on life chances (Pakulski and Waters, 1996: 674), the choice of living arrangement is affected by a number of socioeconomic characteristics. An increasing proportion of older people in industrialized countries live alone. A study by Mutchler and Burr (1991) found that the probability of living alone increases with the level of income. On the contrary, financial constraints limit the choices of living arrangements among the elderly, potentially leading to co-residence between generations in poor households (Mutchler and Burr, 1991).

Moreover, some family researchers have found that marriage has beneficial effects on health. Hughes and Waite's extensive review of literature suggests that both social integration (the structural dimension of social relations) and social support (the sustaining content of social relations) positively affect health (Hughes and Waite, 2002; Berkman

21

and Glass, 2000; House, Umberson, and Landis, 1988; Seeman, 1996; Thoits, 1995).

Some marital-based health differences can be explained by differences in living

arrangement. Thus, it is logical to assume that an individual's health is associated with

his or her social relationships or social bonds: Living with a spouse or having lived with a

spouse confer benefits to both partners through social support (Johnson, 1983), social

control (Ross, 1995; Umberson, 1992) and increased material well-being (Becker, 1981).

In addition to providing spousal support, marriage ties people to other individuals (e.g.,

spouse's friends and in-laws) and social institutions (Stolzenberg et al., 1995; Waite,

1995). Research indicates married people are less likely to engage in negative health

behaviors (e.g., excessive drinking or eating poor diets) (Ross et al., 1990; Umberson,

1987; Waite, 1995) and are more likely to visit the doctor (Verbrugge, 1979). Married

people may also be better able to afford healthy diets and lifestyles because marriage

increases material well-being through specialization, economies of scale, and greater

combined household wealth (Becker, 1981; Waite, 1995).

Marriage affects people's living arrangements and is also associated with people's

health: "a long tradition of research does show the health benefits of the most prominent

dimension of households: the presence of a spouse" (Hughes and Waite, 2002: 2). Being

married—which in the U.S. nearly always implies co-residence—has consistent positive

effects on physical health that do not reflect selection into marriage (Lillard and Waite,

1995; Goldman, Korenman, and Weinstein, 1995; Umberson, 1992; Waite and Hughes,

1999, 2002). Marriage benefits health because married-couple households have more

economic resources than other households (Lupton and Smith, 2003) and because

marriage brings about the monitoring of health, the social support for healthy behaviors, emotional intimacy, and the social attachment (Ross, 1995; Umberson, 1992; Waite and Gallagher, 2000; Waite and Hughes, 2002). In addition to the protective effects of marriage, the marriage selection hypothesis[6] suggests that healthy individuals are more likely than unhealthy individuals to enter and to maintain a marriage or consensual union (Schoenborn, 2004). Therefore, the review of literature suggests that marriage and living arrangements can lead to different kinds of lifestyles that can have important implications on health inequality.

Most research (Rogers et al., 2000; Hughes and Waite, 2002) on marital status and health only compares individuals living in all types of unmarried households with those living in married-couple households. Similarly, most analyses do not distinguish among married-couple households; failing to differentiate, for instance, couples who live alone, with children, or with others. This kind of research was not able to tap the full complexity of contemporary household structure because the analyses do not distinguish among married-couple households, thus failing to differentiate, for instance, couples who live alone, with children, or with others. The limited research examining links between household structure and health has often produced mixed and complicated results.

Three studies investigate the relationship between household structure and mortality. Although all three studies found that the risk of dying differs according to the type of household, their specific findings are mixed. Lillard and Waite (1995) found unmarried women and married men living with non-spouse adults experience a very small

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[6] Healthy individuals are more likely to marry and to stay married than unhealthy people because married individuals tend to have more abilities to choose their lifestyles and resources to have better material well-being (Schoehborn, 2004; Hughes and Waite, 2002).

protection against death. In contrast, Rogers (1992) found that married people living with others, previously-married persons living alone, and previously- married persons living with others experience higher rates of mortality. The third study is a recent study by Rogers, Hummer, and Nam (2000), which finds that unmarried individuals living alone have a higher risk of dying than married couples living with two children. Single adults who are not household heads and living with others and adult children living with their married parents also face increased risks of dying compared to married parents (Roger et al., 2000).

A handful of disconnected studies examine the association between household structure and health in cross-sections. Even though most find significant relationships between living arrangements and health, the possibility that the relationships are actually due to the influence of health cannot be ruled out in these cross-sectional studies (Hughes and Waite, 2002: 3). Waite and Hughes (1999) find that living alone disadvantages individuals on a range of health measures. Others find that living alone is detrimental for women (Macran, Clarke, and Joshi 1996) and for men (Denton and Walters 1999). Since health differences by marital status can also be explained by differences in living arrangements, researchers need to clarify the effect of health outcomes on the marital status and living arrangements. Even though health is the most important determinant of institutionalization, economic resources dominate living arrangement decision-making processes (Mutchler and Burr 1991). Living arrangements are influenced by a variety of factors, including marital status and financial well-being and this in turn affects health outcomes. This study builds on the existing literature by examining the association

between socioeconomic status (SES) and perceived health in the U.S., while giving

special attention to the influence of living arrangements.

CHAPTER III

METHODOLOGY AND RESEARCH DESIGN

Conceptual Framework and Hypotheses

Prior research has identified two hypotheses to explain how differential resources or

social capital can affect health outcomes. The first hypothesis suggests that an

individual's socioeconomic status (SES) affects their health while the second hypothesis

suggests that an individual's social relationships or social bonds such as living condition,

marriage, or household structures affect their health. Based on these two hypotheses, this

study uses descriptive and inferential statistics to further explain the relationship between

people's socioeconomic status (SES) and health. This study uses the broad conceptual

framework (set out in Figure 1) which accounts for observed differences in health on the

basis of discrepancies in socioeconomic wellbeing. The present study proposes to test the

following hypotheses:

1. The likelihood of being in a higher good-health category increases with the level
   of income and with the level of education.
2. Individuals who are living with a spouse are more likely to be in a good-health
   category compared to individuals who are living alone (Hughes and Waite 2002).
3. Individuals living with children are less likely to be in a good-health category
   than individuals living alone (Hughes and Waite, 2002; Hao and Johnson, 2000).
4. The likelihood of being in a good-health category increases with marital capital
   (duration of current marriage), occupational capital (tenure at current job) and
   religious capital (religious service attendance) (Hao and Johnson, 2000).

5. After controlling for living arrangements, gaps in perceived health among different sociodemographic and socioeconomic groups will be greatly reduced or eliminated.
6. After controlling marital, occupational and religious capital, gaps in perceived health among different sociodemographic and socioeconomic groups will be greatly reduced or eliminated.

Dataset

The empirical work of this study is based on two waves of data from the Health and Retirement Study (HRS). The surveys were designed and data collected through a collaborative effort between the Social Security Administration (SSA) and the National Institute on Aging (NIA) at the National Institutes of Health (NIH). This study paints an emerging portrait of an aging America. This dataset has information on different levels such as individual, household, and family levels, and these benefit this research design by observing the SES change on each level. These variables include the gender, age, race, self-reported health status, marital status, personal income, education, and occupation.

The HRS is a national panel survey of individuals over age 50 and their spouses. The HRS's panel design enables research and analysis in support of policies on retirement, health insurance, saving, and economic well-being. The survey elicits information related to demographics, income, assets, health, cognition, family structure and connections, health care utilization and costs, housing, job status and history, expectations, and insurance. The family composition depends on the number of resident family members, the number under 18, and the age of the head of household, and whether or not there is one or two in the family. In addition to collecting current information on gender, age, race, self-reported health status, marital status, personal income, and

education, individuals participated in in-depth interviews about health behaviors, physical and mental health, insurance coverage, financial status, family support systems, labor market status, and retirement planning. At the household level, questions were asked regarding the income, asset ownership, family composition, type of living quarters, and numbers of persons in the household.

The Health and Retirement Study (HRS) has several analytic strengths. It is a panel design and it has a longitudinal perspective and high re-interview rate. One disadvantage of the survey is that it does not provide information on community socioeconomic characteristics (availability of health facilities, the presence of public / private schools, the percent of census tract poverty, the percent of state poverty, etc.). The final analysis sample consists of 8,768 individuals.

Since its initiation in 1992, the HRS provides an invaluable, growing body of multidisciplinary data to help address the issues of aging through its unique and in-depth interviews of a nationally representative sample of adults over the age of 50. Since the HRS provides a detailed description of America's older adults, we can gain more knowledge about this growing population's physical and mental health, insurance coverage, financial situations, family support systems, work status, and retirement planning.

Since people's living arrangements are influenced by their socioeconomic status (Hughes and Waite, 2002), it is likely that an individual's capital, household structure, and household resources are related to health outcomes. Therefore, an individual's living arrangement is used as the major unit of analysis in this study.   Also, this study focuses

on a study of older Americans because the living arrangements of this group of people tend to be more stable than the general population at large (Hays, 2002; Hughes and Waite, 2002).

Measurement

Dependent Variables

Drawing on Hughes and Waite's (2002) research, this paper examines health via self-reported health, a subjective means to observe an individual's health. Ferraro (1980) presented evidence from a national survey of older persons which indicates that self-rated health is significantly related to measures of objective health status, concluding that self-rated health is an efficient means of gaining information about the health of the elderly. The dependent variable here is self-reported health from the HRS in Wave Seven (2004), designed to capture respondents' subjective assessment of their own medical and functional status. This is an ordinal dependent variable represented by individual's self-reported health on a five-point scale item: 1=poor, 2=fair, 3=good, 4=very good and 5=excellent.

Independent Variables

The main independent variable of this study is individual's self-reported health at Wave One in 1992. The coding of this variable is identical to that of self-reported health in Wave Seven in 2004. This variable is included because it has been shown to be statistically correlated with morbidity and mortality (Mossey and Shapiro, 1982) and can be a strong measure of individual perceived health at subsequent waves. In addition,

Kawachi (1999) suggests that gender, age, and race are relevant to health inequality. Respondent's age is measured in years and treated as a continuous variable. Respondent's race is indicated by dummy variables for White/Caucasian (reference) (1), Black / African-American (2) and Other (3). Respondent's gender is indicated by a dummy variable for males (0, reference) and females (1).

The second category of independent variables includes measures of sociodemographic and socioeconomic characteristics to test the first hypothesis. Following Budrys (2003), this study is intended to access the health impact of SES by using income, education, and occupation. However, a preliminary correlation analysis suggests that individual's income is highly correlated with occupation; therefore, this study only uses income and education as proxies for socioeconomic characteristics. Education, which is treated as a continuous variable, is a marker for socioeconomic status that has been found to be highly correlated with health in many studies. Income is an influential marker of household socioeconomic status and an important determinant of health. Since the income variable can be highly skewed, it is transformed into to logarithmic scale, with the addition of unity to keep those with 'zero' income in the analyses.

The third category of independent variables include measures of living arrangements, to test the second, third, and fifth hypotheses. Drawing on the work of Hughes and Waite (2002), living arrangements are classified into categorical variables for living alone (referent), married and living with a spouse, living with a partner, living with children, and miscellaneous forms of households. The living arrangement variable is

constructed from responses to three questions. The first is the number of persons in the household. The second is the marital status of the respondent. The third is whether the respondent was living with his or her children. As such, living alone would be an instance where an unmarried individual was living in a single-person household. Living with a spouse would be an instance where an individual who is living with his or her spouse is in a two-person household. Living with a partner would be an instance where an individual living with his or her partner is in a two-person household. Living with children would be an instance where an individual living with his or her children is in a household with at least two members. The last category, miscellaneous forms of households, refers to individuals whose living arrangement cannot be clearly determined and is included to ensure that the categorization of individuals into the type of family living arrangement is exhaustive.

The fourth category of independent variables, household characteristics, includes characteristics of the household capital. Household capital is represented by household size, current marriage duration (marital capital), years of tenure on current job (occupational capital), and frequency of religious service attendance (religious capital). It is proposed that longer marital and occupational duration and more religious service attendance increases household capital.

Data Analyses Procedures

Ordered logistic regression is appropriate for the dependent variable because self-reported health is an ordinal dependent variable represented by individual's self-reported health on a five-point scale item, 1 = poor, 2 = fair, 3 = good, 4 = very good, and 5=

excellent. The logic of logistic regression may be extended to the analysis of dependent variables that are ordinal meaning that they have three or more categories. Following a descriptive analysis, this study proceeds to use the STATA OLOGIT procedure to predict SES and perceived health as a function of respondent's living arrangement, sociodemographic and socioeconomic characteristics, and respondents' household capital.

Five models will be estimated. The first (baseline) model includes the main effects for perceived health at Wave One (1992) and all relevant sociodemographic characteristics (age, sex and race) as controls. This model is established in order to serve as a comparison to other subsequent models. The second model adds respondent's income to test the first hypothesis. The third model adds respondent's years of education to test the first hypothesis too. The fourth model adds measures of living arrangements to test the second, third, and fifth hypotheses. The final (full) model adds measures of respondents' household social capital including household size, current marriage duration, years of tenure on current job, and frequency of religious service attendance to test the fourth and sixth hypotheses.

Since the effects of race and gender are consistently significant and substantial, interaction effects might be critical. Since factors predicting perceived health (e.g. health behaviors and familial support such as transfer of economic and non-economic resources within the family) might vary by gender and race, analyses are also completed to examine whether there are any racial and gender differences in the models discussed above. Rather than including exhaustive interaction terms, the sample was split and identical

models were run for each race (Table 5), each gender (Table 6) and then each race-gender

combination (Tables 7 and 8).

CHAPTER IV

RESULTS

Descriptive Statistics

With respect to the relationship between SES on health, five models will be

estimated to test the hypotheses outlined in Chapter Three. Four categories of variables

will be used as predictors of self-reported health: 1) sociodemographic characteristics

(self-reported health at Wave One, age, race and gender), 2) individual and household

socioeconomic characteristics, 3) the type of living arrangement, and 4) household

capital. Table 1 provides a statistical summary of the measures. It lists the percentage of

Wave Seven (2004) self-reported heath (dependent variable), means, standard deviations,

and the frequencies for the sub-sample of Health and Retirement Study (HRS) by gender.

Table 2 provides another statistical summary of the measures, and the percentage of

Wave Seven (2004) self-reported heath (dependent variable), means, standard deviations,

and the frequencies for the sub-sample of Health and Retirement Study (HRS) by gender.

Before discussing the results of the multivariate analysis, it is important to note

some differentials observed in the Health and Retirement Study (HRS) by gender and

race. Since gender and race are two important sociodemographic variables, it is pivotal

to understand the differences observed by gender and race in HRS. The seventh (2004)

wave of HRS suggests that the percentages of men perceiving themselves as having

"poor", "fair", "good" and "very good" health are similar to that of women. Table 1

documents a somewhat higher percentage of men perceiving themselves as having

"excellent health" (12.09%) compared to older women (11.51%) in HRS. The seventh

(2004) wave of HRS also suggests that male and female respondents are about the same

age (averaging 66 years old). With regards to different race groups, the HRS suggests a

somewhat higher percentage of respondents are White / Caucasian among men (81.91%)

compared to women (79.43%). Comparing the two groups on the basis of income and

education, men earn more and are relatively more educated than women among 7th wave

HRS respondents. Women have lower education than men as shown in Table 1. Women

($10,421) also have lower personal income than men ($19,060) as shown in Table 1.

Comparing the two groups on the type of living arrangement, Table 1 documents a

somewhat higher percentage of women who were living alone or living with children at

the time of the survey. On the contrary, a somewhat higher percentage of men are living

with either a spouse or a partner at the time of the survey. Comparing the two groups on

measures of household capital, men have longer duration of marriage and years of tenure

on a job than women. Table 1 also documents a somewhat higher percentage of women

who are attending religious services regularly (at least once a week). The type of living

arrangement has the most variation by gender; other variables indicate minimal levels of

gender differences.

Table 1. Definitions of Variables and Descriptive Statistics by Gender

	Men	Women	Total	Codes
Dependent Variables				
Self-reported Health in Wave Seven				
Poor	9.09%	9.34%	9.24%	Code=1
Fair	20.10%	20.89%	20.56%	Code=2
Good	31.79%	30.82%	31.23%	Code=3
Very good	26.93%	27.44%	27.23%	Code=4
Excellent	12.09%	11.51%	11.75%	Code=5
Independent Variables				
Sociodemographic Qualifiers				
Age	66.63(10.69	66.53(12.04	66.57(11.50	
Race				
White/Caucasian	81.91%	79.43%	80.51%	
Black/African American	13.66%	16.07%	15.03%	
Other	4.43%	4.50%	4.47%	
Socioeconomic Status Qualifiers				
Respondent's Income	19,060	10,421	14,006	
	(49,570)	(23,386)	(36,845)	
Respondent's Years of Education	12.00(3.66)	11.83(3.30)	11.90(3.46)	
Living Arrangements				
Living Alone	9.22%	11.87%	14.69%	Code=1
Living with Spouse	33.43%	25.55%	28.96%	Code=2
Living with Partner	1.73%	1.44%	1.57%	Code=3
Living with Children	0.76%	10.00%	6.00%	Code=4
Miscellaneous Forms of Household	54.85%	44.14%	48.78%	Code=5
Measures of Household Capital				
Current Marriage Duration	16.94(20.71	13.09(19.52	14.76(20.13	
Years of Tenure on Current Job	4.19(9.74)	2.84(7.37)	3.43(8.51)	
Frequency of Religious Service Attendance				
Not at All	70.02%	69.56%	69.76%	Code=1
One or More Times A Year	10.36%	8.02%	9.03%	Code=2
Two or Three times A Month	6.24%	6.11%	6.17%	Code=3
Once A Week	8.46%	9.71%	9.17%	Code=4
More Than Once A Week	4.91%	6.60%	5.58%	Code=5

Note: the numbers in parenthesis denotes standard deviation of the parameters.

Table 2 documents a somewhat higher percentage of Blacks and Other Racial Groups perceiving themselves as having "poor" or "fair" health and a somewhat higher percentage of Whites perceiving themselves as having "very good" and "excellent" health. The seventh (2004) wave of HRS also suggests that Whites and Blacks are relatively older than Other Racial Groups. Comparing the two groups on the basis of income and education, the seventh (2004) wave of HRS suggests that Whites and Other Racial Groups earn relatively more than Blacks. Blacks ($11,443) also have lower personal income than Whites ($14,346) as shown in Table 2. Blacks and other racial groups have lower education than Whites as shown in Table 2. The seventh (2004) wave of HRS also suggests that Whites and Blacks are relatively more educated than Other Racial Groups. Comparing the two groups on the type of living arrangement, Table 2 documents a somewhat higher percentage of Whites and Blacks who were living alone at the time of the survey and a somewhat lower percentage of Blacks who were living with a spouse at the time of the survey. Table 2 also documents a somewhat higher percentage of Blacks and Other Racial Groups who were living with children at the time of the survey. Comparing the two groups on measures of household capital, Whites and Other Racial Groups have longer duration of marriage and years of tenure on a job than Blacks. Table 2 also documents a somewhat higher percentage of Blacks who are attending religious service regularly (at least once a week).

The combined sample of men and women (also referred to as the combined sample of Blacks and Whites in Table 2) documents a somewhat higher percentage of individuals perceiving themselves as having "fair" (20.56%), "good" (31.23%), and "very good"

37

(27.23%) health. The mean age observed in the seventh (2004) wave of HRS is 66.57.

The mean income observed in the seventh (2004) wave of HRS is $14,006. The mean

years of education observed in the seventh (2004) wave of HRS is 11.90. The combined

sample of men and women also documents a higher percentage of respondents who are

women (56.67%), White / Caucasian (80.51%) and married (62.22%) at Wave Seven

(2004). The combined sample also documents a somewhat higher percentage of men and

women who were living with a spouse at the time of the survey. The mean current

marriage duration observed in the seventh (2004) wave of HRS is 14.76. The mean years

of tenure on current job observed in the seventh (2004) wave of HRS is 3.43. Table 1

also documents a somewhat higher percentage of men and women who do not attend

religious service (69.76%) at the time of the survey.

Table 2. Definitions of Variables and Descriptive Statistics by Race

	Whites	Blacks	Other	Total	Codes
Dependent Variables					
Self-reported Health in Wave Seven (2004)					
Poor	8.54%	11.90%	12.84%	9.24%	Code=1
Fair	18.78%	28.43%	26.67%	20.56%	Code=2
Good	30.90%	33.58%	29.71%	31.23%	Code=3
Very good	28.96%	19.59%	21.57%	27.23%	Code=4
Excellent	12.85%	6.51%	9.22%	11.75%	Code=5
Independent Variables					
Sociodemographic Qualifiers					
Age	67.2(11.5	65.3(11.0	60.4(11.3)	66.6(11.5)	
Gender					
Men	44.06%	39.35%	42.91%	43.33%	Code=0
Women	55.94%	60.65%	57.09%	56.67%	Code=1
Socioeconomic Status Qualifiers					
Respondent's Income	14,346	11,443	15,878	14,006	
	(39,127)	(24,172)	(27,750)	(36,845)	
Respondent's Years of Education	11.90(3.5)	12.20(3.3	10.77(3.7)	11.90(3.46)	
Living Arrangements					
Living Alone	14.56%	16.71%	10.62%	14.69%	Code=1
Living with Spouse	31.90%	15.43%	21.46%	28.96%	Code=2
Living with Partner	1.54%	1.59%	2.08%	1.57%	Code=3
Living with Children	5.01%	10.73%	8.09%	6.00%	Code=4
Miscellaneous Forms of	46.99%	55.55%	57.76%	48.78%	Code=5
Measures of Household Capital					
Current Marriage Duration	15.72(21)	9.85(17)	14.31(18)	14.76(20)	
Years of Tenure on Current			3.78(7.6)	3.49(8.7)	
Frequency of Religious Service Attendance					
Not at All	70.76%	62.24%	75.95%	69.76%	Code=1
One or More Times A Year	9.57%	7.39%	5.12%	9.03%	Code=2
Two or Three times A	5.52%	10.11%	4.75%	6.17%	Code=3
Once A Week	8.87%	10.90%	8.98%	9.17%	Code=4
More Than Once A Week	5.27%	9.36%	5.20%	5.58%	Code=5

Note: the numbers in parenthesis denotes standard deviation of the parameters.

The Relationship between Socioeconomic Status and Self-Reported Health

The results in Table 3 Model 1 indicate that perceived health at Wave One is

positively associated with perceived health at Wave Seven (2004). Controlling for other

relevant variables, for every increase in a category of perceived health at Wave One

(1992), the odds of being in a higher good-health category are nearly three times greater.

The odds of being in a higher good-health category decrease with age (Table 3).

Controlling for other relevant variables, the odds of being in a higher good-health

category decreased about 2% for each additional year of age. Women are about 1.1 times

more likely to be in a higher good-health category than men, controlling for other

relevant variables. When compared to Whites, Black and Other Race's odds of being in a

poorer good-health category decrease multiplicatively by about 0.79 and 0.85

respectively, controlling for other relevant variables.

Controlling for sociodemographic variables including age, gender, and race, the

previous self-reported health is still a significant predictor of individuals' current self-

reported health. The baseline model is the basic measurement to compare with the other

models to test hypotheses in this study. Therefore, results in Table 3 Model 1 suggest

that current self-reported health is affected by previous health condition in Wave One

(1992). This finding resonates with Hughes and Waite's (2002) study on the impact of

household structure on health. Their analysis of the 1992-1994 Health and Retirement

Study suggests that the presence of chronic conditions (i.e. diabetes, heart disease, long

disease, cancer, hypertension and stroke) and long-term disabilities have an influence on

self-rated health measured two years later (Hughes and Waite, 2002).

Table 3. Determinants of Perceived Health (Model 1, Model 2, and Model 3)

	Sociodemographic Qualifiers Model 1		Socioeconomic Status Qualifiers			
			Model 2		Model 3	
	Basic		Individuals' Income		Years of Education	
	Odds	Beta	Odds	Beta	Odds	Beta
Self-Reported Health in 1992	2.903***	0.554	2.831***	0.538	3.019***	0.492
Age in 2004	0.985***	-0.038	0.997*	-0.008	0.993	-0.003
Female	1.106*	0.023	1.151**	0.032	1.079***	0.034
Race (White/Caucasian as Reference)						
Black/African American	0.788***	-0.039	0.775***	-0.042	0.925***	-0.035
Other	0.853*	-0.013	0.838	-0.015	0.992	-0.004
Respondent's Income (Ln) in 2004			1.046***	0.094	1.201***	0.082
Respondent's Years of Education					1.380***	0.143
Log Likelihood	-11527.668		-11478.927		-11367.77	

Note: N=8,768; *** P<0.001; ** P<0.01; * P<0.05.

The addition of natural log income in Model 2 does not affect the statistical

significance of perceived health at Wave One (1992), sex , and race but does slightly

change the magnitude of these effects. A comparison of coefficients for age between

Models 1 and 2 suggests that the effect of age and race on perceived health works

predominantly through income. With these variables in the model, the effect of age

becomes marginally significant and the effect of Other Race becomes insignificant. The

results in Model 2 suggest that with every one unit of natural log increase in income, the

odds of being in a higher good health category are 1.05 greater, controlling for other

relevant variables. Income has a positive association with health because of their link

with material deprivation, restriction on access to healthcare services, and opportunity to exercise control over one's health. The results in Model 3 indicate that adding education into the model does not affect the statistical significance of income but does slightly increase the magnitude of income relationship. This increase demonstrates that education has a crucial impact on income differentials in health outcomes and the relatively favorable health outcomes among higher income individuals is largely attributable to the higher level of education among these individuals. And as research by Abercrombie et al. (2006), Turner (2004) and Wilkinson (2000) has shown, income inequality reflects the level of welfare services (including health) different societies provide for their citizens. The addition of years of education in Model 3 does not affect the statistical significance of perceived health at wave one, age, sex, race and natural log income but does slightly change the magnitude of these relationships. The results in Model 3 suggest that with every one year increase in education, the odds of being in a higher good-health category are 1.38 greater, controlling for other relevant variables. Again, as research by Morgan (2007) and Lucas (2001) has shown, educational attainment can play an important role in health inequality. It is also reasonable to suppose that health differences are due mainly to the differences in access to healthcare across educational groups. The results in Model 3 may support the idea that the frequency of almost every health behavior (e.g. smoking, drinking, physical inactivity and so forth) differs by the level of education. Since education facilitates access to health care (Ross and Wu, 1996), the results in Model 3 may also suggest that the less educated experience a poorer quality of care. A comparison of coefficients for age and Other Race between models 2 and 3 suggests that

42

the relationship with age and race on perceived health works predominantly through education.

The results from both Model 2 and Model 3 support the first hypothesis which stated that the likelihood of being in a higher good-health category increased with both income and education. A comparison of standardized betas for income and education suggests that education is a more important predictor of health outcomes than income.

The addition of the type of living arrangement in Model 4 does not affect the statistical significance of perceived health at wave one, age, sex, race, natural log income and years of education but does slightly changes the magnitude of their effects. A comparison of coefficients for race between Models 3 and 4 suggests that the relationship between race and perceived health works predominantly through the type of living arrangement. Racial differences in the type of living arrangement among Whites, Blacks and Other Racial Groups could be due to the fact that Blacks are more likely than others to be single parents, and single parents are more likely to be at a health disadvantage. Model 4 also supports the second and third hypotheses. The results from Model 4 (Table 4) suggest people living with a spouse are more likely to be in a good-health category compared to people living alone, resonating with Hughes and Waite's (2002) findings that marriage has a beneficial relationship with individual's self-reported health. Compared with those living alone, the odds of being in a higher good-health category for individuals living with a spouse increase multiplicatively by about 1.23. On the contrary, individuals who are living with children are less likely to be in a good-health category when compared to individuals who are living alone.

Table 4. Determinants of Perceived Health (Parameter Estimates)

	Living Arrangements Model 4		Household Social Capital Model 5	
	Odds	Standardized Beta	Odds	Standardized Beta
Self-Reported Health in 1992	2.602***	0.486	2.592***	0.483
Age in 2004	0.997	-0.008	0.994	-0.014
Female	1.216***	0.043	1.175***	0.035
Race (White/Caucasian as Reference) Black/African American				
	0.873*	-0.022	0.836**	-0.029
Other	1.008	0.001	0.998	-0.0002
Respondent's Income (Ln) in 2004	1.042***	0.083	1.038***	0.076
Respondent's Years of Education	1.098***	0.134	1.099***	0.135
Living Arrangements (Living Alone as Reference group)				
Living with Spouse	1.231***	0.046	1.152	0.031
Living with Partner	0.956	-0.003	1.009	0.001
Living with Children	0.819**	-0.029	0.786**	-0.034
Miscellaneous Forms of Household	0.883	-0.02	0.852*	-0.026
Measures of Household Social Capital				
Current Marriage Duration			1.001	0.01
Years of Tenure on Current Job			1.004	0.016
Frequency of Religious Service Attendance (Not at All as Reference Group)				
One or More Times A Year			1.049	0.009
Two or Three times A Month			1.160	0.023
Once A Week			1.300***	0.049
More Than Once A Week			1.358***	0.048
Log Likelihood	-11338.32		-11318.24	

Note: N=8,768; *** P<0.001; ** P<0.01; * P<0.05.

The second and third hypotheses are also supported. Compared with those who are living alone, the odds of being in a higher good-health category for individuals who are living with children decrease multiplicatively by about 0.82. Even though the results in Model 4 suggest that the type of living arrangement affects people's health outcomes, the hypothesis regarding living arrangement as a mediating process is not supported. The

absence of this mediating process is due primarily to the fact that the living arrangement variable in HRS is constructed from responses to three crude questions: the number of persons in the household, the marital status of the respondent, and whether or not the respondent was living with his or her children.[7]

The addition of the type of living arrangement in Model 5 does not affect the statistical significance of perceived health at wave one, age, sex, race, natural log income, and years of education but does slightly changes the magnitude of their effects. The results from Model 5 (Table 4) suggest that individuals who are living with their children at the time of the survey are less likely than those living alone to be in a higher good health category. Controlling for other relevant variables, the odds of being in a higher good-health category decrease multiplicatively by 0.79 for those living with children compared to those not living with children. This result resonates with Hughes and Waite's (2002) findings that single parents living with children tend to be disadvantaged on all health outcomes. When controls for household social capital are included, living with a spouse becomes insignificant.

The result in Model 5 (Table 4) also suggests that the likelihood of being in a good-health category increases with religious service attendance. Controlling for other relevant variables, the odds of being in a higher good-health category increase multiplicatively by 1.31 with religious service attendance. This suggests that in addition to providing a set of social networks, religious service attendance may boost other features beneficial to health such as a set of values that discourage smoking, drinking and other unhealthy behaviors.

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[7] An alternative way to test the mediation effect was provided by Clogg in 1995 in his article and titled "Symposium on Applied Regression Statistical Methods for Comparing Regression Coefficients between Models." This testing method is beyond the scope of this thesis and will be explored in future research.

Though the frequency of religious service attendance affects people's health outcomes, the hypothesis regarding household social capital as a mediating process is not supported. The absence of this mediating process may be due to a lack of other aspects of household social capital, such as civic and religious involvement, peer relationships and so forth.

Gender and race have important effects on individual's health. For example, women have better health than men (Denton and Walters, 1999), Whites have better health than Blacks (Pampel and Rogers, 2004), and "demographic factors, especially gender, race, and cohort, are powerful influences on late-life living arrangements" (Hays, 2002: 140). The results of these studies suggest that health outcomes differ among various racial groups based on a number of health indicators. Therefore, models 4 and 5 will be specified for each of the racial (Blacks, Whites and Others) and gender (Male and Female) groups. Hays (2002) also suggests that women who live alone appear to be protected against functional declines and therefore they tend to enjoy better mental health than their counterparts who are living with their spouses. Also, regardless of their marital status, income, or functional ability, older Blacks tend to experience more trigger events and residential instability than older Whites (Hays, 2002). Therefore, Blacks are not only more likely to live in an extended family household, but also use fewer formal home care or nursing home services (Hays, 2002).

The results in Model 4 of Table 5 suggests that for both Whites and Blacks, the addition of living arrangements does not affect the statistical significance of perceived health at wave one, age, sex, natural log income and years of education but does slightly change the magnitude of their effects. Likewise, for both Whites and Blacks, the addition

46

of living arrangements and measurements of household social capital in Model 5 of Table 5 does not affect the statistical significance of perceived health at wave one, sex, natural log income and years of education but does slightly change the magnitude of their effects such as age, which is insignificant. Except for the frequency of religious service attendance, there is no evidence that measures of household social capital such as current marriage duration and years of tenure on current job is significantly related to perceived health. The results in model 5 of Table 5 suggest that controlling for other relevant variables, the odds of being in a higher good-health category for Whites increases multiplicatively by more than a factor of 1.2 with religious service attendance. The frequency of religious service attendance remains significant for both Blacks and Whites after controlling for all relevant variables. The results in models 4 and 5 suggest that when compared to Whites who were living alone at the time of the survey, the odds of being in a higher good-health category increase multiplicatively by more than a factor of 1.2 for Whites living with a spouse. The results in Model 5 of Table 5 suggest that for Blacks, the odds of being in a higher good-health category increase multiplicatively by 1.012 with more years of tenure on current job (Odds=1.012). The influence of living with a spouse on self-reported health is statistically significant in the White sample (Odds=1.301) but not for the Black sample. This means that an individual's living arrangement is an important predictor of self-reported health for older Whites but not for older Blacks.

Table 5. Determinants of Perceived Health (Parameter Estimates) by Race

	White/Caucasian (N1=7,108)				Black/African American (N2=1,347)			
	Model 4		Model 5		Model 4		Model 5	
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992	2.626***	0.486	2.617***	0.483	2.505***	0.472	2.503***	0.468
Age in 2004	0.996*	-0.009	0.994	-0.015	0.994	-0.014	0.991	-0.022
Female	1.240**	0.048	1.206***	0.041	1.088	0.019	0.999	-0.0002
Respondent's Income (Ln) in 2004	1.038***	0.078	1.037***	0.074	1.056***	0.113	1.041**	0.083
Respondent's Years of Education	1.102***	0.135	1.103***	0.137	1.081***	0.112	1.077***	0.105
Living Arrangements (Living Alone as Reference group)								
Living with Spouse	**1.301*****	**0.058**	1.217*	0.043	**1.056**	**0.113**	0.937	-0.014
Living with Partner	0.950	-0.003	1.006	0.0004	1.081	0.112	0.695	-0.02
Living with Children	0.874	-0.018	0.836	-0.023	1.056	0.113	0.754	-0.053
Miscellaneous Forms of Household	0.953	-0.007	0.920	-0.013	1.081	0.112	0.766	-0.05
Measures of Household Social Capital								
Current Marriage Duration			1.001	0.011			0.999	-0.014
Years of Tenure on Current Job			1.002	0.009			1.012*	0.054
Frequency of Religious Service Attendance (Not at All as Reference Group)								
One or More Times A Year			1.007	0.001			1.350	0.05
Two or Three times A Month			1.154	0.022			1.313	0.05
Once A Week			1.253***	0.042			1.722**	0.106
More Than Once A Week			1.290**	0.039			1.674**	0.097
Log Likelihood	-9214.07		-9200.98		-1712.22		-1703.44	

Note: N=8,455; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

Table 5(continued). Determinants of Perceived Health (Parameter Estimates) for Whites

| | White/Caucasian (N1=7,108) | | | | | |
| | Null Model | | Model 4 | | Model 5 | |
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992			2.626***	0.486	2.617***	0.483
Age in 2004			0.996*	-0.009	0.994	-0.015
Female			1.240**	0.048	1.206***	0.041
Respondent's Income (Ln) in 2004			1.038***	0.078	1.037***	0.074
Respondent's Years of Education			1.102***	0.135	1.103***	0.137
Living Arrangements (Living Alone as Reference group)						
Living with Spouse	1.536***	0.116	**1.301***	**0.058**	1.217*	0.043
Living with Partner	0.996	-0.0003	0.950	-0.003	1.006	0.0004
Living with Children	0.861	-0.024	0.874	-0.018	0.836	-0.023
Miscellaneous Forms of Household	0.809**	-0.040	0.953	-0.007	0.920	-0.013
Measures of Household Social Capital						
Current Marriage Duration					1.001	0.011
Years of Tenure on Current Job					1.002	0.009
Frequency of Religious Service Attendance (Not at All as Reference Group)						
One or More Times A Year					1.007	0.001
Two or Three times A Month					1.154	0.022
Once A Week					1.253***	0.042
More Than Once A Week					1.290**	0.039
Log Likelihood	-10553.89		-9214.07		-9200.98	

Note: N=8,455; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

49

Table 5(continued). Determinants of Perceived Health (Parameter Estimates) for Blacks

	Black/African American (N2=1,347)					
	Null Model		Model 4		Model 5	
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992			2.505***	0.472	2.503***	0.468
Age in 2004			0.994	-0.014	0.991	-0.022
Female			1.088	0.019	0.999	-0.0002
Respondent's Income (Ln) in 2004			1.056***	0.113	1.041**	0.083
Respondent's Years of Education			1.081***	0.112	1.077***	0.105
Living Arrangements (Living Alone as Reference group)						
Living with Spouse	1.201	0.046	**1.056**	**0.113**	0.937	-0.014
Living with Partner	0.368	-0.068	1.081	0.112	0.695	-0.02
Living with Children	0.924	-0.018	1.056	0.113	0.754	-0.053
Miscellaneous Forms of Household	0.801	-0.050	1.081	0.112	0.766	-0.05
Measures of Household Social Capital						
Current Marriage Duration					0.999	-0.014
Years of Tenure on Current Job					1.012*	0.054
Frequency of Religious Service Attendance (Not at All as Reference Group)						
One or More Times A Year					1.350	0.05
Two or Three times A Month					1.313	0.05
Once A Week					1.722**	0.106
More Than Once A Week					1.674**	0.097
Log Likelihood	-1943.11		-1712.22		-1703.44	

Note: N=8,455; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

In Table 6, the addition of living arrangements in Models 4 and 5 does not affect the statistical significance of perceived health at wave one, natural log income and years of education, but delimits the effect of race and age by selecting a different gender. The addition of measurements of household social capital in Model 5 of Table 6 does not affect the statistical significance of perceived health at wave one, race, natural log income, years of education, and the type of living arrangement but does slightly change the magnitude of their effects. The results in Model 5 of Table 6 suggest that for both men and women, the odds of being in a higher good-health category increases with religious service attendance, controlling for other relevant variables. The results in models 4 and 5 suggest that women who live with a spouse have higher odds of being in a higher good-health category than women who live alone. The results in Model 4 suggest that the association between Wave One (1992) self-reported health and current self-reported health is statistically significant between the men's sample (Odds=2.362) and the women's sample (Odds=2.803). This means that previous self-reported health is an important predictor of current self-reported health for older men and older women.

Table 6. Determinants of Perceived Health (Parameter Estimates) by Gender

| | Men(N1=3,778) | | | | Women(N2=4,990) | | | |
| | Model 4 | | Model 5 | | Model 4 | | Model 5 | |
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992	**2.362*****	**0.448**	2.356***	0.445	**2.803*****	**0.513**	2.789***	0.509
Age in 2004	0.993	-0.016	0.991	-0.021	1.001	0.002	0.999	-0.004
Race (White/Caucasian as Reference)								
Black/African American	0.861	-0.024	0.832	-0.029	0.883	-0.02	0.834	-0.029
Other	1.009	0.001	0.998	-0.0001	1.009	0.001	0.997	-0.0002
Respondent's Income (Ln) in 2004	1.038***	0.081	1.036***	0.075	1.045***	0.085	1.040***	0.076
Respondent's Years of Education	1.091***	0.140	1.091***	0.140	1.109***	0.134	1.111***	0.135
Living Arrangements (Living Alone as Reference group)								
Living with Spouse	1.106	0.023	1.008	0.002	1.332***	0.062	1.309**	0.058
Living with Partner	1.169	0.01	1.206	0.012	0.727	-0.018	0.781	-0.014
Living with Children	0.716	-0.017	0.721	-0.017	0.860	-0.026	0.849	-0.028
Miscellaneous Forms of Household	0.877	-0.026	0.813	-0.040	0.801*	-0.028	0.810*	-0.026
Measures of Household Social Capital								
Current Marriage Duration			1.002	0.015			1.000	-0.002
Years of Tenure on Current Job			1.003	0.013			1.005	0.02
Frequency of Religious Service Attendance (Not at All as Reference Group)								
One or More Times A Year			1.062	0.012			1.041	0.007
Two or Three times A Month			1.216*	0.031			1.131	0.019
Once A Week			1.243*	0.040			1.337***	0.054
More Than Once A Week			1.362**	0.045			1.363***	0.051
Log Likelihood	-4996.99		-4989.31		-6323.46		-6310.44	

Note: N=8,768; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

Table 6(continued). Determinants of Perceived Health (Parameter Estimates) for Men

	Null Model		Model 4		Model 5	
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992			**2.362*****	**0.448**	2.356***	0.445
Age in 2004			0.993	-0.016	0.991	-0.021
Race (White/Caucasian as Reference)						
Black/African American			0.861	-0.024	0.832	-0.029
Other			1.009	0.001	0.998	-0.0001
Respondent's Income (Ln) in 2004			1.038***	0.081	1.036***	0.075
Respondent's Years of Education			1.091***	0.140	1.091***	0.140
Living Arrangements (Living Alone as Reference group)						
Living with Spouse	1.535***	0.114	1.106	0.023	1.008	0.002
Living with Partner	1.089	0.007	1.169	0.01	1.206	0.012
Living with Children	0.697	-0.022	0.716	-0.017	0.721	-0.017
Miscellaneous Forms of Household	0.861	-0.035	0.877	-0.026	0.813	-0.040
Measures of Household Social Capital						
Current Marriage Duration					1.002	0.015
Years of Tenure on Current Job					1.003	0.013
Frequency of Religious Service Attendance (Not at All as Reference Group)						
One or More Times A Year					1.062	0.012
Two or Three times A Month					1.216*	0.031
Once A Week					1.243*	0.040
More Than Once A Week					1.362**	0.045
Log Likelihood	-5608.93		-4996.99		-4989.31	

Note: N=8,455; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

Table 6(continued). Determinants of Perceived Health (Parameter Estimates) for Women

	Null Model		Model 4		Model 5	
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992			**2.803*****	**0.513**	2.789***	0.509
Age in 2004			1.001	0.002	0.999	-0.004
Race (White/Caucasian as Reference)						
Black/African American			0.883	-0.02	0.834	-0.029
Other			1.009	0.001	0.997	-0.0002
Respondent's Income (Ln) in 2004			1.045***	0.085	1.040***	0.076
Respondent's Years of Education			1.109***	0.134	1.111***	0.135
Living Arrangements (Living Alone as Reference group)						
Living with Spouse	1.746***	0.150	1.332***	0.062	1.309**	0.058
Living with Partner	0.826	-0.013	0.727	-0.018	0.781	-0.014
Living with Children	0.824	-0.042	0.860	-0.026	0.849	-0.028
Miscellaneous Forms of Household	0.741**	-0.048	0.801*	-0.028	0.810*	-0.026
Measures of Household Social Capital						
Current Marriage Duration					1.000	-0.002
Years of Tenure on Current Job					1.005	0.020
Frequency of Religious Service Attendance (Not at All as Reference Group)						
One or More Times A Year					1.041	0.007
Two or Three times A Month					1.131	0.019
Once A Week					1.337***	0.054
More Than Once A Week					1.363***	0.051
Log Likelihood	-7404.85		-6323.46		-6310.44	

Women (N2=4,990)

Note: N=8,455; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

The results in Table 7 suggest that the addition of living arrangements in Model 4 does not affect the statistical significance of perceived health at wave one, natural log income and years of education but does slightly change the magnitude of their effects. The association between Wave One (1992) self-reported health and current self-reported health is statistically significant between the men's sample (Odds=2.351) and the women's sample (Odds=2.872) by selecting older whites. The association between living arrangements and self-reported health is statistically significant for selecting the older black men's sample (Odds=0.518) but not for the older black women's sample (Odds=1.374). This means that the type of living arrangement is an important predictor of current self-reported health by gender and race.

Table 7. Living Arrangements (Model 4) of Perceived Health by Gender and Race

	White (N1=7,108)				Black (N2=1,347)			
	Men (N1=3,139)		Women (N2=3,969)		Men (N3=507)		Women (N4=840)	
	Odds	Beta	Odds	Beta	Odds	Beta	Odds	Beta
Self-Reported Health in 1992	2.351***	0.444	2.872***	0.516	2.455***	0.471	2.585***	0.475
Age in 2004	0.994	-0.015	0.999	-0.002	0.992	-0.018	1.000	0.0001
Respondent's Income (Ln) in 2004	1.037***	0.079	1.039	0.075	1.044*	0.086	1.064***	0.129
Respondent's Years of Education	1.089***	0.132	1.120	0.143	1.103***	0.153	1.065*	0.081
Living Arrangements (Living Alone as Reference group)								
Living with Spouse	1.310*	0.060	1.327***	0.061	0.518**	-0.147	1.374	0.061
Living with Partner	1.315	0.018	0.722	-0.019	0.597	-0.039	0.498	-0.029
Living with Children	1.134	0.005	0.878	-0.021	0.335*	-0.09	0.908	-0.021
Miscellaneous Forms of Household	1.069	0.013	0.770*	-0.031	0.494**	-0.153	0.932	-0.011
Log Likelihood	-4171.28		-5023.12		-646.78		-1057.29	

Note: N=8,455; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

55

Table 7(continued). Living Arrangements of Perceived Health for Whites by Gender

	White (N1=7,108)							
	Men (N1=3,139)				Women (N2=3,969)			
	Null Model		Model 4		Null Model		Model 4	
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992			**2.351***	**0.444**			**2.872***	**0.516**
Age in 2004			0.994	-0.015			0.999	-0.002
Respondent's Income (Ln) in 2004			1.037***	0.079			1.039	0.075
Respondent's Years of Education			1.089***	0.132			1.120	0.143
Living Arrangements (Living Alone as Reference group)								
Living with Spouse	1.586***	0.120	1.310*	0.060	1.638***	0.134	1.327***	0.061
Living with Partner	1.295	0.020	1.315	0.018	0.859	-0.011	0.722	-0.019
Living with Children	0.907	-0.005	1.134	0.005	0.818*	-0.040	0.878	-0.021
Miscellaneous Forms of Household	0.947	-0.012	1.069	0.013	0.754*	-0.043	0.770*	-0.031
Log Likelihood	-4650.30		-4171.28		-5888.35		-5023.12	

Table 7(continued). Living Arrangements of Perceived Health for Blacks by Gender

	Black (N2=1,347)							
	Men (N3=507)				Women (N4=840)			
	Null Model		Model 4		Null Model		Model 4	
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992			2.455***	0.471			2.585***	0.475
Age in 2004			0.992	-0.018			1.000	0.0001
Respondent's Income (Ln) in 2004			1.044*	0.086			1.064***	0.129
Respondent's Years of Education			1.103***	0.153			1.065*	0.081
Living Arrangements (Living Alone as Reference group)								
Living with Spouse	0.808	-0.057	**0.518**	**-0.147**	1.594**	0.107	**1.374**	**0.061**
Living with Partner	0.447	-0.072	0.597	-0.039	1.162	-0.090	0.498	-0.029
Living with Children	0.440	-0.081	0.335*	-0.09	1.049	0.012	0.908	-0.021
Miscellaneous Forms of Household	0.650	-0.112	**0.494**	**-0.153**	0.871	-0.026	**0.932**	**-0.011**
Log Likelihood	-733.93		-646.78		-1203.51		-1057.29	

Note: N=8,455; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

The results in Table 8 suggest that disaggregating Model 5 by gender and race does not affect the statistical significance of perceived health at wave one, natural log income and years of education but delimits the effect of age by gender and race. The addition of measures of household capital and frequency of religious service attendance in Model 5 does not affect the statistical significance of perceived health at wave one, natural log income and years of education but does slightly change the magnitude of their effects. The association between Wave One (1992) self-reported health and current self-reported health is statistically significant for men (Odds=2.347) and women (Odds=2.854). The association between living arrangements and self-reported health is statistically significant for the men (Odds=0.518) but not for women (Odds=1.374) among older blacks. In addition, the frequency of religious service attendance is still important for respondents' self-reported health and is significant by gender and race. The effects of living arrangements and the frequency of religious service attendance are both important factors for self-reported health by gender and race.

Table 8. Living Arrangements and Household Social Capital (Model 5) of Perceived
Health by Gender and Race

| | White (N1=7,108) | | | | Black (N2=1,347) | | | |
| | Men (N1=3,139) | | Women (N2=3,969) | | Men (N3=507) | | Women (N4=840) | |
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992	**2.347*****	**0.442**	**2.854*****	**0.511**	2.466***	0.467	2.586***	0.472
Age in 2004	0.992	-0.019	0.997	-0.008	0.986	-0.031	0.997	-0.006
Respondent's Income (Ln) in 2004	1.036***	0.078	1.035***	0.066	1.022	0.044	1.054**	0.108
Respondent's Years of Education	1.089***	0.132	1.122***	0.146	1.099***	0.145	1.060*	0.076
Living Arrangements (Living Alone as Reference group)								
Living with Spouse	1.235	0.047	1.283*	0.054	**0.443****	**-0.179**	**1.407**	**0.065**
Living with Partner	1.379	0.021	0.774	-0.015	0.531	-0.047	0.475	-0.03
Living with Children	1.155	0.006	0.856	-0.025	**0.317***	**-0.093**	**0.947**	**-0.012**
Miscellaneous Forms of Household	1.022	0.004	0.771*	-0.031	**0.422****	**-0.184**	**0.953**	**-0.008**
Measures of Household Social Capital								
Current Marriage Duration	1.001	0.009	1.000	0.003	1.001	0.007	0.998	-0.02
Years of Tenure on Current Job	1.000	0.002	1.005	0.02	1.016	0.075	1.009	0.035
Frequency of Religious Service Attendance (Not at All as Reference Group)								
One or More Times A Year	1.060	0.012	0.955	-0.008	1.063	0.011	1.824*	0.089
Two or Three times A Month	1.282*	0.038	1.066	0.01	1.242	0.041	1.535	0.078
Once A Week	1.189	0.033	1.279**	0.046	2.236**	0.138	1.790*	0.119
More Than Once A Week	1.367**	0.045	1.242*	0.034	1.366	0.051	2.043**	0.141
Log Likelihood	-4165.50		-5013.90		-639.83		-1051.21	

Note: N=8,455; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

Table 8(continued). Living Arrangements and Household Social Capital (Model 5) of Perceived Health for Whites by Gender

	White (N1=7,108)							
	Men (N1=3,139)				Women (N2=3,969)			
	Null Model		Model 5		Null Model		Model 5	
	Odds	Beta	Odds	Beta	Odds	Beta	Odds	Beta
Self-Reported Health in 1992			**2.347*** **	**0.442**			**2.854*** **	**0.511**
Age in 2004			0.992	-0.019			0.997	-0.008
Respondent's Income (Ln) in 2004			1.036***	0.078			1.035***	0.066
Respondent's Years of Education			1.089***	0.132			1.122***	0.146
Living Arrangements (Living Alone as Reference group)								
Living with Spouse	1.586***	0.120	1.235	0.047	1.638**	0.134	1.283*	0.054
Living with Partner	1.295	0.020	1.379	0.021	0.859	-0.011	0.774	-0.015
Living with Children	0.907	-0.005	1.155	0.006	0.818*	-0.040	0.856	-0.025
Miscellaneous Forms of Household	0.947	-0.012	1.022	0.004	0.754*	-0.043	0.771*	-0.031
Measures of Household Social Capital								
Current Marriage Duration			1.001	0.009			1.000	0.003
Years of Tenure on Current Job			1.000	0.002			1.005	0.02
Frequency of Religious Service Attendance (Not at All as Reference Group)								
One or More Times A Year			1.060	0.012			0.955	-0.008
Two or Three times A Month			1.282*	0.038			1.066	0.01
Once A Week			1.189	0.033			1.279**	0.046
More Than Once A Week			1.367**	0.045			1.242*	0.034
Log Likelihood	-4650.30		-4165.50		-5888.35		-5013.90	

Note: N=8,455; Bold coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

Table 8(continued). Living Arrangements and Household Social Capital (Model 5) of Perceived Health for Whites by Gender

	Black (N2=1,347)							
	Men (N3=507)				Women (N4=840)			
	Null Model		Model 5		Null Model		Model 5	
	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta	Odds	**B**eta
Self-Reported Health in 1992			2.466***	0.467			2.586***	0.472
Age in 2004			0.986	-0.031			0.997	-0.006
Respondent's Income (Ln) in 2004			1.022	0.044			1.054**	0.108
Respondent's Years of Education			1.099***	0.145			1.060*	0.076
Living Arrangements (Living Alone as Reference group)								
Living with Spouse	0.808	-0.057	**0.443****	**-0.179**	1.594**	0.107	**1.407**	**0.065**
Living with Partner	0.447	-0.072	0.531	-0.047	1.162	-0.090	0.475	-0.03
Living with Children	0.440	-0.081	**0.317***	**-0.093**	1.049	0.012	**0.947**	**-0.012**
Miscellaneous Forms of Household	0.650	-0.112	**0.422****	**-0.184**	0.871	-0.026	**0.953**	**-0.008**
Measures of Household Social Capital								
Current Marriage Duration			1.001	0.007			0.998	-0.02
Years of Tenure on Current Job			1.016	0.075			1.009	0.035
Frequency of Religious Service Attendance (Not at All as Reference Group)								
One or More Times A Year			1.063	0.011			1.824*	0.089
Two or Three times A Month			1.242	0.041			1.535	0.078
Once A Week			2.236**	0.138			1.790*	0.119
More Than Once A Week			1.366	0.051			2.043**	0.141
Log Likelihood	-733.93		-639.83		-1203.51		-1051.21	

Note: N=8,455; **Bold** coefficients that are statistically significant *** P<0.001; ** P<0.01; * P<0.05.

Hypotheses Revisited

The hypothesis that states the likelihood of being in a higher good-health category increases with the levels of income and education is supported for the entire sample, including all racial (Blacks and Whites) and gender (Men and Women) groups. This suggests that high SES individuals have better health not only because they have more income relative to others, but also because they tend to be relatively more educated than low-SES individuals. Therefore, it is reasonable to suppose that education can provide the necessary decision-making and problem-solving skills that have direct applications on a healthier life.

The hypothesis about the beneficial health effects of living with a spouse is supported for the entire sample, including all racial (Blacks and Whites) and gender (Men and Women) groups. Marriage has beneficial effects on health because it provides spousal support, ties people to other individuals, and increases material well-being through specialization, economies of scale and greater combined household wealth.

The hypothesis about the unfavorable health effects of living with children is supported for Black men. This suggests that living with children reduces the likelihood of reporting good health for Black men. This could be due to the fact that Black men are more likely than their White counterparts to be single parents, and single parents are more likely to be at a health disadvantage. Therefore, the presence of children may constitute a challenging demand for Black men and this can negatively affect their health.

The hypothesis about the beneficial effects of religious service attendance is supported for all racial (Blacks and Whites) and gender (Men and Women) groups. This

suggests that religious service attendance has beneficial effects with health because it provides a set of social networks that can boost other features that are beneficial to health such as a set of values that discourage smoking, drinking and other unhealthy behaviors.

The hypothesis regarding living arrangement as a mediating process is not supported for either racial or gender groups. The results in Table 6 suggest that relationships with various sociodemographic (age) and socioeconomic (income and education) variables do not work through the type of living arrangement. The absence of this mediating process can be due to the fact that the living arrangement variable in HRS is constructed from responses to three very crude questions: the number of persons in the household, the marital status of the respondent, and whether or not the respondent was living with his or her children.

The hypothesis regarding household social capital as a mediating process is not supported for either racial or gender groups. The results in Table 7 suggest that the effects of various sociodemographic (age) and socioeconomic (income and education) variables do not work through marital capital (current marriage duration), occupational capital (tenure at current job) or religious capital (frequency of religious service attendance). The absence of this mediating process can be due to other aspects of household social capital, such as civic and religious involvement, peer relationships and so forth besides the number of people in the household, which could not be measured with this dataset.

CHAPTER V

CONCLUSION AND DISCUSSION

Prior research has identified two hypotheses to explain how differential resources

and social capital can affect individuals' health outcomes. The first hypothesis suggests

that an individual's socioeconomic status (SES) affects their health while the second

hypothesis suggests that an individual's social relationships or social bonds such as living

condition, marriage, household structure, or combined household social capital affects

their health holistically. Based on these two hypotheses, this study focuses on living

arrangements and household social capital to explore the relationship between people's

socioeconomic status (SES) and health and to explain this relationship further.

Therefore, several main hypotheses are tested in this study: 1) people of higher

socioeconomic statuses (e.g. personal income and education) are more likely to perceive

better health; 2) marriage has a beneficial effect with individual's self-reported health:

individuals who are living with a spouse are more likely to perceive better health than

those who are living alone; 3) living with children can have unfavorable health effects:

individuals who are living with children are less likely to perceive better health than those

who are living alone; 4) religious service attendance has beneficial relationships with

individual's self-reported health: the likelihood of being in a good-health category

increases with religious service attendance; 5) living arrangements and household social capital have a mediation relationship with SES-health relationship.

The major conclusion from the regression analyses is that the odds of being in a good-health category increase with income and education, even after controlling respondent's perceived health at Wave One in 1992, sociodemographic characteristics (age, race and gender), living arrangements and household social capital. So, the hypothesis regarding socioeconomic statuses and perceived health is supported for income and education. The analyses show that higher income and highly educated individuals have higher odds of perceiving better health than lower income and low educated individuals. This finding suggests that social policies should focus on the role of income and education as a means of tackling inequality. Therefore, Kawachi and Kennedy's (1999) policy suggestions to increase minimum wage and Earned Income Credit in order to reduce socioeconomic-based health inequalities should be taken seriously. Stress, lack of social support, and lack of control over one's work are related to poor health and have a greater effect on those at the bottom of the social hierarchy (Wilkinson, 1996). This can be thought of as the result of negative exposures, lack of resources, and systematic underinvestment in human capital, physical health and social infrastructure (Macinko et al., 2003).

Several sociodemographic (age, sex, race, living arrangements and household size) and socioeconomic (income and education) variables are also significant predictors of health outcomes. The likelihood of being in a higher good-health category decreases with age. These finding resonates with Cockerham's assertions in 1997 and 2007 that the

64

single most important determinant of the quality of an elderly person's life in health is age (Cockerham, 1997 and 2007). People's health worsens as they age, because older people, in general, have more health problems and functional limitations. Women have better health than men, consistent with Pampel and Roger's (2004) study on gender differences in life expectancy. This finding also resonates with Hughes and Waite's (2002) study which suggests different health outcomes among men and women in different living arrangements.

In addition, their review of literature suggests that both White and Black females have higher life expectancy (80.3 and 75.6 years, respectively) than their males counterparts (75.1 and 68.8 years, respectively). In Cockerham's (2007) review, men are disadvantaged in terms of life expectancy because of the combined effects of biological and social-psychological factors. Blacks have worse health than Whites, even though the racial difference in health is eliminated after controlling for the living arrangements and household social capital, thus making the likelihood of being in a good-health category equal between Blacks and Whites. Again, this finding resonates with Cockerham's (2007) research on Black-White differences in life expectancy. The Black-White difference in health profiles is reflected in shorter life expectancy and longevity among the Black population (Cockerham, 2007).

The likelihood of being in a higher good-health category increases with income. This finding suggests that racial disparities in health and health-related behaviors are possible contributors to the existing socioeconomic inequalities in America (Mirowsky and Ross, 2003; House, 2002). Even though socioeconomic status typically consists of

measures of income, occupational status and prestige, and levels of education (Cockerham, 2007), the findings of most stratification research suggest education alone is a better predictor of health (Cockerham, 2007; Schnittker, 2004; Mirowsky and Ross, 2003). Besides, the likelihood of being in a higher good-health category increases with education. This finding is congruent with most earlier research that found that people who have more education tend to enjoy a longer and healthier life (e.g. Kitagawa and Hauser, 1973; Kramarow, Pastor, and Gorina, 2000; Lauderdale, 2001).

As research by Ross and Wu (1995) has shown, well-educated individuals are more likely than poorly educated individuals to have fulfilling and subjectively rewarding jobs, higher incomes, and a greater sense of control over their lives and their health. They also tend to have less economic hardship than their poorly-educated counterparts (Ross and Wu, 1995). They not only smoke and drink less but also exercise and get medical checkups more regularly than their poorly-educated counterparts (Ross and Wu, 1995). The Ross and Wu study is important because it provides explanations on why the relationship between education and health is remarkably robust across a variety of health outcomes. These educational differences in health widen over the life course, as less-educated individuals tend to be more disproportionately disadvantaged in terms of illness and disease exposures as they age (Cockerham, 2007; Robert and House, 2000; Ross and Wu, 1996).

As a result, the first hypothesis is supported. The likelihood of being in a higher good-health category increases with the level of income and with the level of education proves correct for all racial and gender groups. The second hypothesis is supported:

marriage has a beneficial effect with individual's self-reported health (Hughes and Waite,

2002). The results of this study reveal that individuals who are living with a spouse are

more likely to be in a good-health category than those who are living alone. The third

hypothesis is supported. However, when the analyses were disaggregated by race and

gender in tables 6 and 7, the results suggested that children do not benefit but serve as a

burden to Black men. Black men who live with children are less likely to be in a good-

health category when compared to their counterparts who live alone. This finding

resonates with a previous study (i. e. Hughes and Waite, 2002). Thus, programs that

target living arrangements with the goal of improving health outcomes should focus more

on Black men. The fourth hypothesis is supported. The findings of this study reveal that

religious service attendance has beneficial associations with health: the likelihood of

being in a good-health category increases with religious service attendance. This finding

resonates with a previous study (i. e. Hao and Johnson 2000) on the health impacts of

SES. This suggests that religious services can play an important role in health promotion.

It provides a set of social networks that can boost other features that are beneficial to

health such as a set of values that discourage smoking, drinking and other unhealthy

behaviors.

The fifth hypothesis about living arrangements as a mediating process in the SES-

health relationship is not supported. With controls for individual's sociodemographic and

socioeconomic statuses in the model, there is no evidence that living arrangements are

significantly related to the odds of being in a higher good-health category except for the

category of living with a spouse. This suggests that the pathways that mediate the

association between living arrangements and other independent variables such as age, sex, race, income, education and household social capital may have limited the influence of individual SES on perceived health. However, the absence of this mediating process can also be because the living arrangement variable in HRS is constructed from responses to three very crude questions: the number of persons in the household, the marital status of the respondent, and whether or not the respondent was living with his or her children.

The sixth hypothesis about household characteristics as a mediating process in the SES-health relationship is also not supported. With controls for individual's sociodemographic and socioeconomic statuses in the final model (full model), there is no evidence that these measurements of household social capital are significantly related to the odds of being in a higher good-health category except the higher frequency of religious service attendance. This suggests that the pathways that mediate the association with household social capital such as age, sex, race, income, education, and living arrangements may have eliminated the influence of individual SES on perceived health. Thus, programs that target household social capital with the goal of improving health outcomes may not be adequate and interventions that address the pathways through which living arrangements affect health may be needed. However, the absence of this mediating process can be due to the lack of other aspects of household social capital, such as civic and religious involvement, peer relationships and so forth, from the HRS. The HRS did, however, include the number of people in the household which is an important indicator of household social capital.

Discussion and Policy Implications

Education provides individuals with additional means and abilities to search for new information through books, television, newspaper, magazines, or the internet, which they can use to increase their knowledge about health and health-promoting behaviors. Compared to those with little or no education, those with college degrees are more likely to have jobs in organizations with gyms, have jobs that provide the time and flexibility for exercise, have higher income to pay for workout equipment (Ross and Wu, 1996). As such, those with higher levels of income and education are more likely to maintain healthier lifestyles and to seek medical care whenever a health problem or symptom surfaces (Ross and Wu, 1996; Wilkinson, 1996). The people with higher education are also more likely to live in low-crime neighborhoods that are safer for walking or jogging, or even have tennis courts and bike paths (Ross and Wu, 1996). The health benefits of education often extend beyond remedial education to include high school, university, and even post-graduate education (Goesling, 2007). On the other hand, low-income individuals are more likely to live in resource-poor neighborhoods characterized by low levels of social trust and civic participation, greater crime and other unhealthy conditions, and higher rates of unemployment (Macinko, Shi, Starfield, and Wulu, 2003). Low income can also reduce one's ability to avoid risky behaviors, cure injuries / illness, and prevent illness (Macinko et al., 2003). These income differentials can also lead to differential access to basic healthcare services (Macinko et al., 2003).

Education also shapes employment, career mobility, earnings and wealth accumulation (Ross and Wu, 1996), which in turn affects healthcare access / usage and

69

health outcomes. People with college degrees not only have fewer bouts of unemployment over their life course, but are also more likely to be employed, to be employed full-time, and to be employed in stable, well-paid jobs that come with benefits and pension plans (Ross and Wu, 1996). These economic benefits of education often accumulate over time and this cumulative advantage often appears in the labor market, careers and income (Ross and Wu, 1996). On the other hand, failure to complete the very minimum level of education can lead to severe economic consequences (Goesling, 2007).

This study's finding that Black's self-reported health is worse than that of Whites (Tables 3 and 4) may suggest that Blacks have unique historical and contemporary experiences in the U.S., resulting in distinct social and health conditions affecting their health outcomes. This Black-White difference in health status may be characterized by different patterns of education, socioeconomic well-being, employment, as well as different access to healthcare services within the larger society. Above and beyond the social and economic costs of being Black, cultural beliefs about health and the stress associated with minority status groups may take a toll on perceived health among Blacks. In addition, previous research (Palmore, Nowlin, and Wang, 1985) has demonstrated that Blacks experience accelerated deterioration of health and specific subgroups (Blacks and low-SES individuals) have shown to be vulnerable for specific causes of death (Kitagawa and Hauser, 1973; Kramarow and Gorina, 2000). Since high-quality health care is vital to all aspects of a person's life and well-being, healthcare policies should focus not only on the different dimensions of socio-economic statuses (education, income, employment) but also target the most marginalized or the most deprived population groups.

The review of literature suggests that this important relationship between SES and health offers only a partial explanation for differences in the health of various groups in the United States and the reasons for different health outcomes among different segments of the U.S. population are more complex than has been previously understood. The literature also examines how the different dimensions of SES relate to health is critical to reducing the persistent health inequalities in the United States. In addition to a direct casual link between SES and health, the literature also suggests that the SES-health relationship can be mediated by age, gender, race and living arrangements and the relative significance of each of these factors can carry different policy implications. Overall, the results of this study are consistent with the literature reviewed. However, this study fails to find the possible mediating effects of the type of living arrangements and household social capital on the health impacts of SES. The failure to find a mediation effect of living arrangements is mainly because the variable for living arrangements in HRS is constructed from responses to three very crude questions: the number of persons in the household, the marital status of the respondent, and whether or not the respondent was living with his or her children. Additionally, the failure to find a mediation effect of household social capital is due to the absence of other aspects of social capital, such as civic and religious involvement, peer relationships and so forth which could not be measured with this dataset.

This study aimed to achieve a more integrated understanding of the mechanisms behind the SES-health relationship by incorporating other household social capital variables (e. g. current marriage duration, years of tenure on current job, and the

71

frequency of religious service attendance), living arrangements, and individual-level

factors (e. g. age, gender, and race) that contribute to this relationship. The result of this

study provides policymakers and the general public with greater knowledge about

important contributors to health. This knowledge would help policymakers enact

relevant public health policies to improve its redistributive function of public health and

income programs and help address many public policy challenges. Demographic changes

over the last few decades in the United States have led to an increase in the number of

non-married persons and an increase in the proportion of cohabiters and of persons living

alone. To the extent that the proportion of non-married persons continues to grow, the

type of living arrangement has the potential to demarcate one's social bonds and health.

The results of this study suggest that differences in living arrangements have important

implications for health outcomes. Since living with children reduces the likelihood of

reporting good health for Black men, programs that target Black men with low human

capital should be continued.

Many health-enhancing interventions have overlooked the socioeconomic

characteristics that produced health inequalities in the first place. The widening health

gap among different socioeconomic groups observed in recent decades suggests that

policies of income redistribution and health promotion should target the lower SES

groups. Addressing the SES-based health inequalities is an urgent task of health policy.

Given the time and money constraints that low-SES individuals face, they might be

doubly deprived when low income and poor health go together. It is important for

policymakers to effectively implement health-enhancing interventions that are responsive

to the needs of lower SES individuals. Socioeconomic-centered health policies that

reflect the economic and household characteristics of lower-SES individuals are needed

to reduce their exposure to health-related risk factors and the negative impacts of these

health-related risk factors on their socioeconomic well-being.

Without a comprehensive explanation of differences in health outcomes among

different segments of the U.S. population, policymakers will find it difficult to make

effective adjustments to programs that have a profound impact on the well-being of the

lower-SES individuals. Effective targeting of health interventions toward the people-in-

need could improve the long term health of society. Since SES may affect how

individuals are treated in medical settings as well as the quality of healthcare a family has

access to, alleviating economic strain for families in poverty, there can be changes in the

economic and psychosocial well-being of individuals and families. Although the

mediation effects of living arrangements and household social capital are not supported in

the SES-health relationship, living arrangements and household social capital are two

pivotal variables to improve our understanding of the SES-health relationship, so future

research needs to focus on these relationships with more appropriate data.

Future Research

Interpretation of these results, however, should also consider the limitations of the

study. First, richer data on social capital, such as civic and religious involvement, peer

relationships and so forth may help future studies to discover whether and how

intervening factors such as household-level social capital and living arrangements interact with SES to influence individual's perceived health.

Second, researchers designing health surveys should consider including measures of community characteristics (e.g. crime rates, type of neighborhoods, availability of health facilities, the presence of public / private schools, the percent of census tract poverty, the percent of state poverty, etc.). Lower-SES individuals tend to live in lower-SES neighborhoods, which are by nature more dangerous than their higher-SES counterparts. Because of this, lower-SES individuals tend to be more hostile towards others and less optimistic about their future. These negative attitudes can put lower-SES individuals at increased risk for illnesses. Since socioeconomic characteristics and crime rates in a community have relevance to health inequality, incorporating community characteristics in future health surveys will enable researchers to better estimate the interrelationship between SES and individual's perceived health.

Third, in addition to information on absolute income and wealth, researchers designing future health surveys should also consider including information on relative income or wealth. Fourth, the merged HRS does not provide information on ethnicity. Thus, the HRS data cannot be used to compare health and socioeconomic outcomes among Whites, Blacks, Asians, Native American, Hispanics and other ethnic groups. Finally, like any other longitudinal studies of older adults, HRS faces the possibility of attrition (primarily due to death). The concern in a study such as this is that those who died may be more likely to have higher likelihoods poorer self-rated health than those

who survived the entire study period. Those who were lost or refused to complete a follow-up interview could also bias the estimates.

Besides, future study needs to achieve a more integrated understanding of the mechanisms behind the SES-health relationship by incorporating other societal-level (e. g. social capital and trust, social networks, and community environments), household-level (e. g. relationship quality, household combined resources, and living arrangements), and individual-level variables (e. g. age, gender, and race) to that contribute to SES-health relationship. Although most current research focuses on individual-level as the unit of analysis, future research needs to compare different levels of the target population such as individual, family, communities, or states. This is because individual within a particular group may be more likely to be affected by the structural conditions of that group and therefore they may be more similar to one another than individuals in other groups. Communities can provide an appropriate context for examining health outcomes because they structure health attitudes and behaviors. From this means introducing a multilevel approach in which individuals (the first level of analysis) are grouped in different contexts (family and community), and variables from the three levels can be jointly analyzed in a unified framework.

Moreover, a distinguished legacy of research has demonstrated an inverse relationship between socioeconomic status (SES) and health (e.g. Wilkinson, 1992 and 1996; Daly et al., 1998; Kawachi, 1999; Marmot, 1999a; Robert and House, 2000; Macinko et al., 2003; Eichenlaub, 2006). Since this study solely focused on SES effects on health, it would be more helpful if future research examine the health effects on SES

and the reciprocal effects of SES and health. This line of research is necessary because

suffering from a severe or chronic disease (e.g. heart disease, diabetes, and sexually

transmitted disease) may act as a substantial barrier to people's ability to earn higher

income or get more education. Insofar as this is true, and insofar as physical health

predicts socioeconomic well-being accurately, it suggests that medical and public health

policies designed to improve the healthcare access or to lower the costs of healthcare to

lower-SES individuals would be warranted. With increasing numbers of Americans from

the "baby boom" generation reaching old age, social etiology is a critical field for policy

makers and this rapid change in household structure also poses a big challenge to policy

makers. The findings of this study suggest that there is a pressing need for more effective

policies that seek to minimize the undesirable consequences health inequality. Sound

public health policies that specifically take into account the type of living arrangement

and household social capital will aid policy makers in improving lower-SES individual's

access to healthcare.

Likewise, the differential impact of living arrangement on health outcomes may also

result from health selection. Since healthy individuals are more likely to marry and stay

married than unhealthy people, and married individuals tend to have healthier behaviors

and better material well-being, it is reasonable to suppose that different kinds of lifestyle

that can have different implications on health. Besides, women live longer and are more

likely to ultimately live alone.

The impact of religious service attendance on health outcomes can also be

influenced by health selection. Since individuals with preexisting illness are less likely to

attend religious service, these individuals are less likely to reap the beneficial effects of religious service attendance (e. g. a set of values and a social network that discourage smoking, drinking and other unhealthy behaviors). Further research is required to examine the possible roles of the selection mechanisms on the health impacts of SES using hierarchical linear modeling, structural equation modeling, and simultaneous equation modeling.

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