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SELF-RATED HEALTH AND COMMUNITY/SOCIAL RELATIONS

by

Rachel L. Kingsford

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Sociology

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ABSTRACT

Self-rated Health and Community/Social Relations

by

Rachel L. Kingsford, Master of Science

Utah State University, 2008

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Department: Sociology

This study was done to examine the relationship between self-rated health and social/community relations. Due to advances in modern medicine, multifactorial diseases are more prevalent than acute infectious diseases and a greater understanding of the impact sociological variables has on health is of great importance. In prior research, self-rated health has been demonstrated to be a robust predictor of mortality, even when controlling for other variables known to impact health. Presence of a strong social network and attachments to community have been shown to be protective of self-perceptions of health.

The Health and Living study was conducted in the Bear River Health District located in northern Utah in 2004 utilizing a mail survey. The relationship between self-rated health and social network indicators in addition to community attachment variables was evaluated statistically. Demographic variables were also analyzed. Church

attendance, number of friends, income, age, and education were found to be statistically

significant.

(60 pages)

ACKNOWLEDGMENTS

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CHAPTER 1

INTRODUCTION

STATEMENT OF PROBLEM

The purpose of this study is to test the effects of community attachments and social networks on self-rated health. In addition, this study seeks to better understand how gender, religion, family income, age, church attendance, and education might influence the relationship between social relations and self-rated health. Self-rated health was measured by a survey question where respondents were asked to categorize their health using the traditional five-point rating scale of excellent, very good, good, fair, or poor.

Community relations were measured by the response to questions about community attachment and neighborhood satisfaction. Length of time living within five miles of current residence was also measured and taken into account. Social networks were measured by responses to questions regarding number of close friends, number of adult relatives living within 20 miles of the respondent, number of friends and relatives the respondent feels close to, duration of friendship ties, how many of the respondent's friends are friends with each other, and frequency of contact with close friends and relatives.

Data for this study are taken from a survey conducted in 2004 in the Bear River Health District located in northern Utah. The population in this region has some unique characteristics including racial and religious homogeneity and unusually high life expectancy. This study seeks also to understand if the relationship between social/community ties is accentuated or diminished by these factors.

IMPORTANCE OF PROBLEM

In 1900, six of the 12 leading causes of death were due to infection. In 1998, the three leading causes of death were heart disease, cancer, and stroke (Budrys, 2003, p. 34). This trend illustrates the shift from acute infectious diseases caused by a single pathogen to more chronic diseases with complex causes including social, environmental, emotional, and biological factors. An understanding of the nonbiological aspects of disease becomes crucial in the treatment of these disorders.

According to the National Center for Health Statistics (2004), the current leading cause of death in the United States is heart disease. Risk factors predisposing an individual to the development of heart disease are age, heredity, gender, tobacco smoke, high blood cholesterol, high blood pressure, physical inactivity, obesity and overweight, diabetes mellitus, stress, and excess alcohol consumption (American Heart Association, 2006). Many of these risk factors have strong associations with emotional, psychological, and social behaviors. Risk factors such as high cholesterol and high blood pressure often lack accompanying physical symptoms and early detection is crucial to risk factor reduction. Detection can only come through individuals seeking preventive medical healthcare.

Research has been done on what factors prompt healthcare-seeking behavior. Social factors including the presence or absence of a social network and the nature of the social network have been found to have great impact on preventive measures (Geertsen, et al., 1975; Suchman, 1965). Through this emerging research regarding the social impact on health, the concept of self-rated health has been found to be a strong indicator

of future morbidity and mortality, even when statistically controlled for physical and social indicators (Eriksson, Unden, & Elofsson, 2001; Idler & Benyamini, 1997).

Survey research has been shown to be efficacious in the study of social phenomena due to its relative cost effectiveness, comparability with various other studies, and the ability to be replicated in multiple populations. Due to its robust nature and the relative ease of measurement, self-rated health has become commonplace in survey research on health. Self-rated health assists researchers in untangling the complexities of disease causes and the resultant treatments. An understanding of some of the sociological factors relating to self-perceptions of health could provide insight for healthcare practitioners and caregivers who use interviews to assess health. In this regard, a better understanding of some of the reinforcing or detrimental consequences of social attachments for perceptions of health may provide health practitioners with possible ways to enhance an individual's subjective sense of well-being.

CHAPTER 2

LITERATURE REVIEW

INTRODUCTION

Survey research is becoming more and more commonplace in the study of social phenomena. Due to the relative ease in treating diseases caused by a single pathogen with such treatments as antibiotics and immunizations, as well as the eradication of many pathogens, current illnesses are more multifactorial. Social and emotional factors require consideration. Survey research allows investigators to quantify complex relationships and provides opportunity for the use of statistical methodology in an effort to explain variance. The ability of survey researchers to provide comparisons to different populations is paramount.

Health is frequently studied in survey research using the tool of self-rated health in which a respondent is asked how healthy he or she feels. The efficacy of utilizing survey research to study health is that not only is it simple, but self-rated health turns out to be a fairly accurate reflection of the health of a population in terms of predicting mortality as discussed in the next section of this chapter.

Self-rated health has also been found to vary according to demographic variables (Budrys, 2003). Women are more likely to report poor self-rated health than men. Educational attainment, poverty level, and race are also highly correlated with self-rated health. Many studies have sought to understand the various reasons for this including sociological measures encompassing both microstructure and macrostructure. Microstructure is often operationalized and measured through social network analysis,

whereas macrostructure analysis is examined through community relations. These

topics are discussed in the sections of this chapter dealing with social networks and

community attachments.

SELF-RATED HEALTH

The first study in which self-rated health was found to be predictive of mortality

was conducted in Manitoba, Canada by Mossey and Shapiro (1982). Previous research

had largely ignored self-rated health. The Manitoba Longitudinal Study on Aging

(MLSA) began in 1971 and tracked 3,128 noninstitutionalized individuals aged 65 and

older for the subsequent six years. The advantage of performing this study in an elderly

population was that it provided mortality data more readily, thus allowing the association

between self-rated health and mortality to be accentuated. The MLSA evaluated several

objective factors of health status by utilizing physician reports. Mortality was assessed at

two different times during the study, from 1971 to 1973 considered early mortality and

1974 to 1977 considered late mortality. The researchers controlled for differences in age,

sex, objective health status, and residence. Respondents reporting poor health were

found to be 2.92 times more likely to die in the early mortality period and 2.77 times

more likely to die in the later mortality period than those individuals reporting higher

self-rated health.

Another longitudinal study performed at roughly the same time in the United

States was conducted by the Human Population Laboratory in Alameda County,

California. The study was started in 1965 and has continued to the present time. Ages of

respondents ranged from 16 to 94 among the 6,928 participants. In their first nine-year

evaluation of these data (1965-74), Kaplan and Camacho (1983) evaluated self-reports of disability, symptoms from chronic conditions, and energy level. Additionally, sociodemographic variables were evaluated along with health practices, social networks, and psychological functioning.   Respondents who rated their health as poor had an increased relative risk of mortality that was 1.95 higher than those who reported excellent health.

The National Health and Nutrition Examination Survey (NHANES-I) Epidemiologic Follow-up Study (NHEFS) was initiated by both the National Center for Health Statistics and the National Institute of Aging. It was conducted from 1971 through 1984 and followed 6,640 individuals from ages 25 to 74. Idler and Angel (1990) analyzed the data from the NHEFS study to evaluate the ability of self-rated health to predict mortality. Objective health status was measured by an extensive physical examination conducted by a physician and included "sitting and standing blood pressure and pulse, examination of the ears, head, eyes, mouth, neck, abdomen, major and minor joints, and skin, percussion of the liver and auscultation of the heart" (Idler & Angel, 1990, p. 447). Various laboratory studies were also evaluated. They concluded that the reliability of self-rated health in predicting mortality was largely explained by the sociodemographic variables, the health risk behaviors, and the medical diagnoses of the patient. One reason for this finding was suggested by Idler and Angel to be the geographic dispersion of respondents in the NHANES-I study as the sampling frame was the entire United States. They suggested that the differing findings from the NHEFS study, when compared to the Alameda County results by Kaplan and Camacho, could be due to respondents' comparisons of health status to others in their community as well as

cultural constraints. They suggested that further research be done on the cognitive process used by respondents to rate their health. Furthermore, they felt that research focusing on the relationship between social network and community structures could be useful for explaining the differing findings.

Combining the community-based sampling frame used in Alameda County and the elderly sample of the Manitoba study on aging, two studies were conducted from 1982 through 1986 in New Haven, Connecticut, and Iowa and Washington Counties, Iowa. Idler, Kasl, and Lemke analyzed the data and published their findings in 1990. Their findings were more similar to the Alameda County findings, giving further credence to the notion that community sampling methods are better at explaining the relationship between self-rated health and mortality. When they controlled for sociodemographic variables and objective measures of health, poor self-assessments of health significantly increase the likelihood of mortality. Men and women reporting poor health in the New Haven population were 5.33 and 2.99 times more likely to die respectively. In Iowa, the odds ratios of dying for men and women who reported poor health were 4.84 and 3.16, respectively.

Many studies have sought to better understand the nature of self-rated health and how it is assessed. A study of elderly individuals in Manitoba, Canada sought to better understand the congruence between self-assessments of health and objective health status measures (Chipperfield, 1993). Respondents were asked to categorize their health status relative to peers of their age. It was found that individuals were more likely to perceive their health as better than the objective measures indicated. Those individuals who

overestimated their health were more likely to live longer than those whose estimates were either similar to the objective measure or underestimated.

Congruence of self-assessments and objective assessments of health was also evaluated in a Florida population (Borawski, Kinney, & Kahana, 1996). In this study, respondents were asked open-ended questions regarding the methods older adults use to categorize their health. Respondents were also asked for self-reports of chronic conditions, medications, pain, shortness of breath, weight and height, and parental longevity. Several sociodemographic variables were included along with health practices. Those reporting poor health had the highest risk of mortality over a three-year period. In respondents with similar objective health indicators, those reporting poor self-assessments of health were 6.6 times more likely to die in the followup period than those holding to a more optimistic view of their health.

A similar study on self-rated health was conducted in a unique population in Canada with known chronic disease and disability (Cott, Gignac, & Badley, 1999). They evaluated illness, pain, disability, physical activity, and several psychological variables in their analysis. They found that illness-related variables were associated with poor perceived health. Demographic variables had a much less significant impact on self-perceptions of health. They also found that several psychological variables studied were associated with self-assessments of health, even in this population of individuals with chronic disease/disability. In contrast, demographic variables were found to have a much less significant impact on self-perceptions of health.

In their review of 27 community studies on self-rated health and mortality, Idler and Benyamini (1997) concluded that self-rated health was a consistently accurate

predictor of mortality in spite of the inclusion by researchers of other covariates known to be predictive of mortality. The potential reasons for this finding are intriguing. Idler and Benyamini suggest several possibilities. On the one hand, self-rated health may be assessed by some respondents as inclusive of health status and health risk factors not otherwise addressed in a particular study. For still others, self-rated health may not only encompass the respondent's current illness or disability status, but also could encompass symptoms of a disorder not currently diagnosed or even clinically detectable. For disorders or diseases that are currently diagnosed, the subjective assessment of the severity of symptoms and/or related disability may be factored into the individual's global self-rated health assessment. Most respondents are also aware of their family history which may negatively impact one's view of well-being. Self-rated health may likewise reflect the respondent's future predictions about their health in accordance with their current health status. Additionally, if respondents currently perceive their health as poor, they could be less likely to engage in preventative health practices and other health maintenance measures. It is also possible that self-rated health may provide a reflection of the presence or absence of resources, social or personal, that contribute to a decline in health (Idler & Benyamini, 1997).

Many studies have been conducted to see if the manner in which the self-rated health question is asked affects the reliability of the results. One such study was conducted to determine if self-rated health formed a continuum ranging from poor to good (Manderbacka, Lahelma, & Martikainen, 1998). They factored in risk factors such as body mass index (BMI), exercise, and frequency of drinking. Ill health indicators were included as other covariates including long-standing illness, limitation in mobility,

short-term disability, somatic symptoms, and psychological symptoms. They

concluded that BMI and frequency of exercise were significantly correlated with poor

self-rated health and frequency of drinking. All ill health indicators were linked strongly

with perceptions of poor health.

SOCIAL NETWORKS AND HEALTH

Early mortality

An early sociological study conducted by Emile Durkheim (1897) focused on

social integration and suicide. He found that less socially integrated people were more

likely to commit suicide than those who were more socially integrated (Durkheim, 1951).

He believed that integration acts as a buffer against stress. Durkheim's work inspired

further investigation into the relationship between integration and health. Seeman,

Seeman, and Sayles (1985) studied integration in a social network and how it relates to

health. They found that integration in a supportive social network is modestly associated

with better health. They concluded that social integration acts as a buffer against

alienation.

Berkman and Syme (1979) analyzed data from the longitudinal Alameda County,

California study. They evaluated four types of social ties including marriage, contact

with extended family and friends, church membership, and other formal and informal

group affiliations. Their combined social network index predicted mortality with a

relative risk ratio of 2.0 (those low on their scale were 2 times more likely to die than

those higher on the scale). This index was controlled for self-reports of physical health,

socioeconomic status, smoking, alcohol consumption, physical activity, obesity, race, life satisfaction, and the use of preventive health services.

Self-perceptions of health

In the 1970s, Cassel and Cobb reviewed more than 30 human and animal studies on social relationships and found their presence to be protective of health. They hypothesized that the role of social relationships mitigated the effects of illness as well as promoted adaptive behavior (cited in House, Landis, & Umberson, 1988).

Schoenbach et al. (1986) evaluated network ties and self-perceptions of health in Evans County, Georgia. They sought to replicate the Alameda County study analysis of Berkman and Syme by utilizing the same social network index. When controlling for cardiovascular disease risk factors, the age-adjusted relative risk ratio decreased from 2.0 to 1.5. However, further analysis found that an alternative way of constructing the social network index increased its association with health.

Also building on the Alameda County findings, House, Robbins, and Metzner sought to replicate these findings in their Tecumseh (Michigan) Community Health Study (1988). With their social network index measure, they found that those with low social network scores were more likely to have poor self-perceptions of health. The risks were reported as 2.0 to 3.0 for men and 1.5 to 2.0 for women after adjusting for effects of age and objective biomedical measures such as blood pressure, cholesterol, respiratory function, electrocardiogram, and self-reported risk factors.

Social supports and health

One of the functions of a social network is to provide support to the individual. This support or lack thereof can be linked to illness. Two different social processes are thought to affect disease processes. The first process concerns stressful situations the individual is placed in which enhance disease susceptibility. The other process is protective in nature, where the presence of a supportive social network is thought to provide a buffer against illness (Kaplan, Cassel, & Gore, 1977).

Seeman (1996) evaluated the buffering effect of a supportive social network hypothesized by Kaplan, Cassel, and Gore. Rather than evaluating network structure (number of ties, density of ties, etc.), the qualitative aspects of networks in the meta-analysis were evaluated. The supportive nature of the network was specifically evaluated. On review of the above studies, no "consistent evidence" was found for social integration to prevent the incidence of cardiovascular disease; however, a supportive network was found to improve function and longevity in patients suffering heart attacks. This suggests the need to evaluate the qualitative aspects of social networks as well as the quantitative factors in order to get an accurate reflection of the impact networks have on health status.

COMMUNITY ATTACHMENT AND HEALTH

Community attachment has been demonstrated to impact subjective perceptions of health. Albrecht, Clarke, and Miller found feeling at home in one's community to be positively correlated with self-rated health (1998). They suggested that this could be

because of the ability to obtain information about available services and locations to

receive healthcare when needed. Sense of community has also been demonstrated to

have a strong relation to self-rated health, even when other confounding variables are

considered. In a review of the Canadian Community Health Survey, Ross (2002) found

that those who felt connected to their community had nearly twice the odds of reporting

excellent or very good health.

Models of community attachment

Attachment to community is one way sociologists conceptualize macrostructural

social networks. During the last century, most of the population has shifted from residing

in predominantly rural communities to more urban locations. Kasarda and Janowitz

(1974) propose two models for use in community attachment studies to capture the

alternative effects of this shift. According to one model, this shift from rural to urban

occurs in a linear fashion with increasing numbers of people living closer together with

much greater diversity and heterogeneity. Concurrently, social ties weaken and network

linkages become more diffuse. The linear model predicts that community participation

and community attachments will decline as this population shift takes place. As opposed

to the linear model, their systemic model conceptualizes community attachments as "a

complex system of friendship and kinship networks and formal and informal

associational ties rooted in family life and ongoing socialization processes. At the same

time, it is fashioned by the large scale institution of mass society" (Kasarda & Janowitz,

1974, p. 329). According to the systemic model, the rural to urban shift does not

necessarily weaken social ties, but instead individuals living in urban areas form family

and neighborhood-based attachments and from these social ties they form attachment to community.

Kasarda and Janowitz analyzed data from a 1967 survey in England, excluding London. Attachments to community were measured by a sense of belonging, how interested the respondent was in community happenings, and how they would feel if they had to move. Two of these elements, namely sense of belonging and how respondents would feel if they had to move, were incorporated in the Health and Living Survey.

In Kasarda and Janowitz's analysis, they found that attachment was associated with community size, density, length of residence, social class, and microstructure variables when controlling for population size and density. Those living in rural communities were found to be more attached than those in urban locales. Among the microstructure variables accounted for, number of friends and relatives was most closely associated with community attachment. Empirical evidence suggested the systemic model to be a better fit than the linear model.

Dimensions of community attachment

Kasarda and Janowitz measured social networks by asking how many people the respondent knew in the area, how many friends lived within a 10-minute walk of their home, and how many of their friends and relatives lived in their same community. Participation in community organizations was also measured to evaluate community attachments. The elements of Kasarda and Janowitz's social network operationalization incorporated in the Health and Living Study were number of close friends and relatives.

In 1990, Willis Goudy evaluated the linear and systemic models proposed by Kasarda and Janowitz in an effort to explain community attachment in a rural region. He evaluated data from 27 rural community studies in north-central Iowa. The survey instrument utilized in Goudy's evaluation was designed to be as identical as possible to the one utilized in England by Kasarda and Janowitz. Goudy's findings corresponded with the findings of the English study, including their measures of social participation and community involvement. He found weak associations for the variables in the linear model to community attachment. The variables considered for the evaluation of the systemic model were length of residence, income, and age and were more strongly related to community attachment.

Like Goudy, Robert Sampson (1988) sought to further study the systemic model proposed by Kasarda and Janowitz. Sampson argues that it is essential to look at the stability of the community as a whole with regard to residential mobility in trying to understand community attachment. In communities experiencing population turnover, social ties and community attachments are more difficult. Sampson analyzed data from a 1982 British Crime Survey. He operationalized residential stability by evaluating how many respondents were raised within a 15-minute walk of where they currently resided. Local friendship ties were evaluated by asking how many of the respondent's friends lived within a 15-minute walk of them and collective attachment was measured by the percentage of respondents who reported that they would be "very sorry" to have to leave their community. Similar to the Kasarda and Janowitz study and the Goudy study, Sampson evaluated social and community participation.

Sampson did find evidence that supports the systemic model. Additionally, Sampson found that "individuals are influenced not just by their own characteristics (e.g., length of residence) but also by those of *others* in the community" (Sampson, 1988, p. 768). Friendship ties were found to be associated positively with residential stability for both rural and urban communities. As in the studies by Goudy and Kasarda and Janowitz, Sampson identified length of residence to be most directly related to community attachment sentiments. The overall average number of friends in the community was found to have a "contextual effect" on individual friendship ties. Contrary to prior studies, Sampson's data suggest that the driving forces for integration are community characteristics such as residential mobility and the overall numbers of friendships.

Living in an urban neighborhood was evaluated in a 1981 study by Riger and Lavrakas. The aim of this study was to better elucidate the ways social networks and community impact well-being. They identified "social bonding" and "physical rootedness" as being most strongly correlated with attachment to community. From these two dimensions, they identified four groups of citizens: young mobiles, young participants, isolates, and established participants. Young mobiles where characterized as having fewer social bonds, higher education, and less physical rootedness (no families). Young participants were less educated and were characterized as having more social bonds than young mobiles. Young participants had families. Isolates were older adults who were less likely to have children living at home. Isolates also demonstrated low social bonding and high physical rootedness. Established participants had children still living at home. They were high bonded and low rooted. Young people and older people

without families were found to lack nonfamilial neighborhood network ties as well.

They conclude that friendship ties are conditioned by family ties.

Norms and values of a community were also found to impact individual well-being. The research of Riger and Lavrakas underscores the need to assess the predominant cultural characteristics of the community in one's analysis of social networks and the development of attachments to community.

POPULATION CHARACTERISTICS
OF NORTHERN UTAH AND HEALTH

The Church of Jesus Christ of Latter-Day Saints

The survey from which my data were collected was conducted in 2004 in the Bear River Health District including Cache County and Box Elder County. This population has some unique religious characteristics, since a high percentage of its residents are members of The Church of Jesus Christ of Latter-Day Saints (LDS). *The Salt Lake Tribune* reported the percentage of LDS members in Cache and Box Elder counties to be 74.25% and 79.20% of the population, respectively, in 2004 (Canham, 2005). The LDS religion has a few unique characteristics that relate to health, including the code of health referred to by LDS church members as the Word of Wisdom. Other social characteristics include the division into units referred to by members as wards and stakes by geographic designation, the number of meetings and activities, and the encouragement by church leaders for the membership to be friendly and inclusive.

Members of the LDS faith are encouraged to adhere to health and nutrition standards referred to as the Word of Wisdom. The Word of Wisdom counsels individuals to abstain from coffee, tea, and tobacco and encourages the consumption of vegetables,

fruits, grains, and a limited consumption of meat (Ludlow et al., 1992). A study

conducted in California sampling active LDS members showed lower standard mortality

ratios for all cancers, cardiovascular diseases, and all causes compared to those found in

the U.S. population taking into account race and age. Further, comparison to a subgroup

of white nonsmokers attending church weekly from the Alameda County data showed

similar findings (Enstrom, 1989).

       The LDS church is divided into units referred to as stakes and wards at a local

level (Ludlow et al., 1992). These divisions are made by geographic designation. Those

who live near each other also attend church together. Thus, neighbors attend weekly

religious services together which provides frequent contact not routinely found

elsewhere. According to social network theorist Peter Blau, social relationships are more

likely to develop among individuals who have frequent contact and who live in close

physical proximity (Turner, 1998, p. 535).

       LDS church members have the opportunity to be actively involved in a number of

activities including Sunday worship services. Sunday worship services consist of three

meetings in one-hour blocks. In one block, the entire congregation meets together. In the

other two blocks, children and adults attend separate meetings (Ludlow et al., 1992).

       In addition to Sunday worship services, the LDS church asks adult male and

female adult members to make monthly visits to preassigned families in their

congregation. They share a spiritual message and check on the welfare of their assigned

families. Many other activities are available for the membership during the week

furthering the frequency of contact (Ludlow et al., 1992).

LDS church leadership has instructed the membership to be welcoming to newcomers (Ballard, 2001). Members are also encouraged to be inclusive of those not of their faith in their neighborhoods and schools. As a result, neighborhood attachments form quickly for individuals and families migrating into the area. Evidence for the quick development of community attachments in Utah has been demonstrated in prior research. This has been found to be particularly prominent among LDS migrants to Utah communities regardless of length of residence or from where they moved (Toney, Stinner, & Byun, 1997 as cited in Brehm, Eisenhauer, & Krannich, 2006, p. 154).

Race/ethnicity homogeneity

The percentage of Caucasian respondents in this study population is 96.7%. Being Caucasian has been repeatedly and strongly correlated with good self-rated health (Budrys, 2003; Himmelstein & Woolhandler, 1999). The population of respondents reporting poor health among Caucasian vs. Hispanic/Latino populations is reported in Table 1. In this table, the current study population is presented along with the more urban Salt Lake Valley Health District, the entire state of Utah, and the entire United States. The Utah data are taken from an annual statewide survey conducted by the Utah Department of Health. The data for the U.S. are taken from the National Health Interview Survey conducted annually by the Centers for Disease Control. The distinction of "Hispanic or Latino" or "not Hispanic or Latino" was used in both the Utah Health Status Survey and the National Health Interview Survey. In the Bear River Health District, 12.2% of the Hispanic or Latino population had fair or poor self-rated health compared to only 6.7% for the segment of the population classified as "not Hispanic or

Latino," including Caucasian and other racial categories. Similar findings are found at

all levels of the population.

Healthy population

The data for the Bear River Health District from the Utah Health Status Survey

indicate that the population in this geographic region is relatively more healthy than

other populations. Potential reasons for this finding include the high concentration of

LDS members and the predominantly Caucasian racial homogeneity. Table 2 illustrates

the differences in self-rated health of the Bear River Health District compared to the more

Table 1. Poor self-rated health by race in different population levels

	Fair/Poor Health	
Region studied	Percent	Frequency
Bear River Health District*		
Hispanic or Latino	12.2	1,200
Not Hispanic or Latino	6.7	9,100
Salt Lake Valley Health District*		
Hispanic or Latino	10.6	12,900
Not Hispanic or Latino	7.7	63,800
State of Utah*		
Hispanic or Latino	12.2	28,500
Not Hispanic or Latino	8.4	186,000
United States†		
Hispanic or Latino	17.0	348,000
Not Hispanic or Latino	11.7	2,292,000

*Reported in the 2004 Health Status Survey report (Office of Public Health Assessment, 2006).
†Reported in the 2004 National Health Interview Survey (Adams & Barnes, 2006).

urban Salt Lake Valley Health District, as well as the United States as a whole. The

percentage of respondents in the Bear River Health District reporting good to excellent

self-rated health approaches 93% compared to 91.9% in the Salt Lake Valley District.

Comparison of these percentages with the percentage of respondents from the National

Health Interview Survey further illustrates the generally good health of respondents in

Utah as a whole and more specifically the region studied in the present investigation.

Table 2. Self-rated health in different population levels

Region studied	Distribution	
	Percent	Frequency
Bear River Health District*		
Fair/Poor	7.2	10,500
Excellent/Good	92.8	135,100
Salt Lake Valley Health District*		
Fair/Poor	8.1	77,100
Excellent/Good	91.9	870,700
State of Utah*		
Fair/Poor	8.8	215,800
Excellent/Good	91.2	2,225,600
United States†		
Fair/Poor	12.3	2,639,900
Excellent/Good	87.7	18,866,500

*Reported in the 2004 Health Status Survey report (Office of Public Health Assessment, 2006).
†Reported in the 2004 National Health Interview Survey (Adams & Barnes, 2006).

CHAPTER 3

THEORETICAL FRAMEWORK

SOCIAL INTEGRATION AND SUICIDE

Emile Durkheim, arguably one of the founders of the field of sociology, conducted a landmark study in 1897 published in his book *Suicide*. His study is one of the earliest works on the impact social networks have on individual perceptions of well-being. Durkheim collected suicide rate statistics from several European countries and formulated categories of suicide and conceptualized theories from his findings. Some of his major empirical findings were that suicide rates were higher among unmarried individuals and people without children. From these findings, Durkheim hypothesized that suicide resulted from imbalance in social integration (individual detachment from social networks) and/or imbalance in moral regulation (individual detachment from societal norms). He then categorized suicide relative to these imbalances. Suicide from weak social ties was referred to as egoistic suicide. Individuals who were unmarried and had no children were more likely to be categorized as having committed this type of suicide.

Another category of suicide, anomic suicide, was of particular interest to Durkheim. The concept of anomie in social theory is original to Durkheim. In societies where rapid economic change is occurring, he proposed that a sense of normlessness is likely to ensue. This sense of normlessness and distress is the definition of Durkheim's anomie. Anomie so intrigued Durkheim that he subcategorized anomic suicides by acute economic anomie which is the erratic ability of certain social institutions, such as

religion, to fulfill the needs of the individual. Chronic economic anomic suicide was viewed as the result of long-term instability of regulation received from social institutions. Durkheim believed an example of this long-term instability was the Industrial Revolution, where an expanding division of labor increased the disparity between the rich and the poor. According to Durkheim, wealthy individuals fail to find happiness with the increase in material goods and thus become more likely to commit suicide due to this malcontent. Acute domestic anomic suicide was the result of large changes at the microlevel of social organization, the best example of which is widowhood. Chronic domestic anomic suicide is the final subcategory of anomic suicide and is related to imbalance in the means and needs in a marriage.

The next step in Durkheim's theoretical framework of suicide resulted in the definition of two forms of social network linkage patterns (solidarity) leading to anomie and egoism: organic and mechanical. He proposed several morphological characteristics of these linkages. Strong ingroup social bonds among individuals in a social network were characterized as mechanical solidarity, whereas organic solidarity was experienced by networks with a high division of labor that were held together by moderate social bonds.

To study mechanical versus organic solidarity, Durkheim focused on the religious and cultural distinctions between Catholics and Protestants. Mechanical solidarity was more commonly a characteristic of Catholic social networks, whereas Protestant networks were organic in nature. In addition to the ingroup social bonds, the Protestant/Catholic distinction was extended to outgroup social bonds in the form of individual restriction through group norms. Durkheim viewed Catholics as much more

constrained by group ties and thus less prone to experiencing anomie than those of Protestant sects. In his comparison of suicide rates between the sects, Protestants were found to commit suicide at higher rates. Durkheim proposed that this was due to the weaker ties and the organic structure of Protestant groups.

Durkheim's work has received criticism from 20th century scholars for many reasons. One criticism is the potential for underestimation of suicide rates among Catholics due to differences between Catholics and Protestants in their religious beliefs about suicide. Further, his identification of religious integration as a component for social disconnectedness and suicide has been found to be valid, but contrary to Durkheim's theory, it is not specific to denomination but rather involvement in religious activities. Breault and Barkey (1982) suggest, "The possibility presents itself that while Durkheim's argument is wrong, the thrust of his theory may be correct: religious commitment does seem to afford some protection from suicide" (p. 322).

CROSSCUTTING SOCIAL CIRCLES

The German sociologist, Georg Simmel anticipated modern social network analysis and social network theory. Simmel's contributions to the field of sociology include theories about conflict, exchange, and "sociability." He was concerned with explaining why social macrostructures are reflective of microstructure relationships. Simmel was intrigued by the seemingly innate drive of individuals to form social ties. The result of these social ties is that "the solitariness of other individuals is resolved into togetherness, a union with others" (Simmel, 1949, p. 255). As cited in Turner (1998), from Simmel's 1922 book, *Conflict and the Web of Group Affiliations*, Simmel

emphasizes "the genesis of the personality is the point of intersection for innumerable social influences as the end-product of heritages derived from the most diverse groups and periods of adjustment" (p. 357). According to Simmel, individual self-perceptions are influenced by group structure and consequently individual actions are prompted by group philosophies.

Peter Blau extended Simmel's work with his own theories regarding the interaction between macrolevel structure and microlevel interaction. Blau's approach to social network theory focused on macrostructure characteristics. Social macrostructure both constrains social interaction and provides opportunities for the development of diverse social ties (Turner, 1998). Major concepts in Blau's theory include nominal parameters and graduated parameters. Examples of nominal parameters are gender and race, while graduated parameters can be placed in rank order and include such variables as income, years of education, and age. Levels of heterogeneity and inequality are also taken into consideration in Blau's theoretical model. Blau theorized that macro social structure emerges from correlations or lack thereof between parameters. Parameters that are highly correlated are defined as "consolidated." Parameters "intersect" when they are not highly correlated. Abundant ingroup ties and strong ingroup cohesion abound when heterogeneity and inequality are low in the group and correlations between parameters abound. Underlying Blau's entire theory are the assumptions that formation of social ties is constrained by opportunities for association and physical proximity. Higher rates of association will be found among individuals in the same nominal positions. The implications of Blau's theory for the present study center around the low racial and

religious heterogeneity in Northern Utah, both of which should promote strong social ties.

It is important to distinguish the strength of ties at the microlevel of society (Granovetter, 1973). Stronger ties form a more dense network with higher interconnectedness among members, whereas weaker ties are found in more loosely associated social networks. Durkheim viewed communities with mechanical solidarity and an abundance of loose ties to promote alienation. Granovetter suggests that abundant weak ties are "indispensable" to providing individuals opportunities for integration and access to community resources. He further suggests that social network analysis is crucial in understanding the link between microstructure and macrostructure. Important components of network structure as outlined by Turner (1998) include number of ties, directedness, reciprocity of ties, transitivity of ties, density of ties, strength of ties, bridges, brokerage, centrality, and equivalence. The components of network structure that were measured in the survey from which my data were taken include number of ties, density of ties, and strength of ties.

GROUP STRUCTURE AND HEALTHCARE
UTILIZATION

Durkheim's work has served as a jumping off point for research on social connectedness and well-being. In a study published in 1965, Edward Suchman published the results of a population survey on illness behavior. The study was conducted in Washington Heights, New York – a racially diverse locale. Similar to Durkheim's distinction between mechanical and organic solidarity and Granovetter's distinction between strong and weak ties, Suchman proposed two group types he referred to as

parochial and cosmopolitan. While cosmopolitan group ties were referred to as "progressive, individualistic, instrumental, and open," parochial group ties were defined as "traditional, shared, affectual, and closed" (Suchman, 1965, p. 4). From these group structures, he anticipated finding that cosmopolitan groups would have a "scientific" belief system about health, whereas parochial groups would be more traditional or "popular" in their outlooks. Individuals adopting a "scientific" view of health would be more apt to seek cutting-edge and scientifically based treatment for healthcare needs, whereas those with a "popular" view would seek care more often from folk means such as home remedies and other less scientifically proven forms of healing. Suchman used the cosmopolitan and parochial group structures to hypothesize about healthcare-seeking behavior, illness behavior, and health status. General health status was operationalized by looking at conditions in which the respondent was receiving medical care for including chronic conditions as well as mental illness factors. These health status indicators were reported by the respondent and thusly self-perceptions of individual health.

For his study, cosmopolitan versus parochial group structures were measured using three dimensions of group structure: ethnic exclusivity (community level), friendship solidarity (social group level), and family tradition and authority (family level). An individual's medical orientation was measured by knowledge about disease (cognitive), skepticism of medical care (affective), and dependency in illness (behavioral).

Some of Suchman's friendship solidarity questions were reworded in the survey from which my data were taken. Two questions in Suchman's study have equivalents in

my study. In Suchman's study, respondents were asked if they agreed or disagreed

with the statement "Almost all my friends are people I grew up with." In my study,

duration of friendship ties was measured by response to, "How many [of your] friends

have been your close friends for more than 10 years?" Network density was measured in

Suchman's study by agreement with the statement "Most of my close friends are also

friends with each other." To assess network density, my study asked respondents, "How

many of your close friends are friends with each other?" Suchman also evaluated ethnic

and religious exclusivity, but this has less relevance to my study population due to its

extremely high concentration of Caucasian and LDS individuals. Suchman's study

population was Washington Heights, New York, and was selected for its diversity.

When Suchman evaluated health status as it correlates to group structure, he

found those with a more parochial group structure reported more illness than those of a

cosmopolitan group. One significant finding was that those who held popular beliefs

were more likely to report mental disability than those with a more scientific orientation.

Suchman concluded that group structure has less influence on health status than it does

on health care utilization.

GROUP STRUCTURE, CULTURE, AND
HEALTHCARE UTILIZATION

Suchman's work yielded novel findings and the development of powerful theories

regarding the effect group structure has on health care utilization and attitudes toward

modern medicine. Four years after the publication of Suchman's 1965 Washington

Heights, New York study, Geertsen and associates replicated it in Salt Lake City, Utah.

Small differences in age and gender distributions were found between the Washington

Heights and Salt Lake City sample groups. The Salt Lake City respondents were of higher socioeconomic status, but with the eight-year interval between the studies, this factor loses significance. The major difference between the samples lies in the relative racial and religious homogeneity of the Salt Lake City region, specifically the high concentration (70%) of members of the LDS faith.

Geertsen et al. (1975) found that Suchman's model was inadequate for predicting healthcare utilization because he ignored the cultural context of parochial group ties. Evidence was found for the need to evaluate individually Suchman's components of group structure and to take into account the cultural beliefs most prevalent in the area. This is similar to Simmel's belief that group philosophy prompts individual actions. Where Suchman found a lack of medical knowledge in more parochial group structures, Geertsen et al. found high medical knowledge in these groups. These variations were attributed to cultural differences between Utah and New York. The association between health status and group structure was not evaluated.

THEORETICAL IMPLICATIONS FOR THE HEALTH AND LIVING STUDY

In light of the above research and theoretical framework, group structure has been shown to have an impact on perceptions of individual health and patterns of healthcare-seeking behavior and knowledge. The social network indicators evaluated in this study are applicable to the theories and models of Durkheim, Blau, Granovetter, Suchman, and Geertsen. At the microlevel of social organization, marital status and number of relatives living within 20 miles were evaluated. On a more intermediate level, number of friends, strength of network ties (including friends and relatives), duration of relationships

(friends greater than 10 years), and network density (friends with each other) were evaluated. Social interaction was measured by looking at church attendance and the number of friends and relatives respondents came in contact with on a monthly basis. Macrolevel measures were community attachment and neighborhood satisfaction.

The sample population utilized in the Health and Living Study could be defined as more of a mechanical or parochial group structure due to the homogeneity of race and religion, especially when compared to the population studied in the Salt Lake City evaluation of Suchman's model by Geertsen et al. (1975). Where Suchman developed an index (also utilized in the Alameda County study) to measure group structure, Geertsen et al. (1975) found evidence for the need to evaluate the social network factors individually rather than collectively. Both approaches were taken in this study.

CHAPTER 4

METHODS OF ANALYSIS

HYPOTHESES

Based on a review of the published literature regarding self-rated health and social networks, it was hypothesized that respondents with relatively few social ties and weak levels of community attachment would report poorer self-rated health even when controlling for other demographic variables which have been demonstrated to have an impact on health perceptions. Furthermore, it was suspected that social network measures would impact self-rated health more than community attachment variables because of their closer social proximity to the individual. It was also anticipated that religious beliefs, gender, income, race, church attendance, and education would also play a significant role in self-perceptions of health.

SAMPLE

Data for this research project were taken from the 2004 Health and Living Study conducted in northern Utah in the Bear River Health District which includes Cache and Box Elder Counties. A random-probability sample of 1,000 individuals was selected from Northern Utah driver's license records. Selected respondents were asked to complete an extensive mail survey regarding health and patterns of living in Northern Utah. Of the 1,000 surveys mailed, 337 of possible respondents had moved leaving 663 eligible. With 446 responding, the survey obtained a response rate of 70.3%.

MEASUREMENT OF VARIABLES

Self-rated health

Data were taken from the above research study regarding health and social relations. Other demographic variables were included in the analysis to mitigate their effects statistically as much as possible. Self-rated health was measured by asking respondents "Overall, would you say your health is excellent, very good, good, fair, or poor?"

Community attachment

Because length of residence was found to be so highly correlated with community attachment in the studies of Kasarda and Janowitz (1974), Goudy (1990), and Sampson (1988), it was included in this study. Respondents were asked, "How many years have you lived in your present community or within five miles of where you now live?" The longer individuals live in a certain location, the more opportunities they have to interact and form social ties and attachments to the area. Respondents were asked, "How attached do you feel to your neighborhood? (Feel you belong; would hate to move)." They were asked to select between very attached, somewhat attached, and not too attached. Community satisfaction was measured by asking respondents, "In general, how satisfied are you with living in this community or locality?" They were asked to choose between very satisfied, pretty satisfied, and not very satisfied in response. Both neighborhood attachment and community satisfaction were evaluated in the studies mentioned above.

Social Ties

Prior research and theory indicate several aspects of social ties and networks are required to get an accurate reflection. Social network measures were located in the survey under a section entitled "Your Community and Social Relations." The questions thereafter were used to assess the respondents' social networks. Respondents were asked to write the number of close friends defined as "people you can talk to about private matters [and] can call on for help." This question was included to measure the size of the friendship network. The duration of friendship ties was evaluated by asking, "How many of these friends have been your close friends for more than 10 years?" and categorized by all, most, some, and none. To operationalize the concept of network density discussed above, respondents were asked, "How many of your close friends are close friends with each other?" also categorized by all, most, some, or none.

Family networks were measured by asking respondents, "How many adult relatives live within 20 miles of where you live?" with a line provided for respondents to indicate the number. The nature of the family network was measured by asking, "How many relatives do you have that you feel close to? (You can talk to about private matters, etc.)." A line was provided for respondents to write this number. Frequency of contact with members of the respondent's social network was measured by asking the respondent, "How many of the friends and relatives you feel close to do you see at least once a month?" and providing a place for them to write this number.

Personal demographic variables

Several personal demographic variables were included in the analysis both to evaluate their individual relationships to self-rated health and to identify demographic factors to include in the regression model. Respondents were asked, "Which of the following best describes your racial or ethnic background?" They selected between White/Caucasian/Anglo, Latino/Hispanic/Mexican, Asian, African American/Black, and Other with a line for them to specify. Educational attainment was measured by asking, "Which of the following categories best describes your level of education?" with the response options of four-year college degree or more, some college or two-year degree, completed high school or GED, and did not complete high school. Respondents were asked to select their marital status from categories of married/live with partner, separated/divorced, widow/widower, and never married/single. Family income was measured by asking, "What was your total family income, before taxes, last year?" and providing a four-category breakdown of under $20,000, $20,000-$39,999, $40,000-$60,000, and over $60,000. Respondents were asked, "What is your religion?" with no religion, Catholic, LDS, Protestant, Jewish as the categories provided along with other and a blank line provided for specification. Respondents were also asked their sex and what year they were born in order to calculate age.

The demographic variables selected for analysis have been demonstrated to be associated with self-rated health. Sex was expected to be associated with poorer self-rated health with women reporting poorer self-rated health than men. Poverty and education were also expected to be correlated with health perceptions with the less affluent and uneducated individuals having poorer self-rated health than their more

wealthy and educated counterparts. Self-rated health was also expected to be poorer

among older respondents. Religion and race were included in the demographic variable

assessment, but were not expected to be significant due to their homogeneity in the study

population.

STATISTICAL PROCEDURES

The self-rated health variable was recoded into a dichotomous variable with

higher self-rated health, including the excellent, very good, and good categories and the

lower self-rated health including the fair and poor categories. This was done to be

consistent with prior research and national and state surveys. A social network index was

created from the survey data collected to evaluate the possibility of an additive effect

among the individual network variables. A community attachment index was created for

the same reason. The dichotomous health variable was used to run log odds ratios and

logistic regressions with the social network and community attachment indices, along

with the separate variables used in each index. A logistic regression model was created

to evaluate the relationships between self-rated health and the variables with statistically

significant odds ratios.

CHAPTER 5

EMPIRICAL FINDINGS

INTRODUCTION

The results from the statistical analysis of the data from the 2004 Health and Living Study are reflective of the uniquely healthy population characteristics discussed in Chapter 2. As represented in Table 3, less than 11% of all respondents sampled reported having less than good health.

BIVARIATE CORRELATIONS

Community attachment variables

Zero-order logistic regression was done for the community attachment variables individually and the combined community attachment index with self-rated health. As shown in Table 3, individuals who scored low on the attachment index were 0.933 times less likely to report poor self-rated health than individuals with higher community attachment. This indicates that the combined effects of neighborhood attachment and community satisfaction are not associated with poor self-rated health as indicated by the statistically nonsignificant association and an odds ratio that is close to 1.0 meaning equal likelihood.

The community attachment variable most closely approaching significance was neighborhood attachment which paradoxically was associated with lower self-rated health. Persons with low attachment were only 0.692 times as likely to report poor health as those with higher attachment. As indicated in Chapter 3, length of residence has been

shown to correlate highly with community attachment. Poor self-rated health was

somewhat more likely among those with a longer duration of residence. As with the

other community attachment variables, however, the difference was not significant.

Overall, none of the community attachment variables are statistically related to poor self-

rated health. This goes contrary to prior research and will be further discussed in the next

chapter.

Table 3. Poor self-rated health by community variables

Community attachment variables	Self-rated health		Odds ratio	Sig.
	Poor	Good		
Community attachment index				
Low attachment	9.7	90.3	0.933	0.828
High attachment	10.4	89.6	*	
Community satisfaction				
Low satisfaction	10.5	89.5	1.023	0.940
High satisfaction	10.3	89.7	*	
Neighborhood attachment				
Somewhat/Not at all attached	9.0	91.0	0.692	0.228
Very attached	12.5	87.5	*	
Length of residence				
0 to five years	7.4	92.6	0.632	0.220
Greater than 5 years	11.3	88.7	*	
Rural/Urban				
Country	9.6	90.4	0.898	0.765
Metro/Town	10.5	89.5	*	

*Indicates reference category

Social network variables

The effects of social ties on poor self-rated health are reported in Table 4. A social network index was created to check for consistency between my findings and the demonstrated in other studies to be highly correlated with self-rated health as discussed in Chapter 2. The social network index utilized in this study was found to approach statistical significance with a p-value of 0.070. The odds ratio was calculated to be 1.799 indicating that individuals who scored low on the index were approximately 1.8 times more likely to report poor self-rated health than those who had higher index scores. Interestingly, only two of the social network components were found to be statistically significant (p-values ≤ 0.05) in predicting poor self-rated health – number of friends and church attendance with odds ratios of 2.108 and 1.916, respectively. This may be illustrative of Granovetter's conception of the strength of weak ties discussed in Chapter 3 and will be further discussed in the next chapter.

Respondents having no relatives living in close proximity were found to be 0.628 times as likely to report poor self-rated health as those with one or more relatives nearby. Those respondents reporting zero to two close relatives were 1.121 times more likely to report poor self-rated health than those with 3 or more relatives. Thus, it appears that having a greater number of relatives in close proximity has a negative impact on self-rated health, but having a lower number of relatives the respondent feels close to may be more predictive of poor self-rated health; however, neither of these relationships was statistically significant.

Table 4. Poor self-rated health by social network variables

Social network variables	Self-rated health		Odds ratio	Sig.
	Poor	Good		
Social network index				
Low (0 to 4 index score)	13.2	86.8	1.799	0.070
High (5 to 12 index score)	7.8	92.2	*	
Number of friends				
0 to 2 friends	16.8	83.2	2.108	0.024†
At least 3 friends	8.8	91.2	*	
Number of relatives within 20 miles				
No relatives	7.4	92.6	0.628	0.249
1 or more relatives	11.3	88.7	*	
Number of close relatives				
0 to 2 close relatives	10.6	89.4	1.121	0.736
At least 3 close relatives	9.6	90.4	*	
Number of close friends >10 years				
Some/None	10.4	89.6	1.031	0.922
All/Most	10.1	89.9	*	
Number who are friends with each other				
Some/None	9.4	90.6	0.751	0.368
All/Most	12.1	87.9	*	
Frequency of contact				
Seen once a month or less	9.5	90.5	0.949	0.903
Seen more than once per month	9.9	90.1	*	
Church attendance				
Sometimes/Never	14.7	85.3	1.916	0.039†
Frequently	8.3	91.7	*	
Marital status				
Single	12.6	87.4	1.345	0.404
Married	9.7	90.3	*	

*Indicates reference category
†Indicates significance at p ≤ 0.05 level

The relationships between frequency of contact and network density measures and poor self-rated health were also found to be contrary to previous research with odds ratios of 0.949 and 0.751, respectively. Again, neither relationship was found to be statistically published treatments of the Alameda County study data and other subsequent studies modeled after it. The additive effects of the individual social network variables were significant. Potential reasons for these findings will be further explored in the next chapter.

Personal demographic variables

The demographic variables utilized in this analysis were sex, income, education, age, race, and religion. The variables demonstrating statistical significance were income, education, and age. The direction of these relationships was as expected due to similar findings demonstrated in previous analyses as discussed in Chapter 2. Odds ratios and significance levels are outlined in Table 5. Low income was significantly correlated with poor self-rated health consistent with previous research. Having a family income of less than $39,000 produced an odds ratio of 1.897 and was statistically significant with a p-value of 0.043. This means persons of lower income were 1.9 times more likely to report poor health than persons with higher income.

Positive self-rated health has been demonstrated in previous research to decline with advancing age. The relationship between self-rated health and age in my data is consistent. Individuals 41 years of age and older are approximately 4 times more likely to report poor self-rated health than those who are younger. This relationship was found to be highly statistically significant with a p-value ≤ 0.000. Differences in self-rated

health between racial categories were not able to be demonstrated statistically due to

the high concentration of Caucasian individuals in the study population. The relationship

between poor self-rated health and religion goes somewhat contrary to previous research

on LDS populations with non-LDS individuals being 0.8 times less likely to report poor

Table 5. Poor self-rated health by personal demographic variables

Demographic variables	Self-rated health		Odds ratio	Sig.
	Poor	Good		
Sex				
Female	11.0	89.0	1.200	0.558
Male	9.4	90.6	*	
Income				
Less than 39K	13.5	86.5	1.897	0.043†
39K or more	7.6	92.4	*	
Education				
Less than college graduate	12.5	87.5	2.451	0.020†
College graduate	5.5	94.5	*	
Age				
41 years of age or greater	14.8	85.2	4.082	0.000†
40 years of age or less	4.1	95.9	*	
Race				
White	10.0	90.0	1.000	1.000
Other	10.0	90.0	*	
Religion				
Non-LDS	8.3	91.7	0.800	0.626
LDS	10.2	89.8	*	

*Indicates reference category
†Indicates significance at p ≤ 0.05 level

self-rated health than LDS individuals. This finding is likely due to the extremely low
number of individuals of other faiths in the study sample and thus loses significance.

LOGISTIC REGRESSION MODEL

A logistic regression model was created using the statistically significant variables
found in the bivariate analysis of the community attachment, social network, and
demographic variables.   The results are outlined in Table 6. The Nagelkerke R^2 value of
0.140 indicates that approximately 14% of the variation in self-rated health response is
explained by the variables included in the model.

Age, income, and social network index scores remain significant when the effects
of the other variables in the model are included. The odds ratio for education decreased
with inclusion of other variables in the model from the zero-order regression odds ratio
from 2.45 to 2.06. This indicates that education is conditioned by other variables in the
model. The relationship between poor self-rated health and income was accentuated by
the inclusion of other variables in the model with the odds ratio going up from 1.897 to
2.264. The relationship of age with self-rated health was also accentuated in the model
with the odds ratio increasing from 4.082 to 4.667.

Church attendance appears to have effects that are conditioned by the other
variables in the model. The zero-order logistic regression odds ratio was 1.92 and
dropped to 1.40 when combined with the other variables in the model and statistical
significance was lost. The social network index odds ratio increased from 1.799 to 1.994
and achieved statistical significance in the combined model.

Table 6. Logistic regression model for statistically significant variables

Variables	Odds Ratio	Sig.
Age		
41 years of age and older	4.667	0.000†
40 years of age and younger	*	
Education		
Less than college graduate	2.058	0.093
College graduate	*	
Income		
Less than 39K	2.264	0.028†
39K or more	*	
Church attendance		
Sometimes/Never	1.402	0.358
Frequently	*	
Social network index		
Low (0 to 4 index score)	1.994	0.052†
High (5 to 12 index score)	*	

Nagelkerke R^2	0.140
Chi-square	28.641
p-value	0.000
N	389

*Indicates reference category
†Indicates significance at $p \leq 0.05$ level

CHAPTER 6

SUMMARY AND DISCUSSION

INTRODUCTION

"Health is a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity" (World Health Organization, 1948, p. 100). As discussed in Chapter 1, the world of medicine has made great strides in the last 100 years in conquering the infectious diseases which has led to an increased proportion of cases with chronic, multifactorial, and complex illnesses such as heart disease. Science is making great strides at understanding the biological aspects of disease and illness. Given the repeatedly demonstrated accuracy of self-rated health at predicting mortality, this concept warranted further investigation. A better understanding of the impact social factors have on health was deemed to be appropriate.

The purpose of this study was to gain a better understanding of the impact of social networks and community ties on self-rated health. It was hypothesized that both social network variables and community attachment indicators would have an impact on self-rated health. This hypothesis was informed by the prior research outlined in Chapter 2 and the theories outlined in Chapter 3. It was further suspected that social network indicators would have a greater impact on health than community attachment variables because of closer proximity to the individual.

COMMUNITY ATTACHMENT AND
SOCIAL NETWORKS

Community attachment variables (including the combined index and length of residence) were not demonstrated to impact self-perceptions of health in this population with odds ratios near 1 and none reaching statistical significance. Reasons for this finding could be due to the unusually large proportion of respondents reporting high levels of community attachment relative to other studies. It may also be due to the relatively low proportion of respondents reporting poor health relative to others.

The zero-order logistic regression analysis of the social network approached statistical significance with a p-value of 0.070 and an odds ratio of approximately 1.8. The individual network variables achieving significance were number of friends and church attendance. When the variables demonstrating statistical significance in the zero-order logistic regressions were included in a combined model, the relationships of poor self-rated health with lower income and higher age were accentuated while the relationship with low education was found to be conditioned by the other variables in the model.

A social network index was created using factors that were consistent with prior research described in Chapter 2. The social network index reflects the additive effects of its individual components. Of the individual components, only number of close friends was demonstrated to be statistically significant. It appears that Granovetter's theory on the strength of weak ties discussed in Chapter 3 may have special relevance to the study of social networks and health. The lack of statistical significance may also be due to the low number of respondents (466) relative to the high number of respondents (1000+) in

other studies. Interestingly, when other variables were included in logistic regression analysis, the overall social network index achieved statistical significance with an increased odds ratio. This presents an intriguing finding and indicates the need for further study of the relationship between the combined index and church attendance, age, income, and education.

The demographic variables found to achieve statistical significance were age, income, and education. The relationships were as hypothesized with older respondents reporting poorer self-rated health as was also the case for less affluent and less educated individuals. Perhaps due to the homogeneity of the population, health perception differences between races and religions were not able to be demonstrated.

RELIGION AND SOCIAL NETWORKS

The 2004 Health and Living study provided a unique study population for the testing of these hypotheses. This particular study population was found to have very good self-rated health. One reason for this may lie in its racial homogeneity as being Caucasian has repeatedly been associated with better self-perceived health in other studies. Another potential factor is the high concentration of members of the LDS faith. Among the reasons for the LDS faith being associated with health is the religion's Word of Wisdom. Tobacco, alcohol, coffee, and tea consumption are prohibited by this religious tenet. Use of tobacco and abuse of alcohol have been associated with greater risk for many chronic diseases such as heart disease as outlined by the American Heart Association.

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Another aspect of the LDS faith that could provide some explanation as to the increased health status of the population is the readily available social network for members of the faith. The abundance of meetings and social organizations in the LDS church provide opportunity for formation of a support network as suggested by the theories of Simmel and Blau discussed in Chapter 3. Indeed, church attendance was found to be statistically related to self-rated health, with those frequently attending church being 1.916 times more likely to report good self-rated health than those who attended sometimes or never. Inclusion of church attendance in a logistic regression model with other statistically significant variables explained 14% of the variance.

Further research on church attendance and self-rated health demonstrates that this is not a unique finding. A metaanalysis of 42 studies found that religious involvement was statistically significantly associated with lower rates of all-cause mortality with an odds ratio of 1.29 (McCullough et al., 2000). Strawbridge et al. (2001) evaluated data for 28 years of the Alameda County study and determined that the association between religious attendance and mortality was partially explained by improved health practices, increased social contacts, and more stable marriages. The division of the LDS church into units by geographic neighborhoods means neighbors attend religious functions with those who live nearby. As suggested by Blau, frequent contact as well as physical proximity lends itself to the formation of robust social networks. Considering the fact that LDS church members have been counseled by leaders to be welcoming and friendly could further explain the ease of network formation. Those living in this region enjoy above-average health when compared to those living in the more urban Salt Lake Valley Health District, the state of Utah as a whole, and the entire United States. The racial and

religious homogeneity provided an environment to see whether the effects of social and community indicators would be accentuated or diminished in such a population.

**STUDY LIMITATIONS AND SUGGESTIONS
FOR FUTURE RESEARCH**

This study was both enhanced and limited by the racial and religious homogeneity of the study population. Many of the expected variable relationships with self-rated health such as race and religion were not able to be demonstrated statistically as was hypothesized from prior research. The relatively low sample size compared to other published studies as well as the cross-sectional nature of the study limit its interpretability and generalization to other populations.

This population appears to have very few social isolates with only 8% of respondents reported having no friends. In a larger population with different demographic characteristics, more true social isolates would be included in the study and the relationships between self-rated health and attachments to community and social network attachments would probably be accentuated.

The cognitive process respondents go through to rate their health was not examined in this study. In their metaanalysis, Idler and Benyamini have identified several factors respondents may take into account in making this determination including knowledge of family history, risk factors for disease, disability limitations, likelihood of engaging in preventive health behavior, and the presence or absence of resources known to promote health. A more qualitative approach may be useful in helping to elucidate these factors.

A more qualitative approach may shed additional light on why the presence of a social network is associated with better self-rated health. Some research shows that social networks can provide material and emotional support for individuals. Other research shows that social networks can also aid in the dissemination of information having an impact on participation in preventive health measures. An evaluation of the organic/mechanical and parochial/cosmopolitan nature of the network as theorized by Durkheim and Suchman respectively could provide additional insight. The cultural health beliefs of the region are also important to consider as suggested by Geertsen, et al.

Another potentially intriguing method of studying self-perceptions of health would be through using the concept of the looking-glass self as proposed by Charles Horton Cooley (1922, p. 183-4).

> "In a very large and interesting class of cases the social reference takes the form of a somewhat definite imagination of how one's self – that is any idea he appropriates – appears in a particular mind, and the kind of self-feeling one has is determined by the attitude toward this attributed to the other mind. A social self of this sort might be called the reflected or looking-glass self:
>
> > 'Each to each a looking-glass
> > Reflects the other that doth pass.'
>
> As we see our face, figure, and dress in the glass, and are interested in them because they are ours, and pleased or otherwise with them according as they do or do not answer to what we should like them to be; so in imagination we perceive in another's mind some thought of our appearance, manners, aims, deeds, character, friends, and so on, and are variously affected by it."

It seems reasonable that one's perception of individual health could be informed by the perceptions of the individual's health by the social network. A study where individual perceptions of health are compared to the social network's perceptions of that

individual's health would be an interesting way in which to evaluate how perceptions

of health are formed and what role the social network plays in establishing those

perceptions.

Other variables such as personal happiness and community involvement could

shed light on the nature of self-rated health. Personal happiness and a sense of optimism

could be a part of the psychological aspect of health proposed by the WHO definition.

Psychological variables might play a role in one's social network formation and the

development of community attachments as well as to health. This study did not evaluate

involvement in community organizations which might be helpful in elucidating formation

of community attachments.

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