

## ABSTRACT

Psychological Social Support and its Effects on Longevity and Mortality

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This thesis examines the effects of psychological social support on longevity and mortality. It picks up where House and colleagues left off in their classic 1988 review published in *Science*. A thorough summary is provided of recent studies and measures that pertain to the health effects of the psychological dimension of social support. First, the background and history of the social support concept is detailed. Second, theories and research findings are summarized and elaborated. Third, implications for research on social support are discussed. This thesis seeks to contribute a new, integrative outlook on social support and health research based on studies conducted over the past few decades.

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PSYCHOLOGICAL SOCIAL SUPPORT AND ITS EFFECTS ON LONGEVITY AND  
MORTALITY

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## CHAPTER ONE

### History and Introduction

In 1988, a review article on health written by a team of sociologists was published in *Science*. This marked the first time the official journal of the American Association for the Advancement of Science had given its seal of approval to a medical sociology article, and bolstered the standing of sociology within the academic science community. The article, however, elicited controversy among many, both scientists and social scientists.

The authors, a team led by Dr. James House from the University of Michigan, reviewed studies of the association between social relationships and health, specifically the impact of social support on mortality rates. The investigators made a strong claim: the effects of low levels of social support were more predictive of mortality rates than was smoking (House et al., 1988). This assertion put off many physicians and biomedical scientists, who still discounted the possibility that population health could be influenced by factors theorized and assessed by a “soft” discipline such as sociology.

Nearly 30 years later, this article is still remembered for its groundbreaking findings. At the time of this writing, the paper by House and associates has been cited over 5,600 times. The paper’s conclusions jumpstarted a renewed interest in examining psychosocial influences on population health. But because it has been so long since publication, the question remains: what have we learned from subsequent studies of social support and mortality, through 2015? This thesis investigates this question.

*Findings from House et al. (1988)*

In their 1988 article in *Science*, “Social Relationships and Health,” House and colleagues reviewed, reanalyzed, and elaborated on previous studies that indicated a positive relationship between low quantity or quality of social relationships and subsequent rates of death (House et al., 1988). They also discussed the broader deleterious effects of social isolation on humans. Further, they proposed underlying mechanisms responsible for this phenomenon, and offered scientific and policy implications of their findings.

This study was groundbreaking in that it pointed to evidence of a causal relationship between social support and longevity, which prior research had suggested but not yet validated empirically. The *Science* review confirmed the directionality of the relationship and summarized evidence that established the magnitude of association, indicating the likely protective effects of social support. The authors also discussed some possible physiological mechanisms thought to mediate or explain the effects of social support on the body.

House and colleagues also noted that, to date, little was known about the specific pathways by which social relationships impacted on mortality, in that specific diseases had not yet been studied in depth. They identified three areas requiring further investigation: “mechanisms and processes linking social relationships to health,” “determinants of levels of ‘exposure’ to social relationships,” and “the means to lower the prevalence of relative social isolation in the population or to lessen its deleterious effects on health” (House et al., 1988). Finally, they discussed the need for public policies to foster stronger social networks within the context of rapidly changing social structures in

the U.S. in order to protect the population from potential health effects of low levels of social support. This important paper was a significant marker of the arrival of social support, and social determinants in general, into the awareness of the larger medical research community.

### *Research on Social Support and Health*

John Barnes's research in the Norwegian parish of Bremnes laid the groundwork for much of social psychology. He was the first to write about "social networks," or relationships among memberships of society that were not as clear-cut as family members or colleagues (Barnes, 1954). His research was the foundation for much of the research on social networks that would later take place (Glanz, 2008, p.192). Social support, as a construct, can be traced back to a convergence of research and ideas from the fields of sociology, psychology, and anthropology (see Berkman & Glass, 2000, p.138). Berkman and colleagues (see Berkman & Glass, 2000, p.138) wrote that the effects of social support are mediated by exchange theory, attachment theory, and symbolic interactionism (Glanz, 2008, p.193). According to John Bowlby, the construct that is now social support stemmed from research on the loss of relationships by means of a lack of attachment or separation in early life (see Stansfeld, 2006, p. 148).

The concept of social support as a potential determinant of population health was bolstered by three theoretical papers published 40 years ago. In 1976, Cassel found a relationship between social support and health. His research determined that social support serves as a "protective factor" (Cassel, 1976). Cassel said that social support guards against the negative effects of stress on health (Cassel, 1976). The same year,



Cobb published a paper discussing the stress-buffering effects of social support. Cobb furthered the research that social support protects one against stress (Cobb, 1976). His research also focused on coping and adaptation as a result of social support (Cobb, 1976). A year later, Kaplan and associates found further evidence that social support is a protective factor in one's health (Kaplan et al., 1977). They also wrote about the health policy implications that could come of the finding that social support is a protective factor for health (Kaplan et al., 1977).

At the time of these papers, the construct of social support had been mostly studied by psychologists and in relation to outcomes such as the mental health of individuals. Population studies of social support and physical health outcomes had not been undertaken (see House et al., 1988). The writing of Cassel, of Cobb, and of Kaplan and associates did much to encourage empirical research on social support within epidemiology and the medical social sciences.

Research on social support and health accelerated once scientists began examining illness as stemming from a combination of social and biological factors (see House et al., 1988), and began undertaking longitudinal studies. Prior to the late 1970s, research in the field was retrospective or cross-sectional in nature. Early studies could not determine whether lack of social relationships caused ill health or visa versa. The groundbreaking papers by Cassel, Cobb, and Kaplan and colleagues established working definitions of social support and laid out hypotheses to guide subsequent investigations (see Sarason & Sarason, 2009, p. 113).

This theoretical work, and results of early studies, outlined the potential effects of a lack of satisfying social ties on the health of people. Individuals deficient in gratifying

relationships with other human beings were more likely to get sick than individuals who were embedded in networks consisting of multiple social connections. Cassel and Cobb suggested that such insufficient networks contribute to stress, which in turn has a negative impact on numerous components of one's health. They also asserted that love, attention, and willingness to help were necessary resources for the happiness, success, and health of individuals (see Sarason & Sarason, 2009, p. 113). Social support was a unique construct, at the time, in that rather than responsible for increased susceptibility to a specific disease or illness, low levels appeared to increase risk and vulnerability to a wide range of illnesses and infirmities (Berkman, 2000, p.259).

Recent research on social support and health has produced findings that have bolstered the House et al. paper and have investigated specific components of social support. A meta-analysis published in 2010 found that “The influence of social relationships on risk for mortality is comparable with well-established risk factors for mortality” (Holt-Lunstad et al., 2010). Their research analyzed the quantity and quality of relationships and their relation to mortality and morbidity. Their findings reconfirmed and updated House's research on the general social support construct and its effects on mortality. In addition, the effects of social contact frequency on all-cause mortality was recently studied. It was discovered that the effect size of social contact frequency was moderate; thus the study concluded that “mere social contact frequency may not be as beneficial to one's health as previously thought” (Shor & Roelfs, 2015). Finally, a recent study found that higher levels of social integration is associated with “lower risk of physiological dysregulation in a dose-response manner in both early and later life” (Yang et al., 2016). This study also found that a lack of social connectedness is related to

increased risk of a series of health risks at various ages (Yang et al., 2016). Yang et al., analyzed several dimensions of social relationships within multiple samples. Their findings were seen to be consistent and robust (Yang et al., 2016). According to the study, “physiological impacts of structural and functional dimensions of social relationships emerge uniquely in adolescence and midlife and persist into old age” (Yang et al., 2016). These recent studies have served to further contribute and bolster the findings of House et al. on general social support and various components of the construct.

### *The Construct of Social Support*

Even after decades of research on health outcomes, and a lengthier history of study within psychology, there is no one consensus definition for social support agreed upon by all investigators across disciplines. Moreover, the dimensions or subdomains of the construct also remain debated (Sarason & Sarason, 2009, p. 114). Cobb defined social support as “information leading the subject to believe that he is cared for and loved ... is esteemed and valued ... [and] that he belongs to a social network of communication and mutual obligation” (1976, p. 300). Cohen and Syme defined social support as “resources provided by other persons” (see Stansfeld, 2006, p. 148). According to Cohen and McKay, social support is the sum of “the mechanisms by which interpersonal relationships presumably buffer one against a stressful environment” (1984, p. 253).

The presence of social ties among individuals in society has been referred to as “social integration” (Glanz et al., 2008, pp. 189-190). The interpersonal relationships people possess are often referred to as “social networks.” Berkman defines social

networks in turn as “the web of social relationships surrounding an individual” (2000, p.260). These networks are often explained as concentric circles around an individual. The closer, more intimate relationships constitute the center-most circles, while the more distant and surface-level associations comprise the outer circles (Berkman, 2000, p.260). The ties that fall into these networks are often thought of as falling into six categories: “1) ties with spouse or partner, 2) ties with family, 3) ties with friends, 4) ties with colleagues at work, 5) membership in voluntary associations, and 6) affiliation with religious organizations” (Berkman, 2000, p.260). “Social contact,” by contrast, can be defined as “the number of contacts and frequency of contacts” (Stansfeld, 2006, p. 148). Social contact is an important concept for efforts to assess social support.

Throughout the literature, different researchers have come to different conclusions as to how to divide and categorize social support. This has resulted in numerous typologies and taxonomies, more than could possibly be summarized here. Some of these typologies are context-dependent—that is, they differ depending upon the population or outcome being studied.

According to the National Cancer Institute (NCI), social support consists of three subtypes: perceived support, enacted support, and social integration (Lakey, n.d.). Perceived support is defined as functional support, or the “subjective judgment that family and friends would provide quality assistance with future stressors.” This type of social support encompasses one’s belief that they have close friends or family to turn to in times of trouble. This support is also intangible and comes in the form of advice, affection, a shoulder to cry on, or someone to listen to one’s problems.

The second type of social support, according to the (NCI), is enacted support. Enacted support is defined as “specific supportive actions,” and includes the same forms of support as perceived support—advice, affection, a shoulder to cry on, someone to listen to one’s problems—yet encompasses the actual act, rather than the perception, of support.

The third type of social support in the NCI model is social integration. This is defined as “the number or range of different types of social relations” that one is involved in. These relations, or social ties, may come in the form of marriage, siblings, and societal organizations such as clubs or churches. This model has been useful in studies of cancer and chronic diseases.

The Perelman School of Medicine at the University of Pennsylvania, among others, have proposed four types of social support: emotional, instrumental, informational, and appraisal (“Social Support”, n.d.). In this model, emotional support is defined as “expressions of love, trust, and caring” (“Social Support”, n.d.). Instrumental support is defined as “tangible aid and service” (“Social Support”, n.d.). This type of support is about action. Informational support comes in the form of “advice, suggestions, and information” (“Social Support”, n.d.). Appraisal refers to “information that is useful for self-evaluation” (“Social Support”, n.d.). This type of support fosters reflection and analysis of one’s self. This four-category model, or variations of it, is becoming widely accepted and used in literature. The emotion vs. instrumental distinction has been applied in many settings.

This thesis is particularly interested in the intangible components or expressions of social support. This domain includes the psychological aspects of support—forms of

emotional support or caring that have been less of a focus among sociologists, such as House, Kaplan, Berkman, and others, and that cannot be as easily quantified by counts of network size or in terms of time or cost. This particular aspect of social support has been studied less than other components of the construct.

### *Theoretical Models of Social Support*

Social support is widely accepted to affect a variety of health outcomes such as morbidity, mortality, how well and how quickly one recovers from illness, and one's ability to handle and cope with stress. A lack of social support is seen as a risk factor for people and populations. The exact reasons for this, however, are yet to be fully validated. Scientists and social scientists continue to debate whether the effects of a lack of social support are caused by the social environment or by different personality traits of individuals (Sarason & Sarason, 2009, p. 114). The NCI Division of Cancer Control & Population Sciences identifies three possible theoretical perspectives for the effects of social support on health: a stress and coping perspective, a social-cognitive perspective, and a social control perspective (Lakey, n.d.).

According to Lakey and Cohen, the stress and coping perspective, drawn from existing theory, is the dominant theoretical perspective in the field of social support research (Lakey & Cohen, 2000). Several examples are cited. Lazarus, Folkman, and Moskowitz state that stress takes place when individuals interpret situations negatively (Lazarus & Folkman, 1984; Folkman & Moskowitz, 2004). When stress occurs, people are not as able to cope as they are in a normal state; therefore, health problems may be a result. Cohen and Willis state that social support acts as a buffer in that it stimulates

health by guarding people from the adverse effects of stress (Cohen & Wills, 1985). Cohen and Hoberman believe that this buffering system is effective because it allows individuals to positively interpret situations they are in—thus reducing stress and its negative effects (Cohen & Hoberman, 1983).

According to Lakey and Drew, the social-cognitive perspective originates in research on social cognition and cognitive models of psychopathy (Lakey & Drew, 1997). This model focuses primarily on the negative mental effects of a lack of support—perceived social support in particular. This theory states that negative emotions cause one to be more likely to negatively evaluate themselves or others. Those negative evaluations then cause one to experience subsequent negative emotions, and the cycle continues. A supportive social network effectively keeps negative emotions in check, thus reducing negative evaluations. Without negative emotions, one is then available to experience positive emotions.

According to Umberson—incidentally, one of House’s co-authors on the *Science* review—the social-control perspective highlights how social relationships can determine the social behaviors that one engages in. These behaviors, in turn, can influence health, directly or indirectly.

This variation in conceptual and theoretical understandings of social support has added complexity to discussions of its assessment, which remains widely debated by social and behavioral scientists. In any effort to assess social support, presumptions are made regarding the definition and function of social networks, whether explicitly or unstated.

For example, it is important to distinguish between the quality and type of support being supplied to an individual by a contact and how this is received or perceived. One can differentiate by the frequency of contact and the proximity to individual, close or distant (Stansfeld, 2006, p. 148). Another consideration is the density of the network, or how much each member of the network is in contact with one another. This information is often elicited through qualitative surveys. Empirical researchers also make assessments via indices that measure social integration, where they evaluate the degree that an individual is involved in a community. Both approaches can differentiate among types of support in order to gain a better understanding of what particular aspects of an individual's support system are contributing to their health (Stansfeld, 2006, p. 149).

#### *Researching Mortality/Longevity*

Merriam-Webster Dictionary (2016) defines mortality as “the death of a person, animal, etc.” Scientists have been collecting and recording data on mortality since the beginning of the Twentieth Century. The Centers for Disease Control and Prevention (CDC) tracks historical mortality rates and information dating back to 1900 and uses this data as a “fundamental source of demographic, geographic, and cause-of-death information” (CDC, 2015). They use mortality data to examine characteristics of those who are dying in the United States, to track life expectancies of Americans, and to compare the domestic numbers to those of other countries (CDC, 2015). The primary key figures reported by the CDC are number of deaths, death rate, life expectancy, and infant mortality rate (CDC, 2015). This information is made available to the public and is oftentimes used in scientific research or as a basis or means of comparison in



experiments. Accordingly, CDC publishes the *Morbidity and Mortality Weekly Report (MMWR)*, “the agency’s primary vehicle for scientific publication of timely, reliable, authoritative, accurate, objective, and useful public health information and recommendations” (“About the Morbidity and Mortality Weekly Report (MMWR) Series”, 2015). Mortality as a construct is widely measured and reported in epidemiologic research, conducted both by CDC and by academic scientists.

Mortality rates are also tracked by the U.S. government through the U.S. Census Bureau. The National Longitudinal Mortality Study (NLMS) is “sponsored by the National Cancer Institute, the National Heart, Lung, and Blood Institute, the National Institute on Aging, the National Center for Health Statistics and the U.S. Census Bureau for the purpose of studying the effects of differentials in demographic and socio-economic characteristics on mortality” (Census, 2010).

Merriam-Webster Dictionary (2016) defines longevity as “length of life.” Per the CDC, longevity is tracked using “life expectancy” measures (CDC, 2016). Changes in this measure are closely watched by scientists, and causes and effects in a shift in this figure are studied. The CDC publishes an annual table with life expectancy, longevity, data annually and makes the information available to the public.

Today, the life expectancy of an American adult is 78.8 years (CDC, 2016). In comparison, the life expectancy of an American adult in 1988—upon publication of the *Science* paper—was 74.9 years (CDC, 2011). The World Health Organization also examines, records, and publishes global life expectancy data, reporting variations among people of different nations (WHO, 2016). According to the National Institute on Aging, the gradual increase in life expectancy over the years “encompasses a broad set of

changes that include a decline from high to low fertility; a steady increase in life expectancy at birth and at older ages; and a shift in the leading causes of death and illness from infectious and parasitic diseases to non-communicable diseases and chronic conditions” (NIH, 2015).

With these changes in longevity comes a need for scientists to investigate the causes or determinants. Epidemiologists closely examine longevity as a dependent variable in relation to numerous exposures, or independent variables. These have included, increasingly since publication of the paper in *Science*, measures of social support.

### *Methods*

This thesis updates the literature on social support and mortality/longevity since publication of “Social Relationships and Health,” in *Science* in 1988. The aims are to conduct a systematic review of studies and to summarize the current state of knowledge in the field.

In Chapter Two, a review is provided of empirical studies published since those included in the *Science* paper. These studies were identified through literature searches conducted using PubMed, PsychInfo, and Google scholar. Unlike the House study, the focus here is exclusively on studies that included measures of the psychological, or intangible, aspects of social support in relation to mortality/longevity, studies that have emerged in earnest only in the past quarter century. According to the American Psychological Association (CITE), this form of social support is defined as “perceptions of help received from others” and is “widely studied as a psychological resource used to

cope with stress” (“Perceived Support Scale”, n.d.)” This intangible aspect of social support, as noted earlier, is that which cannot be physically measured or grasped in the same way more tangible forms of supportive resources.

## CHAPTER TWO

### Systematic Review of Research

Studies summarized in the Table of Results (see Appendix) were obtained through systematic searches of PubMed, Psych Info, and Google Scholar. The search strategy included looking for papers through searches of the keyword phrases “perceived social support and mortality,” “perceived social support and longevity,” “perceived social support and survival,” “emotional social support and mortality,” “emotional social support and longevity,” and “emotional social support and survival.” These searches were run in each of the three search engines identified. Only studies published in English were retained (but not necessarily studies just from the U.S. or English-speaking world).

The Table of Results summarizes pertinent information from each of the studies included in the review. Data are tabulated, chronologically, for author(s); year of publication; study setting; sample size; respondents’ age, sex, and race/ethnicity; the social support measure(s) used; the mortality outcome (e.g., overall or cause-specific); and the findings of the study.

Studies included were those published during the 30-year span from 1985 to 2015. A 1985 starting point was used as it picks up at the end of the time period of the publications included in the *Science* review. Surveying the Table of Results, several interesting findings stand out. Some of these trends will be elaborated on in greater detail later in this chapter.

The study settings included populations in North America, Europe, and Australia. Sample sizes ranged from a few hundred to several thousand. A few studies specified a limited age range, but many did not—indicated by “any” in the table. Most studies did not limit their sample to a single sex, again signified by “any” in the table. The exceptions are duly noted (e.g., “M” for males). Most studies also were not limited to a particular race or ethnicity, denoted as “any” in the table (although variations in demographic reporting limit an ability to identify all races or ethnicities included in all studies). Those that had race/ethnicity restrictions are recorded in the table as such.

The specific social support measures used to assess the underlying independent construct, psychological social support, are also noted for each study. These measures ranged from single scales or indices of a few items to large multidimensional measures. Causes of mortality are also noted in the table. “Cause-specific” indicates that respondents’ deaths are due to a specific disease or illness; “several causes” means that there were several diseases or illnesses that were included in the outcome measure; and “all causes” indicates that mortality was measured as due to any disease or illness.

In the table, positive results indicate an impact of psychological social support in a healthy direction, or toward longevity and away from mortality. Negative results, on the other hand, indicate that the association was in an unhealthy direction—that is, toward mortality and away from longevity. The majority of the studies included in the table exhibited a positive, or healthy, finding: social support prevented or protected against subsequent mortality in the population. Two studies found mixed results, indicating that the association was positive in some subgroups and negative in subgroups. One study found statistically non-significant results—indicating no connection between

psychological social support and mortality or longevity. Finally, only one study found negative results, such that social support actually increases the risk of mortality.

Interestingly, studies performed earlier in time seemed to produce more mixed results. There did not seem to be any meaningful variation in findings by the setting of the study, as the results varied equally across nations/continents. Studies performed outside of the U.S. either found positive results or non-significant results. Studies performed in the U.S. produced positive, negative, and mixed results, but, as noted, overwhelmingly positive ones.

Notably, the one study that reported a deleterious effect of social support also had the largest sample size of those studies included in the review. The studies with the largest sample sizes produced either positive or negative results, not mixed or non-significant findings. In addition, the one “not significant” finding was found in a sample size of 1,712—a mid-sized sample by the metric of the studies included.

Demographic differences in findings were few. The age of participants in the study did not seem to be particularly predictive of findings, as ages were mixed among each type of result. Only two studies indicated a specific sex, both of which were male. Each of these studies reported positive findings. Only four of the studies specified a particular race/ethnicity (“Black,” “Swedish,” “Finnish,” and “Australian-born”), although the latter three may be better thought of as nationalities or as White subtypes. Findings here were mixed: the “Black” study found a mixture of results, the “Swedish” and “Finnish” studies found positive results, and in the “Australian-born” sample results were not significant.

Although there are many established social support scales in use among psychologists and sociologists, few of these were used in the studies examined. Most researchers used their own multi-item scales to examine the effects, rather than relying on existing validated measures. One of the largest scales used 12 items, and results were mixed. Results also varied among studies reporting cause-specific, several causes, and all-causes mortality. Interestingly, the only negative finding reported in the review was from an “all-causes” study.

### *Prominent Studies*

Some of these studies are especially interesting and noteworthy. A closer look is thus warranted at results from these investigations. Among epidemiologists and population-health researchers, larger sample sizes have the advantage of minimizing uncertainty in data that may be associated with smaller sample sizes (Biau et. al, 2008), especially if population-based random sampling is used. Such studies require the utilization of more resources, are more expensive to conduct, and usually result in larger teams of investigators conducting more sophisticated analyses. For these reasons, the studies in the Table of Results with the largest sample sizes are summarized here in greater detail.

In 1988, Johnson and Hall conducted a study that analyzed the “relationship between psychosocial work environment and cardiovascular disease (CVD) prevalence” and subsequent risk of CVD mortality (Johnson & Hall, 1988). In their study, they analyzed a sample of 13,779 individuals. Subjects included both males and females and were systematically and randomly chosen from a national, annual survey, based off of

birthdates. Respondents were employed persons between the ages of 16 and 65 with a mean age of 39. The sample comprised 52% males and 48% females. In-person and telephone interviews were conducted to gather data. A 5-item scale was used to assess social support. The questions asked addressed “two aspects of social support: opportunity to interact at work and if co-worker interaction is carried over into non-work life.” The questions were scored on a 0-5 numerical scale. All five questions were dichotomous and addressed a perceived social support rather than tangible assistance. The dependent variable assessed was CVD prevalence. CVD presence was measured using the Swedish Central Bureau of Statistics Survey of Living Conditions as well as by physicians who worked as consultants. Subjects were asked a series of questions to assess their health status and the symptoms reported were matched with the International Classification of Disease, 8<sup>th</sup> revision, by the physicians. In addition, this study examined the effects of work demands on CVD prevalence. This study found that, in general, the prevalence rates of cardiovascular disease increase with decreasing levels of perceived social support (Johnson and Hall, 1988), and this in turn leads to greater mortality.

In 2002, Turvey and colleagues (2002) conducted a study analyzing risk factors of late-life suicide. In this study, a sample of 14,456 subjects was observed. Subjects were 65 years or older and both male and female. Data were used from the EPESE, a longitudinal cohort study of people age 65+ in four communities: “New Haven, Connecticut; East Boston, Massachusetts; Iowa and Washington Counties in Iowa; and Durham, North Carolina” (Turvey and colleagues (2002)). Interviews were carried out with participants, relatives, and associates. The study spanned 10 years and subjects were followed by means of the National Death Index and local newspaper obituaries to record



deaths. Suicides were identified based on the International Classification of Disease codes. Of the subjects followed, 21 committed suicide over the 10-year span. Using a matched samples design, “subjects were matched for age, sex, and study site.” Social support was assessed using a 6-item scale gauging perceived social support. Of the 21 subjects who committed suicide, 20 were male. The average age of suicide victims was 78.6 with a range of 67 to 90. Of the items asked in the scale, the study found the most significant were questions addressing having people to confide in, whether friends or relatives, as well as those asking about frequency of contact with friends. These measures were associated with suicide. The study concluded that the “presence of friends or relatives to confide in was negatively associated with suicide.” Results suggest that older, retired individuals who are unable to maintain their social networks and feel more isolated are at a higher risk of less enjoyment later in life and thus suicide.

In 2013, Barger (2013) conducted a study examining the effects of social integration and social support on mortality. This study explores the mortality impact of both the quantity and quality of support. Quantity was measured using a social integration score, while quality was measured by perceived social support. The sample used comprised 30,574 individuals identified via the National Health Interview Survey, “an annual, in-person cross-sectional interview of U.S. households.” Subjects lived in the U.S., were male or female, were of any race or ethnicity, and were 18 years or older. Mortality was measured using the National Death Index records. Perceived social support was measured using one question: “How often do you get the social and emotional support you need—always, usually, sometimes, rarely, or never?” Results were negative, yet ambiguous. According to Barger, “when analyzed individually, social support and

social integration were inversely associated with mortality. When both social relationship variables were entered together, social integration but not social support was inversely associated with mortality risk.”

### *Trends and Tendencies in Study Findings*

On the whole, the findings included in the Table of Results are consistent with the findings presented by House and colleagues in *Science* in 1988. They found an overwhelmingly positive trend in the relationship between social support and longevity, one rivaling the protective effect of nonsmoking for longevity. In studies conducted since the time of that review, the overwhelmingly positive effect remains. More specifically, findings indicate a consistent, positive relationship between psychological social support and life expectancy. This results builds on the findings of House and associates, whose sample of reviewed studies included mostly investigations of tangible support. The present results might be followed up in the form of a meta-analysis to better quantify the magnitude of association and statistical significance of the relationship between psychological social support and mortality. But, for now, according to this systematic review, the underlying result is quite consistent.

Most of the studies utilized researcher-created, multi-item scales to examine the effects rather than larger, more established (and validated) scales. As previously noted, in a study with one of the largest scales used, a 12-item index, mixed results were found. This could indicate that positive and negative relationships were found among different subgroups in the study. One of the few studies to use an established scale, on the other hand, found non-significant results. The one negative result study was obtained using a

one-item scale, which could possibly call into question the validity of the results (i.e., due to potential measurement error). But without multiple comparisons of studies using such one-off measures, it is difficult to offer conclusions one way or the other as to whether these choices of measures impacted on the study results.

Two of the three studies that produced mixed results were widely encompassing in their samples—that is, they included a wide variety of ages and ethnicities, and both sexes. The third mixed-results study looked only at Black respondents. The only non-significant result was found in a study that used an unusually delimited sample: Australians born between 1921 and 1926. Again, it is difficult to draw more general conclusions based on the specific features of these few studies.

The Barger study is notable in that it was the one “negative” finding that emerged in this review. Although results were reported negative, the findings were in fact ambiguous. The use of a single-item scale possibly calls into question the validity of the findings. Can one question analyze the complex size and breadth of one’s of psychological social support? Perhaps—but without additional data on, for example, convergent validity, this question cannot be answered for this study. Additionally, this study found negative results, yet with a caveat: findings were negative when social support and integration were analyzed separately. However, when the two variables were analyzed together, social support and social integration were seen to have positive effects, suggesting a sort of interaction. As the vast majority of research uncovered a positive relationship between psychological social support and mortality, this lone negative finding coming from a study in which social support was measured in such a minimalist fashion may be an anomaly.

## CHAPTER THREE

### Implications and Agenda for Research

#### *Summary*

In 1988, an article written by a team of sociologists was published in *Science*. In this paper, House and colleagues examined the association between socially supportive relationships and mortality rates from several population-based surveys. Their conclusion was radical for the time: the effects of social support were more predictive of longevity than were those of not smoking (House et al., 1988). They analyzed findings based on the few existing studies and came to the conclusion that social support had a substantial effect on longevity. This review was unique in that it pointed to evidence of a causal relationship between measures of social support and mortality, rather than merely a correlation, as it was based on longitudinal epidemiologic studies.

The purpose of this thesis was to revisit the results of House and his associates by taking a look at those studies that have followed since publication of the paper in *Science* in 1988. This thesis aimed to pick up where the previous review left off and, furthermore, specifically examine the effects of the more “intangible” and psychological forms of social support on mortality rates. Studies included in the review were systematically identified through selective literature searches and were published, in English, between 1985 and 2015.

This analysis found a series of modest but interesting trends across the studies. The main finding was an overall positive relationship: greater psychological social

support was associated with greater longevity; or, phrase in the opposite manner, less psychological support was a significant risk factor for mortality and a shorter life.

### *Limitations*

A few inherent limitations in this systematic review should be noted. First, a selective pool of studies was examined. Within the search parameters set out, only 20 studies were found that met inclusionary criteria. This small sample of studies could increase the possibility of chance findings. Criteria included only English-language studies published between 1985 and 2015 and those that could be found in PubMed, PsychInfo, and/or Google Scholar. It is conceivable, though perhaps not likely, that other studies exist that were not catalogued by the National Library of Medicine (PubMed), the APA (PsychInfo), or the Googlebot (Google Scholar). It is also possible that using additional search strings beyond those selected, listed earlier, might have turned up other studies.

Another limitation, but not inherent in the review criteria, involved the variation in social support measures used across these studies. Although there are a great number of established measures validated by psychologists and sociologists for assessing psychological social support, very few of the studies used these measures. The vast majority of studies utilized one or another multi-item scales comprising a few questions. The larger, more established measures used by social and behavioral scientists have not seemed to have made their way into the medical literature, at least as far as population studies of mortality.

On the other hand—and this is an important point—that each study utilized a different measure to assess the independent construct perhaps points to the robustness of the overall positive finding. Due to the variety of scales and measures utilized within this review, it could be concluded that the consistency of the overall findings is not due solely to chance or to use of just one or a few particular measures. Also, across nationalities, sexes, and ages, the positive association holds as well. So perhaps the multiplicity of measures and sample characteristics strengthens this overall finding of this review.

As with all self-report psychological and medical studies, limitations exist in the accuracy or objectivity of the health-related data. Limited time, money, and resources restrain what the scientists can feasibly do and, thus, place an upper limit on the reliability of results. On the other hand, the outcome construct in this review—mortality—is about as “hard” or objective an indicator as exists in health research, and is presumed to be close to 100% accurate.

Although a few of the studies analyzed examined the effect size or strength of the relationship between psychological social support and mortality, such analysis was not widespread. Such statistical information would have strengthened the research in the field and bolstered the validity and applicability of the findings.

#### *Agenda for Future Research*

The study of psychosocial factors in personal and population health continues to grow. Especially with the mainstreaming of complementary and integrative medicine, there is increased focus on how non-physiological markers affect one’s health and well being, including studies of etiology, course of illness, and population risk. As society

begins to embrace “health” as more than mere lack of disease, further attention will be continue to be given to facets of one’s social circumstances and psychological status that may impact on health. The continued growth of the field of health psychology exemplifies these developments.

In the future, one can anticipate even further research on psychological constructs and their effects on human health. As medical and population-health researchers continue to focus on mind-body interactions, new insights will emerge. Some next steps for research on psychological social support and its effects on mortality and longevity include the following:

- 1) Investigation of the incremental amount of time added to one’s life expectancy with concomitant increases in emotional support.
- 2) Investigation of these relationships in comparative cross-cultural settings and in non-industrialized nations with socioeconomic disparities relative to the West.
- 3) Investigations which compare and contrast mortality-rate effects of psychological versus tangible forms of social support.

Although nearly all of the studies examined in this review pointed toward a positive association between psychological social support and longevity, not much research exists that quantifies this result. For example, how much support is associated with how many additional years of life? This begs the question how does one quantify impacts on longevity or mortality? Epidemiologists have methods for quantifying mortality risks—e.g., through rates or ratios of various types, or through years of life lost

or added—but these can be complicated to use. Moreover, their use has not been the norm in studies on this topic, but rather less sophisticated analyses were often used.

The vast majority of the research being performed on the subject of psychological social support and mortality has been done in the U.S. or in European nations. All of these countries are industrialized and wealthy. This leads to several questions that we might ask about how this may have impacted on the present findings.

Are the effects found here consistent with what would be observed in other nations that are not as medically advanced as these industrialized nations? Are the effects of psychological social support strong enough to overcome antiquated medical facilities, less educated care providers, and a lack of technology when it come to a marker as seemingly sensitive to healthcare, one would think, as death? Each of the societies represented in this review are highly individualistic with market-based or mixed economies. In individualistic societies, citizens are focused on the betterment and advancement of themselves. In collectivist societies, people are focused on the improvement of the group and the success of the whole. Do purely collectivist societies experience an even stronger effect of psychological support protecting for mortality? Does this potentially stronger relationship overcome lower quality care that some of the individuals in these poorer societies may receive?

Finally, as discussed, social support is typically divided into two broad categories: tangible and intangible support. The intangible, including psychological, aspect has been examined in this thesis. Do tangible and intangible support vary in their effects on mortality and longevity? How many years, how many fewer illnesses, etc., are the result? While the *Science* review primarily focused on tangible support and the present review



has chosen to examine psychological support, results are comparable. Yet this does not provide a true comparison. Ideally, empirical data comparing the effects of these two facets of social support within single studies would greatly contribute to our understanding of this topic. Identifying differences between the mortality/longevity effects of these two types of support could help inform a greater understanding of how social circumstances and interpersonal relations contribute to the prevention of illness and premature death.

Exploring all of these issues could substantially add to knowledge that will advance our understanding of the interface of human psychology and medicine. As medical care continues to expand its scope to consideration of mind-body issues and interventions, health policymakers and healthcare providers will increasingly look to research to address the multi-faceted effects of such factors on health. A greater understanding of this topic can create knowledge that will inform not only future research, but also the future of medical care.

## APPENDIX

*Table of Results*

<b>Authors</b>	<b>Year</b>	<b>Setting</b>	<b>N</b>	<b>Age</b>	<b>Sex</b>	<b>R/E</b>	<b>Soc Sup Meas</b>	<b>Cause of Mortality</b>	<b>Findings</b>
Dressler	1985	U.S.	285	Any	Any	Black	Matrix Measure of Social Support	Cause-Specific	mixed
Johnson & Hall	1988	Sweden	13,779	16-65	Any	Swedish	5-item scale	Cause-Specific: CVD	+
Hanson et al.	1989	Sweden	621	Born in 1914	M	Swedish	multi-item scale	All-Causes	+
30 Ell et al.	1992	U.S.	302	Any	Any	Any	multi-item scale	Several Causes (various cancers)	+
Welin et al.	1992	Sweden	769	50 & 60 y/o	M	Any	8-item scale	Several Causes	+
Berkman, Summers, & Horwitz	1992	U.S.	194	65+	Any	Any	multi-item scale	Cause-Specific: Myocardial Infraction	+
Hibbard & Pope	1993	U.S.	139	Any	Any	Any	multi-item scale	All-Causes	+

Berkman et al.	1993	U.S.	203	18+	Any	Any	"social isolation and lack of emotional support"	Cause-Specific	mixed
Dalgard, Bjork, & Tambs	1995	U.S.	503	Any	Any	Any	12-item scale	Several Causes	mixed
Patterson et al.	1996	U.S.	414	Any	M	Any	multi-item scale	Cause-Specific: HIV	+
Lee & Rotheram-Borus	2001	U.S.	307	Any	Any	Any	Coping with Illness Questionnaire	Cause-Specific: HIV	+
Turvey et al.	2002	U.S.	14,456	65+	Any	Any	6-item scale	Cause-Specific: Suicide	+
Brummett et al.	2005	U.S.	2,711	Any	Any	Any	multi-item scale	Cause-Specific	+
Lyyra & Heikkinen	2006	Finland	206	80+	Any	Finish	Social Provision Scale	All-Causes	+
Zhang et al.	2007	U.S.	1,431	70+	Any	Any	multi-item scale	Cause-Specific	+
McLaughlin et al.	2011	Australia	1,712	1921-26 birth cohort	Any	Australian-born	Duke Social Support Index	All-Causes	not sig
Barger	2013	U.S.	30,574	18+	Any	Any	1-item scale	All-Causes	-

Selcuk & Ong	2013	U.S.	1,803	18+	Any	Any	1-item scale	All-Causes	+
Preyde, Macdonald, & Seegmiller	2014	Canada	65	Any	Any	Any	multidimensional scale of perceived social support	Several Causes (various cancers)	+
Elopre et al.	2015	U.S.	490	Any	Any	Any	4-level social ecology model	Cause-Specific: HIV	+

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