Love Me Through It: An Observational Perspective on Health-Related Spousal Support Over Time

by

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Abstract

During times of hardship, it is natural for individuals to seek support from those close to them, which may explain why partners turn to each other when faced with health issues. Though partners in all stages of life can experience health concerns that require this support from their spouses, older adults provide a unique opportunity to study these processes as their health needs are often greater. This study takes an innovative approach to investigate the links between spousal support and health by observationally capturing emotional support, instrumental support, and social control via a newly developed health support task. Participants were 64 older heterosexual, higher-functioning married couples who were observed in a 20-minute marital health support task. No gender differences were found in support variables or receptivity to support. However, regression analyses revealed that social control was positively associated with husbands' subjective health concurrently, but was also linked to declines over time. In contrast, wives' instrumental support was negatively associated with subjective health concurrently, but was positively associated with subjective health over time. Finally, husbands' social control was found be positively linked concurrently to wives' comparative health. Implications of these findings, suggestions for future studies, and practical considerations for clinicians are discussed.

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Introduction

By 2050, the population of individuals 65 years and over is projected to be 83.7 million, nearly double its estimated population of 43.1 million in 2012 (U.S. Census Bureau, 2014). These growing numbers of older adults are due in part to the "baby boomer" effect, but also due to medical breakthroughs (e.g. new drug treatments), increased awareness of risk factors (e.g. obesity), and public health initiatives (e.g. free blood pressure screenings). These healthcare improvements have contributed to increased life expectancies; in 1972, life expectancy at age 65 was 15.2 years and rose to 19.1 years in 2010, a gain of nearly four years for older adults (U.S. Census Bureau, 2014). Though these advancements appear to provide hope for the future for older adults, these gained years can also be fraught with sickness and a decreased quality of life (Hodes & Suzman, 2007).

With a population shifting toward larger numbers of older adults, the challenge of caring for this population and the issues they face is becoming increasingly pertinent to policymakers, medical personnel, and mental health clinicians. Chief among these concerns are the increased incidence and severity of medical concerns that many older adults are now living with (Hodes & Suzman, 2007). Older adults often face challenges like heart disease, cancer, diabetes, arthritis, and other chronic or acute illnesses. In fact, in 2008 only 8 percent of older adults reported no chronic conditions (U.S. Census Bureau, 2014). The more common experience for older adults is to deal with multiple chronic illnesses, with 41 percent of older adults reporting that they are managing three or more chronic illnesses (U.S. Census Bureau, 2014). Older adults facing these chronic conditions often experience limited independence and lower quality of life (Bentler et al., 2009).

Individuals facing such health challenges often look to loved ones for support and assistance. Support can be received from family members, caretakers, and medical practitioners, but the spouse is by far the person most often chosen when individuals are faced with stress (Dakof & Taylor, 1990). Not surprisingly in light of this tendency, married individuals consistently enjoy lower mortality rates in comparison to non-married individuals (Kiecolt-Glaser & Newton, 2001; Litwak & Messeri, 1989). For example, the availability of a spouse has been shown to be associated with faster recovery from major surgery (Kulik & Mahler, 1989). This effect has been hypothesized to be the result of two phenomenon: 1) those that marry are often more healthy in the first place, and 2) those that marry have access to more resources, more social support outside their marriages, and engage in fewer negative health habits (Umberson, 1992). In other words, the positive effects of marriage on health are considered to be a combination of selection and protection (Lillard & Panis, 1996).

However, the benefits of marriage go beyond just the availability of a partner or the status of being a married individual; when health-related support has been examined, its effects have been shown to supersede the effects of both marital status (Kulik & Mahler, 1989; Zautra et al., 1998) and general social support (Connell, Fisher, & Houston, 1992). Further, another facet of spousal support, social control, has also been shown to improve the health and well-being of spouses (Umberson, 1992; Lewis & Butterfield, 2007), though these findings are somewhat more contested than the nearly ubiquitous findings of the positive influence of instrumental support (i.e., tangible suggestions and practical solutions) and emotional support (i.e., validation of emotions) (Helgeson et al., 2004). Providing further evidence that spousal support is a unique and crucial link to improving individual health outcomes, support from friends, family, and

caretakers cannot overcome a lack of spousal support (Brown & Harris, 1978). Such evidence also suggests that not all spouses are able or care to provide support, despite its oft-cited benefits.

As to how this health-promoting support – or lack thereof in the case of some spouses – has been captured, researchers have relied primarily on employing self-reports or spouse-reports (Cohen & Wills, 1985; Franks et al., 2006). Given the potential benefits of improving spousal support and the amount of recent attention focused on understanding the intricacies of this phenomenon, it is surprising that most health-related spousal support research to date has relied almost exclusively on self-reported data. Without this observational context, research relies purely on individual reports, which can limit the validity of findings. For example, Verhofstadt, Buysse, & Ickles (2007) explain that without this additional piece of observed data, studies may not capture the full experience of a construct, possibly due to biased reporting or individuals having difficulty accurately remembering past events or their own actions.

Although the larger literature of support in close relationships has utilized both self-report and observational coding with success (Carels & Baucom, 1999; Cutrona et al., 2007; Simpson, Rholes, & Nelligan, 1992), this methodology has yet to be translated specifically into studies examining spousal support when it pertains to health issues. Such an approach is needed to advance the field on spousal health support, as it enables researchers and practitioners to identify the characteristics of not only how high-quality health support is delivered but also perceived by the spouses. This information has the potential change the way spouses interact with each other, and ultimately improve their health outcomes. Further, in light of the health challenges facing older adults, it is imperative to apply these concepts to a population in dire need of high-quality health support. Therefore, the current study seeks to extend the literature on health support by observing how couples take care of each other when faced with health challenges and examining

associations with these behaviors and multiple indices of health, thus providing a clear picture of what higher quality health-related support looks like, who provides it, and how it is received.

Literature Review

It is within human nature to need, desire, and seek support from others during times of hardship, which may explain why social support has been widely documented to promote health (Cohen & Wills, 1985; House, Landis, & Umberson, 1988; Sarason & Sarason, 2009). As to what social support entails, although it has been defined in various ways, nearly all definitions include some semblance of receiving aid from individuals or groups of people. Cohen and Syme (1985) define social support broadly as "resources provided by other persons" (p. 4), a definition that is purposefully broad to acknowledge the myriad ways social support can be manifested.

Though many different definitions of social support exist, it is important to note that support can be provided in several different ways; namely through instrumental support, emotional support, and social control. Conceptualizations and operationalizations of emotional and instrumental support vary across studies, but essentially converge on the idea that people facing difficult situations crave sensitive support like validating emotions, understanding their experience, and unequivocal encouragement, and also tangible, practical support for the latter, seen when partners offer to lighten a partner's load from other obligations, encourage healthy behaviors, or brainstorm solutions to day-to-day issues (Cutrona & Suhr, 1994; House, Umberson, & Landis, 1988; Kahn & Antonucci, 1980).

A further caveat to consider is that Cutrona and Russell's (1990) theory of optimal matching suggests that even though a partner may be providing good quality support or control, the support must also match what the partner is needing and wanting in that moment to be beneficial. For example, a spouse may provide very high quality emotional support, discussing worries and fears at length with their partner and providing reassurance, when in reality the partner may be exhausted from speaking about their health challenges and would prefer their

spouse to help in other ways like taking charge of the housework or offering to pick up their medication (Cutrona & Russell, 1990). For example, Horowitz et al. (2001) found that support seekers found more satisfaction when the support they received matched the goal of their support-seeking behavior (to receive advice or to receive compassion). Further underscoring the importance of support matching, Cutrona, Cohen, and Igram (1990) found that when individuals can pick up on the support needs of a character in a vignette (comfort or assistance), they are more likely to rate support provided to them as high quality if it appeared to match that goal.

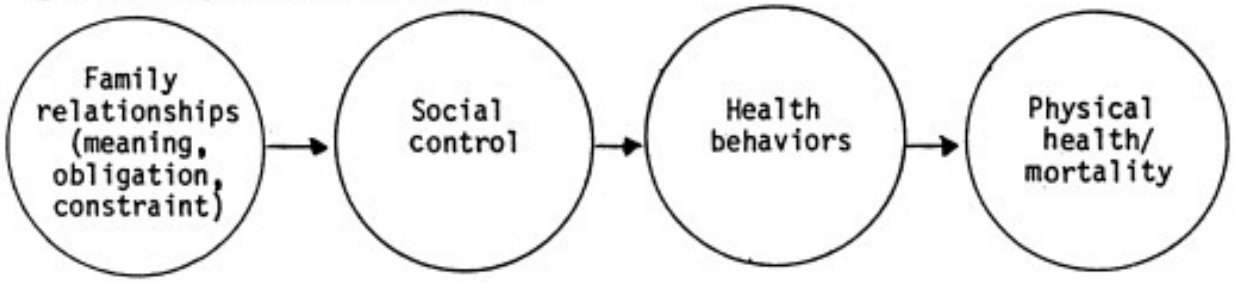
Although both men and women are capable of providing quality support that matches the needs of their partner, gender differences in the importance and emphasis placed on support in marriage have been found (Acitelli & Antonucci, 1994; Antonucci & Akiyama, 1987). More specifically, women have been found to be more inclined to give and prefer emotional support whereas men have been found to be more likely to provide and prefer instrumental support (Verhofstadt et al., 2007). Although this difference in support provision has been consistently found in studies using self or spouse-report data, several observational studies have challenged this assumption by finding no significant differences (Pasch, Bradbury, & Davila, 1997; Roberts & Greenberg, 2002). Therefore, whether the current study will find evidence to support or contest a gendered support gap remains unclear.

To note, Thomeer, Reczek, and Umberson (2015) have provided important context for potential barriers to emotional support provision in marriages, mainly related to established expectations of normative gender roles. For example, spouses tend to believe women are more adept at identifying and responding to emotional distress, whereas men are more comfortable in the "problem solving" role (Thomeer et al., 2013). This distinction provides an important

explanation as to why some spouses may be more inclined to provide instrumental support over emotional, or vice versa.

A third way in which spouses can potentially provide health support is through social control. Conflicting evidence as to the positive or negative effect of social control exists, though in some cases a partner may need or prefer that their spouse "take over" while they deal with stressful circumstances (Khan et al., 2013; Stephens et al., 2010; Umberson, 1987). Umberson's (1987) conceptual model of social control provides a basis for understanding how this type of support might promote physical health (see Figure 1).

Figure 1. Conceptual Model of Social Control



Umberson asserts that health-related social control functions in much the same way as the social control of other thoughts and behaviors. Many variations on definitions of social control have been offered, one such being, "attempts by older adults' spouses, children, or grandchildren to influence the adoption of positive lifestyle habits (e.g., regular exercise), the discontinuation of negative habits (e.g., quit smoking), or adherence to chronic disease management strategies" (Grzywacz et al., 2012, p. 2). Within social control, scholars have suggested that there is both a direct influence on behaviors and an internalization of societal expectations for behavior (Hirschim, 1969; Parsons, 1951). For example, an individual may listen to their spouses' urging that they improve their eating habits (direct influence), or they may be feel an obligation to quit

smoking when they see anti-smoking ads or notice that smoking rates have declined (internalization of social expectations).

Though emotional support, instrumental support and social control may all separately lead to improved physical health (Kiecolt-Glaser & Newton, 2001; Umberson 1987), Franks et al.'s (2006) work provides an important distinction when considering these processes for spouses. For example, Franks et al. (2006) refers to health-related support as "spouses' assistance to and affirmation of patients' own efforts to initiate and sustain prescribed health behavior changes" (p. 312) – a clear mix of both emotional and instrumental support, and health-related control described as "attempts to induce needed changes in the health behavior of a partner who has been unable or unwilling to make such changes on his or her own" (p. 312). In essence, spousal control can be distinguished from emotional and instrumental support by highlighting differences between positive feedback (emotional support) and assistance (instrumental support) and corrective feedback (social control) (Lewis & Rook, 1999; Umberson, 1992).

Neither social support nor social control can inherently be considered better than the other when it comes to health support provision. Differences in interaction styles of partners and situational differences may facilitate or highlight the need for one form of aid over the other. For example, a partner may provide emotional support as their spouse struggles with uncertainty in a medical diagnosis or when their spouse is feeling particularly ill, even though all precautionary measures and treatment options have been exhausted (instrumental support). Validation of emotions and fears becomes paramount when providing emotional support. Social control lends itself well to situations in which a clear need for action and/or behavioral change is needed. For example, a spouse may exert social control when their partner has not been taking their medication or has been cheating on a prescribed diet. Ideally, spouses would be proficient and

comfortable providing emotional support, instrumental support, and social control. For example, an ideal response to a health challenge could include validating that the side effects of a medication that are making the partner feel it is not worth taking (emotional support), offering to help the partner with other tasks (instrumental support), and subsequently taking it upon themselves to call their partner's doctor to discuss alternatives (social control). This flexibility to adapt to a partner's needs is imperative as older adults continually face new challenges and struggles.

Support in the Context of Later-Life Marriages

Adults are enjoying longer life expectancies than ever before, but this is also coupled with a grim picture of older adults' health (King, Matheson, Chirina, Shankar, & Broman-Fulks, 2013). Specifically, these increases in longevity come with a price; as increasingly higher percentages of people are now living with chronic and debilitating diseases, disability, and dependency (Hodes & Suzman, 2007; U.S. Census Bureau, 2014). Eventually, these health concerns may lead older adults to depend entirely on one another as primary caretakers but this slow decline of health often does not immediately require full dependency on a caretaker. Rather, older adults first require support in the form of day-to-day health-promoting behaviors. Though partners in all stages of life can experience health concerns that require this support from spouses, older adults provide a unique opportunity to study these processes.

Although older couples provide an excellent window into health support processes and outcomes, most studies investigating spousal support and control have used middle-aged samples. The challenge of generalizing such research to older adults is that most middle-age couples have at least one partner in good health, who is available to provide the support and/or control their partner needs it, whereas the provider of support or control in an older couple is

most likely dealing with health challenges of their own. Further complicating these processes for older couples, caring for an ill spouse can potentially have detrimental effects on the health of the caretaker (Pinquart & Sorensen, 2007). This, in turn, may make it more difficult to provide the level of support needed. For example, if one spouse has had a surgery that renders them immobile, a middle-aged partner would most likely be able to push a wheelchair, help their partner up the stairs, etc. An older spouse, on the other hand, may find these supportive actions difficult or even impossible. Another example is that married patients are more likely to keep their doctor's appointments than unmarried patients (Gruzd, Shear, & Rodney, 1986) in part due to instrumental support provided to them, possibly in the form of scheduling appointments or providing transportation. While a middle-aged spouse would most likely think nothing of driving their partner to the doctor's office, an older adult may have to arrange alternative transportation; while still a form of support, the manifestation of this support is very different.

Even in instances where a spouse may desire to exert spousal control, the challenges that come with older adulthood may impede that process. For example, a middle-age spouse who wishes to exert spousal control over their partner's diet and exercise may be able to join their spouse in the gym or do specialized grocery shopping, but these activities may prove more difficult for older adults. While older adults are absolutely still a source of support for their spouses, due to their own health challenges, the ways in which support is provided may differ from middle-aged adults, from which most current research is based.

Despite these potential challenges, older adults may in some ways be uniquely well-equipped to provide support to their partner. Socioemotional selectivity theory suggests that as spouses age and time spent with each other is viewed as limited, emotional goals take precedence over other social goals (Carstensen, Isaacowitz, & Charles, 1999). Increased focus on the

emotions of their partner might make spouses more likely to notice distress from their partner, but also to respond, especially in the form of emotional support. Older adults thus provide a unique population who may be better at some types of support and more challenged with others. Only by exploring all of these potential support provision methods simultaneously can we begin to decipher the differential positive effects of varied types of health support provision in later life.

Current Study

Perhaps as a result of incomplete methodologies focused primarily on younger populations, researchers as of yet do not have a clear picture of the positive, health-promoting behaviors older spouses employ for one another when faced with health challenges. Most existing studies utilize self- and spouse-report measures of control and support (Franks et. al, 2006; Umberson, 1987; Verhofstadt, Buysse, & Ickles, 2007), which is not able to tap into third-party, unbiased perspectives of support. Such a supplement to the literature on spousal support is critical as observations of support are quite common amongst the doctors, nurses, and therapists treating couples navigating health concerns. These observations may shape the ways that health-care providers interact with married older adults (both patient and spouse), underscoring the importance of pinpointing which behaviors those individuals should be looking for when considering how spouses can mutually promote both partners' health and well-being.

In light of these gaps in the previous literature, the current study seeks to build upon existing findings by observing health-related spousal emotional and instrumental support and control to predict health during the later years in a sample of higher-functioning, satisfied older couples. Observational methods supply a unique opportunity to collect data on spousal support and control at the precise moment it is occurring, as opposed to weeks or months after, as seen in

most self-report and spouse-reports measures. This sample is ideal for studying marital support as happily married couples are most likely to demonstrate marital support (Acitelli & Antonucci, 1994; Revenson & Majerovitz, 1990), and given the health challenges of older adults (Hodes & Suzman, 2007), studying older married adults provides an opportunity to investigate spousal support and control in a time when it is most needed.

In examining health support behaviors and dyadic interactions between older couples, we hypothesize:

1) Wives will exhibit emotional support most often, while husbands will exhibit instrumental support most often, and both husbands and wives will not show large levels of social control; 2) wives will be more receptive to support than husbands; and 3) higher quality support provision, especially social control and instrumental support, will predict better spouses' subjective health, comparative health, and chronic illnesses both concurrently and longitudinally.

This study will be an important contribution to the literature on spousal support and health, and will have practical implications for individuals requiring or providing support, as well as those in professions dedicated to helping them. Understanding more about the relationship between spousal support and health outcomes in older adulthood will help guide the strategies and techniques utilized by professionals tasked with helping this population and will provide evidence as to which form of spousal support should be encouraged, taught, and practiced when spouses are facing health concerns.

Method

Participants

Sixty-four heterosexual married couples were recruited to explore marital relationships in older adulthood (Marriage and Retirement Study, PI: Amy Rauer). Participants were recruited through newspaper advertisements, community health care agencies, church announcements, and local organizations in the Southeast United States. Eligibility requirements for participation were as follows: (1) couples had to be married, (2) at least one individual in the couple had to be partially retired, and (3) be able to drive to a research center on a college campus to ensure relatively high levels of functioning. On average, husbands were approximately 71 years old *(SD* = 7.4) and wives were approximately 70 years old (*SD* = 7.0). Couples had been married for an average of 42.4 years (*SD* = 15.0) and had an average of 2.6 children (average number of children for husband = 2.6 (*SD* = 1.4), average number of children for wives = 2.5 (*SD* = 1.3). Regarding marital history, 81.3% of husbands (*n* = 52) and 79.7% of wives (*n* = 51) were in their first marriage. Seventy-three percent of couples (*n* = 47) were fully retired and 27% (*n* = 17) were partially retired, in which one or both spouses were working less than 40 hours a week for pay. Husbands and wives were predominately European American (*n* = 60 and *n* = 61, respectively). Participants were also educated, with 54 husbands (84.4%) and 40 wives (62.5%) having completed college or post-graduate degrees. Annual income for couples averaged $85,875 (SD = $64,074) and total wealth (which included assets such as property, pensions, and IRAs) averaged $1,082,547 (*SD* = $1,277,611). Complete data at Time 1 was available for 62 couples, due to incomplete data from two couples.

Procedures

At T1, couples participated in an on-campus interview lasting between 2-3 hours. During this visit, couples completed several marital communication tasks, including a marital conflict task, a relationship narrative task, a compassionate love task, and a support task, which is the focus of this study. At the conclusion of the visit, wives and husbands each received a questionnaire that assessed individual, marital, and social functioning. The questionnaires were returned via mail and couples were compensated $75 for their participation.

Approximately one year (*M* = 16.4 months) later, couples were contacted to participate in a second wave of data collection (T2). Couples who agreed to participate were mailed a second set of questionnaires to again assess individual, marital, and social functioning. Couples were compensated $45 once T2 questionnaires were returned. Attrition analyses revealed no significant differences in participants at Time 1 and Time 2 on any of the demographic or study variables.

Measures

The measures used to assess health spousal support and health outcomes are described below and the observational coding scheme used to assess support is attached in Appendix A.

Health support task. Couples completed a marital support task during the interview which was videotaped for later coding purposes. This 20-minute procedure was modeled after one developed by Cutrona, Hessling, and Suhr (1997), in which there were two sessions where each partner would take a turn fulfilling the speaker and listener roles. The order in which spouses took each role was determined by their couple ID number and whether it was even (wife speaker first) or odd (husband speaker first). The speaker was asked to describe a current health issue with which he or she had been currently struggling or anticipating. The speaker was asked to choose an issue with two restrictions: (1) that it not be an issue the couple had previously

argued about, and (2) that it not be a problem for which they blamed their spouse. The listener was tasked with listening and responding to the speaker as they would normally at home. The couple was then left alone in the room to begin the task. The couple was cued to switch roles after ten minutes, at which time the other partner became the speaker and began discussing his or her health concern.

Five dimensions of behavior and affect during these discussions were coded: instrumental support, emotional support/sensitivity, social control, receptivity to partner support and control, and severity of illness. These were adapted from earlier work on dyadic marital interactions (Frosch, Mangelsdorf, & McHale, 1998; Jensen, Rauer, & Volling, 2013). The videotapes were later coded by two independent coders. The coders established reliability by jointly observing and discussing video data from a small subset of videos until inter-observer agreement was 80% or higher on each code. Once inter-rater reliability was achieved on a subset of videos, coders then independently coded a separate set of videos representing 20% of the full sample to calculate reliability.

Health-support provision. Instrumental support assessed tangible suggestions and practical solutions offered by support providers. Suggestions like "we should try to eat better, let's plan healthy meals for the week" would be coded here. Instrumental support provision was coded on a 7 point scale, where a code of 1 (very minimal) indicated that the spouse did not provide any solutions or suggestions, and a code of 7 (very high) indicated a spouse that consistently offered high quality solutions, and seemed genuine in helping their spouse apply these suggestions.

Coders rated emotional support by assessing the support provider's ability to listen to their partner, interpret feelings, and respond appropriately. This code includes actions like asking

their partner questions to better understand their experience, validating emotions, and providing physical comfort in the form of holding hands or hugging. Spouses received ratings ranging from 1 (very minimal) which was characterized by a cold, callous, demeanor, with little regard for their spouses, to 7 (very high), where the support provider is expressing emotional support at nearly every opportunity and picks up on all signals of distress from their partner.

Social control captures any behaviors that attempt to directly modifying a partner's behavior, or "take charge" of their spouses actions. Examples include statements like "I'll do the grocery shopping from now on, to make sure we eat healthy" and "you can never remember to take your pill so I'll be in charge of laying them out for you in the morning". Social control was coded using a 7-point Likert scale. The anchor for this scale was set at 1 (no social control) where no controlling behaviors were observed, and the highest code was set at 7 (complete social control), indicated a partner who attempted to fully control their partners' health behaviors, without input from the support recipient. Time spent completing the task was taken into account to reflect the relative amount of social control provided; for sessions shorter than 5 minutes, 1 point was added to any social control score above 2. To date, this study is the first to include observational measures of social control. The coding scheme was adapted from the existing coding schemes used in this study for instrumental and emotional support.

Receptivity assesses the manner in which a spouse responds to the support or control provided to them. A spouse who voices appreciation for their partner's support suggestions would receive a higher rating, while an individual who outwardly rejects the solutions offered would receive a low rating. Receptivity was coded on a 3-point scale where low levels of receptivity received a code of 1 (not at all receptive) and high levels of receptivity received a code of 3 (highly receptive).

Severity of illness captures the relative debilitating effect of the health concerns participants discussed during the health support task. Several participants reported no current or impending health concerns, so a code of 0 (no present issue) was added. For individuals who reported a health concern, these responses were coded on a 3-point scale. A score of 1 (mild) indicated a health concern that produced a very low level of concern or impedance in daily activities and requires little support. A score of 3 (severe) indicated an illness or condition that requires a great deal of support, and very much interferes with an individuals' quality of life.

Health. Health was assessed using three self-reported items. The first item asked participants to evaluate their current overall health on a four-point scale by asking, "Overall, would you describe your health as poor, fair, good, or excellent?" The second idea asked participants to evaluate their current health compared to same-age peers on a three-point scale by asking "Is your health better, worse, or about the same as other people your age?". Finally, participants were asked if they had ever been diagnosed by their doctor with any of the following common diseases/conditions: heart trouble, diabetes, cancer, arthritis, asthma, stroke, lung disease, stomach problems/ulcers, leg problems, back problems, and depression. Participants responded either yes or no to each health disease/condition. "Yes" responses were totaled to create an overall chronic illness score; ranging from 0 to 11. Higher scores (greater number of doctor-diagnosed diseases) indicated poorer health. According to Hodes and Suzman (2007), research in a wide variety of cultures and contexts indicate that self-reported health status is an accurate predictor of measures like hospitalizations, chronic illness diagnosis, and even mortality.

Plan of Analysis

We conducted descriptive statistics, including means, standard deviations, and skewness, in order to determine that the data are normally distributed and to evaluate the extent to which older couples demonstrated each type of spousal support or control. To investigate gender differences in health support and receptivity, we conducted a series of paired t-tests for emotional support, instrumental support, social control, and receptivity to support. Finally, we conducted a series of hierarchical linear regressions for each of the health outcomes being investigated, resulting in a total of six regressions: husbands' subjective health, husbands' comparative health, husband's chronic illness conditions, wives' subjective health, wives' comparative health, and wives' chronic illness conditions. In Step 1, we included the support recipient's illness severity and receptivity to support. In Step 2, we included the support provider's support variables (instrumental support, emotional support, social control). Finally, in Step 3, we included the same variables for support receivers (instrumental support, emotional support, social control).

Further, we conducted another set of hierarchical linear regressions to examine change in health outcomes over time. A total of six regressions were conducted, one for each of the health outcomes measured at Time 2. In step 1, we included the corresponding Time 1 measure of health. In Step 2, we included the support recipient's illness severity and receptivity to support. In Step 3, we included the support provider's support variables (instrumental support, emotional support, social control). Finally, in Step 4, we included the same variables for support receivers (instrumental support, emotional support, social control).

Results

Preliminary Analyses

I first examined the descriptive statistics for all of the study variables, including the mean, range, standard deviation, and skewness statistics (see Table 1). Participants were generally in good health, as evidenced by their means on all three measures of health. For example, on a 1 to 4 Likert scale for subjective health, husbands had a mean of 3.22 and wives had a mean of 3.18. Participants also reported high scores for comparative health; mean score for husbands was 2.73 and mean score for wives was 2.69 out of a possible 3. Lower scores on participants' chronic illness indicated better health, and out of a possible 13, husbands' mean score was 2.33, while wives was 2.41. Additionally, coder ratings of severity of illness discussed during the observational support task indicated low severity for both husbands and wives; out of a possible 3 the mean for husband illness severity was 1.13, and for wives was 1.19. Paired t-tests were run to determine if any significant differences between husbands and wives existed, and results indicated no significant difference on any study variable.

Participants were observed to demonstrate moderate to low levels of support and control. Emotional support ratings were moderate, out of a possible 7 the mean for husbands was 3.73 and the mean for wives was 3.57. Instrumental support, however, was low, with husbands mean score at 2.17 and wives at 2.06 out of a possible 7. Observed social control was also low; as husbands' average score was 1.33 and wives average score was 1.45 out of 7. Husbands and wives were generally receptive to the support provided to them, out of a possible 3 husbands' mean receptivity score was 2.26 and wives mean score was 2.31. Skewness statistics were acceptable for almost all variables, indicating that all study variables besides social control for

both husbands and wives were normally distributed in this sample. The positive skewness statistic for husbands' (2.23) and wives' (2.05) social control indicated that the majority of the scores were near the low end of the social control scale.

Next, I examined the intercorrelations between the study variables both within and between spouses (see Table 1). Looking first at the within-spouse correlations, the support variables were mostly uncorrelated with one another for either husbands or wives. However, wife receptivity was positively correlated with wife instrumental support ($r = .31$, $p < .05$) and negatively correlated with wife social control ($r = -.29$, $p < .05$). This suggests that wives who were more receptive to their husbands' support were more likely to engage in supportive behaviors as well. The three health outcome variables were all significantly and highly correlated with one another for both husbands and wives. For husbands, subjective health was positively correlated with comparative health ($r = .57$, $p < .01$) and negatively correlated with chronic illness ($r = -.31$, $p < .05$). Husband comparative health was also negatively correlated with chronic illness ($r = -.28$, $p < .05$). Husband severity of illness was positively correlated with chronic illness ($r = .25$, $p < .05$) and negatively correlated with husband comparative health ($r = -.28$, $p < .05$). These correlations indicate that those who tended to report good health on one health measures tended to do so on the others. Further, the health outcomes at Time 1 were are significantly correlated with the individuals health outcomes at time 2, suggesting that an individual who reported good health at Time 1 was likely to do so at Time 2.

When looking at between-spouse correlations, all variables for emotional and instrumental support were significantly and highly correlated, but social control was not. Husband instrumental support was positively correlated with wife instrumental support ($r = .26$, $p < .05$). Husband emotional support was positively correlated with wife instrumental support (r

= .34, $p < .01$) and wife emotional support ($r = .25$, $p < .05$), indicating that husbands who provided more emotional support were more likely to have wives who provided more emotional and instrumental support as well.

For receptivity, wife receptivity was positively correlated with husband instrumental support ($r = .29$, $p < .05$), husband receptivity ($r = .39$, $p < .05$), and husband Time 2 subjective health ($r = .32$, $p < .05$). Husband receptivity was negatively correlated with wife social control ($r = -.29$, $p < .05$) and wife subjective health ($r = -.26$, $p < .05$). This finding indicates that husbands who were more receptive to their partner's support had wives who provided less social control. Interestingly, husbands who were more receptive to support also had wives who rated their subjective health worse. Further, wives who were more receptive to support at Time 1 had husbands who rated their subjective health better at Tim 2.

Finally, wife severity of illness was positively correlated with husband emotional support ($r = .43$, $p < .05$), and husband severity of illness was positively correlated with wife emotional support ($r = .30$, $p < .05$), indicating that partners with more serious health issues elicited more supportive responses from their spouses. Husband severity of illness was also positively correlated with wife comparative health ($r = .29$, $p < .05$), indicating that husbands observed to discuss more severe health concerns had wives who felt their own health was better than their peers.

Hierarchical Linear Regressions Predicting Concurrent and Changes in Subjective Health

A series of hierarchical regressions were conducted for each dependent health outcome variable, as well as for changes in these variables between Time 1 and Time 2. Separate regressions for husbands and wives were conducted. Model 1 included the individual's illness severity and receptivity to support, Model 2 added partner support variables, and Model 3 added

the individual's own support variables. First examining spouses' subjective health at Time 1, for both husbands and wives, the model overall did not significantly predict subjective health, only explaining 14% of husbands' subjective health and 9% of wives' subjective health. However, individual illness severity was a marginally significant predictor of wives' subjective health at Time 1 in Model 1 ($\beta = -.24$, $p < .10$), Model 2 ($\beta = -.24$, $p < .10$), and Model 3 ($\beta = -.27$, $p < .10$), such that greater illness severity was associated with worse subjective health for wives. Furthermore, wives' social control was a marginally significant predictor of husbands' subjective health in Model 2 ($\beta = .24$, $p < .10$), such that wives who were observed to demonstrate greater social control had husbands who reported better subjective health.

To examine changes in health over time, each health outcome at Time 2 was predicted by the support variables controlling for initial health at Time 1. For subjective health, the full model significantly predicted subjective health at Time 2 for both husbands ($\Delta R^2 = .56$, $p < .01$) and wives ($\Delta R^2 = .50$, $p < .01$), explaining 56% of the change in husbands' subjective health and 50% of the change in wives' subjective health. Most of this variance explained was due to stability in subjective health over time. However, in Model 4, there were two marginally significant associations with spousal support for changes in husbands' subjective health. Specifically, wives' instrumental support predicted husbands' increased subjective health a year later ($\beta = .20$, $p < .10$), such that wives who were observed to demonstrate more instrumental support had husbands who reported increased subjective health over time. Also, wives' social control predicted husbands' decreased subjective health a year later ($\beta = -.23$, $p < .10$), whereby wives who were observed to exhibit more social control had husbands who reported worsening subjective health. Finally, for changes in wives' subjective health, in Model 2 and 3, wives' illness severity predicted increased subjective health over time ($\beta = .26$, $p < .10$; $\beta = .22$, $p < .10$),

such that wives who were observed to discuss more severe health concerns reported improved health over time.

Hierarchical Linear Regressions Predicting Concurrent and Changes in Comparative Health

Looking at Time 1 husband comparative health, Model 1 was a marginally significant predictor ($\Delta R^2 = .09$, $p < .10$). Results revealed that husbands' illness severity significantly predicted their comparative health in Model 1 ($\beta = -.27$, $p < .05$), Model 2 ($\beta = -.31$, $p < .05$) and Model 3 ($\beta = -.32$, $p < .05$), such that husbands who discussed more severe health issues at Time 1 rated their health worse than their peers at Time 2. However, the full model was not significant in predicting comparative health for both husbands and wives, only explaining 16% of the variance in Time 1 comparative health for husbands, and 12% for wives. Although the overall model was not significant, wives' instrumental support was marginally associated with husband's comparative health in Model 3 ($\beta = .18$, $p < .10$), indicating that wives who were observed to exhibit more instrumental support had husbands who rated their health better as compared to others at Time 1. For wives, husband social control was marginally associated with their comparative health in Model 3 ($\beta = .24$ $p < .10$) such that husbands who were observed to exhibit more social control had wives who rated their health as better than their peers.

The model also significantly predicted husbands' and wives' Time 2 comparative health ($\Delta R^2 = .36$, $p < .05$, $\Delta R^2 = .38$, $p < .01$). The model explained 36% of the variance for husbands, and 38% of the variance for wives. For each model, Time 1 comparative health was a significant predictor of Time 2 comparative health, indicating that an individual's rating of his or her health compared to others at Time 1 predicted his or her ratings of comparative health a year later. Additionally, husband illness severity was a significant predictor of Time 2 comparative health

for husbands in Model 1 ($\beta = .25$, $p < .05$), such that husbands who were observed to discuss more severe health challenges at Time 1 rated themselves as having better comparative health a year later.

Hierarchical Linear Regressions Predicting Concurrent and Changes in Chronic Health Conditions

The full model was not a significant predictor of chronic health conditions for either husbands or wives. The model only explained 12% of the variance in chronic health conditions for husbands, and 8% for wives. However, in Model 1, individual illness severity was a marginally significant predictor of husbands' chronic health ($\beta = .25$, $p < .10$), and was significant in Model 2 and 3 ($\beta = .28$, $p < .05$; $\beta = .28$, $p < .05$, respectively), such that husbands who were observed to discuss more severe health challenges were more likely to report more chronic health conditions.

Finally, the full model significantly predicted chronic illness measures at Time 2 for both husbands ($\Delta R^2 = .65$, $p < .01$) and wives ($\Delta R^2 = .36$, $p < .01$). The model explained 65% of the variance for husbands and 36% of the variance for wives. Chronic health conditions were significant predictors in each model, indicating that husbands who reported greater numbers of chronic health conditions at Time 1 were also likely to do so at Time 2. Additionally, husband illness severity was a marginally significant predictor of husband's chronic health at Time 2 ($\beta = .07$ $p < .10$), such that husbands who were observed to discuss more severe health challenges reported greater increases in their chronic health conditions at Time 2.

Discussion

When faced with health challenges, the spouse is often who married individuals turn to, and for good reason; spousal support has been shown to improve health outcomes (Kiecolt-Glaser & Newton, 2001; Kulik & Mahler, 1989; Litwak & Messeri, 1989). These benefits are particularly salient for older adults, who face increasing health challenges (Hodes & Suzman, 2007; U.S. Census Bureau, 2014). Although the benefits to health are well documented, most research has relied on self-reports of how spouses support each other when faced with health challenges (Cohen & Wills, 1985; Franks et al., 2006). Therefore, researchers have called for a more in-depth look at how these processes occur. This study is the first to date to incorporate observed instrumental support, emotional support, and social control in the context of older spouse's health challenges. Overall, both instrumental support and social control were modestly predictive of health outcomes, though gender differences existed for which type of support improved health and when. Somewhat surprisingly, neither emotional support nor support provision were found to be linked with health in the current study. When considering the type of support that is needed for older spouses' health challenges as opposed to when they are dealing with primarily emotional concerns, findings from the current study suggest that more tangible, visible support may be particularly poignant.

What We Captured: Preliminary Evidence of the Distinct Roles of Support and Time

Although most of the findings that emerged were only marginally significant, a consistent pattern surfaced whereby husbands appeared to find social control from their wives helpful in the moment, but less beneficial in the long-term. When wives provided more social control, their husbands rated their subjective health better at the time the social control was provided, but a year later, husbands whose wives were observed to provide more social control actually reported

worse subjective health. This finding implies that while a husband may find social control helpful in the moment, its benefits might not carry over into long-term health benefits. This benefit may be seen for men in the short-term because the "take-charge" manner of social control matches the type of support they would like give in a similar situation (Hook et al. 2003; Thomeer et al., 2013). Such a finding is also consistent with Cutrona and Russell's (1990) theory of optimal matching, in which support provision is most effective when matched with what the support receiver is looking for.

In contrast to the benefits of wives' social control, wives' instrumental support was not found to be beneficial for their husband's perception of their own health at the time the support was provided. However, husbands did appear to find their wives' instrumental support beneficial long-term. These findings indicate that while social control may aid in the immediate relief of problems and may assist husbands in feeling better about their overall health status, instrumental support is more helpful to improve husband's perception of their own health over time. This diminishing effect of social control could be due to a loss of autonomy, which in turn can lead to worse health outcomes. For example, Williams, Freedman, and Deci (1998) found that diabetes patients whose care fostered autonomy were more likely to engage in health-promoting behaviors. Perhaps receiving high levels of social control over time diminishes an individual's intrinsic motivation or perceived ability to improve their health, while the solutions suggested in instrumental support allow this autonomy to persist.

Wives' instrumental support was also helpful for husband's comparative health, though interestingly only concurrently. Perhaps this association is seen because perceived availability of social resources is thought to function as a stress-buffer (Cohen & Wills, 1985), essentially lessening the negative effects of health issues. When looking at their health compared to their

peers, husbands are able to easily perceive instrumental support over other forms. Increased perceived support may improve husbands' perception of their own health compared to others. Possibly for similar reasons, wives' comparative health was also found to improve with husband's social control at Time 1, suggesting that wives considered their health to be better than their peers when their husbands were exhibiting social control. Again, as Cohen & Wills (1985) assert, perceived support can diminish the negative effects of health crises, and social control is easily identified.

What We Didn't See: Gender, Emotional Support, and Support Provision

Although many of our findings were promising, the lack of findings in some areas were perhaps just as interesting. First, previous research has found gender differences in support provision, known as a "support gap", whereby in married couples, men receive more support, and better quality support, than do women (Belle, 1982; Cutrona, 1996). The current study, on the other hand, found no significant gender differences in the type or amount of support provided, nor – in contrast to our hypotheses – in spouses' receptivity to this support. However, this lack of findings corroborates other observational support research that finds the well-documented support gap diminishes when using observational data over self-report data (Pasch et al., 1997; Roberts & Greenberg, 2002). These studies observed couples discussing either personal problems or insecurities in tasks designed to elicit support, and no significant differences in quality or quantity of support were found for these tasks either. While a support gap may exist in the individuals' or spouses perception of support given or provided, objective measures of support do not seem to find evidence of this.

Interestingly, this study also found no evidence that providing support is beneficial to the health of the support provider. Such a finding is inconsistent with existing research asserting that

providing support is beneficial to an individual's own health, as well as the health of their marriage (Jensen Rauer, & Volling, 2013; Schwartz & Sendor, 2000). For example, in a study of 1,532 older married individuals self-reported support provision and receipt, Brown, Nesse, Vinokur, and Smith (2003) found that support provision was linked to the individual's reduced mortality, above and beyond the benefits of receiving support. It is possible that this link was not seen in the current study because when discussing the more minor health concerns brought up during the support task, support providers do not internalize the feelings of helpfulness and pride that they often do when caring for a loved one experiencing a major health crisis. Additionally, Brown et al. (2003) had access to over 1,500 participants, while the current study had access to 128. Lower sample size has the potential to decrease the power of a study, which may have led to some of the non-significant findings in this study.

Low power may also explain the absence of links found in the current study between emotional support and health outcomes. This lack of a connection is unexpected due to well-documented links between emotional support and health. For example, Helgeson and Sheldon (1996) found that emotional support was most desired by cancer patients, and that it promoted the best adjustment to diagnoses, suggesting that emotional support is beneficial not only for the physical health of individuals, but also their psychological health. Perhaps the lack of findings in this study occurred because the relatively mild nature of issues discussed in the support task did not elicit an emotional response. In the context of this health support task, spouses may have understood that action could be taken to improve their spouses' situation, and therefore provided instrumental support or social control over emotional support. When discussing health concerns with clear goals for improvement, perhaps the more tangible and problem-solving approaches to support were more appropriate than emotional support.

Further, the potential exists for this lack of a connection between emotional support and heath to be due to a flaw in the methods of capturing both support provision and health outcomes. Perhaps a correlation between emotional support and health would have been found if more objective markers of health had been utilized. Physiological measures could potentially remove any bias from either participants or researchers, as well as introduce an understanding of how participants physiologically responded to support as it was provided. Potential measures include blood pressure, skin conductance, and salivary cortisol levels (Kamarck et al., 1990; Kiecolt-Glaser & Glaser, 1988, Turner-Cobb et al., 2000). Studying these underlying pathways between social support and health is imperative to understand its benefits. For example, in studies using these methods, social support has been linked with changes in cardiovascular, neuroendocrine, and immune function (Berkman et al., 2000; Uchino et al., 1996), all of which could potentially lead to improved health over time.

Despite these potential concerns, our confidence in the observational methods used is reinforced by a strong correlation between observed severity of illness data and self-reported health measures, suggesting that what was coded about an individual's health was strongly correlated with his or her own perception of their health. Therefore, although emotional support provision was hypothesized to be linked with health outcomes, the lack of findings is most likely due to factors influencing the need or desire for emotional support during the task rather than methodological concerns.

Strengths and Limitations

Our confidence in the findings of this study is bolstered by strengths in its methodologies. Four different measures of health were collected, three self-report (subjective, comparative, and chronic health conditions) and one observational (illness severity). For nearly all measures, the

observed measure of health was highly correlated with the self-reported measures. Additionally, the longitudinal design of this study allowed us to discuss health outcome patterns over time, which revealed potential differences in the most beneficial types of support over time. Finally, these couples were all relatively healthy (ensured by their ability to come to a university to complete an in-person interview), which allowed us to capture support that is voluntarily provided, not made necessary by the poor health of a spouse. In contrast to the majority of health support research that focuses on specific illnesses and diseases (Connell, Fisher, & Houston, 1992; Franks et al., 2006) this study is more generalizable to a larger audience, as nearly everyone encounters health concerns at some point, while not everyone experiences health crises to a level that requires intensive care. This in turn means that the findings of this study could be relevant for the majority of married couples across the lifespan, not only for those coping with severe or chronic illness.

However, certain limitations suggest that our results should be interpreted with caution. First, the generalizability of this sample is limited due to its homogeneity. Participants were relatively well-educated, financially well-off, heterosexual, and Caucasian. The relatively high socioeconomic status of these participants could potentially limit the application of these findings to populations of lower socioeconomic status, as a general positive trend between socioeconomic status and health exists (Adler & Ostrove, 1999). Individuals with a lower socioeconomic status than those studied may be facing additional health challenges such as poor nutrition, lack of healthcare, or the inability to pay for preventative medicine. In contrast, study participants typically were not facing these added challenges to managing to their health, potentially increasing the beneficial effects of spousal support. Future studies should include a more representative sample to understand the effects of spousal health support.

Additionally, the coding scheme used in this study, while developed from existing schemes for different tasks (e.g. non-health support, conflict), has not been externally validated. This novel approach could potentially lead to differences in coding if this study were to be replicated. Finally, though we do have confidence in the validity of the health measures utilized, findings could be reinforced by incorporating more objective measures of health, including physiological measures and medical records, which would eliminate any bias in self-report measures and help determine how participants responded to support during the task (skin reactivity, psychoneuroimmunology, etc.). These additional health markers would also help establish their baseline health and risk factors beyond doctor diagnosed diseases. This information may reveal the underlying processes behind the positive or negative effects of social support on health outcomes (Robles & Kiecolt-Glaser, 2003; Uchino, 2006), as social support is thought to be beneficial by means of social (e.g., stress buffering), psychological (e.g., mood and affect), and behavioral (e.g., health-promoting behaviors) mechanisms. Alternate measures of health, especially when coupled with observational support data, may provide important context as to how social support can be beneficial for health.

Conclusions

These findings have important implications for both practice and future research. First, more attention needs to be paid to the specific type of support provided in different circumstances. Given that this study indicated a link between social control and concurrent health, yet diminishing effects over time, it may be problematic to just encourage spouses to provide social control when attempting to promote their spouses' health. Rather, clinicians and service providers should be mindful to encourage the use of social control only when their spouses' health concerns necessitate it. Further, and especially for wives, instrumental support should be considered as an option once the severity of health concerns has subsided or the negative effects of it have been managed. Without this additional caveat, spouses may continue to provide social control far beyond when their spouses need and desire it. This in turn can lead to the polar opposite of the intended outcome – worse health over time. Clinicians should be attentive to the potential patterns in which couples dealing with health issues may find themselves. Emotion-Focused Therapy (Johnson, 2012) would be particularly useful in these cases. Therapists would need to highlight and process negative interactional patterns leading to discontent, conflict, and potentially poor health outcomes, to achieve a new interactional pattern between partners. Potential negative patterns that could emerge when couples are facing health crises include a persistent loss of autonomy, not feeling heard and understood, and not feeling as though someone is there for them when they are distressed. The goal of Emotion-Focused Therapy for these couples would be to gain insight into the desires of their partners, better understand how their own actions are perpetuating their negative cycles, and find a balance where each partner feels supported and secure.

Additionally, this study provides an important understanding of the benefits of social control. Although the concept of one spouse taking full control may seem unbalanced or detrimental to therapists attempting to foster a supportive, collaborative partnership between spouses (Minuchin, 1974), this notion may obscure the possible benefits. While the benefits of social control may wane over time, clinicians should be mindful that for some couples, the introduction of social control could potentially be precisely what an individual needs and wants when coping with a health concern. It is important to note, however, that this study did not examine marital satisfaction, so therapists must weigh the potential benefits of some forms of social support with the possible detrimental effects on marital satisfaction. As support has been linked to marital satisfaction (Pasch & Bradbury, 1998) and marital satisfaction has been found to independently predict positive health outcomes (Kiecolt-Glaser & Newton, 2001), future research should investigate spousal support and marital satisfaction in tandem to help service providers understand the pathways to ensure individuals remain not only healthy, but happy.

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Table 1. *Descriptive statistics and correlations among study variables.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21	22
A. Observed Support																						
1. H Instrumental Support	-																					
2. H Emotional Support	.11	-																				
3. H Social Control	.13	-.23	-																			
4. W Instrumental Support	.26*	.34*	-.09	-																		
5. W Emotional Support	-.02	.25*	.09	-.00	-																	
6. W Social Control	.03	-.10	.19	-.07	-.09	-																
7. H Illness Severity	.05	.15	.02	.14	.30*	.01	-															
8. H Receptivity	.06	.16	-.02	.18	.05	-.29*	-.09	-														
9. W Illness Severity	-.03	.43*	-.08	.01	.24	.15	.11	-.14	-													
10. W Receptivity	.29*	.19	-.14	.31*	.13	-.29*	-.00	.39**	-.06	-												
B. T1 Self-Reported Health																						
11. H1 Subjective Health	.14	.12	.14	.12	--.02	.17	-.16	.15	.02	.13	-											
12. H1 Comparative Health	.03	.15	-.06	.18	-.09	.02	-.28*	-.04	.15	.18	.57**	-										
13. H1 Chronic	.03	.01	-.09	.04	-.02	-.13	.25*	-.04	.10	.09	.31*	-.28*	-									
14. W1 Subjective Health	-.09	-.12	.08	-.08	-.07	.06	.05	-.01	-.24	-.00	.05	-.01	.00	-								
15. W1 Comparative Health	-.09	.06	.17	.09	-.07	.09	.23	.07	-.13	-.08	.23	.07	-.13	.39**	-							
16. W1 Chronic	.14	.06	.09	-.04	.12	.04	.17	.14	.17	.10	.17	.14	.14	-.43**	-.51**	-						
C. T2 Self-Reported Health																						
17. H2 Subjective Health	.13	.01	.01	.23	-.02	.02	-.17	.10	-.02	.32*	.70**	.69**	-.31*	.14	.18	.10	-					
18. H2 Comparative Health	-.08	.11	-.16	.27*	.80	-.03	.11	.20	.01	.12	.22	.48**	-.18	.10	.16	-.14	.43**	-				
19. H2 Chronic	-.03	.07	-.05	-.09	-.03	-.14	.29*	-.08	.20	-.01	-.32*	-.50**	.79**	.08	-.14	.01	-.47**	-.21	-			
20. W2 Subjective Health	-.15	.04	-.02	-.11	-.05	.03	.12	-.23	.08	-.09	.14	.19	.04	.64**	.39**	-.28*	.20	.13	.04	-		
21. W2 Comparative Health	-.12	.04	.02	.11	.02	-.00	.21	-.20	-.10	-.09	.11	.19	-.07	.48**	.60**	-.38**	.25	.16	-.22	.53**	-	
22. W2 Chronic	.07	.07	.08	.16	.06	.09	-.09	.04	.06	.07	.15	.10	-.18	-.54**	-.33*	.66**	.04	.07	-.12	-.50**	-.27	-
M	2.17	3.73	1.33	2.06	3.58	1.45	1.13	2.31	1.18	2.27	3.22	2.73	2.33	3.18	2.69	2.41	3.15	2.69	2.71	3.19	2.65	2.82
SD	1.18	1.18	.79	1.09	1.20	.97	.45	.61	.50	.65	.63	.48	1.59	.56	.53	1.70	.78	.58	1.62	.55	.55	1.58

Note: *$p \leq .05$. **$p \leq .01$.

H1 = Husband Time 1, H2 = Husband Time 2, W1= Wife Time 1, W2= Wife Time

Table 2. *Hierarchical Regression Analyses of Time 1 Subjective Health*

	Husbands' subjective health		Wives' subjective health	
	ΔR^2	β	ΔR^2	β
Step 1	.04		.06	
Individual illness severity		-.14		-.24†
Individual receptivity		.13		-.02
Step 2	.07		.02	
Individual illness severity		-.18		-.24†
Individual receptivity		.18		.03
Spouse emotional support		.06		.02
Spouse instrumental support		.13		-.12
Spouse social control		.24†		.09
Step 3	.03		.01	
Individual illness severity		-.19		-.27†
Individual receptivity		.16		.08
Spouse emotional support		.02		.07
Spouse instrumental support		.08		-.13
Spouse social control		.22		.08
Individual emotional support		.13		-.04
Individual instrumental support		.09		-.07
Individual social control		.13		.11
Total R^2	.14		.09	

**$p < .01$; *$p < .05$; †$p < .10$.

Table 3. *Hierarchical Regression Analyses of Change in Spouses' Subjective Health*

	Husbands' subjective health		Wives' subjective health	
	ΔR^2	β	ΔR^2	β
Step 1	.48**		.41**	
Subjective health – Time 1		.70**		.64**
Step 2	.01		.07	
Subjective health – Time 1		.69**		.71**
Individual illness severity		-.10		.26†
Individual receptivity		-.02		-.05
Step 3	.05		.01	
Subjective health – Time 1		.72**		.72**
Individual illness severity		-.12		.22†
Individual receptivity		-.10		-.07
Spouse emotional support		-.01		.10
Spouse instrumental support		.13		-.04
Spouse social control		-.17		.01
Step 4	.02		.01	
Subjective health – Time 1		.77**		.72**
Individual illness severity		-.12		.21
Individual receptivity		-.08		-.06
Spouse emotional support		.04		.12
Spouse instrumental support		.20†		-.02
Spouse social control		-.23†		.00
Individual emotional support		-.19		.02
Individual instrumental support		-.04		-.08
Individual social control		-.03		-.00
Total R^2	.56**		.50**	

**$p < .01$; *$p < .05$; †$p < .10$.

Table 4. *Hierarchical Regression Analyses of Time 1 Comparative Health*

	Husbands' comparative health		Wives' comparative health	
	ΔR^2	β	ΔR^2	β
Step 1	.09†		.01	
Individual illness severity		-.27*		-.09
Individual receptivity		.10		-.09
Step 2	.05		.07	
Individual illness severity		-.31*		-.17
Individual receptivity		.08		-.07
Spouse emotional support		.01		.22
Spouse instrumental support		.22		-.13
Spouse social control		.07		.22
Step 3	.02		.03	
Individual illness severity		-.32*		-.16
Individual receptivity		.07		-.05
Spouse emotional support		-.02		.23
Spouse instrumental support		.18†		-.18
Spouse social control		.07		.24†
Individual emotional support		.14		-.11
Individual instrumental support		-.03		.12
Individual social control		-.01		.09
Total R^2	.16		.12	

**$p < .01$; *$p < .05$; †$p < .10$.

Table 5. *Hierarchical Regression Analyses of Change in Spouses' Comparative Health*

	Husbands' comparative health		Wives' comparative health	
	ΔR^2	β	ΔR^2	β
Step 1	.23**		.36**	
Comparative health – Time 1		.48**		.60**
Step 2	.07†		.01	
Comparative health – Time 1		.52**		.59
Individual illness severity		.25*		-.04
Individual receptivity		.14		-.06
Step 3	.01		.01	
Comparative Health– Time 1		.49**		.59**
Individual illness severity		.22		-.07
Individual receptivity		.12		-.06
Spouse emotional support		-.01		.05
Spouse instrumental support		.12		-.07
Spouse social control		.01		-.07
Step 4	.04		.01	
Comparative health – Time 1		.49**		.59**
Individual illness severity		.22		-.06
Individual receptivity		.15		-.09
Spouse emotional support		.04		-.00
Spouse instrumental support		.19		-.07
Spouse social control		.01		-.07
Individual emotional support		-.13		.05
Individual instrumental support		-.12		.06
Individual social control		-.12		-.05
Total R^2	.36*		.38**	

**$p < .01$; *$p < .05$; †$p < .10$.

Table 6. *Hierarchical Regression Analyses of Time 1 Chronic Illness*

	Husbands' chronic health		Wives' chronic health	
	ΔR^2	β	ΔR^2	β
Step 1	.06		.04	
Individual illness severity		.25†		.18
Individual receptivity		-.02		.11
Step 2	.03		.02	
Individual illness severity		.28*		.21
Individual receptivity		-.06		.09
Spouse emotional support		-.11		-.06
Spouse instrumental support		.00		.12
Spouse social control		-.16		.01
Step 3	.03		.02	
Individual illness severity		.28*		.21
Individual receptivity		-.06		.13
Spouse emotional support		-.09		-.04
Spouse instrumental support		-.04		.09
Spouse social control		-.15		.02
Individual emotional support		-.04		-.09
Individual instrumental support		.16		.05
Individual social control		-.08		.11
Total R^2	.12		.08	

**$p < .01$; *$p < .05$; †$p < .10$.

Table 7. *Hierarchical Regression Analyses of Change in Spouses' Chronic Health*

	Husbands' chronic health		Wives' chronic health	
	ΔR^2	β	ΔR^2	β
Step 1	.62**		.43**	
Chronic health – Time 1		.79**		.66**
Step 2	.01		.00	
Chronic health – Time 1		.77**		.66**
Individual illness severity		.07†		-.03
Individual receptivity		.12		.03
Step 3	.02		.01	
Chronic health – Time 1		.74**		.66**
Individual illness severity		.12		-.06
Individual receptivity		.02		.03
Spouse emotional support		-.07		.09
Spouse instrumental support		-.08		-.03
Spouse social control		-.09		.08
Step 4	.01		.03	
Chronic health – Time 1		.76**		.66**
Individual illness severity		.11		-.06
Individual receptivity		.02		.04
Spouse emotional support		-.09		.06
Spouse instrumental support		-.07		-.06
Spouse social control		-.08		.07
Individual emotional support		.05		.02
Individual instrumental support		-.11		.14
Individual social control		.04		.09
Total R^2	.65**		.36**	

**$p < .01$; *$p < .05$; †$p < .10$

Appendix A. *Support Task Coding Scheme*

Emotional Support

Sensitivity refers to listening to the partner, perceiving and interpreting feelings and signals accurately, and responding appropriately. Consider the frequency, latency, and the appropriateness of response to the spouse. This code is more focused on the behaviors of the listener, but keep in mind it is still a dyadic code. At the highest point, quick, warm and sensitive responses are characteristic, but don't require personal expense. At the lowest point, coldness, rejection and ignoring are typical. Sensitivity/support needs to go beyond listening, as all couples are instructed to listen to one another. This also includes questions to better understand the individuals' experience. Try to consider what optimal responding is.

1. Very minimal: There is little regard or consideration for the other. Expressed desires or comments of the other get no response, or a very delayed or a negative response, which may create distress. If one seems to enjoy creating distress in the other, score 1.

2. Low: One sees occasional but rare positive responding. More often than not, they seem oblivious to each other's needs and comments, though they may very occasionally respond to very obvious signals in a neutral or occasionally inconsiderate or defensive manner. **ANCHOR**

3. Moderately low: Responsivity is generally low. Many comments go unheeded but very clear signs of distress or need would likely receive some response. Responses may be neutral, or appropriate but delayed. There is some "coolness" here.

4. Moderate: This spouse shows moderate responsivity and support. Comments and needs are responded to fairly often, sometimes neutrally and sometimes sensitively. There is nothing blatantly insensitive; however the spouse is not particularly sensitive either.

5. Moderately high: In the context of generally high responsivity and sensitivity, these partners show brief occasions of insensitive disregard. When called for, sensitivity is more likely than not but is not a given.

6. High: This spouse lacks the consistency or harmony of 7. They may be characteristically sensitive and responsive but lack fine-tuning. There may be infrequent and minor but noticeable lapses in responding or offering support.

7. Very high: This spouse is characteristically responsive, sensitive, and supportive. Each spouse is responsive and attentive to the desires and actions of the other, especially to dissatisfaction and distress. Needs and comments are responded to quickly and appropriately, but not at one's own personal expense

Instrumental Support

Instrumental support can include actual suggestions of action (i.e. "Let's go to the gym at least twice a week") and questions that help lead to a solution (i.e. "Does your hip bother you more in the morning or at night?"). These questions can also be a form of suggestion (i.e. "Shouldn't we try to eat better? I feel like that will help with both of our problems.") The purpose of instrumental support is to offer solutions to a problem. Higher scores are given if the solution is realistic and the spouse seems genuine in carrying out the solution (remain supportive through entire process). Low marks are given if no solutions are offered, solutions seem unrealistic, or if solutions are given with the apparent intent to offend or irritate.

1. Very minimal: No solutions are given. There are few suggestions offered or suggestions are made with the intent to offend or irritate.

2. Low: Rarely solutions are suggested or solutions do not seem realistic to implement or do not seem to solve the problem.

3. Moderately low: Occasional solutions are offered. Solutions either moderately address the problem or the spouse offering does not seem genuine in following the suggestions through.

4. Moderate: This spouse shows moderate levels of instrumental support. They offer more successful suggestions than in 3. Solutions more successfully address the issue.

5. Moderately high: Solutions are offered frequently and have realistic implementation. Solutions may be made genuinely and are realistic

6. High: Solutions are offered frequently

7. Very high: Many solutions are offered. Solutions are received with positive reactions and seem to bring the couple together. Spouse seems genuine in following the suggestion through.

Social Control

Social control is distinguished from instrumental support in that the intent is less to provide helpful suggestions, and more to exert control over the partner's behaviors in regards to health. A partner's tone when delivering these suggestions may be an important indicator. Social control would be seen more when one partner is "telling" the other what to do to better their health, or discussing what the partner "should" do, as opposed to delivering helpful suggestions. Those exerting social control are often the more dominating partner. Social control is not inherently good or bad, in different couples this may be more or less effective and may be received positively or negatively, do not code based on what seems supportive/helpful from your point of view. Additionally, whether the suggestions are received well or not is not to be included in this code; only code the quality and type of suggestions/social control. An example of social control is "I'm going to do the grocery shopping form now on so you'll eat better".

1. No Social Control: No evidence of social control is seen. Partner offering support does not attempt to control health-related behaviors, thoughts or feelings of their partner.

2. Low: Rarely social control is seen. The partner may make one small comment with controlling tone.

3. Moderately Low: The partner exhibits 2-3 small instances of social control, or one significant instance.

4. Moderate: The partner providing support does so in a way that attempts to be controlling of their partner's behavior, but the recipient also shares opinions and feelings, and still holds most of the control over their health-related behaviors, thoughts, and feelings. The partner exhibits 4-5 small instances of social control, or more than 1 significant.

5. Moderately High: The partner exhibits several significant instances of social control

6. High: The partner exhibits consistent social control, though the recipient maintains a small amount of control.

7. Very High: Health-related behaviors, thoughts, and feelings of an individual are more often than not controlled by their partner. The recipient may share thoughts and opinions, but they are shut down by the provider.

Severity of Illness/Problem

This scale measures the severity of the health issue brought up in the couple discussion. This scale measures the present signs, symptoms, and complaints of the issue, as well as how the health concern affects daily functioning. Severity is based on the person's perception of the problem (words person uses to describe the problem) combined with evidence of severity based on interaction (i.e. carries a cane into interview).

1. No present issue: Spouse does not identify or bring up a health concern at all.

2. Mild: Spouse may describe their health issue as an area of improvement more than a struggle with a health diagnosis. Example: "I need to eat healthier." "I need to lose weight." If they bring up a health concern at all, there is no discussion of a diagnosis, the issue is health promotion and healthier lifestyle. Complaints may also be described as "nagging" or "off and on". Rarely does the person change what they would do normally. Example: tooth pain, joint aches that do not restrict mobility or function.

3. Moderate: These issues are clear health problems that require some level of change in normal habits, though these people can still participate for the most part in the activities they want to be in. Example: frequent glucose checks before meals for diabetes control, can still go out to eat, but must plan what to eat and insulin amount.

4. Severe: This level of severity requires a complete change in lifestyle to live with any sort of functioning or safety. Example: Late stages of dementia or Parkinson's requires a sitter at home to maintain safety. Immobility from disease requires wheelchair and assistance into and out of wheelchair. Right-sided paralysis requires person to seek help in everyday tasks such as eating and dressing.

Partner Receptivity to Support/Control

Receptivity to health-related suggestions from a partner is to be coded for how the partner perceives the support/control they receive. Regardless of whether instrumental support or social control occurred, code for the recipient response. Do they seem to think it is plausible and helpful, or do they seem to find it unrealistic, ineffective or offensive?

1. Not receptive: The recipient actively refuses the suggestion or reacts in a way that shows their dislike.

2.Somewhat Receptive: The recipient either accepts the solutions offered without enthusiasm, or dismisses them but acknowledges their value. Ex: "yeah that might work if I had time to walk on my lunch break but I only get 20 minutes". **ANCHOR**

3. Highly Receptive: Solutions are accepted with enthusiasm and appreciation; Ex: "Making a gym schedule sounds like a great idea, let's do it"