

PHYSICAL VERSUS VERBAL SPOUSAL CONTROL EFFORTS: IMPLICATIONS
FOR SPOUSES' ANXIOUS FEELINGS

by

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THESIS ABSTRACT

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Alongside the growing obesity epidemic is the average American's risk of developing type 2 diabetes. In order to manage type 2 diabetes, a patient must maintain a strict diet, exercise, and medication regimen. Adherence to these lifestyle changes is notoriously difficult, and when patients cannot successfully self manage their own diabetes-related health behaviors, their social networks sometimes become involved. Spouses often are the most proximal network member involved in diabetes management by regulating their partners' behavior, yet little is known about the implications of such involvement.

Although the current literature addresses how individuals with type 2 diabetes are affected by their network members' involvement in disease management through engaging in health-related social control, the implications for individuals who engage in such attempts remain largely unexplored. Given the worry and uncertainty about short-term and long-term consequences of uncontrolled diabetes, this study seeks to examine

one unexplored component of spouses' well-being related to social control, anxious feelings. Little is known about which social control tactics aimed at different adherence behaviors are particularly likely to be associated with anxious feelings; thus, this study further seeks to compare the levels of anxious feelings between individuals who exert control by physical means and those who exert control by verbal means. While no form of social control was found to be related to anxious or depressive feelings, patients' behavioral response and self-rated health did emerge as unique predictors of anxious feelings, and could indicate a more intricate picture of how social dynamics relate to mental health.

Keywords: anxiety, diabetes, marital relationship, social control

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Physical versus Verbal Spousal Control Efforts: Implications for Spouses' Anxious Feelings

Émile Durkheim, one of the founders of sociology, posited in his seminal work *Le Suicide* (1897/1951), that society and an individual's connection to society could ameliorate risk factors that lead to suicide. Specifically, individuals who were less socially integrated were more likely to engage in risky behaviors, and ultimately experience negative health outcomes. In contrast, the social networks of more socially integrated individuals served a protective function with regard to health. The ideas of Durkheim form the foundation for how social relationships contribute to health and well-being. Since Durkheim's time, it has been established by proxy measures of social connectedness at a macro level that the influence of individuals' social networks contributes to their health and longevity (House, Landis, & Umberson, 1988; Hughes & Grove; 1981; Umberson, 1987). Within the last 30 years, there has been a shift in examinations of social influence from the macro level of sociology to the micro level of psychology. In micro level examinations of how health benefits are conferred by social network involvement, different pathways have been hypothesized (Cohen, 2004). One possible mechanism by which social networks promote health is by exerting direct influence on health behaviors, or engaging in health-related social control. Health-related social control refers to efforts by social network members to monitor and influence individuals' unhealthy behaviors (Lewis & Rook, 1999). Specifically, social control involves promoting engagement in health enhancing behaviors (e.g. eating a low-fat, low-sugar diet), as well as discouraging engagement in health-compromising behaviors (e.g. being physically inactive). These two dynamics have been theorized in both a

sociological and psychological context as major contributors to how social networks operate to influence behaviors that promote good health (Berkman, Glass, Brissette, & Seeman, 2000; Cohen, 2004; Rook, August, & Sorkin, 2011).

By definition, social control involves restriction of another person's sense of autonomy, by explicitly or implicitly communicating that this person is unable to self-regulate his or her own health behavior (Rook, 1998). Thus, the individual's choice not to maintain healthy behavior is challenged when social control is exerted. Studies have shown that social control is distinct from other social network functions, and has a unique and significant impact on the behaviors and emotions of the recipient (e.g. Franks et al., 2006; Helgeson, Novak, Lepore, & Eton, 2004). Although positive effects of social control on recipients have been reported, many studies have found that more heavy-handed forms of control do not help promote healthy behavior and can have a negative impact on the recipient's emotional well-being (Franks et al., 2006; Helgeson et al., 2004; Lewis & Rook, 1999). Little is known, however, about the implications for the individual exerting such control.

Theories and evidence of how network members can promote positive health behaviors, without compromising their own well-being, will become increasingly important given changing population demographics and recent public health epidemics. With 69% of Americans over the age of 20 being overweight (Center for Disease Control (CDC), 2012) and a further 33% of American adults and 17% of children being obese, an increasing number of people in the United States are putting themselves at risk for many different diseases associated with being overweight or obese (Ogden, Carroll, Kit, & Flegal, 2012). One such disease that has a strong association with being overweight is

diabetes. Diabetes is characterized by abnormally high levels blood glucose due to a problem with the body's production or action of insulin (CDC, 2011a). In the United States, 8.3% of the population is estimated to have diabetes, and this number dramatically increases to 26.9% of adults 65 years and older. (CDC, 2011a). An additional 50% of older adults are estimated to be pre-diabetic, indicating that they have high blood glucose and a higher chance of developing diabetes compared to individuals without pre-diabetes, although they have not yet reached the clinical threshold for an official diagnosis (CDC, 2011a). With a projection of one in three Americans having type 2 diabetes by 2050 (CDC, 2011c), there is an increasing impetus to prevent the alarming increased rates of diabetes, and to help individuals and their families already afflicted with the disease manage it effectively, while promoting the physical, mental, and social well-being of everyone involved.

Type 2 diabetes is one of the best examples of a prevalent chronic condition that requires strict daily adherence to a multifaceted treatment regimen, including changes in diet, levels of exercise, medication and/or insulin adherence, and testing of blood glucose (CDC, 2011b). Given low rates of adherence to diabetes treatment regimens (Delamater, 2006; McNabb, 1997), social network members often become involved to help promote such adherence (Rook, August, & Sorkin, 2011). The specific processes whereby social networks operate to promote adherence therefore needs to be more closely examined and understood. Not only does this social network involvement in diabetes management have implications for the patients with diabetes, but it also has implications for members of their social networks (August, Rook, Franks, & Stevens, 2013; August, Rook, Stephens, & Franks, 2011; Trief et al., 2003).

Spouses of individuals with diabetes are in an especially unique position to provide constant monitoring of behavior, particularly diet and medication adherence (Franks et al., 2006; Tucker, 2002; Umberson, 1992). As such, spouses are able to provide prompt corrective influence on their partners' behaviors when they notice a lapse in adherence to their partners' prescribed health regimen (Trief et al., 2003; Tucker, 2002; Tucker & Anders, 2001; Umberson, 1992). An example of the effectiveness of spousal involvement in diabetes management can be seen in a study that found that when couples worked together in planning meals, patients experienced less distress stemming from their diabetes (Franks et al., 2012). Another area in which spouses' involvement may be beneficial is in promoting better health behaviors, such as physical activity, among patients with diabetes. For example, in a study of couples managing diabetes, spousal involvement was found to be associated with an increase in patients' feelings of efficacy in future exercise attempts and increased energy spent on future exercise (Khan, Stephens, Franks, Rook, & Salem, 2012). However, spousal involvement in helping their partner manage the difficult tasks of disease management may be associated with negative outcomes as well. Diabetes is a couples' condition, such that the challenges it causes can be felt by both patients and their spouses (Berg & Upchurch, 2007; Franks, Lucas, Stephens, Rook, & Gonzalez, 2010). As such, it is essential to examine specific types of spousal involvement, such as social control, from the viewpoint of not only the patient, but also the spouse, to have a more complete understanding of the implications of spousal involvement.

Primarily beginning with Berkman and Syme (1979), the potentially harmful effects of social networks has been under increasing scrutiny. Hughes and Gove's (1981)

study of individuals living alone extended these ideas, and looked at the potential costs of increased social integration. Hughes and Gove (1981) highlight that social integration might not always lead to beneficial physical and psychological health outcomes, especially if the social dynamic is maladaptive, excessively demanding, or evokes stress and frustration. This idea can be seen as the progenitor of the dual effects hypothesis of social control. This hypothesis posits that while social control may lead to better health behavior, it also may induce psychological distress because it is a challenge to someone's agency to manage his or her own health (Lewis & Rook, 1999). Many studies have examined the efficacy of different types of social control on recipients' health behaviors and emotional responses (e.g., Altintas, Gallouj, & Guerrien, 2012; August & Sorkin, 2010; Lewis & Rook, 1999; Okun, Huff, August, & Rook, 2007; Rook, August, Stephens, & Franks, 2011; Stephens, Rook, Franks, Khan, & Iida, 2010). An overwhelming majority of the current literature focuses on the recipient of social control, and relatively few studies have examined how this social process has implications for the individuals who engage in such attempts. One study, however, did examine whether being depended upon to help someone with health related behaviors had detrimental psychological effects in the form of loneliness, depression, and self-esteem, and found that it did not (Rook, Thuras, & Lewis, 1990). Another study focused on spouse burden associated with social control directed at a partners' dietary behaviors, and found that spousal exertion of more frequent social control was associated with increased burden, but only when the targets of such attempts were not adhering to their prescribed dietary regimen (August et al., 2011). Yet another daily diary study found that spouses reported greater feelings of stress and more tense marital interactions on the days in which they reported exerting social control

toward their partners with diabetes (August, Rook, Franks, & Stephens, 2013). One potential implication that has been overlooked in previous studies is how these social control attempts relate to anxious feelings among the person engaging in such regulatory efforts. Worry about future events is such an essential feature to anxiety, some researchers have suggested changing the name of Generalized Anxiety Disorder to Generalized Worry Disorder or Major Worry Disorder in future revisions of the Diagnostic and Statistical Manual of Mental Disorders (Andrews et al., 2010). By definition, exertion of social control indicates that the recipient of social control is perceived not to be successfully regulating his or her own health behaviors. In the case of type 2 diabetes, the patient is not adhering to some or all aspects of their treatment regimen. This puts the patient at increased risk for developing serious complications from their diabetes, including both immediate consequences such as a hypoglycemic and hyperglycemic episodes, as well as long term consequences such as loss of eyesight, amputation of extremities, or increased risk for heart and kidney disease (CDC, 2011a). This worry about serious and potentially life threatening complications could manifest as anxious symptoms in the spouse who is exerting the control.

Given the cross-sectional nature of this study, it is of course possible that anxious feelings also may be a precursor to social control attempts, and there is a reciprocal relationship between social control exertion and anxious feelings. Although this study will be unable to disentangle the directionality of findings, previous research and conceptual arguments suggest that exertion of social control may have negative implications for spousal well-being, including the experience of anxious feelings.

Social Control Tactics

One distinction of social control that has been posited in the literature is the use of less coercive tactics, such as gentle reminders and modeling, often referred to as persuasion, or positive strategies of social control. This is in contrast to more coercive, heavy-handed tactics such as expressing disapproval and inducing guilt, often referred to as pressure, or negative strategies of social control (Lewis & Butterfield, 2005; Okun, Huff, August, & Rook, 2007). Many studies have found these distinctions to be valid, and they also have found that positive tactics generally are associated with better outcomes with regard to the recipients' behavioral and emotional responses to control, as well as recipients' health outcomes (August & Sorkin, 2010; Lewis & Butterfield, 2005; Lewis & Rook, 1999, Stephens et al., 2012; Tucker & Anders, 2001).

One of the gaps in the current literature on social control is whether different control tactics have implications not only for the target of such attempts, but also for the person exerting the control. In examining these implications, the distinction between physical and verbal control attempts may be important to make. In abstract terms, both physical and verbal control involve actions directed at another person. Specifically, physical control refers to direct actions intended to change the recipient's behavior, whereas verbal control is any spoken message or exchange that is intended to change the recipient's behavior. At this level of abstraction, regardless of modality, the greater the effort required to bring about an action, the more anxiety should be associated with it (Brown & Smith, 1992, Smith, Allred, Morrison, & Carlson, 1989; Solomon, Holmes, & McCaul, 1980). For example, a social psychological study by Solomon, Holes, and McCaul (1980) found that having the ability to control or change an adverse event such

as the threat of an electric shock only reduces arousal when the effort required to control the aversive event is low. They also found that the arousal evoked from the effort of the control could almost completely negate the reduction in arousal that having control over the event provided. By analogy, a spouse who has to exert a large amount of effort to control the behavior of their partner to avoid the adverse event of non-adherence (i.e., physical control) would feel much more anxiety than if the effort required to control the patients' behavior was small (i.e., verbal control). In the realm of social control, which is broader in scope than solely health-related social control, it has been found that attempting to exert control over someone else increases cardiovascular reactivity (a physiological index of anxiety), and the magnitude of the reactivity in the individual exerting the control is proportional to the magnitude of that individual's desired outcome (Pointer et al., 2012; Smith, Allred, Morrison, & Carlson, 1989). Situations that have a very desirable outcome (i.e., conformity to spouses' requests of behavior change) could elicit stronger responses both physiologically and behaviorally, as a spouse might resort to physical action as opposed to maintaining the ineffective verbal actions. Extrapolating from literature on interpersonal conflict and violence, a study found that verbal and physical aggression were distinct, with physical aggression having more of an impact than verbal aggression in both the magnitude of its consequences and the finding that physical aggression tends to progress out of verbal aggression (Stets, 1990). In the same way, physical control could be a step beyond verbal control, both in the force being displayed and the effort required to perform it. While no studies specifically examining correlates of physical versus verbal actions were found, there are some additional parallels from other areas of psychology that can support the conceptualization of this

distinction. Diana Baumrind, well-known for her theories of parenting styles, argues that the assertion of parental power is only detrimental in child development when it is intrusive to the child's life and unresponsive to the child's needs (Baumrind, 2013). On the other hand, assertions of parental power are beneficial when they are accompanied by warmth and reasoning (Baumrind, 2013). Although this argument relates more to the target of these attempts, such as a child or non-adherent spouse, it is their reaction to this display of power that can affect the individual who is attempting to assert power. By analogy, just as an authoritative parent uses their power to nurture the development of a child, a wife exerting control on her husband to more effectively manage his diabetes might work in a similar fashion. As long as the control is proactive, non-intrusive, and responsive then it should be welcomed. On the other hand, if the wife's assertions of control are intrusive to her husband's life and she does not seem to be responsive to her husband's needs, then this could evoke maladaptive responses from her husband. The distinction between physical and verbal control is then seen as a matter of the degree of the intrusion. It is one thing to nag someone or make demands, but once actions are carried out, it is a much stronger display of power. A wife's demand that her husband stop drinking beer might only be a minor annoyance, but when she dumps it down the sink it is much harder to ignore. It could be the case that the association between social control and spousal anxious feelings could vary according to how involved spouses are in their partners' health. This difference in spouses' anxious feelings would then vary between the two forms of verbal and physical control, which the present study examines.

While this distinction between modalities of control has not been examined in the literature, there is a great deal of support for the association between caregiving, which

requires a lot of physical, hands-on care, and adverse mental health effects, such as stress and anxiety (Boeije & van Doorne-Huiskes, 2003; Cannuscio et al., 2002; Ingersoll-Dayton & Raschick, 2004). By analogy, this association between caregiving and worse mental health could indicate that actions that require more effort in the context of disease management are expected to be associated with more anxious feelings than actions (or behaviors) that require less effort. A study that examined the feelings of spouses whose partners were diagnosed with diabetes found that major themes of vulnerability, burden, and struggling to adapt to daily diabetes management emerged among spouses (Beverly, Penrod, & Wray, 2007). The more burdensome a task, the more energy and effort it takes to accomplish, and this could be related to considerable amounts of anxiety. Another study found that in middle-aged women who were caring for their disabled spouse, increasing the amount of time caring for their spouse greatly increased their risk of experiencing both depressive and anxious feelings (Cannuscio et al., 2002). Some researchers also have proposed classifying support of a disabled or chronically ill spouse as a chronic stressor, because of permanent nature of the disability or disorder (Revenson, Abraido-Lanza, Majerovitz, & Jordan, 2005). Care must be taken when extrapolating from caregiving research in postulating about potential implications of engaging in health-related social control; however, with these caveats in mind, the association between the considerable efforts of caregiving and negative mental health outcomes provide some basis for showing that effort and anxiety are correlated. Caregiving is usually defined as the act of providing a disabled individual with help and support, in order to maintain their basic human dignities in the areas of physical, intellectual, emotional, and spiritual care (Vitaliano, Zhang, & Scanlan, 2003). In contrast, it is

assumed that the recipients of social control are physically able to care for themselves, but choose not to do so in some regard. Even though this difference limits the generalizability of caregiving research in guiding the hypotheses for this study, it is possible that engaging in social control can evoke similar negative outcomes, because of the perceived notion that an individual is able to care for themselves, but chooses not to (as opposed to being unable to care for themselves).

Current measures used in the literature are not designed to identify which modality of social control is exerted. This distinction seems relevant, as these measures do not address the magnitude of social control effort in the form of verbal or physical actions. Hopefully, by building upon previous research and further refining measures of social control, the implications for mental health of exerting social control will become clearer. This study accordingly will compare social control on the dimension of verbal and physical action with regard to how frequently these different social control tactics are used and their associations with spouse well-being.

Given these two possible social control tactic distinctions, it is possible to further sub-divide physical and verbal control into positive physical, positive verbal, negative physical, and negative verbal tactics. Because this study seeks to determine whether these verbal versus physical modalities of social control are useful, the focus will be on attempting to examine whether physical and verbal modalities of control are differentially associated with anxious feelings. Although not the main focus of the proposed study, exploratory analysis then will be conducted to examine how the four subtypes of social control (including the positive/negative distinction) are associated with the outcome of interest. Items in appendices A and B are marked to specify whether each social control

item is considered positive or negative, as well as verbal or physical. Given the intricacies of human action, and that no action can be captured in isolation, there is bound to be overlap between verbal and physical control attempts. For example, a spouse may recall driving to a specialty health food store in order to buy a certain product for his/her partner, but might forget or neglect to consider the many conversations with his/her partner that preceded this related to the physical actions taken to acquire this product. In some sense, then, these two modalities are interconnected; however, it is nonetheless important to assess possible distinctions between verbal and physical social control to examine whether there is a difference in the correlates of each type of social control. Analyses also will be conducted to account for this overlap.

Assessing Mental Health Outcomes Associated with Exerting Social Control

It should come as no surprise that diabetes, which is considered to be a health stressor, may lead to tension and distress in the context of marriage (Beverly et al., 2007; Denham, Manoogian, & Schuster, 2007). In accordance with these findings is much research that demonstrates how stress in marriage can negatively affect not only the marriage, but the mental health of both of the spouses (Brock & Lawrence, 2011; Neff & Karney, 2009; Meyer & Paul, 2011). Because of the need to accurately assess mental health outcomes in the context of the exertion of social control, much care and scrutiny needs to be used in examining the measures employed. For example, various studies have used the Center for Epidemiologic Studies Depression Scale (CES-D) to assess implications of social network involvement. For example, Rook, Thuras, and Lewis (1990) included the CES-D in their assessment of psychological well-being in network members upon whom someone else was dependent. The CES-D is a very well suited measure of depressive feelings (Segal, Coolidge, Cahill, & O'Riley, 2008; Zich, Attkisson, & Greenfield, 1990), yet depressive feelings are not all encompassing, with regard to mental health or well-being. This thought was echoed by Lewis and Rook (1999) as an explanation for the somewhat surprising results of their previous study. In an effort to understand a broader range of the implications for of psychological well-being associated with exerting social control, August et al. (2011, 2013) further examined spouse stress and burden. More remains to be understood about the mental health implications of exerting social control, however. The CES-D, or any measure of depressive feelings demonstrating high discriminant validity with stress or anxious feelings, might not be capturing the entire picture of psychological well-being (Watson et

al., 1995). Just as discrete emotions provide a more subtle picture of human behavior (Roseman, 2011), examining different discrete or unique mental health outcomes could lead to a more intricate understanding of the social control process. A separate measure of anxious feelings also should be considered, as it will probe into another underlying factor that might arise from exerting social control that the CES-D is not as sensitive toward or is not designed to measure. For these reasons, the proposed study will include the Zung Self-Rating Anxiety Scale, which has been used before as a measure of anxious feelings with patients with diabetes (Rubin & Peyrot, 1999). The inclusion of anxious feelings will allow this study to expand upon other literature that already has examined facets of mental health associated with engaging in social control such as depressive feelings, stress, and burden.

Potential Moderators in the Association between Social Control Exertion and Anxious Feelings

The association between all (verbal and physical) modalities of social control and anxious feelings is thought to be influenced by at least two moderating variables.

Patients' adherence to their treatment regimen is thought to influence the relationship between social control exertion and anxious feelings in the spouse. In addition, the gender of the spouse exerting the control also is expected to have an influence on the amount of anxious feelings associated with social control exertion.

Patients' Adherence to Treatment. As patients' adherence to their treatment worsens, their risk of developing serious complications from their diabetes increases (CDC, 2011a). This may lead to more anxiety felt by the spouse. Previous research supports this idea, as burden from spousal control has been found to be greater when patients are not adhering well to their diet (August et al., 2011). A study by Trief et al. (2003) had similar findings, in which patients' nonadherence to diet was associated with conflict when spouses were involved in their partners' diet. If patients are perceived by their spouse to not be following their diet, this could lead to increased anxious feelings in the spouses. Not only could it increase worry about patients developing potential complications from diabetes, it also could be associated with lower self-esteem in the spouses due to their actions seeming futile. Low self-esteem has been linked to anxious feelings (Rosenberg, 1962; Sowislo & Orth, 2013), and this is another potential reason that perceived adherence to treatment might influence the relationship between exerting social control and experiencing anxious feelings.

Spouse Gender. Gender also is thought to have a moderating effect on the

association between social control and anxious feelings. First, evidence suggests that women are more likely to experience anxious feelings, as they have twice the likelihood of developing anxiety disorders compared to men (Toufexis, Myers, & Davis, 2006). As well as having an increased risk for developing anxiety disorders, women have been found to engage in more social control attempts than men, with this difference being more pronounced in the confines of the marital relationship (August & Sorkin, 2010; Umberson, 1992). Similarly, a study by Westmaas, Wild, and Ferrence (2002) found that social control attempts from immediate social network members were not as effective in helping women quit smoking compared to men, and in some cases were detrimental in women's smoking cessation efforts. Other research suggests that women are more appreciative of spousal social control attempts (Rook et al., 2011). These potential gender differences in the frequency and effects of social control are the reason that gender is expected to moderate the relationship between social control exertion and anxious feelings.

Hypotheses

Hypothesis 1. Due to the worry about future complications from the effort of having to control the patients' behavior, it is hypothesized that more frequent spousal exertion of social control will be associated with higher levels of spousal anxious feelings.

Hypothesis 2. Due to physical forms of control hypothetically requiring more time and effort than verbal control, and being a stronger expression of power or force, it is further hypothesized that more frequent spousal exertion of physical social control will be associated with more anxious feelings than more frequent spousal exertion of verbal social control.

Hypothesis 3a. Patients' nonadherence to treatment can create a sense of uncertainty and worry about health. Because of this reason, it is hypothesized that the relationship between any form of social control and anxious feelings will be moderated by the patients' adherence to treatment. Due to different adherence rates for various components of a diabetes treatment regimen (Delameter, 2006, McNabb, 1997), adherence to diet, exercise, and medication will be examined separately as moderators.

Hypothesis 3b. The gender of the spouse is hypothesized to change the relationship between social control exertion and anxious feelings. Based on previous findings in the literature that gender has a differential outcome on the use and receipt of social control, gender of the spouse will be examined as a moderator in the relation between any modality of social control and anxious feelings.

Hypothesis 3c. Due to the complex nature of any potential relationship between the exertion of social control and anxious feelings, covariates will be examined as

exploratory moderators in the relationship between the exertion of social control and anxious feelings. These covariates will include patients' appreciation of control, patients' time since diabetes diagnosis, spouses' self rated health, quality of marriage, and the spouses' cost of social capital (see Figure 1 for a conceptual model).

Method

Participants

To recruit participants, advertisements were placed online and in local periodicals. Recruitment fliers were posted in diabetes education centers, community centers, libraries, farmers' markets, doctor's offices, and other public areas where middle-aged and older adults were likely to visit in the greater Philadelphia and southern New Jersey areas. To be eligible to participate in this study, individuals needed to be between 45 and 85 years old, have a confirmed diagnosis of type 2 diabetes, speak and write English fluently, and see a health care provider for diabetes care at least once per year. Spouses of individuals meeting these criteria also were eligible to participate. A total of 25 spouses (16 men, 9 women, $M_{age}=61.2$, $SD_{age}=13.36$) were recruited to participate from primarily the greater Philadelphia area, as well as from southern and central New Jersey. Racial characteristics of the spouse sample were 84% non-Hispanic white, 8% African American, 4% Hispanic, and 4% Asian/Pacific Islander. A majority of the sample had at least finished a high school education (92%), and 28% of individuals reporting having at least some post-collegiate education.

Procedure

Potential participants were contacted by research assistants via phone or email, and were screened to ensure that they met the eligibility criteria. Once they had been screened for eligibility, participants were asked if their spouses also would be interested in participating. Upon agreeing to participate, participants and their spouses were scheduled to meet for an in-person interview at a location most convenient for them (e.g., in their home, on campus, another public location). Prior to this meeting, participants were sent a consent form and pre-interview self-administered questionnaire that was used to assess information related to the larger study on which the current study is based. On the scheduled day and time, participants and their spouses took part in an in-person, structured interview, approximately 90 minutes in length, in which all relevant measures for this study were asked. The measures included in the interview include assessments of social control attempts, spouses' perceptions of patients' adherence to prescribed treatment regimen, and spouses' perceptions of patients' behavioral and emotional responses to social control attempts. After the interview, participants completed a post-interview self-administered questionnaire, which also included principle measures for this study. These measures included anxious feelings, depressive feelings, quality of life, and marriage quality. All relevant measures for this study took approximately 15 minutes to complete. At the end of the session, participants were paid \$20 (each) for their time, were given a recyclable grocery bag with the study logo, and entered into a drawing to win an additional \$100.

Measures

Independent variable.

To assess the independent variable of health-related social control, a measure of social control adapted from research by Lewis and Rook (1999) and Stephens et al. (2009) was used (see Table 2 for all subscale alphas). This measure included 35 questions (13 questions related to diet, 11 questions related to exercise, and 11 questions related to medication adherence) that assessed the frequency with which spouses exert influence over their partners' health behaviors in the past month. Items were rated on a 6-point Likert-type scale (1 = *everyday*, 6 = *not at all*). A sample question from this scale is, "[How often do you] Do something to help [him/her] stick with [his/her] diabetic diet?" Most questions had good content validity as they ask about specific attempts by spouses to monitor and influence a number of different health behaviors, including diet, exercise, and medication adherence. Stephens et al. (2009) and Seidel, Franks, Stephens, and Rook (2012) also provide Cronbach's alpha on adapted versions of these measures that range from .75 to .91.

As a further refinement of this measure, this study categorized the social control measure into two sub-scales that would differentiate between actions of physical and verbal social control. Items measuring verbal and physical social control were summed to arrive at a composite score. As this is a novel approach to using this measure, no psychometric properties were previously known for these sub-scales; however, confirmatory factor analysis was conducted to determine if the factors were consistent with the conceptualization proposed. The social control measure already includes two sub-scales that differentiate between positive and negative control strategies, or

persuasion and pressure, respectively, which have been shown to be valid by previous research (e.g., Lewis & Rook, 1999; Stephens, Rook, Franks, Khan, & Iida, 2010). A sample question of positive verbal control is, "[How often do you] *Say* something to help [him/her] stick with [his/her] diabetic diet?" A sample question of positive physical control would be, "[How often do you] Try to *do* something to get [him/her] to improve [his/her] food choices?" An example of negative verbal control is, "[How often do you] *criticize* [his/her] poor food choices?" Finally, an example of a question of negative physical control is, "[How often do you] *do* something to try to restrict [him/her] from making poor food choices?"

Moderating variables.

Patients' adherence to dietary, exercise, and medication regimen. Spouses' perceptions of how well their partners are adhering to, or are able to adhere to, their prescribed medication, exercise, and dietary regimen were assessed using three questions derived from the revised Diabetes Self-Care Activities measure (SDSCA; Toobert, Hampson, & Glasgow, 2000; $\alpha = 0.58$). The low alpha for these items reflects that different aspects of adherence, mainly medication, are sometimes not highly correlated (Delameter, 2006). The first question to assess patients' adherence to their dietary regimen was scored on a 5-point Likert-type scale (1 = *almost every day*, 5 = *doesn't usually cheat*), and asks, "In an average week, how often would you say that your [husband/wife] "cheated" on, or did not follow [his/her] diet?" The second question to assess patients' adherence to their exercise regimen was scored on a 5-point Likert-type scale (1 = *very confident*, 5 = *not at all confident*), and asked, "How confident are you in your [husband's/wife's] ability to exercise regularly?" The third question was also scored on a 5-point Likert-type scale (1 = *always*, 5 = *never*), and asked, "How often does your [husband/wife] take [his/her] diabetes medication (pills or insulin) exactly as [his/her]

doctor prescribes?" The second and third questions were reverse coded to be consistent with a higher score indicating more adherence.

Gender. Gender of the spouse was assessed by interviewer observation (0 = *male*, 1 = *female*).

Dependent variables.

Anxious feelings. To assess anxious feelings, the Zung Self-Rating Anxiety Scale (SAS; Zung, 1971) was used ($\alpha = 0.80$). The SAS is a self-report questionnaire that includes 20 questions that are scored on a 4-point Likert-type scale (1 = *rarely or none of the time*, 4 = *most or all of the time*), and are based on experiences in the past month. This measure was used to assess the severity of anxiety-related symptoms. It asked questions that range from general feelings about anxiety and nervousness, to psychosomatic symptoms of anxiety. A sample question was, "I felt afraid for no reason at all."

The SAS has been cited to have good item-total correlations, test-retest reliability, internal consistency, and has been shown to be sensitive to change in the treatment of anxiety (Leentjens et al, 2008; Sevillever, & Rice, 2010; Tang et al., 2010). The SAS has been used in the past to measure anxiety in individuals with diabetes as cited by Rubin and Peyrot (1999).

Depressive feelings. To assess depressive feelings, the 11-item version of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) was used ($\alpha = 0.76$). The CES-D is a self-report questionnaire that includes 11 questions which are scored on a 4-point Likert-type scale (1 = *rarely or none of the time*, 4 = *most or all of the time*), and is based on experiences in the past month. This measure was used to assess severity of depressive feelings. Questions range from asking about enjoyment of life to

quality of sleep. A sample question from the CES-D was, "I felt that I could not shake off the blues even with help from my family or friends."

This measure has been cited in the literature as being used to examine depressive feelings in patients with type 2 diabetes (Rubin & Peyrot, 1999). Not only has it been cited as a reliable and valid measure in general and different patient populations (Macrodimitris & Endler, 2001), among a wide variety of other measures of depression, the CES-D has been found to be most accurate at determining depressive symptoms in patients with type 2 diabetes (McHale, Hendrikz, Dann, & Kenardy, 2008). In a meta-analysis of the factor structures of various depression inventories, the CES-D has been found to have one of the best factor structures for accessing depression (Shafer, 2005). The use of abbreviated forms of the CES-D has been found to preserve mostly all of the essential features (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993; Zvi, 2010).

Covariates.

Covariates will be determined in two ways: 1) based on previous research of the relationship between spousal involvement in chronic disease manage and implications for well-being, such as spouses' self-rated health, and time since the patients' diagnosis with diabetes (e.g., August et al., 2011) and 2) by using "least absolute shrinkage and selection operator" (lasso) regression to perform model selection.

Patients' behavioral responses to spousal involvement. Questions about spouses' perceptions of patients' behavioral responses (resistance and compliance) to spousal involvement were based off of measures used in Tucker (2002) and Tucker and Anders (2001). Items were scored on a 5-point Likert-type scale (1 = *not at all*, 5 = *everyday*), and ask about patients' behavioral responses to social control during the past month. A

sample item from the scale included, "Ignored what you wanted [him/her] to do about [his/her] food choices." This scale has been found to have acceptable internal consistency (August et al., 2011; Cronbach's $\alpha = 0.79$). Tucker and Anders (2001), justify the low to moderate internal consistency by noting that often there are limited associations between health behaviors. Given that these four items might each be unique factors that comprise patients' responses to spousal involvement, any measure of internal consistency would be low due to the distinctiveness of each factor. Analyses revealed this to be the case, and the first item was dropped from diet, exercise, and medication resistance (see Table 2 for alphas before and after item removal).

Quality of marriage. To measure marital quality, this study used an adapted form of the Quality of Marriage Index (QMI; Norton, 1983; $\alpha = 0.97$). The five questions were scored on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*). The items asked participants to rate how much they agree or disagree with positive statements about their marriage. A sample item from the scale included, "Your relationship with your spouse/partner makes you happy." This scale has been used in the past with individuals with diabetes, and was found to have very high internal consistency (e.g., August et al., 2011; Cronbach's $\alpha = 0.98$).

Social capital. One question was asked to determine the number of hours spouses have available to spend on various tasks in their day-to-day lives. The question asked (separately) for both weekdays and weekends, "On average, how many hours per day do you devote to the following?" Respondents were asked to fill in the number of hours available for six categorical areas (work, free/leisure time, sleep, caring for self, caring for another person, and other). Principle components analysis (PCA) was used for two

primary reasons. The first was to examine the structure of this measure, as it was not known previously. The second reason was to reduce the number of variables related to social capital. By reducing the number of variables in a regression model we can ameliorate overfitting to some degree, and also remove noise by using a reduced number of variables (James, Witten, Hastie, & Tibshirani, 2013). Table 3 provides all component loadings. It was found that the first principle component of all social capital domains accounted for 50% of the variance of all the items. Free time on both week days and weekends was found to be strongly loaded onto the first principle component. Following Russell's (2002) recommendations, the two items were summed together to compute the component score, rather than weighting each item by their loading before summing.

Results

Results of descriptive analyses and hypotheses tests are described below. The specific analytic methods used for each of these analyses are discussed within each section.

Missing Data

To make use of all data collected, imputation was performed so that no spouses' data were excluded. In Schaffer and Graham's (2002) review of imputation techniques, they highly recommend multiple imputation over all other methods, due in part to its complexity, which translates to performance not achievable by other simpler methods. The MICE (Multivariate Imputation by Chained Equations) package in R was used to impute missing data following the recommendations from the package's authors (van Buuren & Groothuis-Oudshoorn, 2011). On all total questions asked, the total amount of missing data was only 2.55%. While this figure is quite small, missing data are exacerbated when scales are computed. For example, due to a printing error, one item from the SAS was not included for five participants. The whole scale should not be treated as missing because of this, and it is quite reasonable to use the other anxiety items to compute that one missing value (Schaffer & Graham, 2002). Also, due to knowing the precise nature of a large majority of the missing data, the missing completely at random (MCAR) assumption should hold, as the reason for the missing data was independent from the missing value itself. The MCAR assumption strengthens the validity of using multiple imputation (Hastie, Tibshirani, & Friedman, 2008; Schaffer & Graham, 2002). In order to insure that the imputation was reasonable, descriptive statistics and reliability estimates were computed both before and after imputation in order to assess if the

imputation dramatically change the results. R's random number generator also was seeded with a specific value to insure that all analyses are replicable, as multiple imputation by chained equations relies heavily on randomness. This "seed" is used to insure that the same random numbers are generated each time analyses were performed, and subsequently the imputation produced the same results. Based on the stability of the statistics before and after imputation (all figures can be found in Table 1), the use of imputation was justified.

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) was performed using structural equation modeling (SEM). The SEM package in R was used along with the models specified using guidelines by Kline (2005).

Physical and verbal dietary control.

SEM analysis revealed that there was a significant difference between the covariations observed with those specified by the CFA model for dietary physical and verbal control ($\chi^2=274.1$, 64, $p < .001$). See Figure 2 for a graph of the CFA model.

Physical and verbal exercise control.

SEM analysis revealed that there was a significant difference between the covariations observed with those specified by the CFA model for exercise physical and verbal control ($\chi^2=200.3$, 43, $p < .001$). See Figure 3 for a graph of the CFA model.

Physical and verbal medication control.

SEM analysis revealed that there was a significant difference between the covariations observed with those specified by the CFA model for medication physical and verbal control ($\chi^2=139.9$, 43, $p < .001$). See Figure 4 for a graph of the CFA model.

Hypothesis 1

To test hypothesis one, a simple linear regression was run on whether overall control predicted levels of anxious and depressive feelings. The regression of anxious feelings on overall control was not a significant predictor ($b = 0.04, p = 0.34$). Similarly a regression of depressive feelings on control was not significant ($b = 0.02, p = 0.60$). It must be noted that this study had approximately 60% power, so while no significant relationship was found between anxious feelings and spousal control attempts, it could be due to lack of statistical power.

Hypothesis 2

In order to test hypothesis two, anxious and depressive feelings were regressed on both physical and verbal control. Even though the CFA did not support the distinction between these two factors, analyses were performed to address a priori hypotheses.

Physical and verbal control were not significant predictors of anxious feelings, ($b = 0.08$, $p = 0.45$) and ($b = 0.06$, $p = 0.33$) respectively. Similarly regressing depressive feelings on physical and verbal control did not reveal any significant models ($b = 0.06$, $p = 0.49$) and ($b = 0.02$, $p = 0.71$).

Hypothesis 3a

In order to test hypothesis 3a, anxious and depressive feelings were regressed on control with the inclusion of an interaction term between control and adherence. None of these regressions were found to be significant (see Table 4 for regression results).

Hypothesis 3b

In order to test hypothesis 3b, anxious and depressive feelings were regressed on control with the inclusion of an interaction term between control and the gender of the spouse. None of these regressions were found to be significant (see Table 5 for regression results).

Hypothesis 3c

In order to test this hypothesis, the full model was run (shown in Figure 1, combining physical and verbal control together due to the CFA results, adherence combined into one measure due to the results of hypothesis 3a, and not including interactions due to the results of hypotheses 3a and 3b). Analyses revealed that control was not significant in either model; however, unique covariates were significant in both the models predicting anxious and depressive feelings (see Table 6 for all coefficients and p-values). Care must be taken when attempting to interpret the significance of both the models due to how ordinary least squares (OLS) regression works. When there are a high number of predictors to observations, then the OLS model could have a tendency to over fit the data (James et al., 2013). Supplemental analyses were performed to address this issue.

Supplemental Analyses

Lasso regression.

In the case of a high number of predictors to observations, a regularized regression is typically used to constrain any overfitting that may occur (James et al., 2013). Overfitting is when the number of independent variables grows and the fit of the regression improves; however, this fit is reflective of the sample data and not the population data (James et al., 2013). Both lasso regression and ridge regression would perform well in this situation; however, lasso regression has an added benefit of performing variable selection by being able to set unimportant coefficients to zero. Lasso regression is very similar to OLS regression, but it has an additional component (a penalty term), which constrains the size of the coefficients. When performing a lasso regression, one needs to specify a value, λ , that determines how severe the penalty for the coefficients' size is. Following recommendations from quantitative experts, 10-fold cross validation was used to select the value of λ , preferably one standard error from the minimized value of λ (James et al., 2013).

A lasso regression was performed on all the main study variables. For the lasso regression of anxious feelings on all the key study variables, the lasso selected three non-zero coefficients (see Figures 5 and 6 for the cross validation and coefficient plot, and Table 7 for coefficient values). These variables were depressive feelings, behavioral resistance, and spouse self-rated health.

A lasso regression also was performed predicting depressive feelings from all key study variables. At a λ 1 standard error from the minimum, the lasso regression selected six non-zero coefficients (see Figures 7 and 8 for cross validation and coefficient

plots, and Table 8 for coefficient values). These six variables were anxious feelings, quality of marriage, adherence, social capital, gender, and time since diagnosis.

Mediation analysis.

Due to both OLS and lasso regression revealing that behavioral responses was a unique predictor of anxious feeling but not depressive feelings, a post-hoc mediation analysis was performed to determine if behavioral responses to negative control were mediating the relationship between negative control and anxious feelings. Bootstrapped mediation with 1000 bootstrapped samples did not find a significant indirect effect (95% CI [-0.63, 0.18]).

Discussion

Understanding how anxiety may be related to social control attempts could provide new insights into the implications of spouses' attempts to regulate their partners' health behaviors that are important for successful diabetes management. Examinations of the social control process in the context of the marital relationship are important to not only to understand how these regulatory attempts have implications for the recipients' physical and psychological health, but also for spouses' well-being. This study attempted to examine how different modalities of social control, conceptualized as physical and verbal, might be differentially associated with anxious feelings. Results from the CFA revealed that, contrary to hypotheses, this distinction is not warranted. The distinction (or lack thereof) between physical and verbal control might not have been found for conceptual and methodological reasons. The first is inadequate sample size. Kline (2005) recommends at least ten observations per endogenous variable in a structural equation model. The CFA models used in this study had a number of endogenous variables ranging from 11 to 13. In addition, the relationship between these two factors of physical and verbal control is likely quite complicated and obfuscated, so a large number of observations might be needed to find support for the hypothesized distinction. This obfuscation might be due to the inherent interrelatedness between these two modalities, and a more sensitive measure might need to be employed to better investigate this distinction. In addition to psychometrics reasons, it is possible that participants only remember the most salient or successful control attempt. Self-serving bias is the tendency to attribute failures to external sources and success to internal sources (Krusemark, Campbell, & Clementz, 2008). Spouses could, regardless of the level of their partners'

adherence, perceive themselves as either involved in an all-or-nothing manner. For example, if their partners are adhering well to their diabetes treatment regimen, spouses could attribute this solely to their own actions, and they might embellish the use of both forms of control (this applies in the opposite direction, such as when a spouse denies the use of all forms of social control).

Even without support for the distinction between physical and verbal control, overall control was not found to be a significant predictor of either anxious or depressive feelings. This is consistent with findings of Rook, Lewis, and Thuras (1990) that social control is not related to worse psychological distress. While this result is consistent with previous literature, other reasons for the nonsignificant findings must be considered. This study did not reach the threshold of 80% power, as it had approximately 61% power based on effect sizes reported in similar areas of spousal psychological distress (August, Rook, Stephens, & Franks, 2011). It also seems likely, based on other findings in this study, that control attempts might be related to psychological distress in a much more complex and dynamic way than initially hypothesized. For example, it may appear that this study's findings are contradictory to the findings that social control attempts are related to more stress and burden (August, Rook, Franks, & Stephens, 2013; August, Rook, Stephens, & Franks; 2011). It is important to examine the time scales over which these mental health phenomena occur. Similar to Fischer and Roseman's (2007) theory that certain emotions have different time scales on which they operate, such as anger and contempt (Fischer & Roseman, 2007), anxious feelings might take much longer to emerge compared to stress or burden. These feelings of anxiety might not manifest into behavior until a distant point in the future, and may seem far removed from the social

control attempts that provoked them.

It is interesting to see the contrast between the variables that predicted levels of depressive feelings versus variables that predicted levels of anxious feelings. The lasso regressions revealed that of the three variables important in predicting levels of anxious feelings, two were unique to anxious feelings, in particular (excluding depressive symptoms). These two variables were patients' behavioral resistance and spouses' self-rated health.

It is puzzling that behavioral resistance to social control was related to anxious feelings, but not depressive ones. For this reason, it is important to consider a more theoretical view of mood disorders, particularly a unifying framework that underlies both depression and anxiety. One particular model of mood disorders that attempts to expand on the tripartite model hypothesizes that depression comes about from anxiety (Starr & Davila, 2012). Researchers theorize that inadequate or maladaptive behavioral and cognitive responses to anxiety such as the feelings of helplessness or hopelessness, are what trigger the transition from anxiety to depression (Starr & Davila, 2012). This also explains why both mood disorders are so intimately related and often comorbid (as found with the current data). This finding might be hinting at a much deeper and multifaceted picture of the relationship between spousal control and mental health outcomes. It might be the case that spouses attempt to exert control when they care about their partner and their partners' health, and spouses feel that they are able to change their partners' health for the better. If little resistance is met and patients oblige to their spouses' requests, then social control may not be needed as often in the future. This reduction in control efforts might translate into less burden and less stress in the spouse. However, if patients display

resistance, and spouses perceive their own actions to change their partners' behavior as a failure, this could evoke anxiety (and burden and stress) at first, and then transition into depression and feelings of hopelessness (in which as anxious feelings would decrease, but depressive feelings would increase). Alternatively, spouses could still care about their partners' health and want to change it for the better, but feel helpless to do anything (the case of comorbid anxious and depressive feelings). The results from the lasso regressions provide additional evidence to support this idea. Anxious feelings are predicted both by spouses' self-rated health and their partners' behavioral resistance; in contrast, depressive feelings are predicted by social capital, quality of marriage, partners' adherence, and partners' time since diabetes diagnosis. It is possible that anxious feelings are a function of the salience of their partners' resistance to their involvement and spouses' views of their own health. Depressive feelings might then come about when these anxious feelings transition from worry about their partners' lack of responsiveness and their own health, to more pervasive feelings about spouses' life (encompassing their free time, quality of marriage, and overall health status of their partner). This idea has some empirical support, as it has been found that social isolation is a risk factor for depression (Williams & Galliher, 2006), and the decrease in social capital (in this case free time) might deny spouses the opportunities to remain engaged with their family, friends, and broader social network members. Poor relationship quality and social strain also are significant risk factors of depression (Teo, Choi, & Valenstein, 2013), and marital quality has been very closely linked to depression (Fincham & Beach, 1999). Similarly, partners' health, particularly the suffering that they display from an illness (or in this case, a condition they have to deal with for many years that is not being successfully managed), is related

to depression and the risk of depression in the future (Schulz et al., 2009). As can be seen, patients' health is a component of the spouses' mental health, and the health behaviors and choices of patients not only have implications for them but for their spouses as well.

To attempt to further clarify any relationship between anxious feelings and patients' behavioral resistance, an exploratory mediation analysis was conducted examining behavioral resistance as the mechanism by which control and anxious feelings are related, but a significant indirect effect between resistance and anxious feelings was not found. This could indicate that the mediation relationship is not a simple one, and that the association between anxious and social control is not clear cut. The dynamic of how social control relates to mental health is likely complex and heavily dependent on the context of an individual's life, where anxious and depressive feelings are in constant flux with one another, and manifested differently in behaviors.

The other unique factor in predicting anxious feelings was spouses' self-rated health. As individuals age, they are more likely to incorporate mental well-being into the self-evaluation of their health (Schnittker, 2005). Mental health is often interrelated to ones' physical health and health behaviors, as studies consistently have shown that anxiety is related to worse health outcomes and habits (Bardone et al., 1998; Bonnet et al., 2005; Creed et al., 2002; Eisner et al., 2010). While this process by itself is relatively well understood, it is also important to examine self-rated health as it relates to anxious feelings in the context of a spouse exerting social control on their partner. Human beings have finite mental resources and faculties (Baddeley, 2012). Cognitive functioning can only be taxed so much before it starts to suffer performance decreases (Eysenck & Calvo, 1992; Eysenck, Derakshan, Santo, & Calvo, 2007). It is easy to only consider the health

of the patient, as they are the individual in the relationship with the chronic condition that needs constant maintenance. But this often involves the spouse, which is why diabetes is considered to be a “couples” condition (Berg & Upchurch, 2007; Franks, Lucas, Stephens, Rook, & Gonzalez, 2010; Revenson & Lepore, 2012). As such, it is important to take into account the implications for spouses of being involved in their partners’ condition, especially as spouses are likely to struggle with the management of their own chronic condition in later life. If the spouses are devoting most of their efforts to helping their partner and neglecting their own health, this could have serious implications for both individuals in the relationship. If a spouse feels that they cannot help their partner, let alone themselves, this could have a devastating effect on their mental health, not limited to just anxious and depressive feelings. Self-efficacy, a major component of related to engagement in healthy behaviors (O’Leary, 1985), could be reduced as well. A decrease in self-efficacy not only could result in worse health behaviors and less social influence attempts by the spouse, it also can contribute to a deterioration in the mental health of a spouse and the quality of the marriage (Maciejewski, Prigerson, & Mazure, 2000).

Study Limitations

A few limitations of this study must be noted. The first is the sample size. With the sample size of this study, statistical power did not reach the 80% threshold. Also, the complexities of the regressions run, particularly the full regression models, leave the potential for overfitting. Although this concern was alleviated to some degree by using regularized regression (in the choice of lasso regression), care must still be taken in interpreting the results, as the raw coefficients might contain bias. Cross-validation was used to minimize this bias, but it can never be eliminated. Another limitation is the cross-sectional nature of the study design. Cross-sectional data only allow for a “snap-shot” of the social psychological processes that are occurring, without capturing certain processes that take place over longer time periods. A final caveat to note is that the quality of marriage that the spouses’ reported in this study is high ($M = 30.9$, $SD = 5.43$). This could make it more difficult to detect some of the negative outcomes associated with social control, as the high levels of marital quality might prevent (or more quickly dispel) these negative feelings which otherwise might be more evident with this type of involvement (Cohen, 2004).

Conclusions

While this study did not find support for the primary hypotheses, it hopefully has shed more light on an intricate social process important for the regulation of health behaviors in the context of a chronic condition such as diabetes. As chronic conditions become more prevalent, and the population continues to age and rely more on their spouse (Stimpson, Wilson, & Peek, 2012), understanding the dynamics of social influence will become more and more crucial to understand, not just by psychologists, but all health professionals. Future studies in the burgeoning area of couples' management of chronic diseases, specifically implications of spousal involvement, should continue to examine mental health using more discrete, specific measures. Researchers also should consider employing more sophisticated analyses including examinations of both members of the dyad (e.g., Actor-Partner Interdependence Models), particularly focusing on patients' behavioral resistance to spousal involvement, as there appears to be a rich landscape to explore as it not only relates to mental health, but spousal well-being overall. The stakes are high in understanding how the use of social control relates to mental health outcomes, as these mental health outcomes have direct relationships to both health behaviors and physical well-being (Beekman et al., 1997; Bonnet et al, 2005). Hopefully, by understanding the various pathways by which social control relates to well-being, successful interventions can be developed to stave off some of the negative outcomes of those control attempts. This can serve not only to help the spouse, as it relates to their well-being, but these interventions can also indirectly help the patient with their diabetes (or other chronic condition) management. Diabetes is a "couples" condition, so any therapeutic intervention, for improving the physical and

mental well-being of the spouse or the patient, should incorporate both members of the couple.

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