DISEASE-RELATED COLLABORATION AND ADJUSTMENT AMONG COUPLES 
COPING WITH TYPE 2 DIABETES

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CHAPTER 1

INTRODUCTION

Chronic diseases have become increasingly prevalent in recent decades, and nearly half of all adults in the U.S. now live with at least one chronic condition (Centers for Disease Control and Prevention [CDC], 2009). As a result of these rising rates, understanding how individuals experience and manage chronic disease has become a primary concern for social scientists and health care professionals. A vast research literature has developed investigating the various ways in which chronically ill individuals cope with and adjust to their health conditions (e.g., Felton & Revenson, 1984; Hagger & Orbell, 2003; Taylor & Aspinwall, 1993). This research has typically been guided by traditional models of stress and coping (e.g., Lazarus & Folkman, 1984; Pearlin, Menaghan, Lieberman, & Mullan, 1981), which focus on individual experiences of stress, without taking into account interpersonal aspects of stressful events. In recent years, however, there has been a growing realization that chronic illnesses (as well as many other stressors) are often managed in the context of one’s family and can have a substantial impact on family members—spouses, in particular. Investigations that focus solely on the ill individual, therefore, provide an incomplete picture of the ways in which chronic illness is experienced and coped with in the daily lives of couples and families.

In order to better understand the interpersonal nature of stressful events, several theorists have put forth frameworks that extend traditional notions of stress and coping...
into dyadic contexts (e.g., Bodenmann, 1997; Coyne & Smith, 1991; Lyons, Sullivan, Ritvo, & Coyne, 1995; Revenson, 2003). Dyadic models of stress and coping, however, have rarely been fully realized in empirical investigations of chronic disease. That is, relatively few studies have considered how both members of a couple appraise, cope with, and adjust to the demands of one partner’s chronic health condition (Berg & Upchurch, 2007).

As a means of furthering our understanding of how patients and their spouses experience and manage the ongoing stress of chronic illness, this dissertation focuses on married couples in which one partner has type 2 diabetes. In this chapter, I will first set the stage by providing an overview of traditional stress and coping theory and its limitations. I will then discuss the impact that chronic illness has on patients and their spouses and describe a theoretical framework that conceptualizes coping with chronic illness as a dyadic, rather than an individual, process. Next, I will review some of the theoretical and empirical literature bearing on ways in which couples appraise and cope with the stress of chronic illness. Finally, I will describe the current study, which examines dyadic appraisals, dyadic coping, and multiple indicators of adjustment among patients with type 2 diabetes and their spouses.

Traditional Theories of Stress and Coping

Stress is most commonly understood to be an interaction between an individual and his or her environment. In their seminal paradigm of stress and coping, Lazarus and Folkman (1984) describe stress as occurring when a person 1) appraises a particular event as significant to his or her well-being, typically in a threatening or harmful way, and 2)
appraises the demands of the event as taxing or exceeding his or her resources or ability
to respond appropriately. Such appraisals are accompanied by negative emotions like
anxiety, fear, and anger, and it is well established that stress can negatively impact both
mental and physical health (DeLongis, Folkman, & Lazarus, 1988; Kiecolt-Glaser, Glaser, Gravenstein, Malarkey, & Sheridan, 1996; Lazarus, 1999).

The primary way for individuals to avoid or lessen the negative impact of stress is
to engage in coping. Coping is most often conceptualized as a person’s cognitive and
behavioral attempts to manage the demands imposed by a stressful event (Lazarus &
Folkman, 1984). According to Lazarus and Folkman, coping strategies serve one of two
primary functions. Coping that aims to reduce one’s distress by directly altering the
stressful situation is referred to as problem-focused coping and includes strategies like
information-seeking, problem-solving, and direct action. Coping that does not address the
stressful situation itself but instead aims to alleviate negative emotions caused by the
situation is referred to as emotion-focused coping; emotion-focused coping strategies
include avoidance, denial, emotional expression, and positive reappraisal of the situation
(Folkman & Lazarus, 1988; Lazarus & Folkman, 1984). Numerous studies have focused
on coping strategies employed by individuals in response to stress and have linked them
to a wide range of mental and physical health outcomes (e.g., Aldwin & Park, 2004;
Aldwin & Revenson, 1987; Park & Adler, 2003; Penley, Tomaka, & Wiebe, 2002; Suls & Fletcher, 1985).

Although Lazarus and Folkman’s (1984) influential stress and coping paradigm
has greatly expanded our understanding of how people experience and respond to adverse
events in their lives, it is limited by its focus on stress and coping as purely individual phenomena. In reality, stressful events are often experienced and coped with within the confines of our close relationships, particularly marriage and other family relationships (Lyons, Mickelson, Sullivan, & Coyne, 1998; O’Brien & DeLongis, 1997). That is, one person’s stressful event often acts not only as an individual stressor, but as a dyadic or family stressor, impacting and requiring coping from multiple people within a family unit (Bodenmann, 2005). Chronic stressors, or problems that continually occur as part of a person’s daily roles and activities, are especially likely to involve multiple family members because of their ongoing disruptions of individuals’ daily lives (Aldwin & Brustrom, 1997).

The Dyadic Impact of Chronic Illness

Chronic illness, which typically affects middle-aged and older adults, is a prime example of a dyadic stressor because it is frequently experienced in the context of the marital relationship (Fisher et al., 1998). Among the married, one partner’s chronic health condition imposes continual demands on both the patient and his or her spouse. Patients’ symptoms and physical limitations often necessitate changes to established routines and roles within the marital relationship (Beverly, Miller, & Wray, 2008; DeLongis & O’Brien, 1990; Revenson, 2003). The spouse may be needed to assist the patient with daily activities, such as dressing or bathing, or to take over household responsibilities to compensate for the patient’s limitations. Furthermore, much of the treatment for some of the most prevalent chronic diseases (e.g., heart disease, type 2 diabetes, cancer) occurs in the home and requires patients to regularly engage in self-care behaviors, such as
medication regimens, physical activity, and changes to eating habits (Bodenheimer, Lorig, Holman, & Grumbach, 2002). Because these self-care behaviors occur in the context of patients’ day-to-day lives, spouses are often directly involved in helping patients carry them out. The spouse of a patient with type 2 diabetes, for example, may have to assist the patient with healthy meal planning or check the patient’s feet for abrasions. Finally, chronic illness and its treatment requirements can interfere with time partners spend together and disrupt their enjoyment of shared activities, such as sexual activity and social and leisure events (d’Ardenne, 2004; Badr & Carmack Taylor, 2009; Randall, Molloy, & Steptoe, 2009).

The ongoing demands and changes in day-to-day activities that accompany chronic illness often take a significant toll on partners’ emotional well-being and relationship functioning. Patients and spouses commonly experience anxiety and depression related to the patient’s disease and its treatment demands (Franks et al., 2012; Hagedoorn, Sanderman, Bolks, Tuinstra, & Coyne, 2008). Partners are also faced with the long-term implications of the patient’s disease, like uncertainty about the future and the possibility of health complications or death (d’Ardenne, 2004). Given the many changes and concerns that chronic illness brings to couples’ lives, it is unsurprising that partners often experience decreases in relationship quality and functioning as they adjust to the demands of the patient’s condition (Badr & Acitelli, 2005; Badr & Carmack Taylor, 2009; d’Ardenne, 2004).
**Dyadic Theories of Stress and Coping**

Because of the behavioral, emotional, and interpersonal demands placed on both members of a couple, dyadic stressors like chronic illness have required researchers to expand traditional models of stress and coping, which focus only on individual experiences of and responses to stress. In the past few decades, multiple researchers have put forth frameworks for understanding stressful events that occur in the context of dyads or groups (e.g., Bodenmann, 1997; Coyne & Smith, 1991; Lyons et al., 1998). This dissertation is guided primarily by the recent and influential work of Berg and Upchurch (2007), whose theoretical framework focuses exclusively on couples who are managing the ongoing stress of a partner’s chronic health condition. Their *developmental-contextual model of couples coping with chronic illness* (DCM) emphasizes the need to consider both members of a couple at each stage of the stress and coping process. More specifically, as displayed in Figure 1, the DCM emphasizes dyadic appraisals of the patient’s illness (i.e., how partners think about the patient’s illness in terms of their relationship), dyadic coping strategies (i.e., how partners respond to the patient’s illness as a unit), and how both partners adjust to the patient’s illness. In the following section, I describe in greater detail two key components of the DCM—dyadic appraisals and dyadic coping—as well as the model’s emphasis on the interplay between these two constructs.
Figure 1. *Inset of the developmental-contextual model of couples coping with chronic illness.*
The Developmental-Contextual Model of Couples Coping with Chronic Illness

Dyadic appraisals. Dyadic appraisals of stressful events represent one of the key determinants of patients’ and spouses’ adjustment, according to the DCM. Stress appraisals in the traditional sense refer to individual assessments of the threat posed by an event and the resources available to deal with it (Lazarus & Folkman, 1984). Dyadic appraisals, in contrast, refer to partners’ views on how a stressful event is situated within their relationship—in other words, to whom the stressful event belongs (Berg & Upchurch, 2007). Among couples coping with one partner’s chronic illness, dyadic appraisals reflect the question of whether partners view the patient’s illness and/or the demands it imposes as belonging to the patient alone or to the couple as a unit.

In many couples (or other family units, such as a parent and child), both partners appraise the patient’s disease as a shared burden—something that belongs to the both of them and is their joint responsibility to manage; these partners have a “we’re in it together” attitude and tend to discuss chronic illness and its demands in relational terms (e.g., “ours,” “we”). In some couples, however, one or both partners appraise the patient’s disease and its demands as belonging solely to the patient—something that may affect both of them but is primarily the patient’s responsibility to manage; these partners take a more independent attitude towards chronic illness and tend to discuss it in individual terms (e.g., “I,” “mine,” “his/hers”) (Beveridge, Berg, Wiebe, & Palmer, 2006; Kayser, Watson, & Andrade, 2007; Skerrett, 1998; Stephens et al., 2012).
**Dyadic coping.** Dyadic coping represents the other major determinant of patients’ and spouses’ adjustment in the DCM. Dyadic coping refers to various ways in which partners may interact with one another as they try to deal with stressful events that affect them both (Berg & Upchurch, 2007; Bodenmann, 1997). As discussed above, traditional definitions of coping involve one individual trying to alleviate his or her own distress (Lazarus & Folkman, 1984). When stressors are experienced in the context of a close relationship, however, coping often involves multiple people and has multiple motives, including social motives like maintaining valued relationships and enhancing the well-being of close others (Bodenmann, 1997; Coyne & Smith, 1991; Mickelson, Lyons, Sullivan, & Coyne, 2001). More precisely, because the well-being of each partner is typically dependent on that of the other, couple members are motivated to help each other cope with stressful events in order to alleviate the partner’s, as well as their own, distress and maintain the relationship (Bodenmann, 1997; Coyne & Smith, 1991).

In the DCM, Berg and Upchurch (2007) describe four distinct forms of dyadic coping based on conceptualizations found in the literature on couples facing chronic illness: uninvolvement, social support, social control, and collaboration. These different forms of dyadic coping vary in the degree and manner in which both couple members are involved in the coping process. Uninvolvement occurs when partners cope relatively independently from one another. For example, some partners may limit discussions about the patient’s disease and deal with their distress individually. Social support and social control are forms of dyadic coping that involve both partners in a unilateral fashion; that is, they involve actions of one partner that target the other partner’s coping or adjustment.
With social support, one partner provides emotional and/or instrumental support or assistance to the other. For example, the spouse may praise the patient for engaging in recommended levels of physical activity. With social control, one partner tries to direct or dominate the coping efforts of the other. For example, the spouse may nag or remind the patient to take his or her medications each day. The remaining category of dyadic coping, collaboration, involves both partners in a bilateral fashion. Collaboration occurs when partners jointly engage in coping strategies. For example, partners may sit down together and research the patient’s treatment options. Research indicates that partners often engage in multiple forms of dyadic coping as they manage the demands of chronic illness (Khan, Stephens, Franks, Rook, & Salem, 2012; Stephens et al., 2012). The DCM posits, however, that particular forms of dyadic coping will be more effective for some individuals and couples than for others; furthermore, it provides a framework for predicting when various dyadic coping strategies are likely to be more or less beneficial for patients’ and spouses’ adjustment to chronic illness (Berg & Upchurch, 2007).

**Match between dyadic appraisals and dyadic coping.** The DCM suggests that particular forms of dyadic coping (i.e., uninvolvement, support, control, collaboration) will be associated with better adjustment for patients and spouses when they match, or fit with, partners’ dyadic appraisals of the patient’s illness (Berg & Upchurch, 2007). More precisely, when partners view the patients’ disease and its demands as a shared responsibility, dyadic coping strategies that actively involve both partners (e.g., collaboration) will be most beneficial because they match partners’ expectations or desires for involvement from the partner. In contrast, if partners view the patient’s
disease as the patient’s individual responsibility, dyadic coping strategies that are more independent (e.g., uninvolve ment) will be most beneficial because they match partners’ expectations or desires for uninvolve ment from the partner.

Research suggests that there is often a match between the way in which partners (and other family members) appraise responsibility for the patient’s illness and the ways in which they dyadically cope with the illness. Qualitative work on couples coping with breast cancer indicates that partners are more likely to collaborate when they view the wife’s disease as a shared stressor (Kayser et al., 2007). Additionally, adolescents who view diabetes-related stressors as shared with their parents report more support from and collaboration with parents compared to adolescents who view diabetes-related stressors as theirs alone (Berg et al., 2009). Mismatches in partners’ dyadic appraisals and enacted coping strategies do, however, occur; one example would be a spouse who views the patient’s illness as the patient’s responsibility but engages in collaboration because he believes it is expected.

Dyadic coping strategies that do not match partners’ dyadic appraisals of the patient’s illness are thought to be problematic for partners’ adjustment because they are likely to violate partners’ expectations or desires for coping (Berg et al., 2009; Berg & Upchurch, 2007). To illustrate, if a woman appraises her illness as shared with her spouse, involvement from the spouse is likely to be welcome or expected and elicit a positive response; however, a woman who appraises her illness as her own problem to manage may view involvement from her spouse as intrusive or overprotective and react negatively to such involvement. Indirect evidence of the importance of match between
dyadic appraisals and dyadic coping comes from the literature on miscarried support. In two studies conducted with osteoarthritis patients and their spouses, Martire and her colleagues found that patients who highly valued being functionally independent responded to spouses’ instrumental support (i.e., physical assistance) for activities of daily living with more negative emotions and feelings of powerlessness; in contrast, patients who placed little value on being functionally independent reacted positively to spouses’ support (Martire, Stephens, Druley, & Wojno, 2002; Martire, Stephens, & Schulz, 2011). The authors concluded that patients are more likely to respond positively when support received from the spouse matches their needs or preferences, but that support is likely to be ineffective or detrimental (i.e., miscarried) when it does not match patients’ needs or preferences. In the DCM, this rationale is extended beyond social support and to both couple members in that various forms of dyadic coping are posited to be more beneficial for patients and spouses when they match the way in which partners have appraised ownership of or responsibility for the patient’s disease.

**Research on Dyadic Coping with Chronic Illness**

Few studies to date have investigated the DCM’s hypotheses regarding match between dyadic appraisals and dyadic coping. A sizeable literature, however, has examined direct associations between various forms of dyadic coping and one or both partners’ adjustment to the patient’s chronic illness. These investigations have traditionally focused on forms of dyadic coping that involve partners in a unilateral way. Namely, the majority of studies examining dyadic coping with chronic illness focus on spouses’ provision of social support to chronically ill patients (e.g., Gallant 2003;
Revenson & Majerovitz, 1990; Trief et al., 2003). Additionally, a growing literature examines social control that patients receive from their spouses (e.g., August & Sorkin, 2010; Helgeson, Novak, Lepore, & Eton, 2004; Stephens et al., 2009). In contrast, dyadic coping that involves partners in a bilateral way (i.e., collaboration) has received comparatively little research attention, despite theorists’ expectations that it may be particularly beneficial for couples’ adjustment to chronic illness (Berg & Upchurch, 2007). To address this research gap, this dissertation focuses exclusively on partners’ collaborative efforts to cope with chronic illness.

Though an understudied concept, coping that occurs when two (or more) people—often marital partners—collaboratively respond to a stressful event has been described by multiple theoretical frameworks. Such bilateral coping strategies have been variously labeled as active engagement, common dyadic coping, communal coping, collaborative problem-solving, collaboration, and collaborative coping (Berg et al., 2009; Berg, Wiebe, et al., 2008; Bodenmann, 1997; Coyne & Smith, 1991; Lyons et al., 1998; Meegan & Berg, 2002). Active engagement is a form of relationship-focused coping in which an individual actively involves the partner in discussions about a stressful event, asks about the partner’s feelings, and engages in constructive problem-solving with the partner in order to preserve or protect the relationship from the negative impact of stress (Coyne & Smith, 1991). Common dyadic coping is a similar process that occurs when partners are mutually involved in coping through joint efforts to solve problems and help each other alleviate distress (Bodenmann, 1997). Communal coping involves two or more individuals pooling their resources and efforts to confront a
stressful event that is viewed as shared (Lyons et al., 1998). Collaborative problem-solving refers to two or more people working together to perform a task or make a decision (Meegan & Berg, 2002).

In the DCM, Berg and Upchurch (2007) synthesize these related constructs under the term collaboration (sometimes also referred to as collaborative coping). Their conceptualization of collaboration encompasses a range of coping strategies that partners engage in together, including problem-focused techniques like joint information-gathering, brainstorming, and problem-solving, as well as emotion-focused techniques like sharing feelings and discussing concerns. In keeping with the DCM, I will use the term collaboration throughout the remainder of this chapter to refer to these bilateral coping strategies. Furthermore, I will use the term disease-related collaboration when referring specifically to partners’ bilateral efforts to cope with stressors or problems associated with the patient’s disease (e.g., jointly seeking out information on the disease, discussing feelings and concerns about the disease).

In order to elucidate how disease-related collaboration may benefit the adjustment of couples facing chronic illness, and whether its benefits depend on partners’ dyadic appraisal of the patient’s disease, I will now describe the theoretical literature on the general functions of collaboration and review empirical findings from couples coping with chronic illness. Collaboration is posited to serve a number of different functions, so it is useful to limit this discussion to functions that are most relevant to the adjustment of chronically ill patients and their spouses. Although the DCM does not specify particular areas of adjustment, the work of other theorists identifies three major coping tasks that
are of primary importance to the well-being of patients and spouses: 1) carrying out instrumental tasks necessary to manage the patient’s condition and improve health (e.g., following treatment recommendations); 2) managing each partner’s emotional well-being; and 3) maintaining the quality of the relationship (Coyne et al., 1991; see also Moos & Schaefer, 1984). Accordingly, I draw on these coping tasks in order to delineate the most important areas of adjustment for couples facing chronic illness: 1) patients’ behavioral management of disease; 2) patients’ and spouses’ emotional adjustment; and 3) patients’ and spouses’ relationship quality. Furthermore, I organize my review of the theoretical and empirical literature on general and disease-related collaboration in relation to these three areas of adjustment.

**Managing behavioral demands of disease.** Managing the behavioral demands imposed by chronic disease is essential to improving or preventing declines in patients’ physical health. Treatment regimens for chronic conditions are often complex, requiring patients to engage in regular and sustained self-care behaviors, such as daily medication routines and changes to lifestyle behaviors like physical activity and eating habits (Bodenheimer et al., 2002; Magkos, Yannakoulia, Chan, & Mantzoros, 2009). Patients often have difficulty continuously adhering to their treatment regimens, which can lead to serious consequences for their long-term health (Green, Bazata, Fox, & Grandy, 2007). As a result, researchers and health care professionals are keenly interested in coping strategies that increase patients’ ability to follow treatment recommendations. Collaborating with a spouse to handle problems and demands associated with illness (e.g., discussing concerns about the disease, researching treatment options together) may
better equip patients to successfully follow treatment recommendations and maintain health.

In general, collaboration has been theorized to optimize partners’ problem-solving abilities and task performance. When partners work together, they are likely to increase their available coping resources and skills. More precisely, collaborators may bring different perspectives or resources to bear on a particular problem, resulting in a better solution than either partner could achieve alone (Berg, Meegan, & Deviney, 1998; Lyons et al., 1998). For example, two partners brainstorming together may come up with more effective solutions to problems related to chronic disease management, such as fitting medication routines into the patient’s daily schedule. Collaboration may also be effective because it allows a more skilled partner to provide guidance or compensate for a deficit in the other partner’s coping skills (Meegan & Berg, 2002), such as in the case of a more computer savvy spouse sitting down with the patient to research a disease online. Finally, working together to solve a problem or discuss an issue may provide partners with motivation to continue dealing with ongoing stressful events (Berg et al., 1998). In sum, two heads may produce better problem-focused coping than one by combining partners’ skills and resources, which may translate into better disease management and health outcomes for chronically ill patients.

Although collaborating to deal with stressors is primarily posited to facilitate performance of problem-focused tasks, it is important to note that theorists have also identified potential downsides of this form of dyadic coping. In particular, it has been suggested that working together may sometimes constrain (rather than enhance) an
individual’s ability to adapt to a stressful event. For example, in some cases a less skilled partner may hinder the problem-solving of the other (Lyons et al., 1998; Meegan & Berg, 2002).

Empirical investigations of associations between disease-related collaboration and patients’ disease management behaviors and health outcomes have involved married couples dealing with one partner’s chronic condition as well as chronically ill adolescents and their parents. This small but growing literature suggests that disease-related collaboration can facilitate patients’ adherence to treatment regimens and improve their physical health outcomes. When patients and spouses work together to cope with heart disease or cancer, patients feel more confident about their ability to engage in disease management behaviors and perceive that their coping behaviors are more effective (Berg et al., 2008; Coyne & Smith, 1994). Disease-related collaboration has also been linked to increases in disease management behaviors, positive health behavior change, and improvements in physical quality of life among adult patients with heart disease or obstructive sleep apnea (Baron et al., 2011; Joekes, Maes, & Warrens, 2007; Vilchinsky et al., 2011). In addition, adolescents with type 1 diabetes exhibit better adherence to the diabetes regimen, as well as better glycemic control, when they collaborate with their mothers to solve disease-related problems (Wiebe et al., 2005).

In summary, though relatively few in number, studies conducted with both adult and pediatric chronic illness patients support the theorized benefits of collaboration for performance of problem-focused tasks. With few exceptions, collaborating with a partner (or other close family member) to manage demands associated with chronic illness
appears to enhance patients’ confidence and ability to carry out disease management behaviors, such as changes in diet or smoking behavior, and has been linked to improved physiological outcomes. It is important to note, however, that a handful of studies have failed to find significant associations between disease-related collaboration and patients’ disease management behaviors or health outcomes (Berg, Schindler et al., 2008; de Ridder, Schreurs, & Kuijer, 2005; Kayser, Sormanti, & Strainchamps, 1999).

Maintaining emotional well-being and relationship quality. Maintaining emotional well-being and preserving the quality of the relationship are areas of adjustment that are important not just for patients but for their spouses as well (Coyne & Smith, 1991). Both partners commonly experience psychological distress in response to the patient’s disease (Franks et al., 2012; Hagedoorn et al., 2008). Some patients and spouses also report elevated levels of marital distress (Badr & Acitelli, 2005; Badr & Carmack Taylor, 2009). Because it actively involves both partners, disease-related collaboration may facilitate emotional and relationship adjustment for patients as well as spouses.

In the general theoretical literature, collaboration is posited to enhance emotional and relationship outcomes among partners facing dyadic stress. Collaborating to deal with stressful events may provide individuals with important feedback about themselves and their relationship; being asked to help solve a problem, for example, may reassure individuals that they are competent and valued by their partner (Mickelson et al., 2001). Partners may also derive emotional and interpersonal benefits from being able to share a stressor with a close partner (Mickelson et al., 2001); for instance, discussing feelings and
concerns about a disease may help to alleviate patients’ and spouses’ distress and promote a sense of emotional connection. Moreover, collaboration can provide an opportunity for partners to spend productive and enjoyable time together, which may help maintain a sense of normalcy in the relationship during times of stress (Badr et al., 2010; Meegan & Berg, 2002). Thus, when one partner is chronically ill, collaborating on disease-related problems or stressors may alleviate some of the negative emotions patients and spouses experience as a result of the illness, while also helping to restore or maintain the intimacy and quality of their marital relationship.

Importantly, collaboration also has the potential to hinder partners’ emotional and interpersonal adjustment. It has been suggested that some partners may find it emotionally taxing to engage in joint coping efforts; direct discussions of disease-related problems and concerns, for example, could make them more salient and temporarily increase (rather than alleviate) a partner’s distress (Badr et al., 2010). Collaboration may also have negative emotional consequences because it provides an opportunity for partners to share their distress (Berg & Upchurch, 2007). Emotion contagion, wherein one individual’s mood or emotions (typically negative) influence or “rub off on” another person’s emotional state, is a well-documented phenomenon among marital partners, including those coping with a chronic disease (Benazon & Coyne, 2000; Bookwala & Schulz, 1996; Druley, Stephens, Martire, Ennis, & Wojno, 2003). Because collaboration involves working closely together and discussing problems and concerns, it could potentially facilitate one partner’s being exposed to and “catching” negative emotions from the other. Finally, when working together partners may disagree about the best way
to solve a particular problem (e.g., renegotiating household responsibilities), which could lead to interpersonal tension and conflict (Berg et al., 1998).

Consistent with the mixed nature of theoretical predictions regarding collaboration and psychosocial adjustment, the empirical literature reveals both positive and negative associations between disease-related collaboration and emotional well-being among families coping with chronic illness. A handful of studies involving either marital partners or chronically ill adolescents and their mothers provide evidence that disease-related collaboration is beneficial for the emotional well-being of patients and their spouses or close family members. When partners collaborate to cope with cancer, patients and spouses experience more positive affect and spouses experience less negative affect (Berg, Wiebe, et al., 2008). Similarly, when adolescents with type 1 diabetes collaborate with their mothers to manage diabetes-related stressors, adolescents report fewer depressive symptoms, and their mothers report more positive affect and less negative affect (Berg et al., 2007). In addition, one longitudinal study indicates that disease-related collaboration is related to increases in emotional quality of life over time among patients recovering from a cardiac event (Joekes et al., 2007).

In contrast, disease-related collaboration has been linked to greater depressive symptoms among adults with cancer (Kuijer et al., 2000) and poorer emotional adjustment among adolescents with type 1 diabetes (Berg, Schindler, et al., 2008). Additionally, among couples dealing with husbands’ prostate cancer, husbands’ negative affect on a given day more strongly predicts their wives’ same-day negative affect when
partners frequently collaborate to cope with cancer-related stressors (Berg, Wiebe, & Butner, 2011).

Although disease-related collaboration is associated with both positive and negative emotional outcomes, it is consistently linked to better relationship well-being for partners coping with chronic illness. Collaborating to deal with disease-related stressors is positively related to marital satisfaction and functioning for patients and their spouses (Badr et al., 2010; Hagedoorn et al., 2000; Hinnen, Hagedoorn, Ranchor, & Sanderman, 2008; Schokker et al., 2010). Patients also perceive more positive changes in their relationship (e.g., growing closer to the spouse) as a result of their illness when they engage in disease-related collaboration with the spouse more frequently (Kayser et al., 2007; Kuijer et al., 2000). Thus, in line with posited interpersonal benefits, disease-related collaboration may help to buffer the negative impact that chronic illness often has on partners’ relationship functioning and satisfaction.

To summarize, the empirical literature reviewed above reveals largely positive, yet somewhat mixed, associations between collaborative efforts to cope with a partner’s chronic disease and patients’ and spouses’ adjustment in various domains. The most consistent research finding is that disease-related collaboration is linked to better relationship functioning and satisfaction for patients and their spouses. In contrast, associations between disease-related collaboration and partners’ emotional adjustment, though often positive, are more mixed. Finally, evidence is accumulating that disease-related collaboration is linked to better disease management and health outcomes for patients, yet a handful of studies have failed to find such associations.
Match between dyadic appraisals and disease-related collaboration.

According to the DCM, partners’ dyadic appraisals of the patient’s illness (i.e., their appraisals of who is responsible for dealing with the patient’s disease) may help us to understand when disease-related collaboration is likely to be beneficial (vs. ineffective or harmful) to patients’ and spouses’ adjustment in each of the areas reviewed above. The DCM suggests that disease-related collaboration will benefit patients’ and spouses’ adjustment most when it matches partners’ dyadic appraisals of the patient’s disease—that is, when both partners view the disease as their shared responsibility to manage, rather than the patient’s responsibility to manage alone. One study to date has examined how disease-related collaboration and dyadic appraisals interact to influence adjustment to chronic disease among family members, and its findings are consistent with the DCM’s predictions.

In a study of adolescents with type 1 diabetes and their mothers, Berg and colleagues (2009) found that for those adolescents who appraised diabetes-related stressors as shared with their mothers, collaborating with mothers to deal with those stressors was related to adolescents’ greater perceptions of coping effectiveness; for those adolescents who appraised diabetes-related stressors as their own, however, disease-related collaboration was related to poorer perceived coping effectiveness. Furthermore, for adolescents who appraised diabetes-related stressors as their own, perceived coping effectiveness was highest when mothers were least involved in their coping. This study did not assess mothers’ dyadic appraisals or adjustment. Though limited in scope, these findings provide strong support for the DCM’s assertion that collaborating to cope with
disease-related stressors is more (or perhaps only) beneficial when it matches the way in which those stressors have been appraised. Further evidence for the DCM comes from a recent daily diary study of married couples coping with one partner’s type 2 diabetes (Stephens et al., 2012). This study found that among couples who viewed diabetes management as a shared responsibility, daily social support from the spouse was related to increases in patients’ emotional well-being; no such associations were found, however, among couples who viewed diabetes management as the patient’s individual responsibility. More work is needed to examine how the degree of match between dyadic coping strategies—disease-related collaboration, in particular—and dyadic appraisals relates to adjustment among married couples coping with a partner’s chronic health condition.

**Current Study**

The current study, guided by the DCM, examines associations between disease-related collaboration and three major areas of adjustment—patients’ disease management, patients’ and spouses’ emotional well-being, and patients’ and spouses’ relationship quality—among couples coping with one partner’s type 2 diabetes mellitus. As shown in Figure 2, this study’s overarching goal is to examine the extent to which these outcomes depend on the degree of match between disease-related collaboration and partners’ dyadic appraisal of who is responsible for managing the patient’s diabetes (i.e., whether disease-related collaboration is more beneficial for partners who view diabetes as their shared responsibility to manage).
Type 2 diabetes mellitus is a chronic disorder of the endocrine system characterized by an inability to properly use or produce the hormone insulin. Over 90% of the 26 million Americans currently living with some form of diabetes have type 2, and its prevalence continues to rise (CDC, 2011; Wild, Roglic, Green, Sicree, & King, 2004). This disease provides an excellent context in which to examine disease-related collaboration, dyadic appraisals, and adjustment among married couples because of its substantial impact on both couple members.

For patients, type 2 diabetes can lead to serious long-term complications, such as heart disease, stroke, and loss of vision. These complications can be delayed or prevented through strict adherence to the treatment regimen, but most patients struggle to continually follow treatment recommendations (Green et al., 2007). The treatment regimen for type 2 diabetes is complex, requiring patients to engage in multiple self-care behaviors on a daily basis, including oral medications and insulin injections, monitoring of blood glucose levels, and changes to lifestyle behaviors like diet and physical activity (CDC, 2011). Because these self-care behaviors are carried out as part of patients’ daily lives, they often affect or directly involve spouses (Trief et al., 2003). Furthermore, many patients and spouses experience emotional distress related to type 2 diabetes and its treatment requirements (Fisher, Chesla, Skaff, Mullan, & Kanter, 2002; Franks et al., 2012), and the demands imposed by diabetes commonly give rise to marital conflict (Beverly et al., 2008; Trief et al., 2003). Although patients with diabetes and their
Figure 2. Conceptual design of current study
spouses report engaging in disease-related collaboration on a regular basis (Schokker et al., 2010), it is unknown whether the effectiveness of such collaboration depends on partners’ dyadic appraisal of responsibility for managing the patient’s condition.

**Aim 1.** The first aim of the current study was to examine the degree of match between partners’ disease-related collaboration and dyadic appraisal as a predictor of patients’ diabetes management. Cognitive, behavioral, and physiological indicators of diabetes management were assessed—patients’ self-efficacy for making healthy food choices, adherence to dietary recommendations, and blood glucose levels. Outcomes related to dietary adherence were chosen because a healthy diet is a key component of diabetes management, yet one with which patients often struggle (Magkos et al., 2009; Woodcock & Kinmonth, 2001). Diet-related self-efficacy and dietary adherence were both examined because prior research indicates that some forms of dyadic coping (e.g., social control) improve patients’ adherence behavior while simultaneously eroding their sense of efficacy for managing diabetes (Berg et al., 2012). Unlike many previous investigations of dyadic coping with chronic illness, this study also examines a physiological indicator of patients’ disease management—blood glucose levels. Blood glucose is one indicator of how well a patient is managing his or her diabetes, and patients with type 2 diabetes must monitor their blood glucose every day (often multiple times per day) (American Diabetes Association [ADA], 2013). Based on theory describing the benefits of collaboration for performance of instrumental tasks, as well as research linking disease-related collaboration to better disease management behaviors and glycemic control, the following hypothesis was formed:
Hypothesis 1: More frequent disease-related collaboration will be more strongly related to better diabetes management outcomes for patients in couples who appraise diabetes management as a shared responsibility (vs. the patient’s responsibility). Specifically, among couples who appraise diabetes management as a shared responsibility (i.e., shared responsibility couples), disease-related collaboration will be more strongly (and positively) related to patients’ self-efficacy for dietary management and dietary adherence, as well as more strongly (and negatively) related to patients’ blood glucose levels. Among couples who appraise diabetes management as the patient’s sole responsibility (i.e., patient responsibility couples), disease-related collaboration will be less strongly related to these outcomes.

Aim 2. The second aim of the study was to examine the degree of match between partners’ disease-related collaboration and dyadic appraisal as a predictor of patients’ and spouses’ emotional well-being. Two indicators of emotional well-being were examined, mood and diabetes-specific distress. Prior research has typically focused on partner’s general (i.e., not disease-specific) emotional well-being, such as positive and negative affect or depressive symptoms. This study expands on prior work by examining one general indicator of emotional well-being (mood), as well as a measure of emotional well-being related specifically to diabetes (diabetes-specific distress). Based on theory describing the emotional benefits of collaboration for both marital partners, as well as empirical findings linking disease-related collaboration to positive emotional outcomes
for patients and spouses (and other close family members), disease-related collaboration is expected to function similarly for patients and spouses:

**Hypothesis 2:** More frequent disease-related collaboration will be more strongly related to better emotional well-being for patients and spouses in couples who appraise diabetes management as a shared responsibility (vs. the patient’s responsibility). Specifically, among shared responsibility couples, disease-related collaboration will be more strongly (and positively) related to mood and more strongly (and negatively) related to diabetes-specific distress. Among patient responsibility couples, disease-related collaboration will be less strongly related to these outcomes.

**Aim 3.** The third aim of the study was to examine the degree of match between partners’ disease-related collaboration and dyadic appraisal as a predictor of patients’ and spouses’ perceptions of relationship quality. Two indicators of relationship quality were examined, enjoyment and tension experienced during daily interactions with the partner. Past studies have primarily focused on global aspects of relationship quality, such as overall satisfaction with the relationship. This study adds to the literature by focusing on more “everyday” aspects of relationship quality (enjoyment and tension in daily interactions). Based on theory regarding the interpersonal function of collaboration, as well as empirical findings linking disease-related collaboration to relationship satisfaction among patients and spouses, the following hypothesis was generated:

**Hypothesis 3:** More frequent disease-related collaboration will be more strongly related to better relationship quality for patients and spouses in couples who
appraise diabetes management as a shared responsibility (vs. the patient’s responsibility). Specifically, among shared responsibility couples, disease-related collaboration will be more strongly (and positively) related to enjoyment and more strongly (and negatively) related to tension experienced during partners’ daily interactions. Among patient responsibility couples, disease-related collaboration will be less strongly related to these outcomes.

Several characteristics of the current study extend previous work on disease-related collaboration. This study is the first to examine match between disease-related collaboration and dyadic appraisals in relation to adjustment among chronically ill adults and their caregiving spouses. One study to date has examined the possibility that the effectiveness of disease-related collaboration depends on how well it matches dyadic appraisals of the patient’s disease (Berg et al., 2009); yet, that study examined the interaction of disease-related collaboration and dyadic appraisals among chronically ill adolescents and their mothers, rather than among marital partners. Although the findings of Berg et al. (2009) were in line with the DCM’s predictions, it is unknown to what extent these findings generalize to adult patients and their spouses. The relationship dynamics of dyads consisting of a chronically ill adult and caregiving spouse are likely to be quite different from those of dyads consisting of a chronically ill adolescent and caregiving parent. In particular, the former relationship is likely to be characterized by a more equal balance of power between partners (Berg et al., 1998), which may make disease-related collaboration more normative or well-received among married couples than among child–parent dyads.
Another important feature of the current study is its focus on the psychosocial adjustment of both marital partners. Although it has become more common in recent years to consider how spouses (and other caregiving family members) are affected by the patient’s illness and by the dyadic coping strategies they engage in, many of the studies examining disease-related collaboration among family dyads focus on patients’ outcomes only (e.g., Berg et al., 2009; de Ridder et al., 2005; Hagedoorn et al., 2000; Hinnen et al., 2008; Kuijer et al., 2000). Importantly, however, alleviating emotional distress and maintaining the quality of the relationship are tasks that both members of a family unit face when dealing with the patient’s illness (Coyne & Smith, 1991). Accordingly, the current study examined emotional and relationship outcomes among patients and their spouses. Furthermore, it examined these outcomes as a function of each partner’s own report of disease-related collaboration. Patients’ and spouses’ perceptions of their dyadic coping interactions are typically only moderately related (e.g., Hagedoorn et al., 2000; Joekes et al., 2007), so it is important to assess disease-related collaboration from the perspective of each partner, rather than relying on one partner’s report.

Finally, the current study improves on past work by examining short-term prospective associations among partners’ disease-related collaboration and adjustment. Many of the studies reviewed in this chapter, including the work of Berg et al. (2009), have examined concurrent associations between disease-related collaboration and patients’ (or spouses’) adjustment; as such, the temporal ordering of events remains ambiguous in these studies. It is possible, for example, that partners with more satisfying marriages are more likely to engage in collaboration, instead of (or in addition) to
collaboration enhancing marital satisfaction (Meegan & Berg, 2002). In order to increase confidence that any significant findings reflect the influence of disease-related collaboration on patients’ and spouses’ adjustment to diabetes, rather than the reverse temporal ordering, the current study employed a short-term prospective design. Specifically, as shown in Figure 2, this study examined whether disease-related collaboration in the past month prospectively predicts patients’ and spouses’ typical daily adjustment during the following three weeks, and whether these prospective associations depend on partners’ dyadic appraisals of responsibility for diabetes management. In addition to increasing confidence in the proposed temporal ordering of events, the current study’s design adds to the literature by examining disease-related collaboration in relation to daily indicators of adjustment; the majority of previous studies on disease-related collaboration have focused on more general or long-term indicators of adjustment.
CHAPTER 2

METHODS

Participants

Data used for this study are part of a larger study of older adults with type 2 diabetes and their spouses (Stephens et al., 2012). Participants in this larger study were couples in which one partner (the patient) had been diagnosed with type 2 diabetes for at least one year and the other partner (the spouse) did not have diabetes. Brochures describing the study were placed in medical offices, diabetes education clinics, and senior citizen centers, and advertisements were published/broadcast in commercial media. Interested couples called the research office using a toll-free number and were screened for eligibility. To be eligible, patients had to have a primary medical diagnosis of type 2 diabetes, be at least 55 years of age and in a heterosexual marriage or marriage-like relationship, reside in the community, and have received in the previous three months a recommendation from a health care provider to make improvements to dietary or medication adherence. Eligibility criteria for spouses included living in the same household as the patient, being the primary person to assist the patient with diabetes care, and not being diagnosed with diabetes.

A total of 235 couples were screened for eligibility. Of these, 58 couples (24.6%) were not eligible to participate. The most frequent reasons for ineligibility were that both
spouses had diabetes (N = 17), the patient was younger than 55 years of age (N = 12), the patient was not currently married or in a marriage-like relationship (N = 11), or the patient was not diagnosed with type 2 diabetes (N = 9). After initial contact, some eligible couples could not be reached (N = 17) or subsequently declined to participate (N = 31), primarily due to lack of time or interest. Thus, the sample comprised 129 couples (258 individuals), yielding a response rate of 72.9% for eligible couples.

**Procedures**

Data for the current study were collected via in-person interviews and end-of-day electronic diaries completed by patients and spouses. A trained staff member conducted baseline structured interviews with each partner separately in couples’ homes. After the interviews, the staff member prepared couples for a 24-day electronic diary that began on the evening of the baseline interview. The staff member instructed couples how to use a laptop computer provided by the study and demonstrated the content and format of the electronic diary records. The diary software was designed for easy access by older adults and people with minimal computer experience; accessible features included large font size, one diary item per screen, and multiple options for registering responses (i.e., mouse, arrow keys, or number pad). Participants completed diaries every evening between 8:00pm and 11:59pm for 24 consecutive days. Each diary record was time and date specific and could only be accessed during this 4-hour window. Patients and spouses were instructed to complete diaries separately and were given individual passwords to their own daily records to encourage independent responding.
The diary software tracked participants’ compliance with the data collection method. Out of the potential 6,192 (258 individuals x 24 days) diary records, 97.3% (6,026) were completed. All 129 couples completed at least one week of diary records.

One couple completed fewer than 12 (50%) diary records; data from this couple were excluded from all analyses, as were data from two couples who could not reach agreement on a key study variable that required consensus (dyadic appraisal of responsibility for diabetes management). Therefore, the current analyses are based on data from 126 couples. Demographic characteristics of the 126 patients and spouses included in the current sample are shown in Table 1.

Table 1. **Demographic Characteristics of Study Participants.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patients</th>
<th>Spouses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Range</td>
</tr>
<tr>
<td>Age</td>
<td>66.26 (7.67)</td>
<td>55-85</td>
</tr>
<tr>
<td>Years of education</td>
<td>13.84 (2.38)</td>
<td>8-17</td>
</tr>
<tr>
<td>Years married (couple)</td>
<td>38.24 (13.68)</td>
<td>1-61</td>
</tr>
<tr>
<td>Gender (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Race (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>76.2</td>
<td>77.8</td>
</tr>
<tr>
<td>Black</td>
<td>22.2</td>
<td>19.8</td>
</tr>
<tr>
<td>Other</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Median annual household income</td>
<td></td>
<td>$40,000-$59,999</td>
</tr>
</tbody>
</table>
Patients had been diagnosed with type 2 diabetes for an average of 11.56 years (SD = 9.36; range = 1-40). Approximately 79% of patients had been prescribed oral medications to manage their diabetes, and 35% had been prescribed insulin. The most common diabetes-related complications experienced by patients were problems with feet (27%), heart disease (24%), nerve damage (22%), and problems with vision (16%). Patients had an average body mass index (BMI; calculated from self-reported height and weight) of 31.16 (SD = 7.56; range = 18.07-56.11); a BMI of 30 or higher indicates obesity (CDC, 2012). Although spouses could not have diabetes to participate in the study, 45% of those included in the current sample reported at least one other chronic health condition; the most common chronic conditions experienced by spouses were rheumatoid arthritis (18%), heart disease (17%), and asthma (16%).

**Measures**

**Daily Diary Measures (Dependent Variables)**

Dependent variables in the current study are based on data from patients’ and spouses’ separate electronic daily diary records. Participants’ daily responses were averaged across the entire 24-day diary period in order to create aggregate measures that represent their typical daily experiences.

**Patient only measures.**

*Diet-related self-efficacy.* Each day, patients reported their confidence in their ability to follow a recommended diet the next day using items modified from the diet
subscales of the Summary of Diabetes Self-Care Activities Measure (SDSCA; Toobert, Hampson, & Glasgow, 2000). Item wording was altered in order to assess confidence regarding the next day’s adherence (rather than the original wording, which assesses adherence behavior over the past week). This scale is a mean of five items (i.e., How confident are you that tomorrow you will be able to: follow a healthful eating plan, eat 5 or more servings of fruits and vegetables, avoid high fat foods such as red meat or full fat dairy products, space carbohydrates evenly throughout the day, avoid making unhealthy food choices). Response options ranged from 0 (not confident at all) to 10 (extremely confident). Prior to aggregating patients’ daily responses across the 24-day diary period, the between-person reliability estimate of the diet-related self-efficacy scale was calculated (R_{1F}; as recommended by Cranford et al., 2006). R_{1F} is a statistic that provides information on internal consistency for scales that are measured repeatedly, such as in a daily diary study. More precisely, R_{1F} is akin to computing Cronbach’s alpha for each diary day and then averaging all daily alpha coefficients across the diary period. R_{1F} for the diet-related self-efficacy scale was .91. The mean of patients’ aggregated scores across the diary period was 7.68 (SD = 1.82; range = 0-10).

**Dietary adherence.** Each day, patients reported the extent to which they had followed a recommended diet that day using items from the diet subscale of the SDSCA (Toobert et al., 2000). Item wording was modified in order to assess dietary adherence on the current day (rather than the original wording, which assesses adherence over the past week). The scale is a mean of five items (i.e., followed a healthful eating plan, ate 5 or more servings of fruits and vegetables, avoided high fat foods such as red meat or full fat
dairy products, spaced carbohydrates evenly throughout the day, made some unhealthy food choices). Response options were 1 (not at all), 2 (somewhat), and 3 (very much). One item was reverse coded. R_{1f} for the dietary adherence scale was .63. The mean of patients’ aggregated scores across the diary period was 2.37 (SD = .32; range = 1-3).

**Blood glucose.** Each day, patients recorded their blood glucose levels up to seven times using personal glucose monitors. A daily blood glucose average was created for each day on which the patient recorded two or more blood glucose values (Berg et al., 2012). Only a subset of patients (N = 75) recorded two or more blood glucose values on at least half of all diary days. These patients’ daily blood glucose averages were aggregated across the diary period. The mean of patients’ daily blood glucose averages aggregated across the diary period was 132.12 mg/dl (SD = 26.05; range = 81.28-220.12). The American Diabetes Association recommends that adults with diabetes keep their blood glucose level between 70 and 130 mg/dl (below 180 mg/dl if less than two hours after a meal) (ADA, 2011). None of patients’ aggregated blood glucose averages were low enough to indicate hypoglycemia (i.e., < 70 mg/dl); thus, when interpreting blood glucose averages, lower values will be considered indicative of better diabetes management.

**Patient and spouse measures**

**Mood.** Each day, patients and spouses reported their current mood using a single item created for the study (i.e., What is your mood now?). Response options ranged from
0 (as bad as your mood could possibly be) to 10 (as good as your mood could possibly be). The mean of patients’ aggregated scores across the diary period was 7.99 (SD = 1.34; range = 4-10); the mean of spouses’ aggregated scores across the diary period was 8.20 (SD = 1.32; range = 3-10). Patients’ and spouses’ aggregated mood scores were significantly correlated ($r = .45, p < .001$).

**Diabetes-specific distress.** Each day, patients and spouses reported the extent to which they had worried about diabetes that day using items from the Problem Areas in Diabetes scale (PAID; Polonsky et al., 1995). Item wording was altered to assess diabetes-specific distress on the current day (rather than the original wording, which assesses the extent to which distress is currently problematic). This scale is a mean of three items (i.e., worried about the future and the possibility of serious complications, felt guilty or anxious when you got off track with your diabetes management, felt constantly concerned about food and eating). Wording was altered for spouse items (i.e., worried about your wife’s/husband’s future and the possibility of serious complications, felt anxious when your wife/husband got off track with her/his diabetes management, felt constantly concerned about your wife’s/husband’s food and eating). Response options were 1 (not at all), 2 (somewhat), and 3 (very much). $R_{1F}$ for patients’ diabetes-specific distress scale was .81; $R_{1F}$ for spouses’ diabetes-specific distress scale was .89. The mean of patients’ aggregated scores across the diary period was 1.59 (SD = .46; range = 1-3); the mean of spouses’ aggregated scores across the diary period was 1.44 (SD = .45; range = 1-3). Patients’ and spouses’ aggregated diabetes-specific distress scores were significantly correlated ($r = .47, p < .001$).
**Relationship quality.** Each day, patients and spouses rated the quality of their interactions that day using items derived from prior research on marital interactions (Prager & Buhrmester, 1998). Two dimensions of daily relationship quality—enjoyment and tension—were assessed with a single item each (i.e., Overall, how enjoyable/tense were your interactions with your wife/husband today?). Response options ranged from 0 (not enjoyable/tense at all) to 10 (as enjoyable/tense as they could possibly be). The mean of patients’ aggregated enjoyment scores across the diary period was 8.22 (SD = 1.44; range = 3-10); the mean of spouses’ aggregated enjoyment scores across the diary period was 8.10 (SD = 1.63; range = 1-10). Patients’ and spouses’ aggregated enjoyment scores were significantly correlated ($r = .36, p < .001$). The mean of patients’ aggregated tension scores across the diary period was 2.03 (SD = 1.70; range = 0-8); the mean of spouses’ aggregated tension scores across the diary period was 2.21 (SD = 1.57; range = 0-7). Patients’ and spouses’ aggregated tension scores were significantly correlated ($r = .28, p = .002$).

**Interview measures (independent variables and moderator).**

Independent and moderator variables in the current study are based on data from patients’ and spouses’ separate baseline interviews.

**Patient and spouse measure.**

**Disease-related collaboration.** Patients and spouses reported the extent to which they had engaged in efforts to cope with the patient’s diabetes as a couple during the past month using items derived from prior research on collaborative problem-solving among
marital partners (Berg, Johnson, Meegan, & Strough, 2003). This scale is a mean of five items (i.e., the two of you learned as much as you could about managing your/his or her diabetes, the two of you shared feelings and concerns about managing your/his or her diabetes, the two of you reminded each other of the importance of managing your/his or her diabetes, the two of you worked together to manage your/his or her diabetes, the two of you discussed solutions to problems you encountered in managing your/his or her diabetes). Response options ranged from 0 (not at all) to 4 (every day). The mean for patients was 1.93 (SD = 1.14; range = 0-4; α = .89); the mean for spouses was 1.93 (SD = 1.13; range = 0-4; α = .87). Patients’ and spouses’ reports of disease-related collaboration were significantly correlated ($r = .52, p < .001$).

**Dyadic measure.**

*Dyadic appraisal of responsibility for diabetes management.* Patients and spouses were brought together after their separate interviews and asked to reach an agreement about a statement that describes how they appraise diabetes management as a couple (i.e., Would you say that diabetes is: her problem to manage, her problem to manage but it affects both of you, “our” problem to manage as a team). Partners in 85 couples agreed that the patient’s diabetes is their problem to manage as a team; these partners were classified as “shared responsibility” couples. Partners in 41 couples agreed that diabetes management is the patient’s problem to manage or is the patient’s problem to manage but something that affects them both ($N = 3$ and $38$, respectively); these partners were
classified as “patient responsibility” couples. Partners in two couples could not reach an agreement on this item and were excluded from all analyses.

Bivariate correlations among all major study variables are displayed in Table 2.

Table 2. *Bivariate Correlations Among Major Study Variables.*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient/spouse collaboration</td>
<td>.52***</td>
<td>.28***</td>
<td>.21*</td>
<td>.13</td>
<td>.10</td>
<td>.08</td>
<td>.18*</td>
<td>.16†</td>
<td>-.22*</td>
</tr>
<tr>
<td>2. Dyadic appraisal</td>
<td>.26**</td>
<td>--</td>
<td>.27**</td>
<td>.18*</td>
<td>-.03</td>
<td>.23**</td>
<td>-.09</td>
<td>.13</td>
<td>-.13</td>
</tr>
<tr>
<td>3. Patient diet-related self-efficacy</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.80***</td>
<td>-.13</td>
<td>.53***</td>
<td>-.08</td>
<td>.53***</td>
<td>-.34***</td>
</tr>
<tr>
<td>4. Patient dietary adherence</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>-.25*</td>
<td>.33***</td>
<td>-.21*</td>
<td>.32***</td>
<td>-.27**</td>
</tr>
<tr>
<td>5. Patient blood glucose</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>-.04</td>
<td>.23*</td>
<td>-.12</td>
<td>.04</td>
</tr>
<tr>
<td>6. Patient/spouse mood</td>
<td>.27**</td>
<td>.18*</td>
<td>.31***</td>
<td>.13</td>
<td>-.10</td>
<td>.45***</td>
<td>-.29***</td>
<td>.77***</td>
<td>-.47***</td>
</tr>
<tr>
<td>7. Patient/spouse diabetes-specific distress</td>
<td>.29***</td>
<td>-.02</td>
<td>-.15</td>
<td>-.27**</td>
<td>.32**</td>
<td>-.16†</td>
<td>.47***</td>
<td>-.20*</td>
<td>.25**</td>
</tr>
<tr>
<td>8. Patient/spouse relationship enjoyment</td>
<td>.21*</td>
<td>.13</td>
<td>.16†</td>
<td>.04</td>
<td>-.08</td>
<td>.74***</td>
<td>-.11</td>
<td>.36***</td>
<td>-.61***</td>
</tr>
<tr>
<td>9. Patient/spouse relationship tension</td>
<td>-.10</td>
<td>-.13</td>
<td>-.05</td>
<td>-.03</td>
<td>.17</td>
<td>-.49***</td>
<td>.18*</td>
<td>-.56***</td>
<td>.28**</td>
</tr>
</tbody>
</table>

Note: Coefficients above the diagonal are for patients and coefficients below the diagonal are for spouses. Coefficients on the diagonal represent correlations between patient and spouse reports.

†p < .10. *p < .05. **p < .01. ***p < .001.
**Covariates**

Covariates were selected based on bivariate correlation coefficients. Specifically, demographic, disease-related, and relationship variables were identified as covariates if they correlated at $p < .10$ with a given outcome variable. Because analyses for Aims 2 and 3 estimate effects for patients and spouses simultaneously (details below), any variable that met the statistical criterion for a covariate for *either* partner was included as a covariate for both partners. For example, if gender significantly correlated with relationship tension for patients but not for spouses, it would be included as a covariate for both partners in the model predicting patients’ and spouses’ relationship tension. Additionally, for purposes of consistency, the same set of covariates was included in all models within each aim. For example, if gender met the statistical criterion for a covariate for the model predicting patients’ dietary adherence, but not for the models predicting patients’ diet-related self-efficacy or blood glucose, it would still be included as a covariate in all three models in order to keep covariates consistent across separate models within Aim 1.

All covariates in the current study are based on data obtained from baseline interviews with patients and spouses. Table 3 lists the covariates included in the analyses for each study aim.

**Demographic covariates.**

Patients reported their gender (0 = male, 1 = female), race (0 = nonwhite, 1 = white), age, and years of education.
Table 3. *List of Covariates for Each Study Aim.*

<table>
<thead>
<tr>
<th></th>
<th>Aim 1</th>
<th>Aim 2</th>
<th>Aim 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic covariates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient gender</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Patient race</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Patient age</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Patient education</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Disease-related covariates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes symptom severity</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Length of diabetes diagnosis</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Relationship covariates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient/spouse marital satisfaction</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Disease-related covariates.*

*Diabetes symptom severity.* Patients reported the severity of their diabetes symptoms during the past month using items from the Diabetes Impact Management Scale (DIMS; Hammond & Aoki, 1992). For each of five symptoms (e.g., excessive urination, numbness in feet or hands), patients indicated the frequency or intensity. Response options ranged from 1 (*always/unbearable*) to 6 (*never/no discomfort*). A scale was created by averaging all five items together. Higher scores indicate fewer
symptoms/less symptom severity. The mean was 4.85 (SD = .75; range = 2.60-6.00; α = .57).

Length of diabetes diagnosis. Patients reported how long (in years) they had been diagnosed with diabetes. The mean was 11.56 years (SD = 9.36; range = 1-40).

Relationship covariates.

Marital satisfaction. Patients and spouses each reported their general satisfaction with their marriage using items from the Quality of Marriage Index (QMI; Norton, 1983). This scale was a mean of five items (e.g., You have a good marriage) rated on a scale from 1 (strongly disagree) to 7 (strongly agree). The patient mean was 6.52 (SD = .59; range = 4-7; α = .87), and the spouse mean was 6.34 (SD = .87; range = 2-7; α = .94).

Overview of Analyses

Aim 1: Disease Management

Hypothesis 1 was tested using hierarchical multiple regression analysis. Covariates were entered into the first block of each model. Patients’ reports of disease-related collaboration (hereafter referred to as patient collaboration) and partners’ dyadic appraisal of responsibility for diabetes management (hereafter referred to as dyadic appraisal) were entered into the second block. Finally, the interaction term of patient collaboration and dyadic appraisal was entered into the third block. Patient collaboration was left uncentered because its scale has a meaningful zero point; accordingly, intercepts and other model coefficients are interpreted as representing a patient who reported no
collaboration during the past month. Dyadic appraisal was effect coded (i.e., patient responsibility couples = -0.5, shared responsibility couples = 0.5) in order to facilitate interpretation of the interaction term.

**Aims 2 and 3: Emotional Well-Being and Relationship Quality**

Hypotheses 2 and 3 were tested using multilevel modeling. Because data from marital partners are interdependent (i.e., more similar than would be expected by chance), observations from patients and spouses should be treated as nested within couples (Kenny, Kashy, & Cook, 2006). That is, observations from patient 1 and spouse 1 are nested under couple 1, observations from patient 2 and spouse 2 are nested under couple 2, and so forth. Testing hypotheses involving nested data using standard regression analysis violates the assumption of independence of observations and can produce biased estimates of effects (Newsom, 2002). Multilevel modeling accounts for the nonindependence inherent in data from marital partners and provides more accurate estimates than regression analysis (Kenny et al., 2006; Nezlek & Zyzniewski, 1998).

In the current multilevel analyses, level 1 represents data from individual patients and spouses (i.e., each partner’s reports of collaboration, mood, diabetes-specific distress, relationship enjoyment and tension); level 2 represents data from couples (i.e., dyadic appraisal). In order to simultaneously estimate effects for patients and spouses, while appropriately accounting for the nonindependence of their data, a specific type of multilevel model referred to as a two-intercept model was used (Kenny et al., 2006). For these models, two dummy variables were created to represent the patient (1 = patient, 0 = spouse) and the spouse (1 = spouse, 0 = patient). These variables were added to each
model at level 1 in the place of a standard intercept in order to estimate unique intercepts for patients and spouses. The predictor variable at level 1, collaboration, was multiplied by each of the dummy variables in order to create a predictor specific to each partner (i.e., one for patients and one for spouses). Dyadic appraisal was added to each model at level 2. Thus, these models simultaneously estimate 1) the association between patients’ reports of collaboration and their own outcomes, 2) the association between spouses’ reports of collaboration and their own outcomes, and 3) whether either of these associations is moderated by partners’ dyadic appraisal.

To illustrate, in order to examine the hypothesis that collaboration is associated with less diabetes-specific distress for patients and spouses (main effect), but more strongly for partners in shared responsibility couples (interaction effect), the following equations were modeled, in which i = individual, j = couple, p = patient, and s = spouse (covariates not shown for ease of presentation):

Level 1 equation:

\[
\text{Distress}_{ij} = B_{p0j}(\text{patient})_{ij} + B_{s0j}(\text{spouse})_{ij} + B_{p1j}(\text{patient collaboration})_{ij} + B_{s1j}(\text{spouse collaboration})_{ij}
\]

Level 2 equations:

\[
B_{p0j} = \gamma_{p00} + \gamma_{p01}(\text{dyadic appraisal})_j + u_{p0j}
\]

\[
B_{s0j} = \gamma_{s00} + \gamma_{s01}(\text{dyadic appraisal})_j + u_{s0j}
\]

\[
B_{p1j} = \gamma_{p10} + \gamma_{p11}(\text{dyadic appraisal})_j
\]

\[
B_{s1j} = \gamma_{s10} + \gamma_{s11}(\text{dyadic appraisal})_j
\]
The level 1 equation provides unique intercepts of diabetes-specific distress for patients and spouses and separately models distress for patients and spouses as a function of their own reports of collaboration (main effect). Patients’ and spouses’ unique intercepts and slopes from the level 1 equation are the dependent variables in the level 2 equations. Level 2 equations estimate whether the slope of collaboration on distress differs for patients or spouses according to partners’ dyadic appraisal (interaction effect).

In these multilevel models, each partner’s report of collaboration was left uncentered (because the scale has a meaningful zero point), and dyadic appraisal was effect coded (patient responsibility couples = -.5, shared responsibility couples = .5). Excepting dichotomous variables (i.e., gender, race), variables included as covariates in the multilevel models were grand-mean centered. With grand-mean centering, the grand mean (i.e., the mean across all participants in the sample) is subtracted from each participant’s score. This centering approach shifts the zero point of a given variable to the average value of the sample, so that estimated coefficients can be interpreted as representing individuals at the average level of the given covariate. For example, the model predicting patients’ and spouses’ mood controlled for patients’ and spouses’ marital satisfaction. Marital satisfaction was grand-mean centered, indicating that the mean of marital satisfaction across all patients and spouses in the sample was subtracted from each individual’s score. As a result, model coefficients are interpreted as representing an individual whose marital satisfaction is at the sample mean.

In two-level dyadic models, covariates can be included at level 1 (the individual level) and at level 2 (the couple level). In the current study, marital satisfaction (reported
by each partner) was treated as a level 1 covariate. All other covariates (i.e., patients’
gender, race, age, education, diabetes symptom severity, and length of diabetes diagnosis)
were treated as level 2 covariates. Disease-related variables such as patients’ diabetes
symptom severity are considered couple-level variables because there is only one patient
per couple (i.e., only one member of the couple has a value for diabetes symptom
severity). Demographic variables such as race and age were treated as couple-level
variables because of the strong correlation between patient and spouse values on these
variables. For example, nearly all partners in the sample were of the same racial
background; if both the patient and spouse are white (or nonwhite), there is essentially
only one value for race for the couple, even though race is an individual variable. When
an individual-level variable has little to no variability within couples, it is appropriate to
use one partner’s value and treat it as a couple-level variable.
CHAPTER THREE

RESULTS

Frequency of Collaboration

Nearly all patients (94%) and spouses (98%) reported engaging in some level of collaboration during the prior month. Approximately half of all patients (52%) and spouses (48%) reported engaging in collaboration at least once per week during the prior month. Patients in shared responsibility couples reported engaging in more frequent collaboration with the spouse than did patients in patient responsibility couples ($M = 2.16$ vs. $M = 1.47$, $t(124) = 3.28, p = .001$). Similarly, spouses in shared responsibility couples reported engaging in more frequent collaboration with the patient than did spouses in patient responsibility couples ($M = 2.14$ vs. $M = 1.51$, $t(124) = 3.01, p = .003$).

Aim 1: Disease Management

Table 4 displays results of hierarchical regression models examining patient collaboration during the past month and its interaction with dyadic appraisal as predictors of patients’ daily disease management outcomes (aggregated across the following 24 days). Columns display unstandardized coefficients and standard errors for each outcome: diet-related self-efficacy, dietary adherence, and blood glucose. Each model controlled for patients’ diabetes symptom severity, race, age, and education.
Table 4. *Results of Hierarchical Regression Models Examining Patients’ Disease Management Outcomes as a Function of the Interaction of Collaboration and Dyadic Appraisal.*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patients’ diet-related self-efficacy</th>
<th>Patients’ dietary adherence</th>
<th>Patients’ blood glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>7.80</td>
<td>2.35</td>
<td>133.14</td>
</tr>
<tr>
<td>Patient collaboration</td>
<td>.19</td>
<td>.14</td>
<td>.02</td>
</tr>
<tr>
<td>Dyadic appraisal</td>
<td>.89*</td>
<td>.35</td>
<td>.08**</td>
</tr>
<tr>
<td>Interaction</td>
<td>.31</td>
<td>.31</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note: Models controlled for patients’ diabetes symptom severity, race, age, and education. R² for covariates = .06, .08, and .21, respectively. *p < .05, **p < .01.

**Interaction Effects**

Results provided no support for the prediction that collaboration would be more strongly related to better disease management for patients in shared responsibility couples compared to patients in patient responsibility couples. Patient collaboration and dyadic appraisal did not significantly interact to predict patients’ diet-related self-efficacy ($B = .31, p = .32$), dietary adherence ($B = .05, p = .41$), or blood glucose ($B = -6.59, p = .26$).

**Main Effects**

Results provided no evidence that collaboration was directly associated with patients’ disease management outcomes. Patient collaboration was not significantly related to patients’ diet-related self-efficacy ($B = .19, p = .19$), dietary adherence ($B = .02, p = .45$), or blood glucose ($B = 2.71, p = .31$).
**Additional Effects**

Although not hypothesized, results indicated that dyadic appraisal was directly related to patients’ disease management outcomes. Dyadic appraisal was significantly related to patients’ diet-related self-efficacy ($B = .89, p = .01$) and dietary adherence ($B = .15, p = .02$); patients in shared responsibility couples tended to report higher levels of self-efficacy and dietary adherence than did patients in patient responsibility couples.

**Aim 2: Emotional Well-Being**

The upper half of Table 5 displays results of dyadic multilevel models examining collaboration during the past month (each partner’s own report) and its interaction with dyadic appraisal as predictors of patients’ and spouses’ daily emotional outcomes (aggregated across the following 24 days). Columns display unstandardized level 1 and level 2 coefficients and standard errors for each outcome: patient mood, spouse mood, patient diabetes-specific distress, and spouse diabetes-specific distress. Each model controlled for partners’ marital satisfaction (each partner’s own report) at level 1 and patients’ diabetes symptom severity, gender, race, age, and education at level 2.

**Interaction Effects**

Results provided partial support for the prediction that collaboration would be more strongly related to better emotional well-being for partners in shared responsibility couples compared to partners in patient responsibility couples. As shown in Figure 3, patient collaboration significantly interacted with dyadic appraisal to predict patients’
Table 5. *Results of Dyadic Multilevel Models Examining Patients’ and Spouses’ Emotional and Relationship Outcomes as a Function of the Interaction of Collaboration and Dyadic Appraisal.*

<table>
<thead>
<tr>
<th>Aim 2 Results</th>
<th>Patient mood</th>
<th>Spouse mood</th>
<th>Patient diabetes-specific distress</th>
<th>Spouse diabetes-specific distress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>9.35</td>
<td>8.78</td>
<td>1.43</td>
<td>1.21</td>
</tr>
<tr>
<td>Variable</td>
<td>Coefficient</td>
<td>SE</td>
<td>Coefficient</td>
<td>SE</td>
</tr>
<tr>
<td>Level 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient/spouse collaboration</td>
<td>-.28</td>
<td>.24</td>
<td>-.04</td>
<td>.22</td>
</tr>
<tr>
<td>Level 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyadic appraisal</td>
<td>-.27</td>
<td>.45</td>
<td>.37</td>
<td>.43</td>
</tr>
<tr>
<td>Interaction</td>
<td>.47&lt;sup&gt;*&lt;/sup&gt;</td>
<td>.22</td>
<td>-.09</td>
<td>.21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aim 3 Results</th>
<th>Patient relationship enjoyment</th>
<th>Spouse relationship enjoyment</th>
<th>Patient relationship tension</th>
<th>Spouse relationship tension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>7.97</td>
<td>7.63</td>
<td>2.59</td>
<td>2.32</td>
</tr>
<tr>
<td>Variable</td>
<td>Coefficient</td>
<td>SE</td>
<td>Coefficient</td>
<td>SE</td>
</tr>
<tr>
<td>Level 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient/spouse collaboration</td>
<td>.05</td>
<td>.12</td>
<td>.23&lt;sup&gt;T&lt;/sup&gt;</td>
<td>.14</td>
</tr>
<tr>
<td>Level 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyadic appraisal</td>
<td>-.61</td>
<td>.48</td>
<td>.63</td>
<td>.57</td>
</tr>
<tr>
<td>Interaction</td>
<td>.55&lt;sup&gt;*&lt;/sup&gt;</td>
<td>.25</td>
<td>-.23</td>
<td>.29</td>
</tr>
</tbody>
</table>

<sup>T</sup><sup>p</sup>&lt; .10. <sup>*</sup>p &lt; .05.
mood (interaction term = .47, $p = .04$). This interaction was decomposed by running two additional multilevel models in which dyadic appraisal was dummy coded so that model estimates reflected associations between collaboration and mood for patients in shared responsibility couples and for patients in patient responsibility couples, respectively. Not entirely as predicted, but consistent with the DCM, these models indicated that for patients in shared responsibility couples, collaboration was not significantly related to mood ($B = -.04, p = .84$); in contrast, for patients in patient responsibility couples, more frequent collaboration was marginally associated with poorer mood ($B = -.51, p = .09$). Contrary to predictions, patient collaboration did not significantly interact with dyadic appraisal to predict patients’ diabetes-specific distress (interaction term = -.07, $p = .36$). Also contrary to predictions, spouse collaboration did not significantly interact with
dyadic appraisal to predict spouses’ mood (interaction term = -.09, p = .69) or diabetes-specific distress (interaction term = -.01, p = .90).

**Main Effects**

Results provided no evidence that collaboration was directly related to better emotional well-being for patients or spouses. Among patients, collaboration was not related to mood (B = -.28, p = .24) or diabetes-specific distress (B = .07, p = .40). Among spouses, collaboration was unrelated to mood (B = -.04, p = .86) but was marginally associated with greater diabetes-specific distress (B = .12, p = .10).

**Aim 3: Relationship Quality**

The lower half of Table 5 displays results from dyadic multilevel models examining collaboration during the past month (each partner’s own report) and its interaction with dyadic appraisal as predictors of patients’ and spouses’ daily relationship quality (aggregated across the following 24 days). Columns display unstandardized level 1 and level 2 coefficients and standard errors for each outcome: patient relationship enjoyment, spouse relationship enjoyment, patient relationship tension, and spouse relationship tension. Each model controlled for patients’ diabetes symptom severity, the duration of patients’ diabetes, and patients’ education at level 2.

**Interaction Effects**

Results provided partial support for the prediction that collaboration would be more strongly related to better relationship quality for partners in shared responsibility.
couples compared to partners in patient responsibility couples. As hypothesized, patient collaboration significantly interacted with dyadic appraisal to predict patients’ relationship enjoyment (interaction term = .55, \( p = .03 \)). As shown in Figure 4, for patients in shared responsibility couples, more frequent collaboration was significantly associated with more relationship enjoyment (\( B = .33, p = .01 \)); in contrast, for patients in patient responsibility couples, collaboration was unrelated to relationship enjoyment (\( B = -.22, p = .29 \)). Contrary to predictions, patient collaboration did not significantly interact with dyadic appraisal to predict patients’ relationship tension (interaction term = -.07, \( p = .81 \)). Also contrary to predictions, spouse collaboration did not significantly interact with dyadic appraisal to predict spouses’ relationship enjoyment (interaction term = -.23, \( p = .44 \)) or tension (interaction term = .03, \( p = .92 \)).

**Main Effects**

Results provided some evidence that collaboration was directly related to better relationship quality for patients and spouses. Among patients, more frequent collaboration was unrelated to relationship enjoyment (\( B = .05, p = .66 \)) but was marginally associated with less relationship tension (\( B = -.27, p = .06 \)). Among spouses, more frequent collaboration was marginally associated with more relationship enjoyment (\( B = .23, p = .10 \)) but was unrelated to relationship tension (\( B = -.07, p = .63 \)).
Follow-Up Analyses

A series of follow-up analyses was conducted in order to characterize partners in shared versus patient responsibility couples in terms of demographic characteristics, disease- and health-related characteristics, and relationship characteristics. These analyses were conducted using independent samples t-tests and chi-square analyses with data from patients’ and spouses’ baseline interviews.

Follow-up analyses indicated that compared to patient responsibility couples, a greater proportion of shared responsibility couples were male patient–female spouse dyads ($\chi^2(1) = 4.38, p = .04$). Shared responsibility couples also comprised a greater proportion of ethnic minority (vs. white) patients and spouses ($\chi^2(1) = 4.52, p = .03$ and $\chi^2(1) = 3.19, p = .07$). Patients and spouses in shared responsibility couples were
significantly younger ($t(124) = 2.01, p = .05$ and $t(124) = 1.97, p = .05$), but did not differ from their counterparts in level of education ($t(124) = 1.16, p = .25$ and $t(124) = .62, p = .54$).

Patients in shared responsibility couples had been diagnosed with diabetes for a marginally shorter length of time compared to patients in patient responsibility couples ($t(124) = 1.74, p = .08$). These patients did not differ from their counterparts, however, on diabetes symptom severity ($t(124) = -.16, p = .88$), BMI ($t(124) = .65, p = .52$), or self-rated health ($t(124) = -.96, p = .34$). Spouses in shared responsibility couples had fewer chronic health conditions ($t(114) = 2.21, p = .03$) and reported that they followed a marginally better diet ($t(124) = -1.75, p = .08$) compared to spouses in patient responsibility couples. These spouses did not differ from their counterparts on BMI ($t(121) = .21, p = .84$) or self-rated health ($t(124) = .52, p = .60$).

Shared and patient responsibility couples did not significantly differ on duration of marriage ($t(124) = 1.29, p = .20$), patients’ marital satisfaction ($t(124) = .53, p = .60$), spouses’ marital satisfaction ($t(124) = -.86, p = .39$), or patients’ relational maintenance behaviors (i.e., behaviors intended to keep a relationship going, such as having periodic talks about one’s marriage; Stafford, Dainton, & Haas, 2000) ($t(123) = -.02, p = .99$). Spouses in shared responsibility couples, however, reported greater use of relational maintenance behaviors ($t(124) = -3.19, p = .002$) and greater commitment to the patients’ disease management ($t(124) = -3.46, p = .001$).
CHAPTER FOUR

DISCUSSION

The current study examined the degree of match between marital partners’ disease-related collaboration and dyadic appraisal of responsibility for diabetes management as a predictor of patients’ diabetes management, as well as both partners’ emotional and interpersonal adjustment. Evidence for the overarching prediction that associations between collaboration and partners’ outcomes would differ depending on their dyadic appraisal was found among patients, but not among spouses. Results showed that, for the most part, collaboration was more strongly related to better psychosocial outcomes among patients in “shared responsibility” couples compared to those in “patient responsibility” couples. In contrast, none of the associations between collaboration and spouses’ psychosocial outcomes differed according to partners’ dyadic appraisal. Additionally, although neither collaboration nor its match with dyadic appraisal was related to how well patients managed their diet or blood glucose levels, patients in shared responsibility couples managed their diet better than those in patient responsibility couples. This chapter will now describe study findings in detail, offer potential explanations, and identify study limitations.
Match Between Collaboration and Dyadic Appraisal

The developmental-contextual model of couples coping with chronic illness (DCM) posits that dyadic forms of coping (e.g., collaboration, social support) with one partner’s health condition will be more beneficial for the adjustment of patients and their spouses when they match the way in which partners have appraised responsibility for the patient’s disease (Berg & Upchurch, 2007). The current study found support for this assertion among patients with type 2 diabetes, but not among their spouses. Specifically, as predicted in the current study, collaborating to cope with diabetes during the previous month was related to greater enjoyment of daily interactions with the partner over the following three weeks among patients in shared responsibility couples, but not among patients in patient responsibility couples. Additionally, although collaboration was unrelated to subsequent mood among patients in shared responsibility couples, it was related to marginally poorer mood among patients in patient responsibility couples. Though not entirely as predicted (as collaboration was expected to be positively related to mood for patients in shared responsibility couples), this pattern of findings is consistent with the DCM’s overarching expectation that collaboration is more beneficial for partners who view disease management as a shared responsibility (and less beneficial for partners who view disease management as the patient’s responsibility).

Disease-related collaboration is thought to be more beneficial for partners who view disease management as a shared responsibility because it matches their desire to cope with the patient’s condition as a team. Collaboration is, by definition, a bilateral coping strategy; it actively involves both partners in the coping process through activities
like joint information-gathering, problem-solving, and discussing feelings and concerns. For patients who want their spouses to be highly involved in the coping process (as is likely the case for patients in shared responsibility couples), collaboration may promote a sense of appreciation or closeness with the partner that enhances their daily perceptions of relationship quality (Badr et al., 2010; Mickelson et al., 2001). In contrast, collaborating with the spouse to cope with diabetes may be unhelpful or even detrimental for the well-being of patients in patient responsibility couples because it violates their desire to deal with diabetes individually. Not all patients want their spouses to be involved in dealing with the demands of their health conditions (Martire et al., 2011; Trief et al., 2003). For patients who prefer to handle disease-related problems on their own (as may be the case for patients in patient responsibility couples), collaborative activities with the spouse may feel intrusive or threatening to patients’ sense of competence, leading to poorer daily emotional well-being (Berg et al., 2009; Martire et al., 2002).

In addition to DCM theory, the current study’s findings for patients are in line with the only other study that has examined match between collaboration and dyadic appraisals. In Berg and colleagues’ (2009) study of adolescents with type 1 diabetes, collaborating with mothers to deal with diabetes-related problems was only beneficial for adolescents’ perceptions of coping effectiveness when they viewed those problems as shared with their mothers; when adolescents viewed diabetes-related problems as their own, collaboration was detrimental to their perceptions of coping effectiveness, presumably because it did not match the way in which these adolescents wanted to cope
with their disease. The current findings are also consistent with a previous study conducted with the current sample, which found that social support from the spouse was related to increased emotional well-being among patients in shared responsibility couples, but not among those in patient responsibility couples (Stephens et al., 2012). Thus, the current study adds to a small but growing literature that suggests that match between dyadic coping strategies and dyadic appraisals is important for the psychological and social adjustment of chronically ill patients in different age groups and different types of family dyads.

**Collaboration and Psychosocial Adjustment**

Not all of the associations between collaboration and psychosocial adjustment observed in the current study depended on partners’ dyadic appraisals, particularly among spouses. Spouses who reported more frequent collaboration during the previous month experienced marginally greater relationship enjoyment over the following three weeks, regardless of whether partners viewed diabetes management as shared. Although inconsistent with the DCM’s predictions about the fit between dyadic coping and appraisals, this finding is in line with previous studies that have linked disease-related collaboration to relationship satisfaction and functioning among spouses of chronically ill patients (Badr et al., 2010; Schokker et al., 2010). Working together to solve problems or share concerns about the disease may enhance spouses’ daily perceptions of relationship quality because it makes them feel close to and valued by the patient (Mickelson et al., 2001).
At the same time, however, the level of closeness involved in disease-related collaboration may harm spouses’ individual emotional well-being. Spouses who reported collaborating more often experienced marginally higher levels of distress related to the patient’s diabetes. This finding runs counter to the DCM’s predictions and to theory suggesting that collaboration can help individuals regulate their emotions during times of stress (Meegan & Berg, 2002; Mickelson et al., 2001); it is consistent, however, with theory suggesting that collaborating to cope with disease may evoke or increase an individual’s distress over the short-term by increasing the salience or intrusiveness of disease-related problems (Badr et al., 2010). When spouses sit down and talk with their ill partners about the disease, for example, they may become more aware of (and worried about) problems that the patient is experiencing, such as physical symptoms or poor compliance with treatment recommendations. Taken together, the current study’s findings for spouses suggest that collaboration can have mixed consequences for spouses’ psychosocial adjustment, regardless of how partners appraise responsibility for diabetes management.

The current study also found one association between collaboration and patients’ psychosocial adjustment that did not depend on partners’ dyadic appraisals. Patients who reported collaborating more frequently during the previous month experienced marginally less tension during daily interactions with their partner over the following three weeks, regardless of whether partners viewed diabetes management as shared. Given the DCM’s predictions and the current study’s other findings for patients, one would expect collaboration to be related to less relationship tension only among patients
in shared responsibility couples (Berg & Upchurch, 2007). It is possible, however, that collaboration reduces patients’ daily perceptions of relationship tension, even for those in patient responsibility couples (who may prefer not to collaborate with the spouse), because it communicates that the spouse is committed to the relationship and is trying to be helpful (Mickelson et al., 2001).

Overall, the current study’s findings suggest that the degree of match between collaboration and dyadic appraisal is important for patients’ psychosocial adjustment, but not for that of spouses. Collaborating to cope with diabetes was associated with multiple aspects of patients’ daily psychosocial adjustment, and the majority of these associations depended on the way in which partners appraised responsibility for managing the patient’s diabetes. In contrast, none of the associations between collaboration and spouses’ daily psychosocial adjustment depended on partners’ dyadic appraisal. This pattern of results may indicate that couples’ understanding of how they manage diabetes within their relationship is determined more by the patient’s views or wishes than by those of the spouse. It is possible, for example, that many “patient responsibility” couples view diabetes management in this way because the patient has a high need for autonomy or desires little involvement from the spouse (Martire et al., 2011; Seidel, Franks, Stephens, & Rook, 2012). If partners’ dyadic appraisals are more reflective of patients’ wishes for how their disease should be managed within the relationship, these appraisals may fail to impact spouses’ adjustment or the way in which they respond to collaboration.
Collaboration and Diabetes Management

Another pattern in this study’s findings is that collaborating with the spouse to cope with diabetes did not appear to yield any benefits to patients’ management of their condition, regardless of whether partners viewed diabetes management as their shared responsibility or the patient’s responsibility alone. More specifically, collaboration during the previous month was not related to patients’ daily self-efficacy for making healthy food choices, adherence to dietary recommendations, or blood glucose over the following three weeks. This finding is inconsistent with several studies that have linked disease-related collaboration to better disease management outcomes, including self-efficacy for disease-related tasks, adherence to recommended health behaviors, and glycemic control (e.g., Coyne & Smith, 1994; Joekes et al., 2007; Wiebe et al., 2005).

One possible explanation for the lack of predicted associations between collaboration and disease management among patients in the current study is the amount of time patients have had the disease. In one study of older adults diagnosed with either diabetes or asthma, collaboration with the spouse was not concurrently or prospectively related to patients’ self-efficacy for disease management behaviors or their physical health (de Ridder et al., 2005). The authors concluded that collaborating to cope with disease may have failed to benefit patients in this regard because they were very experienced with the day-to-day demands of their conditions. This same explanation may also apply to the current study, as the majority of patients had been diagnosed with diabetes for several years. Contrastingly, studies that have linked collaboration to disease management outcomes have typically been conducted with newly diagnosed patients.
(e.g., Baron et al., 2011; Joekes et al., 2007; Vilchinsky et al., 2011). It may be the case that disease-related collaboration provides more benefit to patients’ disease management (perhaps especially for patients in shared responsibility couples) in the first year or two after diagnosis. Early on in the coping process, working with the spouse to solve problems and discuss concerns related to the disease may bolster patients’ confidence and ability to carry out disease management behaviors, such as dietary changes. Over time, though, patients are likely to develop routines for managing various aspects of their diabetes regimen. If patients’ disease management behaviors (whether good or bad) become fairly stable over time, collaboration with the spouse may cease to have much influence in this domain.

Another possible explanation for the lack of significant associations between collaboration and disease management is the way in which disease management was operationalized in the current study. Two of the indicators of disease management were specific cognitions and behaviors related to a single aspect of the diabetes regimen (i.e., diet-related self-efficacy, dietary adherence); collaboration, on the other hand, involves a broader range of disease-related activities, such as sharing feelings and seeking out disease-related information. This difference in the level of specificity of collaboration and disease management may have made it more difficult to detect associations than if a more global indicator of disease management (e.g., adherence to the overall diabetes regimen) had been examined. This explanation is rendered less plausible, however, by two studies that have linked disease-related collaboration (broadly defined) to specific adherence
behaviors, including smoking cessation and CPAP adherence, among chronically ill adults (Baron et al., 2011; Vilchinsky et al., 2011).

**Dyadic Appraisal and Diabetes Management**

Although collaboration was unrelated to patients’ disease management outcomes regardless of how partners appraised responsibility for diabetes management, patients in shared responsibility couples reported higher levels of diet-related self-efficacy and dietary adherence than did patients in patient responsibility couples. Though not part of this study’s original hypotheses, follow-up analyses suggest that couples with a shared appraisal of the patient’s disease have other characteristics that may facilitate patients’ successful disease management. For example, spouses in shared responsibility couples reported that they follow a healthier diet compared to spouses in patient responsibility couples; this may facilitate the dietary management of patients in these couples, as attempts to improve health behaviors like diet and smoking are more successful when one’s partner already practices the behavior or initiates behavior change at the same time (Franks, Pienta, & Wray, 2002; Kemmer, Anderson, & Marshall, 1998; Pyke, Wood, Kinmonth, & Thompson, 1997). It is possible that “shared responsibility” spouses in the current study follow a healthier diet as part of an effort to actively support their partners’ diabetes regimen. A greater proportion of spouses in shared responsibility couples were women, and numerous studies have shown that wives are more likely than husbands to directly facilitate a diabetic partner’s diet by preparing healthy meals and adjusting their own diet to match the patient’s dietary needs (Beverly et al., 2008; Peel, Parry, Douglas, & Lawton, 2005; Watanabe et al., 2010; Wong, Gucciardi, Li, & Grace, 2005).
Spouses in shared responsibility couples also reported greater commitment to the patient’s disease management and greater use of relational maintenance behaviors (i.e., behaviors intended to keep the relationship going). These characteristics may indicate a more committed or intimate relationship, and marital intimacy has been linked to better adherence to the diabetes regimen as well as greater satisfaction with aspects of life related to diabetes and lesser perceived impact of diabetes (Trief, Himes, Orendorff, & Weinstock, 2001; Trief, Ploutz-Snyder, Britton, & Weinstock, 2004; Trief, Wade, Britton, & Weinstock, 2002). Taken together, these findings suggest that appraising the patient’s disease as a responsibility that is shared by the couple may be indicative of a larger constellation of factors that is conducive to patients’ sense of self-efficacy and ability to adhere to the diabetes regimen.

In sum, the current study’s findings provide partial support for the DCM’s predictions regarding the importance of match between dyadic coping strategies and dyadic appraisals, but only with regards to patients’ psychosocial adjustment. Collaborative efforts to cope with diabetes appeared to provide greater benefits (or fewer costs) to daily emotional and relationship well-being among patients in couples that view disease management as their shared responsibility (vs. the patient’s responsibility alone). In contrast, and contrary to the DCM, collaboration had mixed consequences for spouses’ daily psychosocial adjustment, regardless of how partners appraised responsibility for diabetes management. Finally, findings suggest that it was partners’ dyadic appraisal (rather than collaboration or its match with dyadic appraisal) that was consequential for patients’ daily dietary management.
Importantly, all study findings emerged while taking into account other variables that were associated with partners’ daily adjustment in various domains, such as demographic characteristics like gender and race, the patient’s diabetes symptom severity, and each partners’ overall satisfaction with the marriage. That these variables were controlled increases confidence in the current study’s findings by helping to rule out several alternative explanations for the findings observed. For example, because analyses examining spouses’ diabetes-specific distress controlled for patients’ diabetes symptom severity, it is less likely that the positive relationship between collaboration and spouse distress is due to the severity of patients’ symptoms affecting both distress and collaboration.

**Study Limitations**

The current findings should be considered in light of several methodological and conceptual limitations. Although study findings add to the literature by elucidating associations between collaboration and daily indicators of adjustment (rather than retrospective reports of general or global adjustment), it is possible that the current study’s design was not sufficiently sensitive to provide a strong test of the hypothesized associations between collaboration, dyadic appraisals, and daily adjustment. The study’s design captured short-term consequences of collaboration for partners’ daily adjustment by examining partners’ retrospective reports of collaboration during the past month as a predictor of typical daily adjustment over the following three weeks. That is, outcomes were assessed daily over a 24-day period, but daily assessments were aggregated to create a single variable for each outcome. Though relatively close in time, the assessments of
predictor and outcome variables may not have been sufficiently close to maximize
detection of the hypothesized associations. Collaboration and other forms of dyadic
coping represent social interactions that partners have with one another on a day-to-day
basis, and some of the effects of dyadic coping may be limited to the day on which the
interaction occurs (Khan et al., 2012). For example, it is possible that collaboration does
benefit spouses’ mood, but that the effect is too short-lived to detect over the time frame
assessed in the current study. As such, this time frame may explain why some
hypothesized associations were found to be nonsignificant or relatively weak in
magnitude. Daily diary or ecological momentary assessment (EMA) designs that examine
collaboration and adjustment on the same day (e.g., Berg, Wiebe, et al., 2008) may be
needed to capture shorter-lived effects of collaboration on partners’ day-to-day outcomes.

It is also possible that the current study’s failure to find some hypothesized
associations—interaction effects in particular—may have been due to insufficient
statistical power. Interaction effects are difficult to detect in field research due to non-
optimal design conditions, such as measurement error and restricted range of variables;
furthermore, statisticians have shown that when significant interaction effects are
observed in field studies, they account for much less variance than they would under
optimal design conditions (McClelland & Judd, 1993). Thus, the current study may have
been underpowered to detect interaction effects, particularly those of smaller magnitude.
The fact that two significant interactions were detected in the current study speaks to the
strength of those particular relationships.
Additionally, even though the current study assessed collaboration at an earlier point in time than adjustment outcomes, it is still unable to definitively conclude that collaboration influences partners’ adjustment, rather than vice versa. Because collaboration was observed (not manipulated), it is possible that partners’ reports of collaboration were influenced by pre-existing differences in their adjustment. For example, patients who tend to experience less tension during interactions with the spouse may be more likely to collaborate with the spouse to address diabetes-related problems (instead of, or in addition to, collaboration leading to reduced tension). It is also possible that an additional variable not considered in the current study, such as personality, influenced partners’ reports of collaboration and subsequent adjustment. For example, patients who are higher on the personality trait of agreeableness may engage in collaboration more frequently and experience less relationship tension. Despite these reservations, the current study’s short-term prospective design is an improvement on the many cross-sectional studies in the literature (e.g., Berg et al., 2009; Coyne & Smith, 1994; Hagedoorn et al., 2000). Furthermore, a handful of longitudinal studies that have linked collaboration to day-to-day and long-term changes in patients’ disease management behaviors and quality of life lend support to the direction of influence proposed in the current study (Baron et al., 2011; Joekes et al., 2007; Vilchinsky et al., 2011).

Another possible limitation of the current study is the way in which dyadic appraisal of responsibility was assessed. Partners were required to come to an agreement and respond jointly to a question regarding how they (as a couple) appraise responsibility
for diabetes management (i.e., patient’s responsibility vs. shared responsibility). As a result, it is not possible to assess whether responses given by the couple as a unit are similar to or different from the way in which each partner individually appraises responsibility for managing the patient’s disease. In a past study of adolescents with type 1 diabetes and their mothers, each individual responded to a question about whose responsibility it was to deal with diabetes-related issues (i.e., adolescent alone, mother alone, adolescent and mother, or whole family); in approximately 20% of dyads, adolescents and their mothers gave different responses (Beveridge et al., 2006). Although agreement might be higher among married couples due to the increased level of equality between romantic partners compared to a parent and child, it is possible that in some couples partners would have given different responses had they been questioned individually. The current study is unable to investigate whether associations between collaboration and adjustment are affected by divergent appraisals of responsibility for the patient’s disease management.

At the same time, however, the joint assessment of dyadic appraisals used in the current study can also be considered a strength because it is an inherently dyadic construct. Even if individual appraisals of who is responsible for managing the patient’s diabetes differ between partners, their joint response to this question likely reflects their awareness of each other’s thoughts and feelings regarding expectations for spousal (un)involvement, which may be more important for their adjustment and/or reactions to collaboration than their individual appraisals. Study findings speak to the potential importance of partners’ joint appraisal (both as a moderator and a main predictor) for
patients’ outcomes. Nonetheless, it would be informative for future studies to investigate the DCM’s predictions using patients’ and spouses’ separate perceptions of who is responsible for disease management.

Finally, certain characteristics of the study’s sample may limit the generalizability of its findings. The typical couple in this study was in a very long-term and satisfying marriage and had been dealing with diabetes for several years. It is unknown to what extent study findings generalize to more recently formed couples, couples with more recently diagnosed patients, or partners in less satisfying marriages. It is also unknown whether current findings generalize to couples dealing with other chronic conditions. It is likely, however, that the current findings also apply to couples dealing with heart disease, some cancers, and other conditions that are similar to type 2 diabetes in terms of day-to-day demands and impact on the couple.

**Conclusion**

Despite these limitations, the current study makes an important contribution to the literature on couples coping with chronic illness. It focuses on an under researched form of dyadic coping and provides one of the first tests of the DCM’s predictions regarding the match between dyadic coping and dyadic appraisals among married couples. Study findings help inform our understanding of 1) how disease-related collaboration impacts patients’ and spouses’ daily adjustment over the short-term and 2) whom collaboration is most likely to benefit (or harm). Researchers and health care professionals have already begun to develop and evaluate couple-oriented interventions designed to promote a collaborative approach to chronic illness management (Martire, Schulz, Keefe, Rudy, &
Starz, 2007; Trief et al., 2011). The information yielded by the current study and others like it can be used to inform intervention efforts in order to maximize their benefits to couples coping with chronic illness.
APPENDIX A

DAILY DIARY MEASURES
APPENDIX A

DAILY DIARY MEASURES

Patient Measures

Diet-related self-efficacy

1. What number between 0 and 10 best describes your confidence that TOMORROW you will be able to avoid making UNHEALTHY food choices that would get you OFF TRACK with your diabetic diet? A zero (0) would mean “not confident at all” and a ten (10) would mean “extremely confident.”

2. What number between 0 and 10 best describes your confidence that TOMORROW you will be able to follow a HEALTHFUL eating plan? A zero (0) would mean “not confident at all” and a ten (10) would mean “extremely confident.”

3. What number between 0 and 10 best describes your confidence that TOMORROW you will be able to eat five or more servings of fruits and vegetables? A zero (0) would mean “not confident at all” and a ten (10) would mean “extremely confident.”

4. What number between 0 and 10 best describes your confidence that TOMORROW you will be able to avoid eating high fat foods such as red meat or full-fat dairy products? A zero (0) would mean “not confident at all” and a ten (10) would mean “extremely confident.”

5. What number between 0 and 10 best describes your confidence that TOMORROW you will be able to space carbohydrates evenly throughout the day? A zero (0) would mean “not confident at all” and a ten (10) would mean “extremely confident.”
**Dietary adherence**

Today, to what extent did you do each of the following:

TODAY, you…

1. Made some UNHEALTHY food choices that got you OFF TRACK with your diabetic diet.

2. Followed a HEALTHFUL eating plan.

3. Ate five or more servings of fruits and vegetables.

4. Avoided high fat foods such as red meat or full fat dairy products.

5. Spaced carbohydrates evenly throughout the day.

1 = Not at all
2 = Somewhat
3 = Very much
**Blood glucose**

1. What was your blood sugar reading the FIRST time you tested it TODAY? (If you did not test your blood sugar at all today, please go on to page 7).

2. What was your blood sugar reading the SECOND time you tested it TODAY? (If you did not test your blood sugar at all today, please go on to page 7).

3. What was your blood sugar reading the THIRD time you tested it TODAY? (If you did not test your blood sugar at all today, please go on to page 7).

4. What was your blood sugar reading the FOURTH time you tested it TODAY? (If you did not test your blood sugar at all today, please go on to page 7).

5. What was your blood sugar reading the FIFTH time you tested it TODAY? (If you did not test your blood sugar at all today, please go on to page 7).

6. What was your blood sugar reading the SIXTH time you tested it TODAY? (If you did not test your blood sugar at all today, please go on to page 7).

7. What was your blood sugar reading the SEVENTH time you tested it TODAY? (If you did not test your blood sugar at all today, please go on to page 7).
Patient and Spouse Measures

Diabetes distress (patient version)

The following are thoughts and feelings you may have had due to your diabetes.

TODAY, you...

1. Worried about the future and the possibility of serious complications due to your diabetes.
2. Felt guilty or anxious when you got off track with your diabetes management.
3. Felt constantly concerned about food and eating.

1 = Not at all
2 = Somewhat
3 = Very much
Diabetes distress (spouse version)

The following are thoughts and feelings you may have had due to your wife’s/husband’s diabetes.

TODAY, you...

1. Worried about you wife’s/husband’s future and the possibility of serious complications due to your diabetes.

2. Felt anxious when your wife/husband got off track with her/his diabetes management.

3. Felt constantly concerned about your wife’s/husband’s food and eating.

1 = Not at all
2 = Somewhat
3 = Very much
Mood (patient and spouse version)

What is your mood now?

A zero (0) would mean “as bad as your mood could possibly be” and a ten (10) would mean “as good as your mood could possibly be.”
**Relationship quality (patient and spouse version)**

Please rate the quality of the interactions you had with your husband/wife TODAY.

1. Overall, how tense were your interactions with your husband/wife TODAY.
   
   A zero (0) would mean “not tense at all” and a ten (10) would mean “as tense as they could possibly be.”

2. Overall, how enjoyable were your interactions with your husband/wife TODAY.
   
   A zero (0) would mean “not enjoyable at all” and a ten (10) would mean “as enjoyable as they could possibly be.”
APPENDIX B

INTERVIEW MEASURES
APPENDIX B

INTERVIEW MEASURES

Disease-related collaboration (patient version)

Now I’d like you to think about the ways in which you and your husband/wife have managed your diabetes as a couple.

DURING THE PAST MONTH …

1. The two of you learned as much as you could about managing your diabetes (e.g., shared doctor’s appt.s, diabetes education, and reading about diabetes).

2. The two of you shared feelings and concerns about managing your diabetes.

3. The two of you reminded one another of the importance of managing your diabetes.

4. The two of you worked together to manage your diabetes.

5. The two of you discussed solutions to problems you encountered in managing your diabetes.

1 = Not at all
2 = Once or twice
3 = About once a week (3-4 times in the past month)
4 = Several times per week
5 = Every day
Disease-related collaboration (spouse version)

Now I’d like you to think about the ways in which you and your wife/husband have managed her/his diabetes as a couple.

DURING THE PAST MONTH …

1. The two of you learned as much as you could about managing her/his diabetes (e.g., shared doctor’s appt.s, diabetes education, and reading about diabetes).

2. The two of you shared feelings and concerns about managing her/his diabetes.

3. The two of you reminded one another of the importance of managing her/his diabetes.

4. The two of you worked together to manage her/his diabetes.

5. The two of you discussed solutions to problems you encountered in managing her/his diabetes.

1 = Not at all
2 = Once or twice
3 = About once a week (3-4 times in the past month)
4 = Several times per week
5 = Every day
Appraisal of responsibility for diabetes management (dyadic measure)

Now I’d like to ask one final question to both you and your spouse. I’d like the two of you come to an agreement about which of the following statements describes how you deal with the management of diabetes as a couple:

Would you say that diabetes is…

1. her/his problem to manage.

2. her/his problem to manage, but it affects both of you.

3. “our” problem to manage as a team.

4. Could not reach an agreement.
REFERENCES
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