COPING WITH TYPE 2 DIABETES IN THE FAMILY CONTEXT: A COMMUNAL COPING PERSPECTIVE

BY

ERIN D. BASINGER

DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Communication
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2016

Urbana, Illinois

Doctoral Committee:

Professor John P. Caughlin, Chair
Professor Leanne Knobloch
Assistant Professor Marian Huhman
Associate Professor Erin Donovan

ABSTRACT

Type 2 diabetes is a chronic condition affecting more than 25 million adults in the United States (National Institutes of Health, 2011). The impact of diabetes is far reaching, influencing the lives of both the patient and his or her family. Accordingly, both people with type 2 diabetes and their family members cope with the illness in the context of their relationships with one another. In this dissertation, I explore the coping efforts of individuals with type 2 diabetes and their families using communal coping as a framework for the investigation (Afifi et al., 2006; Lyons et al., 1998). The communal coping model argues that people cope with stress in the context of their relationships and that coping responses are both cognitive and behavioral in nature. According to the model, communal coping exists along two continuous dimensions: (a) appraisal, which assesses whether people's cognitions are individual or shared, and (b) action, which pertains to whether people engage in sole or joint behavior to diminish the negative effects of their stress. Theoretically, the dimensions of communal coping cross to create four distinct types of coping: individual coping, parallelism, support-seeking, and communal coping.

In this dissertation, I address two limitations of the communal coping model using two studies. First, the appraisal dimension of communal coping has not been explicated in extant research, so the in the first study, I interviewed 28 individuals with type 2 diabetes and their family members with a goal of conceptualizing what it means for people to appraise their stress as individual or shared. The results of the study revealed that appraisal consists of two elements: problem ownership and problem influence. Second, the typology proposed by communal coping theorists has not been systematically validated, so a second objective of this dissertation was to assess the typology quantitatively. The second study consisted of individuals with type 2 diabetes (*N* = 159) completing a survey assessing their family characteristics, their coping efforts, and their diabetes-related outcomes. Findings from the second study suggested that three distinct types of coping exist in these data, rather than the four proposed in the original communal coping typology. Results also indicated that generally, individuals fared better in terms of their self-care and their adherence when they coped alongside their family members. The conclusions from the two studies have theoretical implications for communal coping and practical implications for managing the type 2 diabetes.

ACKNOWLEDGEMENTS

Completing this degree has been a team effort, and I am grateful to have the best people in my corner. My advisor John Caughlin has been an outstanding mentor, teaching me to ask important questions and making me a better researcher and thinker with his training. I feel cared for as both a scholar and a person by John and am so thankful for his guidance. I am also indebted to my committee members. Leanne Knobloch has invested in me both professionally and personally, and her careful mentoring has made me more motivated and more passionate. Marian Huhman has given me a vision for taking my work beyond the academy to the applied realm, and I am thankful for her dedication to applying our research to those who may benefit from it in a tangible way. Erin Donovan pushed me to think critically and carefully about my theoretical work, and this project is far better for her guidance – I am grateful that she gave her time to make me feel cared for as a person and valued as a scholar. Jennifer Kam's investment in me has shaped my professional journey, and I owe her so much for taking an active role in my endeavors. I am exceedingly lucky to have been guided by such incredible professional mentors.

My friends and family have made my life richer and fuller, and my life is infinitely brighter because they are on this journey with me. To the cabin crew – Donovan, Matt, Paul, Jillian, Katie, Kristina – you all have filled the spaces in my life with laughter. To the core four – Amy, Kelly, and Erin – I would not have wanted to walk this road with anyone but you. Amy D., you are my person, and I could not have made it through without you. To the other dear friends who have believed in me – I would not be here were it not for your support. And to my family – Dad, Mom, Abby, Amy, Boz, Granny, Papa, and Nana – you all are the first string on this team. You have loved and supported me unconditionally and I am eternally grateful that you are my people. Thank you.

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CHAPTER 1

INTRODUCTION

Diabetes mellitus is a chronic condition affecting more than 25.6 million people in the United States ages 20 and older and over 215,000 people under the age of 20 (National Institutes of Health, 2011). There are two types of diabetes: type 1, or insulin dependent diabetes mellitus (IDDM) and type 2, or non-insulin dependent diabetes mellitus (NIDDM). About 90-95% of all cases of diagnosed diabetes mellitus are type 2. Although both type 1 and type 2 diabetes are characterized by glucose abnormalities caused by insulin deficiencies, the pathologies and treatments are different (Cox & Gonder-Frederick, 1992). Type 1 diabetes is caused by a combination of genetic and autoimmune factors and is typically diagnosed in childhood (Cox & Gonder-Frederick, 1992). In individuals with type 1 diabetes, the pancreas secretes little to no insulin to help control glucose metabolism, so to treat their diabetes, these individuals introduce insulin into their system through injections or a pump (Gonder-Frederick, Cox, & Ritterbrand, 2002; National Institutes of Health, 2011). Type 2 diabetes has a strong hereditary component but is also associated with age and body mass index (BMI; Gonder-Frederick et al., 2002), and it is primarily diagnosed in adults, although the number of children and adolescents diagnosed with type 2 diabetes is growing (National Institutes of Health, 2011). Rather than managing a lack of insulin production, people with type 2 diabetes are insulin resistant. Their treatment includes a combination of a controlled diet, physical activity, medication, and insulin (National Institutes of Health, 2011).

Both type 1 and type 2 diabetes can have profound physiological effects and complications, including stroke, hypertension, blindness and other eye problems, kidney, dental, heart, and nervous system diseases, amputations, and even death (National Institutes of Health, 2011). Because of both its prevalence and its impact, researchers and practitioners have conducted studies, reviews, and interventions with a goal of improving the physiological and psychological health outcomes of diabetes, with some scholars focusing specifically on how individuals cope with the disease (e.g., Cheng & Boey, 2000; DeCoster & Cummings, 2005; Handron & Leggett-Frazier, 1994; Lewis, Woods, Hough, & Bensley, 1989). In this dissertation, I continue that line of research, focusing specifically on type 2 diabetes as a context of care because its management often requires substantial coordination and communication among family members (e.g., Anderson, Auslander, Jung, Miller, & Santiago, 1990).

Although researchers originally conceptualized coping as an individual process, most scholars now recognize it as a process that occurs within the context of relationships (e.g., Bodenmann, 1997a; Coyne & Smith, 1991; Revenson, 2003). Specifically, social network members affect and are affected by the management of chronic illness. In the context of type 2 diabetes, both patients and family members may experience positive and negative effects of disease management. Families who manage the disease together may experience positive affect or family cohesion, but they may also feel depressed (Rubin & Peyrot, 1992). Moreover, family members may help with disease management (e.g., Manoogian, Harter, & Denham, 2010; Weihs, Fisher, & Baird, 2002), but their efforts could lead to dysfunctional relationship dynamics, including enmeshment (Miller & Brown, 2005). The effects of type 2 diabetes are far-reaching for the diagnosed person and for his or her family.

In this dissertation, I focus on one theory of relational coping, the communal coping model (Afifi, Hutchinson, & Krouse, 2006; Lyons, Mickelson, Sullivan, & Coyne, 1998), applying the tenets of the theory to the process of coping with type 2 diabetes. The communal coping model nominates two processes, appraisal and action, as central to coping. When individuals appraise a stressor like type 2 diabetes, they think of it as either individually or jointly owned. Conversely, the action dimension of the model reflects whether people engage in individual or joint behaviors to address the negative impact of the disease.

Extant research has shed some light on the use of communal coping in the context of families (e.g., Afifi et al., 2006; Koehly et al., 2008); however, a number of important questions remain unaddressed by this work. In chapters that follow, I describe two studies that address some of those questions. In chapter two, I review literature about coping, with a particular emphasis on the communal coping model as a framework for the study. Then, I use empirical research and theoretical reasoning to propose a series of research questions and hypotheses. In chapter three, I describe two studies designed to test the research questions and hypotheses. The fourth chapter reviews the results of study 1, and chapter five presents the results of study 2. Finally, chapter six provides a general discussion of the contributions of this dissertation as a whole.

CHAPTER 2

LITERATURE REVIEW AND RATIONALE

Scholars have long recognized the deleterious effects of stress on individuals' physical and psychological health. In response, they have investigated how people respond to stress through coping processes. Coping represents an important area of inquiry because effective coping has been linked with both individual outcomes like quality of life (Utsey, Bolden, Lanier, & Williams, 2007) and physical health (Bodenmann, 1997c) and relational outcomes such as marital quality (Bodenmann, Pihet, & Kayser, 2006) and enhanced communication (DeLongis & O'Brien, 1990). Thus, understanding how people cope and which coping strategies are most effective is a valuable endeavor. Type 2 diabetes (T2D) researchers have directed some of their attention toward the effectiveness of various coping strategies and have generally concluded that strategies aimed at decreasing the negative impact of the illness (e.g., adhering to dietary and exercise regimens) are helpful. However, T2D coping research has concentrated almost exclusively on the individual's coping responses, neglecting to account for the role that others play in the coping process. In this chapter, I review research about coping and type 2 diabetes, focusing especially on how individuals with type 2 diabetes may cope alongside their family members and how their joint coping is related to individual outcomes.

Conceptualizing Coping as a Relational Process

Because chronically ill individuals manage psychological, physical, and relational challenges, coping research is particularly relevant to their experiences. In recent years, coping scholarship has undergone a shift from a focus exclusively on the individual (e.g., Lazarus & Launier, 1978) to an examination of how coping occurs within relational contexts (e.g., Bodenmann, 1997a; Lyons et al., 1998). Although a large body of work has been produced on the process of coping, only a few theories are prevalent in this research. Examining these theories in the order they became prominent illustrates how coping researchers have transitioned from an individual perspective to one that includes spouses, families, and other social network members. In the following sections, the central tenets of the dominant approaches are described, with an emphasis on the theories that focus on coping as a relational process.

Stress and Coping Perspective

Lazarus and his colleagues developed the stress and coping perspective, one of the earliest frameworks for research on coping (e.g., Lazarus, 1966). Throughout its development, the stress and coping framework has been known by a number of names, including psychological-stress theory (Lazarus, 1966) and the cognitive-phenomenological approach to coping (Folkman & Lazarus, 1980), but at its core, this perspective focuses on how individuals cognitively appraise and cope with stress. The stress and coping perspective emphasizes the role of cognition in the coping process (e.g., Folkman & Lazarus, 1985; Lazarus, 1966), suggesting that cognitive processes are at the heart of stressful circumstances, influencing the impact of events, appraisals, choices of coping patterns, and psychological and behavioral reactions (Cohen & Lazarus, 1979). The key claim of the stress and coping perspective is that the coping process involves a transactional relationship between the person and the environment (Folkman & Lazarus, 1980). When individuals encounter a stimulus (e.g., an unexpected event), the characteristics of the person and the environment interact (Lazarus & Folkman, 1987), and if the perceived demands of the environment exceed the perceived personal resources of the individual, he or she experiences stress (Lazarus & Launier, 1978). Two cognitive processes, *appraisal* and *coping*, are at the center of the person-environment transaction and are essential to the stress and coping perspective. Together, they help the individual (a) assess whether stress exists in the environment and (b) alleviate the effects of that stress. The appraisal and coping processes are described below.

Appraisals help individuals evaluate whether their circumstances are potentially harmful and choose the most appropriate and effective courses of action (Folkman, Schaefer, & Lazarus, 1979; Lazarus, 1966). Two types of appraisals are relevant to the stress and coping perspective: primary and secondary appraisals. During primary appraisals, stimuli are recognized as threatening or not threatening (Lazarus, 1966). Individuals ask themselves, “How much am I in danger in this situation?” When threat or harm is perceived, the individual feels stress, activating the secondary appraisal process. Individuals use secondary appraisals to evaluate their options for addressing the threat in their environment, asking themselves, “How much am I in danger from anything I do about my stress?” (Lazarus, 1966). One function of secondary appraisals is that they allow individuals to evaluate their options for dealing with the stressor. As such, secondary appraisals determine the coping strategies that individuals employ (Lazarus, 1966). Although the stress and coping framework discusses primary appraisals and then secondary appraisals, Lazarus (1966) notes that these processes may occur simultaneously and are mutually influential, so the appraisal process is not linear (Lazarus & Folkman, 1987). In addition, appraisal processes influence (and are influenced by) coping responses.

When individuals appraise a threat in their environment, coping responses are activated to alleviate the stress (Lazarus, 1966). Stress and coping researchers have defined coping in a number of different ways. Lazarus (1966) originally conceptualized coping as “strategies for dealing with threat” (p. 151). Later, however, he and his colleagues (Lazarus, Averill, & Opton, 1974) decided this definition was too narrow. Rather, coping refers not only to what an individual *does*, but also what he or she *thinks* in a situation in which demands outweigh resources (i.e., in which stress is present; Folkman & Lazarus, 1980). Although the conceptualization of coping has evolved throughout the development of the stress and coping framework, common to all of the definitions is the idea that coping responses attempt to restore balance to the person-environment relationship (Lazarus & Launier, 1978). In addition, coping can be used to address anticipated threats or to react to existing ones (Cohen & Lazarus, 1979).

Although a variety of coping responses exist, they can be divided into two general types. Originally termed direct action (or action tendencies) and intrapsychic responses (Lazarus 1966; Lazarus et al., 1974), the two primary modes of coping are commonly referred to as *problem-focused coping* and *emotion-focused coping* in later iterations of the theory (e.g., Folkman & Lazarus, 1980, 1985). Problem-focused coping refers to behaviors aimed at alleviating the threat itself (Lazarus & Folkman, 1984), including problem-solving and other instrumental efforts used to alter the person-environment relationship (Cohen & Lazarus, 1979). Conversely, emotion-focused coping includes efforts aimed at regulating the emotional response to the threat (Lazarus & Folkman, 1984). When individuals engage in emotion-focused coping, their primary goal is to feel better about their stress, rather than to change their circumstances. Problem-focused and emotion-focused coping are usually interdependent (Cohen & Lazarus, 1979) and are frequently used in combination (Folkman & Lazarus, 1985; Lazarus & Folkman, 1984). Folkman and Lazarus (1980), for example, found that only two percent of their sample used one type of coping, whereas everyone else used both. Together, problem- and emotion-focused coping methods aid individuals in altering both their situation and their feelings about their stress.

The stress and coping perspective represents an important step in coping research because Lazarus and his colleagues were the first to consider the role of the person-environment interaction in coping. In contrast with coping models focused on personality traits, the stress and coping framework suggests that a great deal of intraindividual variability exists in coping responses. That is, individuals are not very consistent in their use of coping patterns across situations (Folkman & Lazarus, 1980). This finding alone led Lazarus and colleagues to suggest that something more than just personality impacted coping. Specifically, they asserted that the transaction between the individual and his or her situation governs the cognitive process that unfolds to determine coping responses.

In addition, the stress and coping perspective conceptualized coping as a process rather than a trait. Before the introduction of this approach, coping was thought to be determined by personality, which consists of relatively stable traits. As a result, coping was also assumed to be static. In contrast with this perspective, Lazarus and colleagues viewed the person-environment interaction as dynamic, asserting that individuals shift their cognitions and behaviors as the demands of the situation change (Folkman & Lazarus, 1980, 1985; Folkman et al., 1979; Lazarus & Folkman, 1984, 1987; Lazarus et al., 1974). One explanation for the process-oriented nature of coping is that as stressful situations shift, so do individuals' appraisals and emotions (Folkman & Lazarus, 1985). In response, the coping processes that are needed also change. In support of this notion, Folkman, Lazarus, Gruen, and DeLongis (1986) found that neither coping nor appraisals were stable over time, but both changed throughout the process of recovery from an illness. Viewing coping as a process takes into account both intraindividual and interindividual differences (Lazarus & Folkman, 1984), addressing a previously existing gap in coping research.

Although the stress and coping perspective made significant advances, it is constrained by some limitations. Namely, this approach does little to recognize the role of other people in the coping process and was even criticized as being "radically individualistic" (Coyne & Smith, 1994, p. 51). Although stress and coping researchers recognized that "coping never occurs in a vacuum" (Cohen & Lazarus, 1979, p. 229), they suggested that it is with *what* people are coping that matters, rather than with *whom.* In one study, Cohen and Lazarus (1979) asserted that social network members can be helpful, such that "ailing persons do better in many ways if they can maintain and utilize social relationships. Social supports appear to enhance the possibilities for effective coping" (p. 221). However, despite their recognition that supportive others are important, they also suggested that social support is far less important than the cognitive processes they described. They proposed, for example, that the relationship between social support and health is likely confounded by cognitive processes (Lazarus & Folkman, 1984). Research over the past three decades has consistently demonstrated that this is not the case and that in fact, social support is critical for health and coping. Each of the frameworks discussed in the sections that follow recognize the role of social network members in the coping process.

Relationship-Focused Coping

Many scholars recognized the limitations of the stress and coping perspective for understanding coping as it occurs in interpersonal relationships. Coyne and Smith (1991), for example, observed that the stress and coping framework was "narrowly focused on the efforts of the individual" (p. 404), ignoring the larger context within which coping efforts are situated. In response, researchers proposed that significant others in the social network affect the coping process and are affected by it. In one of the earliest studies to make this observation, Coyne (1976) asked participants to have telephone conversations with either depressed or non-depressed individuals, and then he measured the participants' own psychological responses. When subjects interacted with depressed individuals, they themselves were more depressed and anxious than were participants who interacted with non-depressed individuals. The premise of Coyne's study was simple, but its impact was far-reaching, as it led Coyne and a number of other scholars to begin the task of investigating the role of the social network in coping (e.g., DeLongis & O'Brien, 1990; Fiske, Coyne, & Smith, 1991; Joiner, Coyne, & Blalock, 1999).

The main theoretical contribution of this body of work was the concept of *relationship-focused coping*. Recall that the stress and coping perspective emphasizes two types of coping responses: problem-focused and emotion-focused (e.g., Folkman & Lazarus, 1980, 1985). When researchers recognized the importance of the relational context, they added a third type of coping to this list: relationship-focused coping (e.g., Coyne & Smith, 1991; Kramer, 1993; O'Brien & DeLongis, 1996). Although all three types of coping interact with one another (Kramer, 1993), relationship-focused coping is unique because it specifically addresses how stressed individuals deal with others as they cope, rather than how they deal with either the stressful situation (i.e., problem-focused coping) or their feelings about it (i.e., emotion-focused coping). Of note, relationship-focused coping strategies are statistically distinct from problem-focused and emotion-focused coping (Kramer, 1993), lending further support that this type of coping is conceptually different. The relationship-focused coping lens was a major departure from the coping research that preceded it, and it became a theoretical construct on its own, even being examined in isolation from problem-focused and emotion-focused coping (e.g., O'Brien, DeLongis, Pomaki, Puterman, & Zwicker, 2009).

Relationship-focused coping is "aimed at managing, regulating, or preserving relationships during stressful periods" (O'Brien & DeLongis, 1996, p. 782). It is an interpersonal process, rather than a cognitive one, which is aimed at protecting (or sometimes creating distance in) relationships in the process of managing stress. Research on relationship-focused coping recognizes that close relationships sometimes help to promote adaptive coping responses; however, they can also be disruptive or maladaptive (e.g., O'Brien & DeLongis, 1997). Like problem-focused and emotion-focused coping, many strategies exist for engaging in relationship-focused coping. Coyne and Smith (1991) proposed two types of relationship-focused coping: (a) active engagement, which involves interacting with one’s partner about the stressor, his or her feelings, and the relationship and (b) protective buffering, in which the distressed individual withdraws from his or her partner, hiding concerns and worries and retreating to avoid conflict. Other strategies for relationship-focused coping include negotiation (Kramer, 1993; O’Brien & DeLongis, 1997), social support (O’Brien & DeLongis, 1997; Preece & DeLongis, 2005), conflict resolution (O’Brien & DeLongis, 1997), being empathic, minimizing contact with others (Kramer, 1993), and interpersonal withdrawal (Preece & DeLongis, 2005). Some strategies benefit the relationship, whereas others are harmful. As such, some researchers have classified the strategies as positive relationship-focused strategies and negative relationship-focused strategies (e.g., Kramer, 1993).

By far, the relationship-focused coping strategy that has received the most attention in previous research is empathic coping, in which a partner "attempts to both perceive accurately the affective world of others involved in the stressful situation and to communicate accurately and sensitively one's affective understanding to those persons" (DeLongis & O’Brien, 1990, p. 230). Empathic coping involves taking the perspective of the other person, interpreting the other person’s nonverbal communication, and expressing care for the other person in a helpful, non-judgmental way (DeLongis & O’Brien, 1990). As such, empathic coping is not only a cognitive process, but also an affective and behavioral one (O’Brien & DeLongis, 1997). Scholars have found that this is a helpful strategy for managing stress (e.g., Lee-Baggley, DeLongis, Voorhoeave, & Greenglass, 2004; O’Brien et al., 2009).

The relationship-focused coping perspective is important because of its focus on the presence of others during the coping process. In particular, researchers recognized that the support of spouses, family members, or other social network members could be either positive or negative (Coyne & DeLongis, 1986; Fiske et al., 1991). This way of thinking represented a departure from work that preceded it (primarily social support research), which Fiske and colleagues (1991) described as having "an almost Pollyannaish image of the contribution of social relationships to adaptation" (p. 5). In contrast with this perspective, relationship-focused coping scholars asserted that although relationships can provide benefits during the coping process, they can also be detrimental. Further, the effectiveness of support from others depends on how it is offered, who offers it, the supportive behaviors that are enacted, and the timing and circumstances of the support (Coyne & Racioppo, 2000). Scholars focused on relationship-focused coping acknowledged both positive and negative relationship-focused strategies (e.g., Kramer, 1993). This is particularly important because negative interactions with others may be even more influential on health outcomes than are positive interactions with others (Coyne & Downey, 1991). Therefore, framing relationships as both potentially helpful and potentially harmful offered a more valid conceptualization of their influence on stress and coping.

Coping Congruence

A third framework for studying coping is coping congruence. Like relationship-focused coping, this approach stemmed from the stress and coping perspective but recognized the role of others in the coping process. Revenson, Abraido-Lanza, Majerovitz, and Jordan (2005) contend that "major life stressors are not experienced in a social vacuum" (p. 137). Rather, coping occurs in a larger ecological framework that includes multiple systems (e.g., sociocultural, temporal, situational, and interpersonal; Revenson, 2003). Coping congruence focuses on the interpersonal context, with a particular emphasis on coping in married couples because the marriage relationship is long term, plays a key role in identity, and is a built-in resource for support and coping assistance (Revenson et al., 2005).

Coping congruence refers to the fit between two individuals' coping responses and suggests that when couples are coping with stressors, one goal they have is to maximize the fit between their coping responses so that those efforts will be most effective (Revenson, 1994; Revenson, 2003; Revenson et al., 2005). According to this framework, incongruent strategies are those that either work in opposition to each other or cancel each other out (Revenson, 2003; Revenson et al., 2005). Congruent strategies can be similar or dissimilar, so congruence simply refers to fitting well together, not to the presence of similarity (Pakenham, 1998; Revenson, 2003; Revenson et al., 2005). Similar strategies can be effective if they coordinate or mutually reinforce one another (Pakenham, 1998; Revenson et al., 2005), but if they cancel each other out, they are no longer efficient or effective for coping (Revenson, 2003). Likewise, dissimilar strategies may be beneficial if they complement or enhance one another (Pakenham, 1998), if they work well together (Revenson et al., 2005), or if they provide a broad range of coping behaviors for addressing a stressor (Revenson, 2003). However, if dissimilar strategies undermine each other, they are incongruent (Revenson, 2003).

A small body of empirical work has investigated whether similar/dissimilar strategies are congruent or incongruent. Theorists have proposed that perhaps the congruence of similar/dissimilar strategies depends on the type of coping being employed (i.e., problem-focused versus emotion-focused; Pakenham, 1998). Initially, they suggested that dissimilar strategies may be congruent if they are problem-focused and that the similar strategies may be congruent if they are emotion-focused. Indeed, there has been some support for this notion.

Pakenham (1998) found that the use of dissimilar problem-focused strategies was related to less depression and better adjustment. Similarly, Barbarin, Hughes, and Chesler (1985) found that complementarity in problem-solving (a problem-focused strategy) was associated with better marital quality. However, the findings in other research are conflicted, suggesting that couples who were similar in their use of active engagement (a problem-focused strategy) had greater marital adjustment (Badr, 2004) or that similarity in emotion-focused coping is not always dysfunctional (Pakenham, 1998). In short, it remains unclear what makes coping responses congruent or incongruent. However, the contention that couples' efforts need to fit together well for effective coping has been supported.

Coping congruence research explicitly recognizes the role that others play in the coping process. Like others before them, coping congruence researchers suggested that coping is both individual and relational; however, unlike previous research, many coping congruence scholars also operationalized coping at both individual and relational levels. Research on both relationship-focused coping and on social support assesses individuals' (either patients' or partners') perceptions of their environment, including the other people who are part of the coping process. Such work can really only make claims at the individual level. In contrast, coping congruence researchers used statistical techniques in which the couple itself is the unit of analysis (e.g., Revenson, 2003; Revenson et al., 2005). Revenson and colleagues (Revenson, 2003; Revenson et al., 2005), for example, created clusters of coping strategies at the couple level based on spouses' levels of problem-focused and emotion-focused coping. They found that problem-focused coping was related to depression, but only in couples in which both spouses engaged in high levels of problem-focused coping (i.e., not when one partner was problem-focused and the other was emotion-focused). Techniques like this one allowed a more accurate representation of what may be happening in couples when they try to coordinate their coping efforts.

Although the work offered by coping congruence research is valuable, it is also marked by limitations. Perhaps because this body of scholarship is so small, it is unclear how congruence manifests in relationships and how it affects coping. The empirical work reviewed in the preceding paragraphs illustrates the conflicting findings that characterize this research. Pakenham (1998) suggested that congruence may vary by the type of coping strategy couples use, and other researchers have taken up the charge of explicating this proposition (e.g., Badr, 2004; Revenson et al., 2005). However, it is possible that the way couples' coping efforts fit together varies by some mechanism other than type of coping. Perhaps congruence is a function of the relationship climate or whether individuals' appraisals of a stressor match one another, for example. Future research should continue to investigate how the type of coping affects congruence but would also benefit from investigating the possibility that coping congruence may be affected by other relationship or communication characteristics.

Dyadic Coping

Another prevalent coping perspective in extant research is dyadic coping. Like relationship-focused coping and coping congruence, the dyadic coping perspective recognizes that significant others, particularly spouses, play a role in coping with stress. The effects of dyadic stress can be detrimental. For instance, couples may experience marital decline because they communicate less frequently or less effectively, they spend less time together, or they have more health problems – all of which can be caused by dyadic stress (Bodenmann & Shantinath, 2004). Given the potential deleterious effects of stress on relationships, dyadic coping researchers suggested that it is important for couples to have good coping skills because the better they are able to adapt to stress both individually and together, the better their relational outcomes will be (Bodenmann, 1997c). One major goal of stress management is to restore or maintain relational stability, which partners do through coping responses (Kayser, Watson, & Andrade, 2007), both as individuals and as a unit (Badr, Carmack, Kashy, Cristofanilli, & Revenson, 2010). Scholars' interest in coping to stress responses led them to research how spouses cope individually and together.

As part of their response to stress, couples engage in dyadic coping. Dyadic coping has been defined in a number of ways, but all of them include (a) the sending of stress signals from one partner to the other, (b) verbal and nonverbal messages, and (c) coping responses (e.g., Bodenman, 1997a, 1997b, 1997c; Bodenmann, Charvoz, Cina, & Widmer, 2001). Bodenmann (1997a) defined dyadic coping as "the efforts of one or both partners in situations of individual stress which affect the relationship (indirect dyadic stress) or stress within the couple (direct dyadic stress) to engage in a stress management process aimed at creating a new homeostasis" (p. 179-180). Bodenmann (2005) asserted that dyadic coping represents only one way that stress is managed, but other methods, like individual coping and social support, can also be effective. Moreover, dyadic coping should not be viewed as an altruistic response to stress. Rather, partners are motivated to engage in dyadic coping because they are interdependent, so coping alongside one's partner also restores balance for oneself (Bodenmann, 1997b).

Dyadic coping responses can be either supportive or unsupportive in nature, and as such, researchers identified a number of types of dyadic coping (Badr et al., 2010). Generally, they recognized three types of positive dyadic coping and three types of negative dyadic coping (e.g., Bodenmann, 1997a, 1997c; Bodenmann & Shantinath, 2004). The three forms of positive dyadic coping are (a) common dyadic coping, (b) supportive dyadic coping, and (c) delegated dyadic coping (e.g., Bodenmann, 1997c). In *common dyadic coping*, both partners participate somewhat symmetrically in the coping process (Bodenmann, 1997a, 1997b). Examples of common positive dyadic coping include joint problem solving, coordinating everyday demands, joint relaxation, and mutual solidarity (Badr et al., 2010). The second type of positive dyadic coping is *supportive dyadic coping*, in which one partner aids the other with his or her coping (Bodenmann, 1997a), including behaviors like helping with everyday demands, offering information or advice, and providing empathic understanding (Bodenmann, 1997b). Finally, when *delegated dyadic coping* is used, one partner takes over the other person's tasks (e.g., information seeking, daily routines) to reduce his or her stress (Bodenmann, 1997b). Each of these strategies has the potential to reduce the negative effects of stress.

In contrast to the positive dyadic coping strategies, partners can also enact three negative dyadic coping strategies as responses to stress. The first of these strategies is *hostile dyadic coping*, in which one person's stress signals prompt reactions from his or her partner that are marked by disparagement, lack of interest, distancing, or an attempt to minimize the stress (Bodenmann, 1997b; Bodenmann & Shantinath, 2004). Second, partners may respond with *ambivalent dyadic coping*, in which a partner offers support but does so unwillingly. Moreover, the partner is unmotivated and disinterested and projects an attitude that the stress is unnecessary (Bodenmann, 1997b; Bodenmann & Shantinath, 2004). Finally, *superficial dyadic coping* appears helpful but is insincere and does not have any real supportive value (Bodenmann, 1997b). Partners using this strategy engage in behaviors like asking questions without listening and offering support without empathy (Bodenmann & Shantinath, 2004). These strategies, unlike the positive coping strategies, may not diminish the effects of stress, especially if the stressed partner recognizes the insincerity behind the responses.

One strength of the dyadic coping approach is that it identifies particular strategies that are both helpful and harmful for couples' outcomes. Although previous research establishes that problem-focused methods are often more effective than emotion-focused ones, dyadic coping research achieves a higher level of precision in differentiating between positive and negative strategies and distinguishing between common, supportive, delegated, hostile, ambivalent, and superficial dyadic coping. For example, coping symmetrically as a couple (i.e., common dyadic coping) and engaging in supportive actions (i.e., supportive dyadic coping) have different effects on both the individual and the dyadic level, so lumping them together offers an inaccurate picture of the outcomes of these coping efforts. This level of specificity was novel for the coping literature, and it impacted the coping research that followed it.

However, one considerable limitation of dyadic coping research is that it focuses only on the marital couple as a unit that can cope together. Researchers who investigate dyadic coping offer reasonable explanations for their choice to study spouses; for example, the marital partner is in close proximity, so stress uniquely affects that person. Moreover, spouses are interdependent, so they are mutually influenced by one another's outcomes (Bodenmann, 1997b). As such, marital couples are a logical choice as a unit of study. Nevertheless, individuals may cope with members of their social networks other than their spouses. For instance, parents may cope with their children following a divorce (e.g., Afifi et al., 2006), or partners may choose to cope with peers who have similar experiences rather than coping with their spouses (Rossetto, 2014). Therefore, although spouses play an important role in the coping process, they may not be the only social network members who influence coping outcomes, a possibility not accounted for in dyadic coping literature.

Communal Coping

A final framework for understanding coping responses, and the framework that will be used in this study, is communal coping. Similar to other approaches that followed the stress and coping perspective, communal coping researchers recognize the role of others in the coping process. In the earliest literature on communal coping, scholars began to extend social support literature, in which individuals *respond* to stressors together, to the idea of communal coping, which also includes an appraisal of shared *ownership* of the stressor (e.g., Berg, Meegan, & Deviney, 1998; Hobfoll, Dunahoo, Ben-Porath, & Monnier, 1994; Wells, Hobfoll, & Lavin, 1997). Unique to the communal coping perspective is the notion that reducing emotional distress is not the only motivation behind engaging in coping with others. Social motivations (e.g., relational maintenance or development) also exist (Lyons et al., 1998). Therefore, when people engage in communal coping, they do so not only to improve their circumstances or to reduce their emotional stress, but also as a way to address their relationships.

Under the umbrella term of "communal coping," a number of theories have been advanced including the social-contextual model of coping (Berg et al., 1998), the multiaxial model of communal coping (Buchwald, 2003; Hobfoll et al., 1994; Wells et al., 1997), and the social stage model of coping (Pennebaker & Harber, 1993). Lyons and her colleagues (1998) proposed the iteration of communal coping theories used most frequently in communication scholarship. They defined communal coping as "the pooling of resources and efforts of several individuals (e.g., couples, families, or communities) to confront adversity" (p. 580) and as "a process in which a stressful event is substantively appraised and acted upon in the context of close relationships" (p. 583). These definitions include two important elements: (a) the stressor is perceived as shared, or co-owned, by a group, and (b) the group responds to the stressor through collective action (Afifi et al., 2006; Lyons et al., 1998).

When individuals engage in communal coping, they not only access others for social support, but they and their social network members also experience the stressor as shared (Lyons et al., 1998). That is, for individuals to truly engage in communal coping, not only must they participate in joint action toward a problem, but they must also perceive the stressor as one that they co-own. Communal coping, therefore, involves the process of managing a shared stressor through joint action. This framework can be most readily applied to a group of people experiencing an acute stressor together, like a natural disaster, but it can also explain coping processes among social groups like families (Afifi et al., 2006; Koehly et al., 2008).

Different types of coping can be classified along the two dimensions that characterize communal coping: appraisal and action. *Appraisal* addresses ownership of the stressor (Afifi et al., 2006; Koehly et al., 2008). When a stressful event occurs, individuals ask themselves, “whose problem is this?” The answer could be “mine,” “yours,” or “ours.” For coping to be communal, at least one person must appraise the stressor as shared, or as “our problem.” *Action* addresses responsibility for the stressor (Afifi et al., 2006; Koehly et al., 2008; Lyons et al., 1998), in which individuals respond to the event and its consequences either individually or together (Buchwald, 2003). Here, they ask themselves, “whose responsibility is this?” If coping is communal, then the stressor should be perceived as “our responsibility.” In other words, the group of individuals takes action together to manage the stressor and reduce its negative effects when they engage in communal coping.

The appraisal dimension primarily concerns individuals’ cognitions about a stressor, addressing their thoughts about the event rather than their behaviors toward it (which are addressed in the action dimension). In particular, the appraisal dimension addresses individuals' thoughts about who owns the stressor: me, him/her, you, or us (Afifi et al., 2006). When individuals believe that they share a problem, they also believe that they have some co-ownership of it. In a study of patients and their loved ones, McSkimming and colleagues (1999) found that individuals expressed sentiments like, "it's my illness too." Because they also experienced the stressor, they felt some possession of it. Along the appraisal dimension, then, individuals have some degree of individual or shared ownership of a stressor.

The action dimension of communal coping reflects who is responsible for the stressor (Lyons et al., 1998). This dimension is behavioral and is not concerned with what individuals *believe* about the stressor. Rather, the action dimension addresses what they *do*, either individually or collectively, to decrease the stressor's negative impact. When individuals act on the stressor together, they engage in joint action. This manifests in a variety of ways. An individual with an illness may make a doctor's appointment, and then his or her spouse may drive the patient to the appointment. Conversely, someone who is feeling stressed may seek out a friend to talk to, and if that friend is receptive and engages in emotionally supportive actions, they are acting jointly to decrease the impact of the stressor. These two examples illustrate that the individuals do not need to engage in the *same* action toward the stressor, but they do all need to take some coordinated actions to ameliorate its effects (Lyons et al., 1998).

The dimensions of appraisal and action are particularly useful for distinguishing communal coping from individual coping and from support behaviors. The appraisal dimension ranges from "my/your problem" to "our problem" and crosses the action dimension, which ranges from "my/your responsibility" to "our responsibility." Together, the dimensions create four quadrants, which represent individual coping (my/your problem, my/your responsibility), support seeking (my/your problem, our responsibility), parallelism (our problem, my responsibility), and communal coping (our problem, our responsibility; Lyons et al., 1998; see Figure 2.1). The distinctions among these are discussed in the paragraphs that follow.

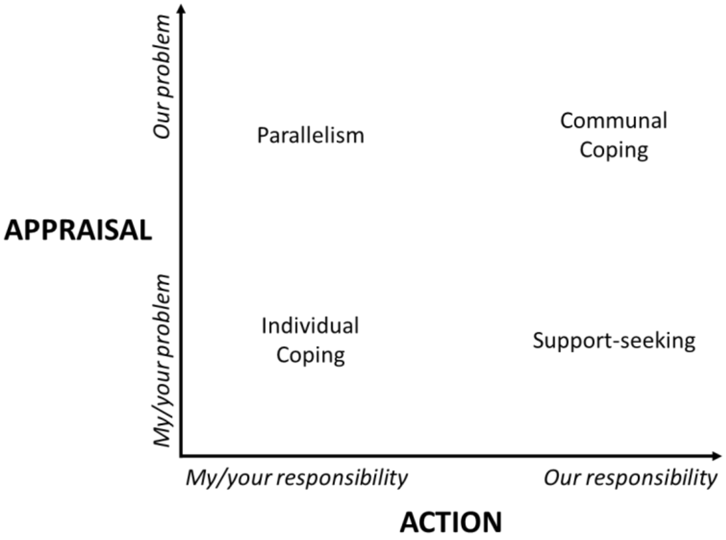

Figure 2.1. Communal coping typology as proposed by Lyons et al. (1998).

When an individual appraises a stressor as his or her problem *and* views it as only his or her responsibility to manage, he or she engages in individual coping. Although Lyons et al. (1998) discuss individual coping in terms of an event that happens to only one person, two (or more) individuals could experience the same stressor and still engage in individual coping if both individuals appraise the same stressor as a personal problem and use separate ways of coping with it (Afifi et al., 2006). In a family under financial strain, for example, each parent could perceive him- or herself as the cause of the problem (i.e., my problem) and could take individual action to bring in extra money (i.e., my responsibility).

In contrast to sharing both appraisal and action, some individuals *either* appraise the stressor as co-owned, *or* they engage in collective action to reduce the negative effects of the stressor (Afifi et al., 2006; Koehly et al., 2008; Lyons et al., 1998). When individuals perceive that a stressor is “our problem” but “my/your responsibility,” they engage in what Afifi et al. (2006) label either protective buffering or parallelism. Here, despite the shared appraisal of the stressor, they either choose to cope alone to protect the other person (e.g., a parent protecting his or her child by not engaging in information-seeking together), or they each engage in different coping strategies alone to address the stressor. In contrast, when a stressor is appraised as one person’s problem (i.e., mine or yours) but as a communal responsibility, individuals offer or seek social support. A large body of work focuses on social support (e.g., Goldsmith & Fitch, 1997; Thoits, 1985), in which individuals address a stressful event together, even when they do not appraise the stressor as shared.

Finally, when individuals engage in communal coping, they appraise the event as shared, and they take action together. When true communal coping occurs, individuals perceive the stressor to be co-owned by others in their social group (e.g., family, community). In addition, they view the problem as their responsibility, so they take joint action to address it. As such, the stressor is treated communally both cognitively and behaviorally. A community that has experienced a natural disaster, for instance, may think of it as “our problem” together, not as each person’s problem individually, so they engage in shared appraisal. At the same time, they may coordinate their cleanup and rebuilding efforts, rather than leaving that burden to a select group of people, so they also engage in joint action.

Scholars have used communal coping as a framework for understanding couples’, families’, and communities’ coping responses. Generally, researchers conclude that communal coping is beneficial for personal and relational outcomes. For example, individuals who engaged in “we-talk” (i.e., talking about themselves as a unit, rather than as individuals functioning in isolation) had better social outcomes (Lawrence & Schigelone, 2002) and were better able to maintain healthy behaviors (Rohrbaugh, Shoham, Skoyen, Jensen, & Mehl, 2012). Similarly, family members who coped together by sharing resources experienced less anxiety and somatization (Koehly et al., 2008). Moreover, some researchers suggested that communal coping is a helpful way to deal with uncertainty (Afifi, Afifi, & Casillas, 2011; Afifi, Felix, & Afifi, 2012). In one study, communal coping moderated the relationship between mental health and uncertainty such that those with low communal coping had a larger decrease in mental well-being under conditions of high uncertainty than did those with moderate or high communal coping (Afifi et al., 2012). In a second study, survivors of a natural disaster used communal coping to manage their collective uncertainty experiences (Afifi et al., 2011). Although this body of work is relatively small, it demonstrates the utility of communal coping as a framework for understanding the coping process.

Although communal coping is certainly not the first framework to acknowledge the role of the social network in the coping process, it is the first to recognize that individuals may have relational motivations for coping (Lyons et al., 1998). Although it is likely that individuals engage in coping processes to reduce their emotional distress, it is not their only reason for doing so. Lyons and her colleagues (1998) proposed five possible motivations for engaging in communal coping that are not related to stress management: (a) relational maintenance and development, (b) the well-being of others, (c) the benefit of the collective, (d) social integration, and (e) the excitement of overcoming adversity together. These additional motivations opened the door for researchers to examine the impact of coping on stress in addition to its influence on relational or social outcomes.

A benefit of the communal coping model is that it incorporates not only communal coping as a response to stress, but also social support and individual coping. Although dyadic coping research recognizes that dyadic coping is only one option for managing stress, it does not incorporate any other options for coping into its conceptualization. In contrast, the communal coping model nominates communal coping as only one of four options for addressing the impact of stress. Perhaps more importantly, Lyons et al. (1998) explicitly acknowledge that communal coping may not always be the most optimal strategy for coping. They suggest that communal coping could be risky because benefits may not be equally distributed, this type of coping may limit individual adaptation, and individuals coping together may experience stress contagion. These potential disadvantages of communal coping make it even more important that other coping strategies are integrated into the model.

Addressing the Limitations of the Communal Coping Model

Despite the strengths of the communal coping model, it is constrained by some limitations. The appraisal dimension of communal coping, for instance, has not been fully conceptualized in previous research. Explications of the appraisal dimension simply say that it “represents variations in the extent to which a problem is construed as individually or jointly owned” (Afifi et al., 2006, p. 379) or that co-ownership occurs when “one or more individuals perceive a stressor as ‘our’ problem” (Lyons et al., 1998, p. 583). In addition, the communal coping typology (Figure 2.1) has not been systematically tested. Although researchers have identified all four types of coping in qualitative research, quantitative assessments to date have not validated the existence of the four strategies of coping along the two theoretical dimensions (i.e., appraisal and action). In the following sections, each of these limitations is explained with research questions designed to address them.

Explicating the Appraisal Dimension of Communal Coping

Although the communal coping perspective is useful for understanding coping in social groups, parts of the theory remain misunderstood. In particular, the appraisal dimension (i.e., whether a stressor is individually or jointly "owned") is not well understood in the context of coping. Theoretical explanations of communal coping do little to conceptualize what it means to individually or jointly "own" a stressor. Furthermore, quantitative tests of the theory often either ignore the co-ownership element of communal coping, focusing only on shared action, or they simply ask participants to what extent they feel that the stressor was shared (e.g., Afifi et al., 2012). Although the latter method of assessment acknowledges that co-ownership plays a role in communal coping, it does not help scholars to conceptualize what appraisal means to those who experience it. It is currently unclear, for example, what cognitions or communication behaviors characterize individual versus shared ownership of a stressor. Shared appraisal is as critical to the conceptualization of communal coping as joint action, so ignoring or minimizing the role of appraisals shifts scholars away from communal coping and toward related (but different) concepts (e.g., social support). Therefore it is important to understand and validly assess appraisals of sole or shared ownership. A critical step toward validly operationalizing the concept of co-ownership is to work toward a more fully formed conceptualization of it. In this dissertation, I investigate the appraisal dimension in one particular context: coping with type 2 diabetes.

The management of type 2 diabetes is often shared with family members (e.g., Anderson et al., 1990). Two studies have investigated the ways that spouses, in particular, can share in type 2 diabetes management. Miller and Brown (2005) discovered three ways that spouses adapted to the diabetic diet: (a) cohesive, (b) enmeshed, and (c) disengaged. Couples who were cohesive took a teamwork approach and completed tasks together through clear rules and open communication. In enmeshed couples, the nondiabetic spouse was primarily responsible for the diet, and the diabetic spouse was dependent on him or her. Finally, disengaged couples were functionally separate in diet management, and the patient assumed primary responsibility for disease-related responsibilities. Similarly, Yorgason and colleagues (2010) observed that couples handled problems either individually, in a fully shared nature, or with a mix of these two strategies. When teamwork was emphasized in these couples, they were able to cope positively and make shared decisions, but couples had different perspectives on whether teamwork was necessary for effective disease management. Both of these studies emphasize that a tension may exist between individual and collective disease management for patients and their spouses. Moreover, this body of work illustrates that there is variability in how patients and families manage type 2 diabetes.

Although communal coping in general, and shared appraisal more specifically, have not been examined in the context of type 2 diabetes, the above research suggests that ownership is likely a salient experience for individuals with type 2 diabetes and their family members. Toward that end, the first research question asks how individuals experience individual or co-ownership of a stressor (i.e., the diagnosis and management of type 2 diabetes). One goal of this research question is to gain an understanding of how people living with type 2 diabetes and their family members create meaning about their management of the disease. Goldsmith and colleagues (e.g., Goldsmith, Lindholm, & Bute, 2006; Goldsmith, Bute, & Lindholm, 2012) discussed how communication following a cardiac event can be construed either positively, by showing support, or negatively by threatening autonomy or asserting unwanted control. Given Goldsmith’s work, it is important not only to investigate how people with type 2 diabetes communicate with their family members, but also the meaning that they attach to their interactions. Here, the goal is to gain an in-depth understanding of appraisal by examining how individuals with type 2 diabetes and their family members experience ownership of the stressor, including the perceptions and behaviors that characterize individual and shared appraisal.

RQ1: How do people with type 2 diabetes and their family members experience individual and/or shared ownership of the illness?

Validating the communal coping typology. Lyons et al.'s (1998) original theorization of communal coping crossed the two dimensions of appraisal and action to create a typology of four quadrants, each containing a different type of coping: individual coping, parallelism, support seeking, and communal coping (Figure 2.1). Although coping could be measured as four distinct types, it could also be measured along the two continuous dimensions of appraisal and action to provide information about how people cope when a stressor is more or less co-owned or more or less jointly acted upon. Scholars have debated the relative merits of using typological approaches versus continuous dimensions in the measurement of various concepts (e.g., Haslam, 1994; VanLear, Koerner, & Allen, 2006). A critical task facing communal coping researchers is to determine the best approach to studying coping.

Theoretically, communal coping has been conceptualized as qualitatively distinct from the other types of coping. However, this conceptualization has yet to be statistically tested, so it is unclear how it matches how people think about coping. Perhaps it is true that individuals can distinguish between individual coping, support seeking, parallelism, and communal coping. Conversely, it is also possible that a more accurate representation of their understanding of coping is along continuous dimensions in which they think of stressors as more or less shared, and they take more or less collective action toward reducing the effects of that stress.

Researchers have not yet offered statistical support for the typology proposed by Lyons et al. (1998). Therefore, the following research question is offered:

> RQ2: Do data from people with type 2 diabetes support a typological approach to the communal coping model?

Relationships among Family Characteristics, Dimensions of the Communal Coping Model, and Individual Outcomes

Although some type 2 diabetes research focuses exclusively on the physiological or medical aspects of the disease, much of the work on T2D takes into account the psychosocial characteristics that influence or are influenced by this illness. Psychosocial characteristics consider the interaction between the individual and his or her environment, including relationships with family, friends, and other social network members. Some researchers consider coping responses, focusing especially on identifying the coping strategies that individuals with T2D use (e.g., DeCoster & Cummings, 2005; Handron & Leggett-Frazier, 1994; Jayne & Rankin, 2001; Lewis et al., 1989; Tuncay, Musabak, Gok, & Kutlu, 2008). Scholars have found that generally, a helpful way of organizing coping methods is to use the typology of problem-focused versus emotion-focused coping. Although both methods may improve patients' outcomes, problem-focused coping is generally more helpful for improving general well-being (Kvam & Lyons, 1991; Peyrot, McMurry, & Kruger, 1999). In fact, emotion-focused coping is associated with negative outcomes in some studies, including poorer diabetic control (DeCoster & Cummings, 2005) and psychological well-being (Karlsen, Idsoe, Hanestad, Murberg, & Bru, 2004).

Although T2D scholarship has made significant advances in understanding how people with T2D cope with the disease individually, it has not considered how social network members cope together. Much of the extant research on coping with T2D is individually focused, perhaps because some of these scholars call on stress and coping paradigms, which concentrate on the psychological processes of coping and de-emphasize the relational ones. However, both coping and T2D researchers have recognized that coping does not occur in a social vacuum. Rather, individuals in social groups (e.g., families, romantic partnerships) affect and are affected by one another's stress (e.g., Coyne, 1976; Coyne, Thompson, & Palmer, 2002; Rohrbaugh et al., 2002). Research on the coping strategies of individuals with type 2 diabetes and their family members, then, should consider the role of others in the coping process. Toward that end, one goal of this study is to investigate how family characteristics are related to coping responses, and in turn, how coping is related to individual outcomes. Using the framework of communal coping, my objective is to investigate whether features of the family affect individual or joint ownership of and individual or joint action toward one person's T2D, as well as whether ownership and action affect the individuals' diabetes-specific outcomes.

Type 2 diabetes researchers have examined the main effects of family characteristics on individual outcomes. Family conflict, for instance, was associated with worse self-care (Gonder-Frederick et al., 2002) and difficulty with adherence (Cox & Gonder-Frederick, 1992; DiMatteo, 2004). In addition, protective family features were associated with outcomes like better disease management (Fisher et al., 1998), lower depressive symptoms (Chesla et al., 2004), better adherence (DiMatteo, 2004; Fisher et al., 2004), better physical functioning (Trief, Grant, Elbert, & Weinstock, 1998), and even diabetes prevention in high risk families (Van Esch, Cornel, Geelhoed-Duijvestijn, & Snoek, 2012). Although these associations are important, it is also possible that how families cope (i.e., individually or together) is associated with family characteristics and individual outcomes in a more complex way. In the sections that follow, I offer two conceptual models of the connections among family characteristics, coping, and type 2 diabetes-specific outcomes. In the first model (Figure 2.2), I provide hypotheses and research questions related to the two dimensions of communal coping (i.e., appraisal and action) and their associations with family features and diabetes outcomes. The second model (Figure 2.3) contains the same basic structure but substitutes the four types of coping in the communal coping model (i.e., individual coping, parallelism, support seeking, and communal coping) for the dimensions of coping. I offer the models to conceptualize the associations among the constructs, and I first tested each hypothesis and research question in the models separately to gain insight into the relationships among the concepts. Then, I tested the models using structural equation modeling. The hypotheses and research questions that I introduce below are grounded in the literature on coping with T2D and a dimensional conceptualization of communal coping.

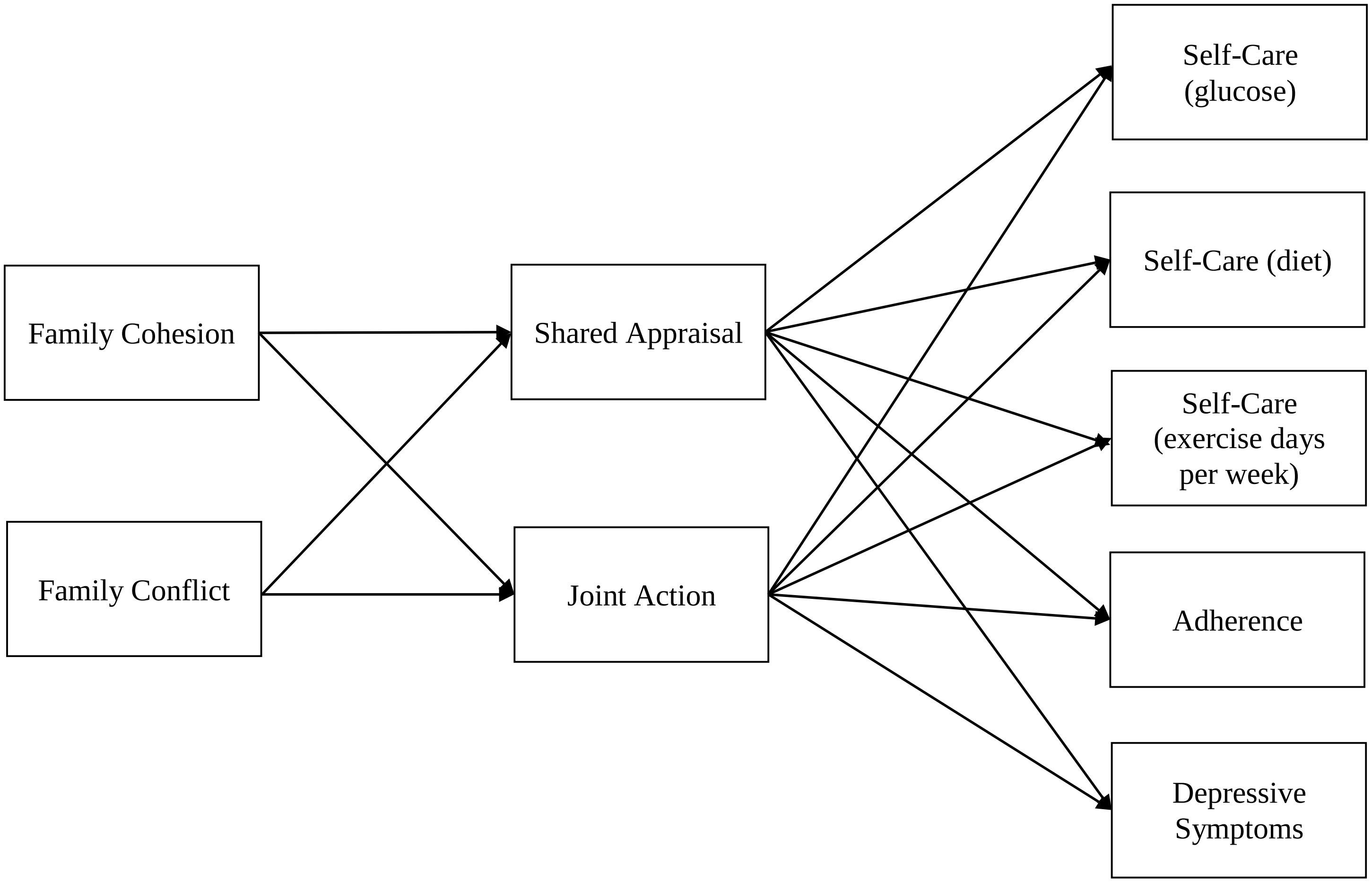

Figure 2.2. The proposed conceptual model assessing the relationships among family characteristics, the dimensions of coping and individual diabetes-related outcomes.

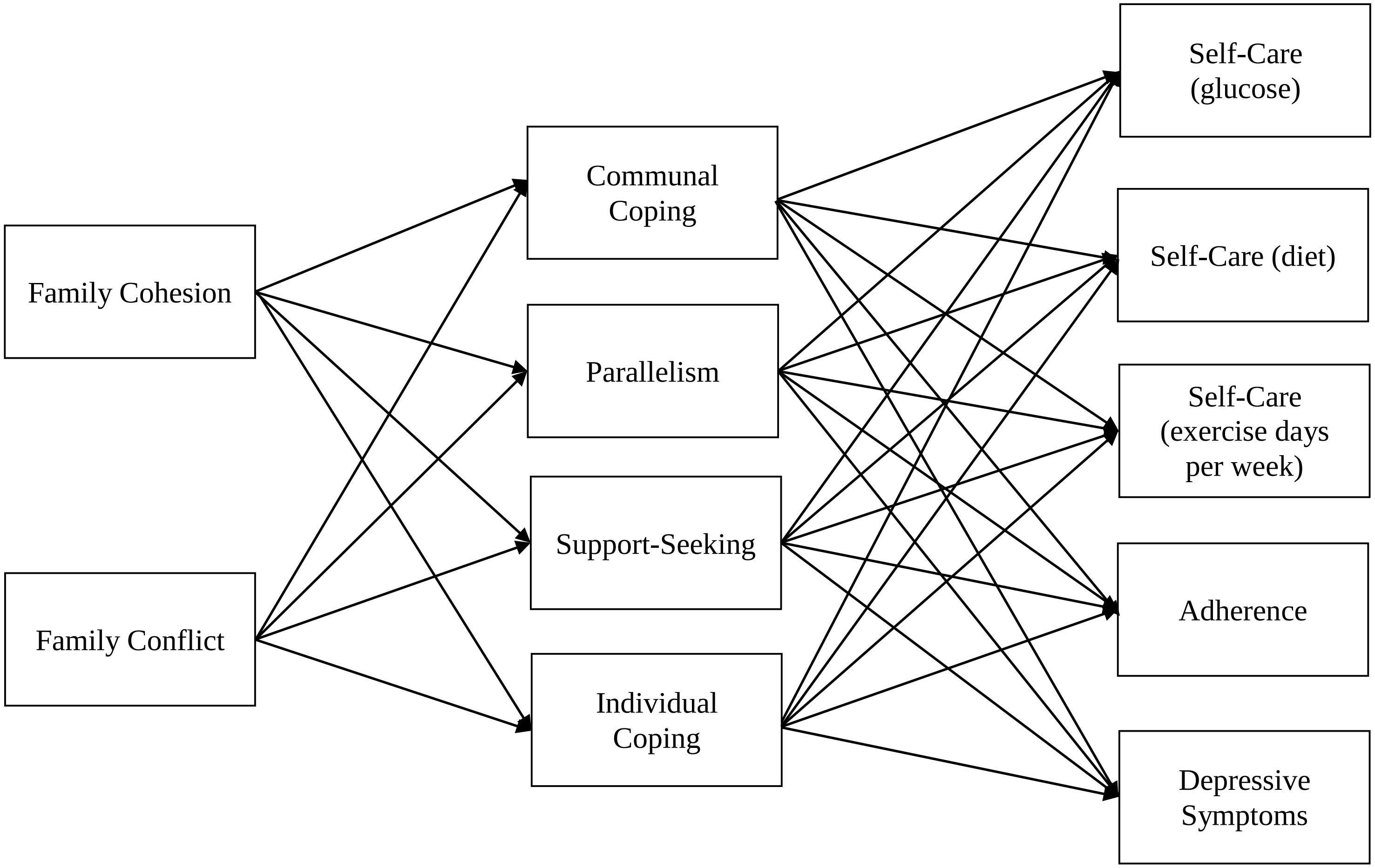

Figure 2.3. The proposed conceptual model assessing the relationships among family characteristics, the types of coping and individual diabetes-related outcomes.

Family Characteristics as Predictors of Coping

Families have received a great deal of attention as a context of care for type 2 diabetes. Researchers recognize that families and disease management are mutually influential. For example, interventions with the family are often geared toward improving physiological outcomes, which are related to family functioning such that poor family functioning is related to negative health outcomes (Campbell, 2003). Moreover, family has a large influence on a patient's response to diagnosis, management of the disease, and rate of relapse (Fisher et al., 1998). Unfortunately, a diagnosis of type 2 diabetes is often associated with a reduction in family function and social life (Koopmanschap, 2002). As such, family members must engage in coping processes to restore balance to their family system. In this section, I explore how family characteristics are related to coping, and I propose hypotheses and research questions about the relationships among family characteristics and the appraisal and action dimensions of the communal coping model.

A number of scholars have adopted a systems perspective in studying how type 2 diabetes affects families, suggesting that chronic disease affects the well-being of all family members, not only the diabetic individual (Fisher et al., 1998). These researchers talk about the family as the setting of disease management, acknowledging that even when the individual visits the doctor alone or is primarily responsible for his or her own care, the environment in which he or she enacts the disease is the family (e.g., Fisher & Weihs, 2000). Fisher and colleagues (1998) proposed a framework for disease management in which patient characteristics, stress, and characteristics of the doctor-patient relationship all affect the family context of care, which in turn influences the patient's disease management. Moreover, several interventions focus specifically on the family (e.g., Grey, Knafl, & McCorkle, 2006), educating the family about the illness and discussing issues as a family (Gonzalez, Steinglass, & Reiss, 1989), and engaging in social problem solving to prepare for the negative influences that family members may have (Grey & Berry, 2004). These family interventions have been effective at improving patient outcomes, especially for patients with the poorest diabetic control (Wysocki et al., 2006).

Non-diabetic family members may experience some negative outcomes when there is a type 2 diabetic family member. They may feel uncertainty, for example (Middleton, LaVoie, & Brown, 2012). The presence of type 2 diabetes can also affect the emotional well-being of non-diabetic family members. Although most of the emotional outcomes for family members are negative (e.g., depression, marital distress), some positive influences may also occur, like positive affect associated with increased family cohesion (Rubin & Peyrot, 1992). In addition, the patient's interpersonal interactions with family members may be affected by physiological experiences, like low blood sugar episodes, which may cause turbulent interactions (Trief et al., 2003). These interactions may influence family functioning, which also may impact the patient's outcomes.

Many researchers have investigated how the family influences the patient's outcomes, paying particular attention to the protective and risk factors that families present. For example, one family characteristic that consistently has a protective impact on the diabetic family member's health outcomes is family cohesion (Chesla et al., 2004; DiMatteo, 2004; Fisher et al., 1998; Trief et al., 1998). Conversely, research has also identified many risk factors for negative health outcomes in the families of individuals with T2D. Low family cohesion (Gonder-Frederick et al., 2002; Weihs et al., 2002), lack of family support (Weihs et al., 2002), and poor family communication (e.g., criticism and blame; Campbell 2003; Fisher, Thorpe, DeVellis, & DeVellis, 2007) are all predictive of poor health outcomes. Perhaps the most common risk factor in this body of work is family conflict (Chesla et al., 2004; Cox & Gonder-Frederick, 1992; DiMatteo, 2004; Fisher et al., 1998; Gonder-Frederick et al., 2002; Weihs et al., 2002), which has been associated with a host of negative disease-related outcomes. Of note, decreasing risk factors may improve outcomes even more than increasing protective factors in interventions (Fisher & Weihs, 2000); therefore, scholars must be aware of both types of family characteristics and their potential impact on the diabetic family member.

In this study, I focus specifically on how two family characteristics (i.e., family cohesion, family conflict) affect coping responses. Figure 2.2 depicts a conceptual model of the relationships among family characteristics, coping, and individual outcomes. Family features, including those in the hypothesized model, tend to be relatively stable over time. In contrast, coping responses tend to shift from situation to situation (e.g., Folkman & Lazarus, 1980, 1985; Folkman et al., 1986). Therefore, it is likely that features of the family influence coping responses, rather than the opposite. In the paragraphs that follow, I review research on each of the family features in the model and propose hypothesized associations between coping and family cohesion and conflict.

Family cohesion. Family cohesion refers to the connection that family members have to each other, or “the emotional bonding that family members have toward one another” (Olson, 2000, p. 145). Families with a high degree of cohesion have fluid communication boundaries and are emotionally involved with one another, whereas families with less cohesion prioritize independence and autonomy (Davies, Cummings, & Winter, 2004; Jacobvitz, Hazen, Curran, & Hitchens, 2004). Families that are too cohesive may become enmeshed, whereas families with little cohesion may become disengaged, so extremes of cohesion may not be advantageous to the family or its individual members (Olson & Gorall, 2006). Enmeshed families, for instance, may be overly involved in each other's lives, and individual growth may be sacrificed for the family (Parker, Hill, & Goodnow, 1989). In contrast, disengaged families may be emotionally detached and offer little support (Davis et al., 2004; Parker et al., 1989). However, there is little evidence that nonclinical samples exhibit extreme (i.e., either too high or too low) levels of cohesion (e.g., Green, Harris, Forte, & Robinson, 1991; Green, Kolevzon, & Vosler, 1985; Olson, 1991). Generally speaking then, families that exhibit high cohesion are interdependent but also maintain a strong sense of individual identity, and high cohesion benefits individual family members and the family as a whole.

Communal coping studies to date have rarely quantitatively studied the appraisal dimension of the communal coping model. Those that do simply ask participants to what extent they feel that the stressor was shared (e.g., Afifi et al., 2012), which gives researchers little indication of the cognitions and behaviors associated with individual or shared appraisal. However, research does indicate that individuals who have shared appraisals of a stressor also have some perceptions that they are not the sole person with some stake in the problem. In at least some cases, people recognize that others are also affected by its existence and feel some sense of ownership. According to the communal coping model, when individuals engage in shared appraisal of a stressor, they think of it as "our problem," rather than "my/his/her/your problem" (Afifi et al., 2006; Lyons et al., 1998). In families with high levels of cohesion, family members prioritize the family unit over the individual (Olson, 2000). Moreover, cohesive families feel emotionally close to one another, so it follows that families with high cohesion may also be more likely to share stressors (i.e., think of them as "our problem") than to appraise them as individually owned (i.e., "my/your/his/her problem"). Therefore, a positive relationship between cohesion and shared appraisal is expected in families coping with type 2 diabetes.

H1: Family cohesion is positively associated with shared appraisal.

One hallmark of families that exhibit cohesion is a sense of togetherness. Olson (2000) called these “connected relationships” (p. 145) and described them as emotionally close and loyal. Families marked by closeness are more likely to engage in activities together and spend time with one another than are disconnected families (Olson, 2000). As such, when families cope together rather than individually, they may engage in coping activities together. Specific to type 2 diabetes, for example, family members may prepare meals or exercise together. Although the relationship between cohesion and coping has not been empirically tested, theoretical reasoning suggests that families that are more connected are more likely to engage in joint action to reduce the negative impact of the stress. Indeed, family cohesion is associated with positive physical and emotional outcomes for people with type 2 diabetes (Cox & Gonder-Frederick, 1992; Fisher et al., 1998; Trief et al., 1998). Cohesive family members may work together out of a sense of emotional involvement or interdependence (i.e., the sense that one person’s issues affect the rest of the family as well). Given this reasoning, the second hypothesis predicts a positive relationship between family cohesion and joint action toward a stressor. Stated formally:

H2: Family cohesion is positively associated with joint action.

Family conflict. The impact of conflict has been well documented by communication and family scholars. Although conflict can be positive or negative (Canary & Canary, 2014), research in the context of type 2 diabetes focuses on conflict as a negative communication event. Toward that end, type 2 diabetes researchers have investigated the relationship between family conflict and individual T2D outcomes. This work suggests that conflict makes disease management difficult (e.g., Fisher et al., 1998). Cox and Gonder-Frederick (1992), for example, found that conflict predicted difficulty adhering in children. In a meta-analysis, DiMatteo (2004) echoed these results, suggesting that the odds of nonadherence in families with high frequency of conflict is 2.35 times higher than in families with lower conflict. Chesla et al. (2004) suggested that unresolved family conflict was related to higher depressive symptoms, greater impact of the disease, and lower satisfaction with family relationships. Conflict in a family in which one person has type 2 diabetes has the potential to contribute to challenges associated with managing the disease.

Communication and family scholarship more generally asserts that conflict is characterized by the presence or perception of incompatible goals (Deutsch, 1969). Although some conflicts occur only during one communicative episode, many span multiple interactions. Roloff and colleagues (e.g., Johnson & Roloff, 1998; Malis & Roloff, 2006) term these interactions *serial arguments*. In serial arguments, the incongruity among individuals' goals may be particularly salient, which generally has a negative influence on the relationship. The incongruence of goals is related to perceived resolvability, or individuals' beliefs that the conflict could end (Malis & Roloff, 2006). When partners believe that their goals are perpetually incompatible, they also perceive that their conflicts are not resolvable. Roloff and colleagues have investigated the impact that perceived resolvability of serial arguments has on relationships. Generally, the effects of thinking a conflict is not resolvable are negative. For instance, in the face of serial arguments, individuals' commitment to the relationship lessened, and they withdrew from their partner (Roloff & Johnson, 2002). In addition, perceived resolvability of serial conflicts was positively associated with relational quality and negatively related to temporary withdrawal from the partner (Johnson & Roloff, 1998). Together, these findings suggest that when perceived resolvability is low, the climate of the relationship is characterized by withdrawal and negativity.

In two studies, serial arguments were examined in relation to individual coping strategies (Johnson & Roloff, 2000; Malis & Roloff, 2006). Malis and Roloff (2006) found that selective ignoring was a helpful strategy for managing serial arguments, perhaps because participants engaging in this strategy realized that the conflict would not be resolved, so thinking about it or addressing it was not helpful. Given this reasoning, family members who perceive that their conflicts are not resolvable are unlikely to appraise a stressor as shared. Serial arguments are characterized by the presence or perception of incompatible goals about a particular issue recurring over time. In the context of type 2 diabetes management, for instance, myriad options and recommendations are available for treatment of the disease, including dietary, exercise, and medication regimens. Family members may not only disagree about the most appropriate option for treatment, but they may also experience conflict over who should make treatment decisions. If their conflicts about such issues recur and are not perceived as resolvable, it is unlikely that the family members will share an orientation toward the stressor, as their communication environment may be characterized by frustration or withdrawal. Therefore, the third hypothesis predicts a positive association between perceived resolvability and shared appraisal of family members' type 2 diabetes.

H3: Perceived resolvability of conflicts is positively associated with shared appraisal.

In conjunction with the above line of reasoning, families that engage in conflict, especially serial conflict, about one family member's type 2 diabetes are also unlikely to engage with one another in an effort to ameliorate the negative effects of the illness. Roloff and Johnson's (2002) work suggests that withdrawal from the source of stress is generally perceived to be a helpful strategy for coping, perhaps because interactions about conflict topics are unpleasant and call attention to discord in the family. Given this reasoning, if recurring conflict episodes about the family member's type 2 diabetes are perceived to be irresolvable, families may not perceive a communication environment that is conducive to engaging in the supportive behavior that is required of shared coping responses. Accordingly, the fourth hypothesis predicts a positive relationship between perceived resolvability and joint action toward a stressor.

H4: Perceived resolvability of conflicts is positively associated with joint action.

Coping as a Predictor of Individual Outcomes

Type 2 diabetes is diagnosed and experienced at least in part at the individual level. Although the family may participate in disease management and may be affected emotionally or mentally by the process of coping with the disease, the physiological experience ultimately belongs to the patient. Therefore, a number of outcomes specifically related to the individual management of type 2 diabetes have been considered in previous research. Most commonly, researchers focus on self-care (e.g., Wilkinson et al., 2014), adherence to a diabetes care regimen (e.g., Tillotson & Smith, 1996), and depressive symptoms (e.g., Rubin & Peyrot, 1992). Each of these is considered in the paragraphs that follow.

Self-Care. Self-care, sometimes referred to as self-management, refers to the corpus of behaviors that type 2 diabetes patients engage in to manage their own disease. Because type 2 diabetes is primarily treated through lifestyle behaviors, like diet and physical activity, self-care is a critical component of treatment for this chronic condition. Enhanced self-care is related to many outcomes, including morbidity, mortality, quality of life, family function and lifestyle, healthcare access, and the patient-provider relationship (Grey et al., 2006). Research has found that there are a number of factors that may increase individuals' self-care behaviors. For example, self-confidence (Whittemore, Melkus, & Grey, 2005), self-efficacy (Gonder-Frederick et al., 2002; Wen, Shepherd, & Parchman, 2004), and personal health beliefs (Gonder-Frederick et al., 2002) were all positively related to dietary self-management. Moreover, diabetes knowledge, beliefs/environment, and skills were all positively related to diet, exercise, and glucose testing self-care behaviors (Glasgow et al., 1989). Notably, however, predictors of dietary and exercise self-care are not always the same. For example, self-efficacy was related only to dietary self-care in one study (Whittemore et al., 2005) and to both diet and exercise self-care in another (Wen et al., 2004). Given these relationships, it is important to consider self-care behaviors and their correlates individually.

Although research has identified a number of characteristics that enhance self-care, there are also many potential barriers that can undermine self-care (Wen et al., 2004), including communication, education, personal factors, provider issues, and support (Wilkinson et al., 2014). Individual factors that may hinder self-care behaviors include decreased individual adaptability and learning experiences, physical and psychological factors, finances, personal beliefs (Wen et al., 2004), age, gender (Grey et al., 2006), lack of understanding or knowledge, feelings of helplessness or frustration at glycemic control, continued disease progression despite adherence, and lack of medical resources (e.g., equipment and medicine; Nagelkerk, Reick, & Meengs, 2006). Psychosocial factors including psychological distress, eating disorders (Gonder-Frederick et al., 2002), depression (Gonder-Frederick et al., 2002; Grey et al., 2006), decreased self-efficacy, poor family functioning, lack of quality health care (Grey et al., 2006), and stress (Rubin & Peyrot, 1992) may also hamper diabetic individuals' self-care behaviors or their motivation to engage in self-management.

Adherence. Adherence may include self-care behaviors, but this concept is separate from self-care in that adherence behaviors are mandated by a physician, so adherence refers specifically to whether the patient is following a healthcare professional's recommendations.

Individuals with type 1 versus type 2 diabetes show some differences in adherence (Ary, Toobert, Wilson, & Glasgow, 1986), perhaps because the behaviors they are asked to engage in are somewhat different. Like self-care, adherence may be influenced by features of the regimen itself and psychosocial or environmental factors, including the doctor/patient relationship and social support, especially from family (Anderson, 1990).

Research has identified some individual factors that are positively related to adherence. For example, locus of control (Tillotson & Smith, 1996) and a positive attitude that promotes proactive learning (Nagelkerk et al., 2006) are both predictive of better adherence. Relationally, support from social network members plays an important role in whether people with diabetes adhere to their regimens (Anderson, 1990; Tillotson & Smith, 1996). In addition, barriers that may interfere with adherence include eating disorders (Rubin & Peyrot, 1992), psychosocial distress (Polonsky et al., 1995), and social behaviors like eating at restaurants and inappropriate food offers from others (Ary et al., 1986). Like with self-care, the predictors of adherence to different parts of the type 2 diabetes regimen may be different; for example, environmental factors in one study were related to dietary noncompliance, whereas internal factors were related to noncompliance with the physical activity regimen (Ary et al., 1986). Therefore, it is important to parse out precisely what outcomes these individual and environmental characteristics impact.

Depressive symptoms. Research suggests that there is a high occurrence of depressive symptoms in people with type 2 diabetes (Delamater et al., 2001) and that depression and anxiety are more common in diabetic individuals than in the general population (Koopmanschap, 2002). Major depressive disorder (but not milder depression) was predictive of the incidence of type 2 diabetes in a prospective longitudinal study (Eaton, Armenian, Gallo, Pratt, & Ford, 1996). Moreover, depression is associated with worse physiological outcomes, decreased quality of life

(Delamater et al., 2001), and poor metabolic control (Fisher et al., 2007); thus, diabetes may influence not only the individual's psychological well-being but also his or her disease-specific outcomes. As such, it is important to understand what may contribute to the presence of depressive symptoms. A few researchers have explored the individual and social correlates of depressive symptoms in people living with type 2 diabetes. For example, positive orientation, active self-care, and seeking social support have all been linked with fewer depressive symptoms (Cheng & Boey, 2000). Depressive symptoms, therefore, are related to both the onset and the outcomes of type 2 diabetes.

It remains unclear in previous research whether co-ownership is helpful for individuals managing a chronic illness. Arguably, individual ownership may be beneficial because if the patient primarily appraises the disease as "mine," then he/she may be more inclined to engage in individual behaviors for managing the disease. If T2D patients individually own their disease, there is little risk of problematic interactions with other family members because coordination of the disease is not shared. However, it may also be helpful to appraise a stressor as "ours" because if the disease is shared, some of the burden of the chronic illness is lifted from the patient. Given the dearth of research about whether co-ownership of a chronic illness is beneficial, the following research question is posed about the relationship between appraisal and individual outcomes:

RQ3: What are the associations between shared appraisal and patients' self-care behaviors (RQ3a), adherence (RQ3b), and depressive symptoms (RQ3c)?

Some researchers have considered how social network members influence self-care, adherence, and depressive symptoms. Studies of all three outcomes suggested that the support of others is positively related to self-care (Wilkinson et al., 2014) and adherence (Anderson, 1990;

Tillotson & Smith, 1996) and negatively related to depressive symptoms (Cheng & Boey, 2000). Specifically, Wilkinson et al. (2014) observed a theme in previous work that when significant others were uneducated about the dietary requirements of T2D, they were a hindrance to self-care, whereas significant others who were educated could become “self-management partners,” engaging in self-care alongside the patient (p. 116). Similarly, Tillotson and Smith (1996) found that when social network members reminded and encouraged patients about elements of their diabetes regimen, it aided their adherence. Finally, when patients sought out support from family members and friends, they reported lower levels of depressive symptoms (Cheng & Boey, 2000). These studies illustrate how joining together to manage the disease may help patients experience better individual outcomes.

Although social support (examined in the studies described above) is not equivalent to communal coping, it is conceptually similar to the action dimension of the communal coping model. In the action dimension, individuals act on a stressor (in this case, the management of type 2 diabetes) either as “my/your responsibility” or as “our responsibility.” When it is the former, the patient may take individual action toward managing his or her disease (e.g., taking sole responsibility for cooking meals that fit within the dietary demands), whereas the latter would constitute joint action (e.g., going for daily walks together to comply with a physician’s exercise recommendations). The studies reviewed above suggest that joint action is likely related to better individual outcomes. Therefore, based on previous work about T2D individual outcomes and their correlates, the following hypothesis is proposed about the action dimension of the communal coping model:

H5: Joint action toward a stressor is positively associated with patients' self-care behaviors (H5a) and adherence (H5b) and negatively associated with depressive symptoms (H5c).

Relationships among Family Characteristics, Types of Coping, and Individual Outcomes

The hypotheses and research questions above propose relationships among family characteristics, dimensions of the communal coping model, and individual outcomes related to type 2 diabetes. However, the communal coping model proposes that the two dimensions of appraisal and action interact to make four distinct types of coping: individual coping (individual action, individual appraisal), support seeking (joint action, individual appraisal), parallelism (individual action, shared appraisal), and communal coping (joint action, shared appraisal; see Figure 2.1). Although this typology of coping has not been statistically validated, the hypotheses posed in the previous sections can be used to predict the relationships among family cohesion, family conflict, the types of coping, and individual outcomes. The conceptual model using the types of coping (rather than the dimensions of the communal coping model) is depicted in Figure 2.3. The hypotheses for this model are explained in the following section.

Family Characteristics and Types of Coping

Family cohesion. Hypotheses 1 and 2 suggest that shared appraisal and joint action are both positively related to family cohesion. Following this reasoning, increased family cohesion should be positively related to communal coping (joint action, shared appraisal) and negatively related to individual coping (individual action, individual appraisal). The sixth and seventh hypotheses reflect these predictions:

H6: Family cohesion is positively associated with communal coping.

H7: Family cohesion is negatively associated with individual coping.

The communal coping typology has not been quantitatively examined, so the relationships between family cohesion and parallelism (individual action, shared appraisal) and support seeking (joint action, individual appraisal) are unclear. Cohesion may be positively related to both parallelism and support seeking because it encourages some behaviors or cognitions that connected families engage in. However, it may also be true that cohesion is negatively related to these types of coping because both are characterized by some individualistic behaviors or cognitions. Therefore, the following two research questions are posed:

RQ4: What is the association between family cohesion and parallelism?

RQ5: What is the association between family cohesion and support seeking?

Family conflict. Hypotheses 3 and 4 suggest that joint action and shared appraisal are positively related to perceived resolvability of serial conflicts. As such, perceived resolvability should be positively associated with communal coping (joint action, shared appraisal) and negatively associated with individual coping (individual action, individual appraisal). Therefore, the eighth and ninth hypotheses are as follows:

H8: Perceived resolvability of serial conflicts is positively associated with communal coping.

H9: Perceived resolvability of serial conflicts is negatively associated with individual coping.

As with family cohesion, the relationships between family conflict and parallelism and support seeking are unclear based on existing coping research. Thus, the following research questions are posed:

RQ6: What is the association between perceived resolvability of serial conflicts and parallelism?

RQ7: What is the association between perceived resolvability of serial conflicts and support seeking?

Types of Coping and Individual Outcomes

Hypothesis 5 predicts that joint action has a positive relationship with self-care and adherence and a negative relationship with depressive symptoms. However, because of the dearth of research on appraisals of a stressor, a question about the nature of the relationship between shared appraisal and self-care, adherence, and depressive symptoms is posed in RQ4. Given that no predictions are made about the relationship between shared appraisal and individual outcomes, no hypotheses can be advanced about the relationships among the types of coping and the individual outcomes in this study. Therefore, research questions 8-11 reflect the relationships among coping and self-care, adherence, and depressive symptoms.

RQ8: What are the associations between communal coping and (RQ8a) self-care behaviors, (RQ8b), adherence, and (RQ8c) depressive symptoms?

RQ9: What are the associations between individual coping and (RQ9a) self-care behaviors, (RQ9b), adherence, and (RQ9c) depressive symptoms?

RQ10: What are the associations between parallelism and (RQ10a) self-care behaviors, (RQ10b), adherence, and (RQ10c) depressive symptoms?

RQ11: What are the associations between support seeking and (RQ11a) self-care behaviors, (RQ11b), adherence, and (RQ11c) depressive symptoms?

CHAPTER 3

METHOD

To test the hypotheses and answer the research questions posed in the previous chapter, I conducted two studies. The first study, designed in response to the first research question, consisted of individual interviews with people with type 2 diabetes and their family members. For the second study, diabetic individuals completed a survey created to test the remaining research questions and hypotheses. In the following sections, I describe the participants and procedures for each study.

Study 1

Study 1 addressed a research question about the appraisal dimension of the communal coping model. Appraisal has not been fully explicated in previous communal coping research; however, because it is a critical element in the communal coping model, gaining a fuller understanding of appraisal is an important step for coping scholars. As such, the first study responded to the question “How do people with type 2 diabetes and their family members experience individual and/or shared appraisal of the illness?”

The primary focus in conceptualizing appraisal was to understand and describe what it means for individuals to appraise a stressor as individual or shared. I chose to conduct interviews because often, the goal of interview studies is to gain understanding of individuals’ lived experiences and how they make meaning of their circumstances (Seidman, 2006). Interpretive analysis of interviews lends itself to deep understanding of a phenomenon (Afifi et al., 2006). Moreover, the open-ended and interactive nature of interviews allows researchers to see aspects of individuals’ lived experiences that they did not set out to study (Caughlin & Basinger, 2014). Coyne and Gottlieb (1996) suggest that unlike surveys, interviews afford researchers the ability to see the effects of other people and of the situation. For scholars interested in communication as a meaning-making process, interviews are a helpful methodology. Individual, dyadic, and group interviews have all been used in coping research with a goal of offering in-depth understanding of how individuals cope with stress either by themselves or alongside others. In communal coping research specifically, interviews have been conducted in a variety of contexts, including post-divorce families (Afifi et al., 2006), natural disasters (Afifi et al., 2011), long-term elderly care communities (Lawrence & Schigelone, 2002), and chronic illness (Montgomery, Watts, & Pool, 2012). This study continued that line of research by using interviews to understand how individuals use appraisals in the process of coping with type 2 diabetes.

Participants

Participants for study 1 were people with type 2 diabetes who were inpatients at a local research hospital and their family members. Patients were admitted to the hospital for a variety of reasons, some of which directly related to their type 2 diabetes, and others which were caused by a comorbid disease or injury. A great deal of variability exists among diabetic individuals' experiences with the disease. Whereas some patients have high control over the disease, others have very poor control. In addition, many people with type 2 diabetes have comorbid diseases, or illnesses that occur alongside diabetes, like hypertension, obstructive sleep apnea, fatty liver disease, cancer, and fractures (Munshi, 2012). Inpatients often have worse control over their illness than outpatients, and/or they are experiencing complications of the disease. Even though some participants in this sample were admitted for reasons not directly related to their diabetes, the inpatient sample was helpful because it afforded the ability to interact with individuals who could reflect on extremes of the disease experience, including when it felt manageable and interfered very little in their day-to-day lives and when it was severe enough to require hospitalization.

A total of 28 individuals were interviewed about their experiences with type 2 diabetes, including 20 patients and eight family members. Eleven of the patients (55.0%) were female, and nine were male (45.0%). Patients' ages ranged from 31-82 years, with a mean age of 63.1 years (*SD* = 12.34). Most patients reported their race/ethnicity as White/European American (*n* = 14; 70.0%), whereas others identified as Black/African American (*n* = 3; 15.0%), multiracial (*n* = 2; 10.0%), or Hispanic/Latino (*n* = 1; 5.0%). A majority of the patients were married (*n* = 13; 65.0%). The remaining patients were either never married (*n* = 4; 20.0%), widowed (*n* = 2; 10.0%), or divorced (*n* = 1; 5.0%).

Patients reported a variety of levels of education and income. Two did not complete high school (10.0%); six were high school graduates (30.0%); four completed some college but did not receive a degree (20.0%); one person completed vocational school (5.0%), one received an Associate's degree (5.0%); three patients received Bachelor's degrees (15.0%), and three people completed graduate degrees (*n* = 2 Master's degrees, 10.0%; *n* = 1 professional degree, 5.0%). One person did not report his/her highest level of education. In addition, most patients reported their annual income as being less than $75,000. Four reported an income between $0-24,999 (20.0%); six made between $25,000-49,999 (30.0%), and four indicated that they made between $50,000-74,999 annually (20.0%). The remaining patients made $75,000-99,999 (*n* = 1; 5.0%), $100,000-124,999 (*n* = 3; 15.0%), or $125-149,999 (*n*= 1; 5.0%). One patient did not report his or her annual income. Most patients reported being retired (*n* = 9; 45.0%); four were homemakers (20.0%); four were self-employed (20.0%); one was employed for wages (5.0%), and one was unable to work (5.0%).

Regarding their health status, 19 patients reported having insurance (95.0%), and one did not report his or her insurance coverage status. Patients were asked whether they had any comorbid diseases as a way of assessing their general burden of health. Fifteen (75.0%) reported that they had been diagnosed with something other than type 2 diabetes, and four (20.0%) indicated that type 2 diabetes was their only diagnosis. Eight patients (40.0%) reported having experienced some complications from their type 2 diabetes, whereas 11 (55.0%) said they had not experienced any complications. Finally, patients' A1C levels (an indicator of disease control) were obtained from their medical charts. In research and diabetes management, the most common indicator of control over the disease is the patient's A1C level (National Institutes of Health, 2014). An A1C level below 5.7 is considered normal, and an A1C above 6.5 indicates diabetes (Manfred, 2014). Patients' A1C levels ranged from 5.2 to 13.3, with a mean of 7.31 (*SD* = 2.01). Five patients' most recent A1C readings were considered unusable because (a) the reported A1C was more than three months old and considered out of date or (b) the patient had received blood in the hospital, making the A1C level inaccurate.

Family members included seven spouses and one sister of inpatients. Six of the family members were females (75.0%) and two were male (25.0%). Their mean age was 57.13 (*SD* = 15.69). They reported their race/ethnicity as White/European American (*n* = 6; 75.0%), Black/African American (*n* = 1; 12.5%), and Hispanic/Latino (*n* = 1; 12.5%). Two family members reported that they graduated from high school (25.0%); two completed some college (25.0%); three received a Bachelor's degree (37.5%), and one had a Master's degree (12.5%). Like the patients, most family members reported an annual income less than $75,000. One indicated an income between $0-24,999 (12.5%); two were between $25,000-49,999 (25.0%), and two reported making between $50,000-74,999 (25.0%). One person reported an income between $100,000-124,999 (12.5%), and one reported $125,000-149,999 (12.5%). Finally, six family members reported being retired (74.0%); one was a homemaker (12.5%), and one was unemployed and looking for work (12.5%).

Procedures

Recruitment. Inpatients and their family members were recruited from a large research hospital in a mid-sized Midwestern university town. To recruit individuals diagnosed with type 2 diabetes, a hospital clinician identified a list patients on three hospital units (two surgical units and one medical unit) who met the eligibility criteria for the study (i.e., diagnosed with type 2 diabetes and over the age of 18). A member of the clinical staff then approached eligible patients and asked whether they were interested in hearing about the study. All patients who did not express interest were removed from the list, and the remaining names were given to me. Then, I visited each interested patient and his or her family member(s) to ask whether they wanted to participate in the study. Those who agreed completed the consent process (see Appendix A for consent documents) and began the interview. Family members who were present with the patient were also given the option of completing an interview. If no family members were present, I asked whether the patient had any family members who were not at the hospital who may be willing to participate. In exchange for their participation, all participants were remunerated with a $20 gift card to a national retail store.

Interview procedures. The interview process began with acquisition of informed consent in keeping with human subjects guidelines of both the hospital and the university (see Appendix A). Participants were asked to read the consent form, directing any questions about the contents of the form to me. To ensure comprehension of the study procedures, I asked clarifying questions about the consent form including, “Do you understand the risks of participating in this study?" and "Would you like to ask any questions about the study before we begin?" Participants were informed both orally and in writing that their participation was voluntary and that they could withdraw from the study at any time during the interview process.

After informed consent was obtained, participants were asked to complete three other written forms. First, they read and signed a transcription consent form (Appendix B), which asked them to whom they gave permission to transcribe their interview: (a) an undergraduate research assistant at the university or (b) the interviewer. All participants indicated that the research assistant could transcribe their interview. Second, in accordance with hospital policy, patients completed a Health Insurance Portability and Accountability Act (HIPAA) authorization form, which provided the interviewer with permission to view information in their medical records that was pertinent to the study, including diagnoses and A1C levels. Finally, participants filled out a demographic survey (Appendix C) containing information about themselves, their families, and their (or their family member's) type 2 diabetes. Following the completion of these forms, participants were asked if they had any additional questions, and then audio-recording began. Interviews were interrupted whenever a member of the hospital staff entered the room and resumed when the staff member left.

The interviews were initially structured in two sections. In the first section, participants answered general questions about the individual's and the family's reaction to the diagnosis and management of the illness (e.g., "What was it like for you when you found out about your/your family member's diabetes?," "What is required of you and your family members to manage the disease?"; see Appendix D for interview schedule). These questions included probes that focused specifically on the family's communication surrounding the process of coping with type 2 diabetes. In the second part of the interview, participants completed a coping timeline designed to help them identify turning points in the trajectory of the illness. However, after eight interviews, it became clear that the coping timeline was not an effective tool for assessing participants' appraisals of their type 2 diabetes, so this part of the interview protocol was not implemented in the remaining interviews. In particular, visually mapping changes in co-ownership did not resonate well with how participants thought about their disease, perhaps because changes in co-ownership were not accompanied by major life changes, or because some participants reflected on their disease over a long period of time, so thinking about changes over up to 24 years may not have been feasible. Sometimes, turning points analyses focus on a specific, and somewhat recent, time period (e.g., Baxter, Braithwaite, & Nicholson, 1999). In future studies, it may be helpful to focus on a more finite time period to gain meaningful insight into turning points in the disease. In subsequent interviews, I replaced the coping timeline activity with questions designed to capture how participants had either individual or shared ownership of their diabetes (e.g., "Do you feel like you have ownership over your own disease? Why or why not?," "With whom do you share ownership of the disease?"). To end the interview, participants were asked for final thoughts about their coping experiences and were given a gift card in exchange for their participation.

Study 2

The goal of study 2 was to test the models depicted in Figures 2.2 and 2.3, which proposed relationships among family characteristics, dimensions of communal coping/types of coping, and individual diabetes-related outcomes. Self-report surveys were used to assess the variables in the models. Survey methods offer many advantages in the study of coping. In general, self-report measures are valuable because they offer access to information that would be difficult to obtain through other methods (Caughlin & Basinger, 2014). Although observation may provide more objective information than self-report methods, self-reports provide insight into cognitive processes that are not observable (Caughlin & Basinger, 2014). For coping scholars, this is particularly important, given the central role of cognition (i.e., appraisal) in the coping process (e.g., Lazarus & Launier, 1978; Lyons et al., 1998). In addition, self-reports allow participants to reflect on naturally occurring stress and the strategies they use to cope with it, an opportunity not afforded by lab studies, which ask participants to re-create stressful circumstances (Coyne, Aldwin, & Lazarus, 1981). In coping research, survey methods have allowed researchers to note how perceptions of stress and coping are related to individual and relational outcomes.

Although survey methods are common in coping literature generally, this is not the case with communal coping scholarship. Only one study (Afifi et al., 2012) uses Lyons et al.'s (1998) original theorization of communal coping quantitatively, assessing both the appraisal and action dimensions of coping. However, Afifi et al.'s (2012) measure consists of only two items (one for each dimension) because of the restrictions of conducting telephone surveys. Given the advantages of quantitative assessments for providing generalizability and insight into the connections between coping and outcomes, one critical task for communal coping scholars is to develop a survey measure that assesses both appraisal and action. Therefore, a major goal of this study was to develop and test a measure of communal coping. In the following sections, I describe the participants and procedures for the study.

Participants

Individuals diagnosed with type 2 diabetes ($N = 159$) were recruited to complete the survey for study 2 because one of the major interests in the study was how coping was related to diabetes-related outcomes (e.g., self-care, adherence). Accordingly, there were two eligibility criteria for the study: (a) diagnosed with type 2 diabetes and (b) over the age of 18.

Participants for study 2 were recruited in two ways. The first recruitment method closely resembled the procedures in study 1. A hospital staff member generated a list of inpatients on five hospital units (two surgical, one medical, two cardiology/pulmonary units) who met the eligibility criteria for the study, and a member of the clinical staff approached these patients and asked them whether they were interested in hearing more about the study. Those who did not express interest or were unable to complete a written survey (e.g., due to health complications or vision problems) were removed from the list of potential participants. I visited the remaining patients in their hospital rooms, described the study to them, and asked whether they wanted to participate. Patients who indicated interest in completing the survey completed the consent process and were given the survey to complete. A total of 118 inpatients completed the survey.

A second pool of participants was recruited from students at a large Midwestern university. Specifically, I visited large lecture classes and invited students to either (a) complete the survey themselves if they met the eligibility criteria or (b) ask a family member or friend who qualified for the study to complete it on their behalf. Students were offered extra course credit in exchange for either taking the survey or recruiting someone else to take the survey. Those who did not qualify for the study, did not know anyone with type 2 diabetes over the age of 18, or did not wish to participate were given an alternative option to complete for an equivalent amount of extra credit. In exchange for their participation, non-student participants' (including hospital patients) names were entered into a drawing for one of ten $75.00 gift cards to a national retail store. An additional 41 participants completed the survey based on these recruitment efforts, yielding a total sample of 159.

Participants answered several individual demographic questions. Approximately half of the sample (*n* = 82, 51.6%) was female, and the rest (*n* = 77, 48.4%) was male. Their average age was 58.86 years (*SD* = 16.26, range 19-96). A majority of participants reported their race/ethnicity as White (*n* = 124, 78.0%), and others reported being Black or African American (*n* = 16, 10.1%), Asian (*n* = 8, 5.0%), Hispanic or Latino (*n* = 4, 2.5%), multiracial (*n* = 3, 1.9%), Native Hawaiian or Pacific Islander (*n* = 1, 0.6%), American Indian or Alaska Native (*n* = 1, 0.6%), or other (*n* = 2, 1.3%). Participants indicated their highest level of education as not completing high school (*n* = 11, 6.9%), high school graduate (*n* = 51, 32.1%), some college but no degree (*n* = 42, 26.4%), vocational school (*n* = 7, 4.4%), Associate's degree (*n* = 10, 6.3%), Bachelor's degree (*n* = 24, 15.1%), Master's degree (*n* = 8, 5.0%), professional degree (e.g., MD, DDS, JD; *n* = 4, 2.5%), and doctorate degree (e.g., PhD, EdD; *n* = 1, 0.6%). One person did not indicate his or her highest level of education. Just over one-third (34.6%) of participants reported their annual household income as $0-24,000 (*n* = 55), and others made $25,000-49,999 (*n* = 34, 21.4%), $50,000-74,999 (*n* = 19, 11.9%), $75,000-99,999 (*n* = 13, 8.2%), $100,000-124,999 (*n* = 15, 9.4%), $125,000-149,999 (*n* = 7, 4.4%), $150,000-174,999 (*n* = 2, 1.3%), and $200,000 or more (*n* = 5, 3.1%). Nine participants did not indicate their annual income. Finally, 37 participants (23.3%) were employed for wages; eight (5.0%) were self-employed; five (3.1%) were out of work but looking for a job; three (1.9%) were out of work but not currently looking; 10 (6.3%) reported being homemakers; three (1.9%) were students employed for wages; five (3.1%) were students not employed for wages; 66 (41.5%) were retired, and 34 (21.4%) were unable to work. Several participants selected multiple responses for their employment status (e.g., retired and unable to work).

Participants also answered several questions about their family relationships. A majority of participants were married (*n* = 78, 49.1%), and others were divorced (*n* = 32, 20.1%), widowed (*n* = 22, 13.8%), never married (*n* = 22, 13.8%), had a domestic partner (*n* = 3, 1.9%), or were separated (*n* = 2, 1.3%). Forty participants lived alone (25.2%), and the rest lived with a range of one to seven other family members (*M* = 2.48, *SD* = 1.43). Most participants (*n* = 134, 84.3%) were the only one in their home who had been diagnosed with diabetes, but 19 (11.9%) had at least one other family member who was also diagnosed with the disease.

Finally, participants answered questions about their healthcare and their type 2 diabetes. Participants' diabetes diagnosis ranged from 0.5-49 years before the survey was administered (*M* = 11.37, *SD* = 8.16). Diabetic participants answered two questions about the severity of their disease on a ten-point scale (i.e., "How much does your type 2 diabetes cause problems in everyday life?," "How much does your type 2 diabetes interfere in everyday life?"). The items were averaged to create a composite score of disease severity (*M* = 4.21, *SD* = 2.68, α = .94). Type 2 diabetes is often accompanied by other comorbid diseases and causes a range of physical complications. Participants answered one question about diagnoses of other diseases; 44 (27.7%) had no comorbid diseases, and 109 (68.6%) had at least one other diagnosis. Seventy-three participants (45.9%) had experienced complications of their diabetes, whereas 84 (52.8%) had not. Participants also reported on their health insurance coverage at the time the survey was administered. A majority (*n* = 148, 93.1%) had health insurance; nine (5.7%) reported that they did not have insurance, and two (1.3%) neglected to answer the question about insurance coverage. Inpatients' A1C levels were recorded when they were available. Eighty-four A1C levels were recorded, ranging from 5.2 to 13.8 (*M* = 7.69, *SD* = 1.91).

A series of independent samples t-tests was conducted to determine whether differences existed between participants recruited from the hospital and those recruited through university students (hospital sample = 0, university sample = 1). In terms of demographic characteristics, participants recruited from the hospital were older (hospital *M* = 61.79, *SD* = 13.84; university sample *M* = 50.53, *SD* = 19.64), *t*(152) = 3.95, *p* < .001; more white (hospital *M* = .84, *SD* = .37; university sample *M* = .61, *SD* = .49), *t*(157) = 3.13, *p* < .01; less educated (hospital *M* = 3.21, *SD* = 1.72; university sample *M* = 4.46, *SD* = 2.16) , *t*(156) = -3.76, *p* < .001; had a lower average income (hospital *M* = 2.18, *SD* = 1.42; university sample *M* = 4.15, *SD* = 2.54), *t*(148) = -5.98, *p* < .001; had fewer family members living with them (hospital *M* = 2.15, *SD* = 1.26; university sample *M* = 3.43, *SD* = 1.48), *t*(155) = -5.25, *p* < .001; and had more diabetes complications (hospital *M* = .51, *SD* = .51; university sample *M* = .33, *SD* = .47), *t*(155) = 2.07, *p* < .05. For independent and dependent variables, participants differed only on one self-care variable, which was how many days per week they exercised (hospital *M* = 1.63, *SD* = 1.64; university sample *M* = 4.22, *SD* = 1.75), *t*(147) = -8.33, *p* < .001, and they exhibited no significant differences on any control variables.

Procedures

For patients, the procedures for the study began with the completion of informed consent, in accordance with hospital and university institutional review board guidelines (see Appendix E). Participants directed any questions about the consent form to me. To provide additional assurance of participants' understanding, I asked participants whether they understood the risks and procedures involved in the study. I emphasized that they could withdraw from the study at any time or skip any items that they did not wish to answer. Patients retained one copy of the consent form for their own records; I kept a second copy, and a third copy was kept on file at the hospital. After consent was obtained, I gave participants a copy of the survey, which was in a paper-and-pencil format. To minimize the potential for participants to feel any undue pressure, I left the room while they completed the survey and returned later in the day to pick up the survey. Finally, inpatients' A1C levels were obtained from their medical charts.

For participants recruited through students at the university, documentation of informed consent was waived because the survey for these participants was administered online. To maintain confidentiality, participants' names could not be collected alongside their consent. After reading consent information, participants willing to complete the survey were required to select an option indicating consent that read, "Please click the button marked 'I consent' to indicate that you (a) have read and understand this information, (b) are 18 years of age or older, (c) have been diagnosed with type 2 diabetes, and (d) are willing to voluntarily participate in this study." The remainder of the online survey was identical to the one administered to participants recruited from the hospital.

Measures

The survey was divided into five sections: (a) demographic information, (b) dimensions of coping, (c) family characteristics, (d) individual outcomes, and (e) control variables. Confirmatory factor analyses (CFA) were conducted on all multi-item measures to assess their dimensionality. CFA requires that items are face valid, internally consistent, and parallel. I examined deviation scores (with higher scores indicating more problematic items) and three goodness of fit statistics: χ^2/df, root mean square error of approximation (RMSEA), and comparative fit index (CFI). To indicate model fit, the following values were used as fit criteria as recommended by Browne and Cudeck (1992) and Kline (1998): $\chi^2/\text{df} < 3.0$, CFI $\geq .9$, and RMSEA $< .10$. Unless otherwise indicated, measures had acceptable fit using these criteria.

Scores for all measures were calculated by averaging scale or subscale items, with exceptions noted below.

Shared appraisal. The dimensions of communal coping were measured with two subscales created using data from the first study (see chapter 4 for results). Items in the appraisal subscale mirrored participants' cognitions about the stressor, rather than their behaviors. Ten items were created to capture how participants appraised their type 2 diabetes. Items reflected both problem ownership and problem influence, in line with findings from the first study. Instructions for the scale read, "Think about how you have thought about your disease in the past month. As you answer the following questions, focus on what you have THOUGHT about your type 2 diabetes." Participants indicated their agreement with each statement on a five-point scale (1 = *strongly disagree*; 5 = *strongly agree*). Two items were dropped from the scale during confirmatory factor analysis to achieve acceptable fit ("I think of my diabetes as only my responsibility," "I think of my diabetes as a responsibility of everyone in my family"). The final scale contained eight items, χ^2/df = 1.72, CFI = .92, RMSEA = .08 (*M* = 2.98, *SD* = .85, α = .79; see Appendix F).

Joint action. The action subscale reflected the individual or joint behaviors participants engaged in to manage their type 2 diabetes. Instructions read, "Think about how you and your family members have managed your type 2 diabetes during the last month. As you answer the following questions, focus on what you and your family have DONE to manage the disease." The measure originally contained 10 items, but three items were dropped during confirmatory factor analysis to achieve acceptable fit ("I open up to my family often about my diabetes," "I make plans with my family about how to deal with my diabetes," "I rely on my family to help me cope with my diabetes"). Participants indicated their agreement with each statement on a five-point scale (1 = *strongly disagree*; 5 = *strongly agree*). The final scale included seven items, χ^2/df = 1.86, CFI = .92, RMSEA = .08 (*M* = 2.88, *SD* = .95, α = .85; see Appendix G). After constructing each scale individually, I conducted a chi-square difference test to assess whether the subscales were unidimensional by including both measures in a single model and determining if model fit was worsened by setting the correlation between the two factors to be equal to 1.0 rather than allowing it to be free. Results indicated that the model was significantly worse with one factor instead of two, χ^2 (1) = 31.97, $p < .001$, suggesting that the two scales comprised unique dimensions of communal coping.

In addition to the general items in the subscales described above, I created behavior-specific measures for the action dimension of communal coping. Previous research on coping behaviors suggests that problem-focused coping has different effects on outcomes than does emotion-focused coping (e.g., Karlsen et al., 2004). As a result, participants reflected on 12 problem-focused and five emotion-focused diabetes-specific behaviors and whether they engaged in the behaviors individually or alongside their family members. Items for this scale were created based on insights from the interviews from study 1 and based on the American Association of Diabetes Educators' (AADE; 2015) recommendations for self-care behaviors. The seven behaviors recommended by the AADE are healthy eating, being active, monitoring blood glucose, taking medication, problem-solving, reducing risks, and healthy coping. The emotion-focused subscale reflected healthy coping, and two items were created to reflect each of the other six self-care behaviors recommended by the AADE (see Appendix H). Participants indicated their agreement with each item on a five-point scale (1 = *strongly disagree*; 5 = *strongly agree*). The five emotion-focused coping items had acceptable fit during CFA (χ^2/df = 2.21, CFI = .94, RMSEA = .10) and formed a scale with good reliability (*M* = 3.47, *SD* = 1.07, α

= .85). Because the problem-focused coping items reflected a number of different areas, they did they did not load cleanly on one factor during CFA; however, the items did indicate good reliability (*M* = 2.52, *SD* = .81, α = .84), so all 12 items were retained in the problem-focused coping scale.

Family cohesion. Family cohesion was assessed using the Balanced Cohesion Subscale of the Family Adaptability and Cohesion Evaluation Scales (FACES IV; Olson, 2006; *M* = 4.04, *SD* = 1.04, α = .95). The FACES IV contains several subscales designed to evaluate each extreme of the cohesion spectrum (i.e., disengagement and enmeshment) individually; however, the Balanced Cohesion Subscale assesses cohesion as one continuous variable in which high scores represent more cohesion and low scores represent less cohesion. The scale contains seven items on a five-point scale (1 = *strongly disagree*; 5 = *strongly agree*). Sample items include "We were very involved in each other's lives" and "We felt very close to each other" (see Appendix I for a complete list of items).

Perceived resolvability. Perceived resolvability of family conflict was assessed with four items, following from Johnson and Roloff's work on serial arguments (Appendix J; Johnson & Roloff, 1998; Roloff & Johnson, 2002; *M* = 3.57, *SD* = 1.51, α = .71). To begin, participants read a prompt defining serial arguments: "A serial argument exists when individuals argue or engage in conflict about the same topic over time, during which they participate in several (at least two) arguments about the topic" (Malis & Roloff, 2006, p. 46). Then, they were asked to think of a serial argument that they have experienced with a family member that pertains to the participant's type 2 diabetes. They were asked whether they could think of an argument (selecting "yes" or "no"), and a space was provided for them to write a brief description of the topic. In addition, participants were instructed that if they could not think of a serial argument, they should write “none” and skip the questions about perceived resolvability. Finally, they responded to four items on a seven-point scale designed to assess the extent to which participants believe the conflict is resolvable (e.g., “I don’t think we will ever agree on this issue”). Only 22 participants (13.9%) indicated that they had experienced serial arguments about their diabetes. This small number of responses did not provided enough power to detect the effects of the perceived resolvability of serial arguments on the remaining study variables, so this measure was dropped in subsequent analyses.

Adherence. Adherence was measured using four items that asked to what extent participants have followed their healthcare providers’ recommendations in the last seven days about (a) diet, (b) exercise, (c) blood glucose monitoring, and (d) medication (Appendix K). Participants responded to each item on a five-point scale (1 = *have not followed recommendations at all*; 5 = *followed all recommendations exactly*). Although some type 2 diabetes researchers have used measures of self-care to assess adherence, scholars have emphasized the need for these concepts to be conceptually and operationally distinct. As such, each item in the adherence scale was worded to reflect healthcare providers’ general recommendations, rather than more specific care activities. In addition, because not all diabetic individuals have identical regimens, there was a “no recommendation by my providers” option for each item. Items in the scale were averaged to create an overall adherence score ($M = 3.90$, $SD = .77$, $\alpha = .75$).

Self-care. Items from the Self-Care Inventory (SCI; Polonsky et al., 1995) and the International Physical Activity Questionnaire (IPAQ) were used to assess participants’ self-care behaviors in three areas: (a) blood glucose monitoring, (b) diet, and (c) exercise. Nine items from the SCI assessed participants’ self-care in terms of glucose (four items; $M = 3.21$, $SD = 1.09$, $\alpha =$

.68) and diet (five items; *M* = 3.12, *SD* = .92, α = .80). The original instructions for the SCI are somewhat reflective of adherence (asking about recommendations for each behavior), so they were altered to reflect participants' general care of themselves rather than prescribed care. For all SCI items, participants were asked how often they engaged in each behavior during a typical week on a five-point scale (1 = *never do it*; 5 = *do this every day*). Three items from the IPAQ asked participants about their exercise behaviors. For each question, participants indicated how many days per week (*M* = 2.31, *SD* = 2.02, α = .76) and how much time per day (*M* = 43.67 minutes, *SD* = 85.63, α = .69) they engage in (a) moderate physical activities, (b) walking, and (c) strength training activities during an average week. For a complete list of items, see Appendix L. Items from each area of self-care were averaged to create separate self-care scores for (a) blood glucose management, (b) diet, (c) exercise (average days per week) and (d) exercise (average time per day).

Depressive symptoms. Depressive symptoms were measured with the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977; see Appendix M). The CES-D was designed to assess depression in a non-clinical sample. Participants indicated how often they have felt a variety of symptoms commonly associated with depression in the last month on a four-point scale (1 = *rarely or none of the time, less than one day*, 2 = *some or a little of the time, 1-2 days*, 3 = *occasionally or a moderate amount of time, 3-4 days*, 4 = *most or all of the time, 5-7 days*). The scale contains 19 items, which are summed to create a total CES-D score. Consistent with the instructions for scoring the measure, only participants with at least 16 responses to items on the CES-D were included in subsequent analyses. Although confirmatory factor analysis did not indicate that all items loaded acceptably on one factor, all items in the CES-D were retained because the items have been used as a corpus in extant research, and together, the items describe different facets of the experience of having depressive symptoms. The items indicated good reliability (*M* = 34.39, *SD* = 10.49, α = .89).

Control variables. In addition to the independent and dependent variables in the model, three control variables were assessed in the survey: locus of control, emotional distress, and stigma. Locus of control, the degree to which one feels that the disease is within his/her control, may be related to how individuals cope with the disease (i.e., whether they appraise the disease as individual or shared and whether they act on it alone or together). Locus of control was measured using the Multidimensional Health Locus of Control (MHLC Form 3) scales (Wallston, Stein, & Smith, 1994; see Appendix N). Form 3 of the MHLC was designed for use with individuals diagnosed with chronic illness. Participants in this study completed two subscales of the MHLC Form 3: the Internal Subscale (*M* = 3.62, *SD* = 1.00, α = .90), which assesses the extent to which individuals attribute control of the condition to themselves, and the Other People Subscale (*M* = 2.51, *SD* = 1.11, α = .79), which is concerned with the extent to which control is attributed to others. These two subscales are most closely related to the variables of interest in this study (e.g., individual or shared appraisal), whereas the other two subscales (Chance Subscale and Doctor Subscale) are less relevant. The Internal Subscale contains six items (e.g., “I am directly responsible for my condition getting better or worse”), and the Other People Subscale contains three items (“Other people play a big role in whether my condition improves, stays the same, or gets worse”). All items were measured on a six-point scale (1 = *strongly disagree*; 6 = *strongly agree*). Items in each subscale were averaged for two separate locus of control scores.

Emotional distress is frequently measured in type 2 diabetes research. Most often, it is assessed using the Problem Areas in Diabetes (PAID) scale (Welch, Jacobson, & Polonsky, 1997; see Appendix O). The PAID is a diabetes-specific measure that asks participants how often they experience a number of common emotional challenges associated with the disease. The scale contains twenty items on a five-point scale (1 = *never a problem*; 5 = *always a problem*). Sample items include “Feeling guilty or anxious when you get off track with your diabetes management,” “Worrying about low blood sugar reactions,” and “Uncomfortable interactions around diabetes with family/friends.” Total scores are created by summing participants’ choices for each item. Per the instructions for scoring the PAID, participants with missing items were dropped from further analyses. Like the CES-D scale, items in the PAID did not indicate acceptable fit in confirmatory factor analysis, but all items were retained to match previous research that uses the entire PAID scale. Items indicated good reliability (*M* = 45.01, *SD* = 17.65, α = .96).

Finally, individuals with type 2 diabetes have reported feeling stigmatized, judged, and monitored by others (Schabert, Browne, Mosely, & Speight, 2013). Accordingly, those who feel stigmatized may not reach out to others for help as they cope with the disease. Therefore, perceptions of stigma may be related to variables in this study, including shared appraisal of or joint action toward one’s diabetes. Self-stigma was measured using the Social Impact Scale (Fife & Wright, 2000; Appendix P), which was designed to measure the effects of one’s perceptions of stigma. The scale is comprised of four subscales, each assessing a different dimension of stigma: (a) social rejection (nine items; *M* = 1.47, *SD* = .71, α = .92), (b) financial insecurity (three items; *M* = 1.82, *SD* = 1.01, α = .80), (c) internalized shame (five items; *M* = 1.82, *SD* = .79, α = .72), and (d) social isolation (seven items; *M* = 1.79, *SD* = .95, α = .93). Each item is assessed on a four-point scale (1 = *strongly disagree*; 4 = *strongly agree*). Three items were dropped from the Social Rejection subscale to achieve acceptable fit during CFA and to increase the scale’s reliability (“I feel others avoid me because of my diabetes,” “Some family members have rejected me because of my diabetes,” “Due to my diabetes, other seem to feel awkward and tense when they are around me”; χ^2/df = 2.14, CFI = .93, RMSEA = .10), resulting in a final scale containing six items. Items in each subscale were averaged to create four separate stigma scores.

CHAPTER 4

STUDY 1 RESULTS AND DISCUSSION

I conducted a total of 23 interviews with people with type 2 diabetes and their family members. Eighteen interviews were with individuals, and five took place with both the patient and his or her family member together, for a total of 28 participants. Interviews ranged in length from seven minutes and 19 seconds to 29 minutes and 50 seconds. All interviews were transcribed verbatim, yielding 206 pages of text.

Data Analysis

Data from the interviews were analyzed qualitatively using interpretive analyses. Specifically, I inductively analyzed the data using constant comparison to identify emerging themes and patterns among the data (Strauss & Corbin, 1990) with a particular focus on the ways in which appraisal, or ownership of the disease, was meaningful for diabetic individuals and their family members. Analysis of the data began during data collection and continued throughout the study, and I composed memos to document the data collection and analysis processes. Data analysis proceeded in five steps.

Grounded theory methodologists suggest that data should first be considered holistically, followed by more narrow analysis to hone in on the most salient experiences of study participants (Charmaz, 2006). Consistent with this notion, the first step in the analyses involved open coding of the entire data set to gain preliminary insight into the experiences participants described. Specifically, I engaged in line-by-line coding of all 206 pages of data to gain insight into the data as a whole. During this phase, I assigned gerunds whenever possible to each line of the data as a way to direct my attention toward the actions that diabetic individuals and their family members described (e.g., “influencing the patient,” “working together,” “worrying”).

After documenting my initial insights into the data, I began the second phase of data analysis. In this step, I used communal coping theory and my understanding of the data to identify the sections of each interview that specifically described the appraisal process. One major goal of this study was to conceptualize what appraisal means for individuals coping with type 2 diabetes in their family. Communal coping theory suggests that the appraisal and action dimensions are related but distinct (Afifi et al., 2006; Lyons et al., 1998). Whereas appraisal focuses on cognitions about the stressor, action focuses on behaviors used to decrease the negative impact of the stressor. Accordingly, I used the second step in the data analysis to parse out the differences between these two dimensions. Portions of each interview were included in subsequent analyses focused on appraisal if they (a) addressed participants' thoughts and feelings about the experience of having and/or managing type 2 diabetes and (b) did not have a primary focus on the behavioral elements associated with the disease. Given that some mention of behavior was evident in many discussions, it was clear that appraisal and action are closely tied together in participants' minds; however, the remaining steps in data analysis involved careful attention to keeping these ideas separated whenever possible. The primary focus of these coding efforts was to conceptualize the appraisal dimension of communal coping because it has not been explicated in previous research; therefore, I isolated portions of the interviews that concerned participants' appraisals of their diabetes. The sections of the interviews related to the appraisal process were compiled into one document, which was 49 pages in length (23.8% of the total data set). This document was used in all subsequent analyses.

During the third phase of data analysis, I identified prominent codes in the data. I read through the data twice to familiarize myself with the appraisal portions of the data and then created a codebook consisting of the most salient experiences that participants described. The codebook included the name and a description of each code as well as exemplary quotes. The third step of analysis culminated in a process of focused coding (Charmaz, 2006), in which I applied the codebook to the appraisal data. The dual goals of this step were (a) to aid me in understanding each code more fully and (b) to enable me to recognize relationships among the most noteworthy experiences associated with appraising type 2 diabetes.

The fourth step in data analysis involved having a graduate student coder offer an outside perspective on the data. The purpose of this step was to ensure that my analysis of the data coalesced with a coder who was less familiar with the purpose of the study and the data. The coder began by reading a short summary of communal coping theory to familiarize herself with the appraisal and action dimensions. Next, she read through the appraisal data, noting recurring themes. After completing her own analyses, she read (a) the memos that I composed throughout the data analysis process and (b) the codebook I created during focused coding, and she noted similarities and differences among our analyses. Overall, our analyses overlapped substantially, and no major alterations to the codebook were required. However, I did add some insights to the codebook, and the coder's analyses aided me in completing the final step of data analysis.

The fifth step involved axial coding, in which I theorized about connections across the codes identified in previous steps. The purpose of axial coding is to take one's data analysis to a higher level abstraction and move beyond pure description of the data (Corbin & Strauss, 2008). Accordingly, I acknowledged how each code related to the other codes, noted where overlap existed among codes, and distinguished relevant differences among them. Based on this phase in the analyses, I identified two elements of appraisal and two conditions affecting change in one's sole- or co-ownership of the disease. The results of the analyses are described below.

Results

A primary goal of the first study was to conceptualize the appraisal dimension of communal coping. Analyses revealed that appraisal is made up of two elements: (a) owning the disease and (b) perceptions that one is affected by the disease. In addition, there are two conditions that affect how patients and their family members appraise the disease: (a) knowledge about type 2 diabetes and its management and (b) changing health status of the patient. In the following sections, I explicate appraisal, beginning with a discussion of the two elements that define it. All names have been replaced with pseudonyms, and some quotes have been edited for readability.

Conceptualizing Appraisal

Owning the disease. Consistent with communal coping theory, one element of appraisal involved patients' and their family members' notions of owning their own or their family member's type 2 diabetes. When participants described their perceptions of what it meant to own the disease, they expressed that the disease was their own problem, their partner's problem, or their problem together. Perhaps at the most basic level, perceptions of co-ownership showed up linguistically. When they felt that the disease was shared, for example, partners used plural pronouns to describe processes that were clearly not behaviorally shared. Margaret (non-diabetic spouse) noted how her husband's dietary demands were changing following his hospital stay: "We've learned since he's been in the hospital that *we* really need to do some carb management" (emphasis added). Martha (non-diabetic spouse) talked about the difficulty of adhering to a diabetic diet at home: "I think if *we* were better, *we* would do…I mean *our* eating habits definitely would be more of a challenge" (emphasis added). Such language implies that participants thought of the disease as something that was shared, rather than something that patients owned by themselves.

Commonly, patients and partners described ownership in terms of who, ultimately, felt the effects of the disease. Nearly all of the participants voiced sentiments of ownership in some way. Jean's (diabetic patient) family, for instance, was unsympathetic to her type 2 diabetes because they believed that it was not their issue to deal with: "It wasn't their problem. You know, the kids didn't really get it. They didn't understand it. And my husband was so, 'It's not my problem.'" In describing her husband's attitude toward her diabetes, Jean said that he treated it as "it's kinda like your monthly period. It's a woman thing." Jean's family took no ownership of the disease because it was fully her problem, not theirs. Other participants noted similar experiences, like Helen (non-diabetic spouse) who determined, "It's his problem, not my problem" or Makayla (diabetic patient) who mentioned, "Well, the problem with the disease is it's really up to the individual to control it and keep it together." Jayden (diabetic patient) talked about how he was forced to take ownership because only he would feel the physical effects of the disease:

> I'm the one with it. If everything comes down, [my wife] could turn her back and say, "I'm not gonna deal with it." Basically that would be it. Like I say, when I found out that I could lose my fingers and my feet, […] I'm the only one that be going through that.

Patients and family members both recognized that even when ownership was shared, it was ultimately the diabetic who would feel the physical consequences of the disease. Edward (diabetic patient) who advised that people with diabetes should take ownership of their own disease because "You're the one who's gonna die." Overall, participants' discussions about whose problem the diabetes was revealed what they thought about ownership of the disease.

A final component of owning the disease was taking it seriously. Whether they were patients or partners, participants who perceived that they owned the disease were serious about the severity of the disease and were aware of the potential consequences of it. Conversely, participants who did not take the disease seriously also did not have much ownership of it. For instance, when Jayden (diabetic patient) was first diagnosed with diabetes, he cognitively avoided his disease. When health professionals or his wife would try to engage in discussions with him, he would say, “Man I don’t wanna hear about that. I ain’t gonna go through that.” However, he also described a point at which he realized he had to take responsibility for the disease: “My turning point when I knew I was already diabetic was when I had my son. I really thought, ‘Man I gotta get myself together now.’” Similarly, Alice did not take ownership of her disease following her diagnosis, and she experienced negative consequences of it: “I didn’t take it seriously at first, and then all my results went way up and everything […] I guess my advice is just take it seriously.” In contrast, participants who perceived themselves to have ownership of their or their partner’s diabetes expressed sentiments like, “I take it seriously, and I want everybody around me to take it seriously because it’s a deadly serious disease” (Michael, diabetic patient) and “It’s a silent killer […] Just because it’s not jumping up and slapping you in the face, it’s not something you can just ignore. If you do ignore it, it’s gonna kill you” (Makayla, diabetic patient). One element of appraising diabetes as individually or jointly owned was acknowledging the severity of the illness and taking it seriously.

Perceived influence of the disease. A second element of appraisal concerned who was perceived to be affected by the illness – the patient, the family, or both. The appraisal dimension is cognitive in nature, so although participants described being affected by the behaviors associated with managing type 2 diabetes (e.g., coordinating schedules around medication), this element of appraisal reflects the cognitive effects of sharing the illness. Participants perceived that they were affected emotionally and mentally by the disease. Patients and family members talked primarily about worry and fear when they voiced how they felt they were influenced by the disease, and they perceived that the more they took on such emotions, the more they owned their own or their partner's diabetes. Arthur (diabetic patient) mentioned that his wife "worries about me doing the wrong stuff," so they shared they disease. Elizabeth, a diabetic patient with a diabetic spouse, felt that although she owned her own diabetes by herself, her husband's illness was co-owned: "I'm gonna say [his is] more together because I think I'm more worried about him." Thomas (diabetic patient) believed that one way he owned his disease was by worrying about his neuropathy worsening over time. Jeffrey (non-diabetic spouse) described how he and his diabetic wife were concerned for her health: "It really concerned us that she might not heal and she might end up losing part of her foot or all of her foot. So they, they scared us to death about that." Diabetes had physical consequences for patients, but it also had emotional effects on both patients and their family members. They perceived that the more they took on the emotional demands of the illness, the more co-owned it was.

Partners, in particular, described being vigilant of their family member's disease and its effects. They perceived that they were hyper-aware of the disease and the other person's experience when the illness was shared. Martha (non-diabetic spouse) said that she was aware of her husband's issues because of her own educational experiences: "I think I'm more aware of it because of my master's in guidance and counseling, and I used to work at [clinic]. I think because of my life experiences, it's more forefront in my mind than it is to him." Jeffrey (non-diabetic spouse) described how he and his wife were both so cognitively aware of her health that they did not even talk much about it anymore – they simply knew what each other was thinking:

“Yeah and I, I think it's more on our minds than it is us talking about it because we've had enough conversations about it that I think we each know what the expectations are.” This kind of awareness of the other’s disease was one way that partners were affected by the illness.

Patients recognized that it was a sacrifice for their family members to take on some of the emotional and mental effects of the disease, but they appreciated others’ willingness to accommodate and be considerate of their feelings. They described a sense of solidarity with their family members who were willing to co-own the disease, like Frank (diabetic patient), who noted that “everybody shares it and helps me with it.” Jean (diabetic patient) connected this sense of partnership with the notion of taking the disease seriously. Her advice to the family members of type 2 diabetic individuals included:

> Don't let them do it on their own. Yes, it’s their disease, but you wouldn't leave someone with cancer to do it on their own, and diabetes can have those ramifications. You lose legs, arms and it’s something you don't want to think about. It is a very much a family disease.

Jean’s description of diabetes as a “family disease” resonates with what other participants said about sharing the disease. In some ways, they saw sharing the disease to be a necessary byproduct of being in relationship with others. Jayden (diabetic patient) noted that his wife “married herself into something like this,” and Charles (diabetic patient) believed that for the first three years of his disease, it was not shared with anyone because he was single. His wife, Martha, agreed, saying that his diabetes “wasn’t ours until we got married.” Samuel talked about sharing the disease as one of the obligations of being married, saying, “When you’re married, that’s partnership. Even if you don’t agree, you still gotta take care of it. It’s nothing you can just slide under the rug and say, ‘I don’t give a shit.’” Because the family members chose to be in relationships with diabetic individuals, they were necessarily affected by the illness.

Together, the two elements described above, co-owning the disease and perceived influence of it, make up the appraisal dimension of communal coping. However, participants also talked about conditions that affected their notions of appraisal. Specifically, (a) their knowledge of the disease and its management and (b) the changing health status of the patient influenced their appraisals of shared or sole ownership. Each of these is discussed below.

Conditions Affecting Appraisal

Knowledge of the disease. One process the participants perceived was related to their appraisal of the disease as either solely or jointly owned was their knowledge about diabetes. When patients themselves knew little about the disease, they seemed to take less ownership of it. Shirley, for example, noted that she did not know some of the fundamentals of diabetes care: “I didn’t know starches. That was a long time after I was taking a pill for it.” Similarly, Jayden described his experience after he was initially diagnosed; he was so overwhelmed with his lack of knowledge that he became exhausted at the prospect of caring for himself:

> I didn't really know what I was going for. I knew I was a diabetic, but I didn't know what…like I went to classes and everything, and I'd be sitting in the class and after awhile I’d be like, "Man, I ain't even paying this lady no more attention no more. I'm tired about hearing about ‘You can't eat this.... all you can eat is vegetables.’”

Similarly, family members felt unprepared to take on any ownership of the disease when they did not know much about diabetes. Helen (non-diabetic spouse) alleged that initially, her husband had complete ownership of his diabetes because she had very little knowledge about it: “Well I think at the beginning [it was] probably totally his. At the beginning. Because I didn’t know anything about diabetes […] I think the more you learn about diabetes, yeah, the more we share." Martha (non-diabetic spouse) echoed this sentiment:

> I feel like in the beginning, it was totally his, because I didn't have that much knowledge of it. I had never experienced it personally in my family […] Even though we were together, I did not have ownership of it, because it was so him. It was more teaching me.

Both patients and family members expressed that as they learned more, they felt more comfortable owning the disease together.

Changing health status. A second influence on the appraisal process was participants' perceptions of the severity of the disease. Similar to their observation that being in a relationship necessitated some co-ownership, participants also perceived that as they encountered challenges with their health (whether they were related to their diabetes or not), they appraised the illness as more co-owned. Margaret (non-diabetic spouse) noted how her co-ownership decreased when her husband's treatment was less difficult: "I wasn't involved as much because it seemed to be less of a stress on everybody without the shots." However, Margaret described a time later in the trajectory of her husband's (Arthur, diabetic patient) illness when he was diagnosed as being in stage four renal failure. At that point, she perceived that her ownership of his diabetes went back up because "it affected me more." When Charles (diabetic patient) started getting neuropathy in his left foot, he took more ownership of his own disease, but his wife, Martha (non-diabetic spouse) also felt more involved because the illness was suddenly more severe. Jeffrey's (non-diabetic spouse) wife also experienced complications of her disease, and at that point, he felt like he took on more of the disease. Together, such experiences point to changing health status as a process that may affect how patients and their family members own their disease.

In sum, appraising type 2 diabetes as shared can be conceptualized as both (a) co-owning the disease and (b) feeling affected by it. Moreover, both knowledge and severity of the illness contribute to the appraisal process. In the section that follows, I discuss the results of this study and note how they informed the second study in this dissertation.

Discussion

The results of this study offered a rich description of what the appraisal process means to families coping with type 2 diabetes. The paragraphs above conceptualize appraisal as having two separate elements. First, appraisal concerns people's perceptions of how much they own their or their family member's type 2 diabetes. Second, appraisal concerns how much people are mentally and emotionally affected by the illness. In addition, participants' responses indicated that (a) knowledge of the disease and (b) changing health status may influence how the illness is appraised.

Conceptualizing Appraisal

The primary contribution of this study was to offer a more thorough conceptualization of the appraisal process. Communal coping theory suggests that when people encounter a stressor, they ask themselves, "Whose problem is this?" as a way to appraise the stressor as either "yours," "mine," or "ours" (Afifi et al., 2006; Lyons et al., 1998). The main sets of theorists behind communal coping have provided brief definitions of the appraisal process. Lyons et al. (1998) defined appraisal as "the degree to which problems will be construed as shared or individually owned" (p. 586), and Afifi et al. (2006) offered a nearly identical definition, saying that "the appraisal dimension represents variations in the extent to which a problem is construed as individually or jointly owned" (p. 379). However, none of the theorists offer further depth of explanation about what the appraisal process looks like or how people engage in the process of appraising stressors as either individually owned or co-owned. Chaffee (1991) notes that concept explication is a crucial part of the research process, so filling that gap in communal coping research by explicating appraisal was the goal of this study.

Analysis of the interviews with diabetic individuals and their family members revealed that when people engaged in the appraisal process, they made two considerations: (a) who has ownership of the disease and (b) who perceives they are affected by it. The first element, ownership, aligns with the definitions offered by Lyons et al. (1998) and Afifi et al. (2006). Participants talked explicitly about the illness being "my problem," "his/her problem," or "our problem," and noted that at the end of the day, the patient was the one who experienced the physical effects of diabetes. In making these observations, people with diabetes and family members answered the question, "Whose problem is this?" as they appraised who owned the stressor. However, their responses indicated ownership in less explicit ways as well. For instance, some family members used plural pronouns to describe experiences that were clearly individual in nature (e.g., "our carb management"). Their language reflected that the disease did not belong only to the patient, but to the partners as well. Moreover, participants perceived that when they took the disease seriously (as patients or as partners), they had more ownership of it. Together, these notions of co-ownership add depth to existing literature that defines the appraisal process.

The second element of the appraisal process, perceptions that one is affected by the disease, is new to conceptualizations of appraisal in communal coping research. In this study, participants reflected on how their or their family member's diabetes affected them cognitively. Often, the effects were in the form of worry or fear about the physical effects of the disease or about its severity. Participants also described being vigilant, or hyper-aware, of the disease, partially because being in a relationship with a diabetic person necessitated being affected in some ways by the disease. Although this conceptualization is novel as a defining characteristic of shared appraisal, literature on stress and coping more generally has noted the significance of one's stress affecting others, a process called *stress contagion*. In one of the initial explorations of stress contagion, Riley and Eckenrode (1986) noted that one potential reason people experience stress contagion is that when a stressful event happens to a relational partner, people feel obligated to help because the stressed individual would and does provide reciprocal aid. This sentiment is similar to what was expressed by participants in this study; one reason they were affected by the disease was a product of the fact that they existed in relationship with someone who was diabetic, so they felt obligated to co-own the illness. Together, these elements of ownership and perceptions of influence helped participants appraise a stressor as either an individual or shared experience.

Explication is the foundation of good operationalization of communication concepts (Chaffee, 1991). Accordingly, the insights from study 1 were used to create a measure of the appraisal dimension of communal coping, which was incorporated into a survey designed to test the remaining research questions and hypotheses in this dissertation. Although knowledge of the disease and changing health status may influence the appraisal process, they are not considered central to appraisal, so they were not included in the measure. I used the two main elements of appraisal from the analyses of the interviews to construct a 10-item measure of appraisal. The goal of the measure is to assess the extent to which diabetic individuals appraised their illness as individually or jointly owned with their family members. Six items were dedicated to ownership of the disease (e.g., "I feel like I am the only one with ownership of my diabetes," "My diabetes is my and my family's problem"), and four items were dedicated to the notion of being affected by the illness (“Only I am affected by my diabetes,” “My diabetes influences the lives of others in my family). For a complete list of items, see Appendix F. The results of the survey study are described in the next chapter.

CHAPTER 5

STUDY 2 RESULTS AND DISCUSSION

A total of 159 individuals with type 2 diabetes completed the survey to participate in the second study. In the following sections, I describe the procedures for data analysis and the results of the study, and I offer a brief summary of the pattern of results.

Preliminary Analyses

I began by conducting several preliminary analyses to explore characteristics of the data. Specifically, I examined assumptions of normality and zero-order associations among the variables. I handled missing cases in the data using expectation maximization, and then I conducted analyses to inspect the psychometric properties of each scale (see chapter 3), including examining the skewness and kurtosis of each measure.

Missing Data

A total of 11.2% of the data were missing overall. Of the 159 cases, 156 (98.1%) had some missing data, and three (1.9%) were complete. For the items in each measure, I ran Little's MCAR (Missing Completely At Random) test to assess whether the missing data were distributed randomly. For most measures, the data were missing at random; however, the following measures had data missing not at random: emotion-focused coping, $\chi^2(18) = 35.04$, $p < .05$; exercise (days per week) self-care, $\chi^2(54) = 138.87$, $p < .001$; depressive symptoms, $\chi^2(261) = 340.85$, $p < .01$; locus of control—internal subscale, $\chi^2(16) = 42.41$, $p < .001$; emotional distress, $\chi^2(263) = 350.03$, $p < .001$; stigma—social rejection subscale, $\chi^2(39) = 133.46$, $p < .001$; and stigma—internalized shame subscale, $\chi^2(22) = 44.71$, $p < .01$. Missing data were handled using expectation maximization.[1] Expectation maximization (EM) uses a maximum likelihood approach to estimate missing data parameters (Roth, 1994). This is accomplished in two steps. In the expectation step, the EM algorithm estimates missing data given the data that are observed (i.e., the expectation of the complete data set given the observed data); in the maximization step, parameters are estimated from the complete data generated in the first step until a point of convergence is reached (Dempster, Laird, & Rubin, 1977; Gold & Bentler, 2000). Scholars recommend expectation maximization as a beneficial method of handling missing data because of its capacity for reducing bias and preventing model misspecification (Gold & Bentler, 2000).

Bivariate Correlations

I explored zero-order associations among variables in the study by examining bivariate correlations. Although these associations did not account for the hypothesized models, they offered information about general patterns in the data. Moreover, zero-order correlations lent insight into whether there was multicollinearity among variables in the study.

Bivariate correlations among demographic characteristics and the independent and dependent variables are summarized in Table 5.1. The only significant difference between inpatients and participants recruited through students concerned exercise (days per week) self-care; inpatients reported exercising significantly fewer days per week than participants who were not hospitalized. Gender was significantly associated with shared appraisal, joint action, exercise (days per week) self-care, and depressive symptoms, with men more likely to report shared appraisal, joint action, and more days per week of exercise, and women more likely to report depressive symptoms. Age was significantly and negatively associated with days per week of exercise, and race was significantly correlated with problem-focused coping, glucose self-care, and exercise (days per week and time per day) self-care. Marital status was significantly correlated with both cohesion and depressive symptoms; patients who were married or partnered reported higher cohesion and lower depressive symptoms than those who were widowed, separated, divorced, or never married. Education was associated with both exercise self-care variables such that as education increased, days per week of exercise also increased, but time per day of exercise decreased. Employment status was significantly associated with shared appraisal, family cohesion, and exercise (days per week) self-care. Income was positively associated with family cohesion and exercise (days per week) self-care. The number of family members one had at home was positively correlated with problem-focused coping and exercise (days per week) self-care, and having another family member with diabetes was significantly and negatively related to adherence. Finally, having insurance coverage was positively associated with both joint action and adherence.

Correlations among disease characteristics and the independent and dependent variables are summarized in Table 5.2. A1C was used to assess inpatients' diabetes control (with higher numbers indicating worse control), and it was negatively correlated with adherence and positively correlated with exercise (time per day) self-care. Time since the diagnosis was negatively associated with problem-focused coping. The presence of comorbid diseases was negatively associated with exercise (days per week) self-care and positively associated with depressive symptoms. Diabetes complications were positively associated with shared appraisal, exercise (time per day) self-care, and depressive symptoms. Finally, severity of the disease was positively correlated with shared appraisal and with depressive symptoms.

Table 5.1

Bivariate Correlations among Independent Variables, Dependent Variables, and Demographic Characteristics

	Group	Gender	Age	Race	Marital Status	Education	Employment Status	Income	Family at Home	Other Family Diabetes	Insurance Coverage
Appraisal	.05	.19*	.01	-.10	-.09	.00	.16*	.03	.05	.02	.02
Action	-.01	.17*	.03	-.10	-.09	-.03	.06	.04	.07	.09	.17*
Problem-Focus	.00	.11	-.01	-.22**	-.16	.04	-.06	.13	.20*	.14	.08
Emotion-Focus	.08	.02	-.05	-.16	-.11	-.08	-.01	.09	.12	.09	-.03
Cohesion	.12	-.03	.12	-.10	-.22**	.01	-.17*	.18*	.08	.13	-.01
Adherence	.12	-.02	.19*	-.11	.02	-.03	.04	.01	-.12	-.19*	.21*
Self-care (glucose)	.01	-.04	.14	-.16*	-.01	.02	.04	-.01	-.09	.03	.13
Self-care (diet)	.11	-.03	.07	-.01	-.08	.04	-.01	.06	.04	.02	.11
Self-care (exercise days)	.57***	.18*	-.29***	-.19*	.03	.19*	-.17*	.25**	.25**	.06	-.01
Self-care (exercise time)	-.10	.14	-.01	-.30**	-.02	-.20*	-.07	-.12	.07	.05	.06
Depression	-.11	-.21*	-.19*	.01	.19*	-.01	.11	-.17	-.06	-.02	-.11

*$p < .05$, **$p < .01$, ***$p < .001$.

Table 5.2

Bivariate Correlations among Independent Variables, Dependent Variables, and Disease Characteristics

	A1C	Time Since Diagnosis	Comorbidities	Diabetes Complications	Severity
Appraisal	-.06	-.03	.08	.29***	.32***
Action	-.15	-.06	.02	.05	.06
Problem-Focus	.02	-.18*	.04	.10	.06
Emotion-Focus	.06	-.08	.01	.03	.06
Cohesion	.11	-.01	.09	.02	-.00
Adherence	-.35**	.10	-.15	-.12	-.10
Self-care (glucose)	-.21	.04	-.11	.06	.13
Self-care (diet)	.15	.08	-.16	-.07	-.03
Self-care (exercise days)	.05	-.13	-.22**	-.14	-.08
Self-care (exercise time)	.23*	-.02	-.17	.22*	.02
Depression	.04	-.02	.18*	.23**	.35***

Note. A1C = indicates participants' disease control (higher numbers indicate worse control; available only for inpatients); **p* < .05, ***p* < .01, ****p* < .001.

Next, I analyzed correlations among the potential covariates (i.e., locus of control, diabetes-related emotional distress, and stigma) and the independent and dependent variables (Table 5.3). Participants' perceptions of internal locus of control were negatively correlated with shared appraisal, joint action, and problem-focused coping, and external locus of control was positively associated with joint action, problem-focused coping, and emotion-focused coping. Emotional distress was negatively correlated with adherence and diet self-care and positively correlated with depressive symptoms. All four stigma subscales were negatively associated with family cohesion and positively associated with depressive symptoms. In addition, the financial

Table 5.3

Bivariate Correlations among Independent Variables, Dependent Variables, and Covariates

	Locus of Control (Internal)	Locus of Control (Others)	Emotional Distress	Stigma (Social Rejection)	Stigma (Financial Insecurity)	Stigma (Internalized Shame)	Stigma (Social Isolation)
Appraisal	-.20*	.07	.13	.07	.07	.01	.08
Action	-.32***	.25**	-.02	-.06	-.24**	-.13	-.10
Problem-Focused	-.23**	.32***	.04	.02	-.11	-.06	-.05
Emotion-Focused	.04	.18*	-.04	-.08	-.11	-.19*	-.21**
Cohesion	-.00	.12	-.06	-.24**	-.17*	-.18*	-.28***
Adherence	-.09	-.13	-.35***	-.09	-.17*	-.22**	-.24**
Self-care (glucose)	-.10	.05	-.02	.02	.03	-.13	-.09
Self-care (diet)	-.06	-.05	-.20*	-.06	-.07	-.18*	-.15
Self-care (exercise days)	.03	.02	-.12	-.05	-.16*	-.07	-.13
Self-care (exercise time)	.06	.22*	-.09	-.08	-.10	-.15	-.13
Depression	-.13	.20*	.58***	.43***	.44***	.43***	.64***

*$p < .05$, **$p < .01$, ***$p < .001$.

insecurity subscale was negatively associated with joint action and adherence, and the internalized shame and social isolation subscales were negatively associated with emotion-focused coping and adherence. Finally, I examined bivariate correlations among the study's independent and dependent variables (Table 5.4). Based on these analyses, I concluded which analyses required covariates (see Table 5.5).

Results

RQ2: Testing the Communal Coping Typology

I began substantive analyses by answering the second research question, which concerns whether the data support a typological approach to the communal coping model. Theoretically, the appraisal and action dimensions cross each other to create four distinct types of coping: (a) individual coping, (b) support-seeking, (c) parallelism, and (d) communal coping (Lyons et al., 1998), but the typology has not been statistically validated. In a typological approach, data are formed into nominal categories. Statistically, this is done by examining naturally occurring groups, or clusters, of individuals.

To test for clusters of data along the dimensions of appraisal and action, I employed latent class analysis (LCA; Collins & Lanza, 2009), a type of structural equation modeling that identifies distinct subgroups (i.e., latent classes) using observed indicators. I tested the typological properties of the data using PROC LCA in SAS. Because LCA assumes that data are categorical to aid in interpretation of the results of the LCA, each item in the communal coping scales was re-coded to contain three response categories (1 = *strongly disagree* and *disagree*; 2 = *neutral*; 3 = *agree* and *strongly agree*). Then, all items from the appraisal and action subscales (with the exception of those dropped during confirmatory factor analysis) were entered into the program. Following previous research (e.g., Kam, 2011) and recommendations from LCA

Table 5.4

Bivariate Correlations among Independent and Dependent Variables

	1	2	3	4	5	6	7	8	9	10
1. Appraisal										
2. Action	.58***									
3. Problem-focused	.47***	.67***								
4. Emotion-focused	.22***	.40***	.46***							
5. Cohesion	.02	.14	.20*	.55***						
6. Adherence	.07	.20*	.02	.15	.07					
7. Self-care (glucose)	.19*	.29***	.14	.17*	-.02	.47***				
8. Self-care (diet)	.04	.25**	.07	.30***	.14	.59***	.44***			
9. Self-care (exercise days)	.06	.17*	.14	.17*	.08	.18*	.12	.28**		
10. Self-care (exercise time)	.06	.21*	.16	.23*	.18*	.05	.08	.12	.43***	
11. Depressive symptoms	.08	-.07	.04	-.10	-.21*	-.35***	-.10	-.22**	-.18*	-.07

*$p < .05$, **$p < .01$, ***$p < .001$.

Table 5.5
Control Variables for Each Dependent Variable

Dependent Variable	**Control Variables**
Appraisal	Gender Employment Disease complications Disease severity Locus of control (internal subscale)
Action	Gender Insurance coverage Locus of control (internal subscale) Locus of control (other people subscale) Stigma (financial subscale)
Problem-focused coping	Race Number of family members Time since diagnosis Locus of control (internal subscale) Locus of control (other people subscale)
Emotion-focused coping	Locus of control (other people subscale) Stigma (internalized shame subscale) Stigma (isolation subscale)
Adherence	Age Family members with T2D Insurance coverage A1C Emotional distress (PAID) Stigma (financial subscale) Stigma (internalized shame subscale) Stigma (isolation subscale)
Self-care (glucose)	Race
Self-care (diet)	Emotional distress (PAID) Stigma (internalized shame subscale)
Self-care (exercise days/week)	Group (hospital vs. online) Gender Age Race Education Employment Income Number of family members Comorbidities Stigma (financial subscale)

(table continues)

Table 5.5 (cont.)

Dependent Variable	**Control Variables**
Self-care (exercise time/day)	Race Education Disease complications Locus of control (other people subscale)
Depressive symptoms	Gender Age Marital status Comorbidities Disease complications Disease severity Locus of control (other people subscale) Emotional distress (PAID) Stigma (social rejection subscale) Stigma (financial subscale) Stigma (internalized shame subscale) Stigma (isolation subscale)

scholars (e.g., Nylund, Asparouhov, & Muthén, 2007; Vermunt & Magidson, 2002), I used the Bayesian Information Criterion (BIC) as the fit statistic to test for the number of latent classes in the data. I tested models for two, three, four, five, and six latent classes. Table 5.6 contains the results of the analyses. Small BIC values indicate better fit to the data; therefore, the best fitting model contained three latent classes.

Table 5.6
Fit Criteria for Latent Class Analysis

Number of classes	BIC	Degrees of Freedom
6	3120.45	14,348,721
5	3016.20	14,348,752
4	2923.40	14,348,783
3	2881.09	14,348,814
2	2899.62	14,348,845

Note. *N* = 159.

The next step in data analysis involved interpreting the characteristics of each latent class, which are displayed in Table 5.7. The ϒ statistic indicates latent class membership probabilities; approximately 44% of participants had the highest probability of being in Class 1; 22% were in Class 2, and 34% were in Class 3. The item response probabilities (ρ) for each item show characteristics of each latent class. For instance, the probability of participants in Class 1 disagreeing with item Appraisal 3 ("My diabetes only influences my life, not anybody else's") was .79, whereas the probability of being neutral on this item was .48 for those in Class 2, and the probability of agreement for participants in Class 3 was .73. For each class, I examined the response patterns of each item with a goal of providing a description and label for each class. Class 1 was labeled *communal coping*, as responses were characterized by high shared appraisal and high joint action. Class 2 was characterized by *moderate sharing*; scores on appraisal were moderate, and they were low to moderate on joint action. Finally, Class 3 contained *individual copers* whose responses indicated low shared appraisal and low joint action. This typology is partially consistent with communal coping theory, as only two of the theorized types of coping were indicated in the data (i.e., individual coping and communal coping).

Table 5.7
Item Response Probabilities for a Three-Class Model

Item		Class 1 ρ (SE)	Class 2 ρ (SE)	Class 3 ρ (SE)
	ϒ for class membership	.44	.22	.34
Appraisal1	*I feel like I am the only one with ownership of my diabetes.**			
	Disagree	.55 (.06)	.02 (.05)	.25 (.07)
	Neutral	.11 (.04)	.43 (.09)	.08 (.04)
	Agree	.33 (.06)	.55 (.10)	.67 (.07)
Appraisal2	*My family is affected by my diabetes.*			
	Disagree	.32 (.06)	.26 (.08)	.66 (.07)
	Neutral	.19 (.05)	.46 (.09)	.12 (.05)
	Agree	.49 (.06)	.27 (.09)	.22 (.06)

(table continues)

Table 5.7 (cont.)

Item		Class 1 ρ (SE)	Class 2 ρ (SE)	Class 3 ρ (SE)
Appraisal3	*My diabetes only influences my life, not anybody else's.**			
	Disagree	.79 (.05)	.34 (.09)	.18 (.06)
	Neutral	.13 (.04)	.48 (.10)	.09 (.04)
	Agree	.08 (.04)	.19 (.08)	.73 (.07)
Appraisal4	*Only I am affected by my diabetes.**			
	Disagree	.83 (.05)	.37 (.09)	.18 (.06)
	Neutral	.14 (.05)	.33 (.09)	.05 (.03)
	Agree	.04 (.03)	.30 (.09)	.77 (.07)
Appraisal5	*My diabetes is my and my family's problem.*			
	Disagree	.37 (.06)	.27 (.09)	.48 (.06)
	Neutral	.15 (.05)	.29 (.09)	.18 (.06)
	Agree	.47 (.06)	.44 (.10)	.34 (.07)
Appraisal7	*My diabetes is only my problem.**			
	Disagree	.66 (.06)	.16 (.08)	.25 (.06)
	Neutral	.10 (.04)	.51 (.10)	.08 (.04)
	Agree	.23 (.06)	.33 (.10)	.67 (.07)
Appraisal8	*My diabetes influences the lives of others in my family.*			
	Disagree	.23 (.05)	.14 (.07)	.68 (.06)
	Neutral	.22 (.05)	.54 (.10)	.06 (.04)
	Agree	.56 (.06)	.32 (.09)	.26 (.07)
Appraisal10	*I feel like I share ownership of my diabetes with my family.*			
	Disagree	.29 (.06)	.32 (.09)	.84 (.06)
	Neutral	.26 (.06)	.46 (.09)	.06 (.04)
	Agree	.46 (.06)	.22 (.08)	.10 (.05)
Action1	*My family members and I have joined together to deal with my diabetes.*			
	Disagree	.13 (.06)	.27 (.09)	.65 (.07)
	Neutral	.18 (.05)	.43 (.10)	.12 (.05)
	Agree	.69 (.06)	.30 (.09)	.23 (.06)
Action2	*I make plans for dealing with my diabetes by myself.**			
	Disagree	.58 (.07)	.04 (.03)	.02 (.02)
	Neutral	.10 (.04)	.50 (.10)	.04 (.03)
	Agree	.33 (.06)	.46 (.10)	.93 (.04)
Action3	*I depend only on myself to manage my diabetes.**			
	Disagree	.64 (.06)	.16 (.07)	.04 (.03)
	Neutral	.17 (.05)	.31 (.09)	.06 (.04)
	Agree	.18 (.05)	.53 (.10)	.89 (.04)
Action4	*I do not rely on anyone to cope with my diabetes.**			
	Disagree	.65 (.06)	.00 (.01)	.06 (.03)
	Neutral	.12 (.05)	.53 (.10)	.07 (.04)
	Agree	.23 (.06)	.46 (.10)	.86 (.05)

(table continues)

Table 5.7 (cont.)

Item		Class 1 ρ (SE)	Class 2 ρ (SE)	Class 3 ρ (SE)
Action5	*I get support from my family to handle my diabetes.*			
	Disagree	.16 (.05)	.03 (.03)	.46 (.07)
	Neutral	.05 (.03)	.42 (.10)	.16 (.06)
	Agree	.79 (.05)	.55 (.10)	.37 (.05)
Action6	*I deal with my diabetes alone.**			
	Disagree	.83 (.05)	.36 (.10)	.17 (.06)
	Neutral	.05 (.03)	.53 (.10)	.11 (05)
	Agree	.11 (.04)	.11 (.07)	.72 (.07)
Action9	*I depend on others in my family to manage my diabetes.*			
	Disagree	.57 (.06)	.65 (.09)	.91 (.05)
	Neutral	.22 (.05)	.12 (.06)	.03 (.03)
	Agree	.21 (.05)	.23 (.08)	.06 (.04)

Note. *Reverse scored.

I tested the remaining research questions and hypotheses in two steps. First, I used hierarchical linear regressions to test each hypothesized relationship separately. In the first step of the regression, I entered covariates indicated in preliminary analyses (Table 5.5). Then, to test the predicted associations, I entered each independent variable on the second step of the regression analysis. After running separate regressions for each hypothesis, I tested each hypothesized model using structural equation modeling (SEM). In the following sections, I begin by reporting on the regression analyses, and then I provide the results of the SEM analyses.

H1: Family Cohesion and Shared Appraisal

The first hypothesis predicted a positive relationship between family cohesion and shared appraisal. The model was significant, $F(6, 149) = 6.70$, $p < .001$, although cohesion did not explain significant variance beyond disease severity in the second step of the regression. Table 5.8 displays the R^2, adjusted R^2, the R^2 change, and the standardized betas (β) for H1. Because cohesion and appraisal were not significantly related, H1 was not supported.

Table 5.8

Regression of Shared Appraisal onto Family Cohesion

		β	R^2	Adjusted R^2	R^2 change
Step 1			.21	.18	
	Gender	.21**			
	Employment	.13			
	Complications	.16			
	Severity	.21*			
	Locus of control (internal)	-.17*			
Step 2			.21	.18	.00
	Gender	.21**			
	Employment	.14			
	Complications	.15			
	Severity	.21*			
	Locus of control (internal)	-.17*			
	Cohesion	.08			

*$p < .05$, **$p < .01$.

H2: Family Cohesion and Joint Action.

H2 predicted a positive relationship between family cohesion and joint action. Joint action was tested as three separate dependent variables in all hypotheses and research questions; first, I tested the relationship between family cohesion and the joint action subscale, followed by the problem-focused coping and emotion-focused coping scales as types of collective action. For the joint action subscale, the model was significant, $F(6, 150) = 10.12$, $p < .001$, but cohesion did not explain significant variance in joint action (Table 5.9). The same pattern held for the relationship between cohesion and problem-focused coping. The model was significant, $F(6, 139) = 7.67$, $p < .001$, but cohesion did not explain statistically significant variance in problem-focused coping ($p = .06$; Table 5.10). However, the positive relationship between emotion-focused coping and cohesion was significant, $F(4, 154) = 18.44$, $p < .001$ (see Table 5.11). Therefore H2 was supported for emotion-focused coping, but not for the joint action subscale or for problem-focused coping.

Table 5.9
Regression of Joint Action onto Family Cohesion

		β	R^2	Adjusted R^2	R^2 change
Step 1			.28	.26	
	Gender	.16*			
	Insurance	.12			
	Locus of control (internal)	-.32***			
	Locus of control (others)	.27***			
	Stigma (financial insecurity)	-.26***			
Step 2			.29	.26	.01
	Gender	.16*			
	Insurance	.13			
	Locus of control (internal)	-.32***			
	Locus of control (others)	.26***			
	Stigma (financial insecurity)	-.25**			
	Cohesion	.08			

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 5.10
Regression of Problem-Focused Coping onto Family Cohesion

		β	R^2	Adjusted R^2	R^2 change
Step 1			.23	.20	
	Race	-.18*			
	Family number	.18*			
	Time since diagnosis	-.16*			
	Locus of control (internal)	-.22**			
	Locus of control (others)	.25**			
Step 2			.25	.22	.02
	Race	-.17*			
	Family number	.18*			
	Time since diagnosis	-.16*			
	Locus of control (internal)	-.22*			
	Locus of control (others)	.24*			
	Cohesion	.14			

$^{*}p < .05$, $^{**}p < .01$.

Table 5.11

Regression of Emotion-Focused Coping onto Family Cohesion

		β	R^2	Adjusted R^2	R^2 change
Step 1			.08	.06	
	Locus of control (others)	.18*			
	Stigma (social isolation)	-.07			
	Stigma (internalized shame)	-.17			
Step 2			.32	.31	.24
	Locus of control (others)	.11			
	Stigma (social isolation)	-.08			
	Stigma (internalized shame)	-.01			
	Cohesion	.52***			

*$p < .05$, ***$p < .001$.

H3-H4: Perceived Resolvability and Shared Appraisal/Joint Action

As noted in chapter 3, most participants reported having no serial arguments about diabetes; thus, only a small percentage of participants completed the measure for perceived resolvability of serial arguments ($n = 22$, 13.9%). This number of responses did not provide enough power to run the analyses for H3 or H4. Hypotheses 8 and 9 and research questions 6 and 7 were also dropped from the study because they focused on the associations between perceived resolvability and the types of coping.

RQ3: Shared Appraisal and Self-Care, Adherence, and Depressive Symptoms

The third research question concerned the relationships among shared appraisal and individual diabetes-related outcomes (i.e., self-care, adherence, depressive symptoms). For RQ3a, associations between shared appraisal and self-care were tested with four self-care variables: glucose, diet, days per week of exercise, and time per day of exercise. The relationship between shared appraisal and glucose self-care was significant and positive, $F(2, 156) = 4.66$, $p < .05$ (Table 5.12). The association between shared appraisal and diet self-care was non-significant, although the model was significant on the second step, $F(3, 143) = 2.73$, $p < .05$

(Table 5.13). Similarly, the model for exercise (days per week) self-care was significant, $F(11, 122) = 6.83$, $p < .001$, but appraisal did not explain significant variance in exercise self-care (Table 5.14). The same pattern emerged for the model testing the relationship between shared appraisal and exercise (time per day) self-care; the model was significant on the second step, $F(5, 112) = 5.39$, $p < .001$, but significant variance in exercise self-care was not explained (Table 5.15). RQ3b pertained to the relationship between shared appraisal and adherence. Although the model was significant on the second step, $F(8, 128) = 4.90$, $p < .001$, appraisal did not explain significant variance in adherence (see Table 5.16). Finally, RQ3c concerned the association between depressive symptoms and shared appraisal. The model was significant, $F(13, 116) = 11.34$, $p < .001$, but appraisal did not explain significant variance in depressive symptoms on the second step of the model (Table 5.17). Therefore, shared appraisal was only significantly associated with one individual diabetes-related outcome: glucose self-care.

Table 5.12

Regression of Self-Care (Glucose) onto Shared Appraisal

		β	R^2	Adjusted R^2	R^2 change
Step 1			.03	.02	
	Race	-.16*			
Step 2			.06	.04	.03
	Race	-.14			
	Shared appraisal	.18*			

*$p < .05$.

Table 5.13

Regression of Self-Care (Diet) onto Shared Appraisal

		β	R^2	Adjusted R^2	R^2 change
Step 1			.05	.04	
	Emotional distress	-.15			
	Stigma (social isolation)	-.12			
Step 2			.05	.03	.00
	Emotional distress	-.15			
	Stigma (social isolation)	-.11			
	Shared appraisal	.06			

Table 5.14

Regression of Self-Care (Exercise Days per Week) onto Shared Appraisal

		β	R^2	Adjusted R^2	R^2 change
Step 1			.38	.33	
	Group	.50***			
	Gender	.13			
	Age	-.11			
	Race	-.03			
	Education	.08			
	Employment	-.02			
	Income	-.07			
	Family at home	.01			
	Comorbidities	-.11			
	Stigma (financial insecurity)	-.12			
Step 2			.38	.33	.01
	Group	.50***			
	Gender	.11			
	Age	-.11			
	Race	-.02			
	Education	.08			
	Employment	-.04			
	Income	-.07			
	Family at home	.01			
	Comorbidities	-.12			
	Stigma (financial insecurity)	-.13			
	Shared appraisal	.06			

***$p < .001$.

Table 5.15

Regression of Self-Care (Exercise Time per Day) onto Shared Appraisal

		β	R^2	Adjusted R^2	R^2 change
Step 1			.19	.16	
	Race	-.25**			
	Education	-.17*			
	Complications	.21*			
	Locus of control (others)	.16			
Step 2			.19	.16	.00
	Race	-.26**			
	Education	-.17*			
	Complications	.23*			
	Locus of control (others)	.16			
	Shared appraisal	-.04			

*$p < .05$, **$p < .01$.

Table 5.16

Regression of Adherence onto Shared Appraisal

		β	R^2	Adjusted R^2	R^2 change
Step 1			.22	.17	
	Age	.06			
	Family T2D	-.13			
	Insurance	.26**			
	Emotional distress	-.33**			
	Stigma (financial insecurity)	.08			
	Stigma (internalized shame)	.01			
	Stigma (social isolation)	-.11			
Step 2			.23	.19	.02
	Age	.06			
	Family T2D	-.13			
	Insurance	.27**			
	Emotional distress	-.34**			
	Stigma (financial insecurity)	.08			
	Stigma (internalized shame)	-.02			
	Stigma (social isolation)	-.08			
	Shared appraisal	.14			

Note. Family T2D = other family members with diabetes (0 = no, 1 = yes); *$p < .05$, **$p < .01$.

Table 5.17

Regression of Depressive Symptoms onto Shared Appraisal

		β	R^2	Adjusted R^2	R^2 change
Step 1			.56	.51	
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.07			
	Stigma (social isolation)	-.12			
	Stigma (internalized shame)	.46***			
Step 2			.56	.51	.00
	Gender	-.10			
	Age	-.03			
	Marital status	.06			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.06			
	Stigma (social isolation)	-.13			
	Stigma (internalized shame)	.47***			
	Shared appraisal	-.02			

**$p < .01$, ***$p < .001$.

H5: Joint Action and Self-Care, Adherence, and Depressive Symptoms

H5a predicted that joint action would be positively associated with self-care. Each self-care outcome (glucose, diet, exercise days per week, exercise time per day) was tested in a separate model with joint action, problem-focused coping, and then emotion-focused coping. The relationship between glucose self-care and joint action was significant and positive, $F(2, 156) = 8.51$, $p < .001$ (Table 5.18). Similarly, diet self-care and joint action were significantly and positively related, $F(3, 143) = 5.99$, $p < .01$ (Table 5.19). Exercise (days per week) self-care was also significantly and positively associated with joint action, $F(11, 122) = 7.89$, $p < .001$ (Table 5.20). Unlike the other self-care variables, exercise time per day was not significantly related to joint action, although the model was significant on the second step, $F(5, 112) = 6.08$, $p < .001$ (Table 5.21).

Table 5.18
Regression of Self-Care (Glucose) onto Joint Action

		β	R^2	Adjusted R^2	R^2 change
Step 1			.03	.02	
	Race	-.16*			
Step 2			.10	.09	.07
	Race	-.13			
	Joint action	.27***			

*$p < .05$, ***$p < .001$.

Table 5.19
Regression of Self-Care (Diet) onto Joint Action

		β	R^2	Adjusted R^2	R^2 change
Step 1			.05	.04	
	Emotional distress	-.15			
	Stigma (social isolation)	-.12			
Step 2			.11	.09	.06
	Emotional distress	-.16			
	Stigma (social isolation)	-.08			
	Joint action	.25**			

**$p < .01$.

Table 5.20

Regression of Self-Care (Exercise Days per Week) onto Joint Action

		β	R^2	Adjusted R^2	R^2 change
Step 1			.38	.33	
	Group	.50***			
	Gender	.13			
	Age	-.11			
	Race	-.03			
	Education	.08			
	Employment	-.02			
	Income	-.07			
	Family at home	.01			
	Comorbidities	-.11			
	Stigma (financial insecurity)	-.12			
Step 2			.42	.36	.04
	Group	.51***			
	Gender	.09			
	Age	-.11			
	Race	-.01			
	Education	.08			
	Employment	-.02			
	Income	-.06			
	Family at home	-.02			
	Comorbidities	-.13			
	Stigma (financial insecurity)	-.07			
	Joint action	.21**			

*p < .01, ***p < .001.

Table 5.21

Regression of Self-Care (Exercise Time per Day) onto Joint Action

		β	R^2	Adjusted R^2	R^2 change
Step 1			.19	.16	
	Race	-.25**			
	Education	-.17*			
	Complications	.21*			
	Locus of control (others)	.16			
Step 2			.21	.18	.02
	Race	-.25**			
	Education	-.17*			
	Complications	.20*			
	Locus of control (others)	.13			
	Joint action	.15			

**p* < .05, ***p* < .01.

H5b predicted a positive association between adherence and joint action, and the hypothesis was supported, *F*(8, 128) = 5.67, *p* < .001 (Table 5.22). H5c predicted a negative relationship between depressive symptoms and joint action; however, joint action did not predict significant variance in depressive symptoms, *F*(13, 116) = 11.48, *p* < .001 (Table 5.23). Therefore, H5 was partially supported using the joint action subscale, as it was significantly related to self-care (glucose, diet, and exercise days per week) and adherence, but not exercise (time per day) self-care or depressive symptoms.

Table 5.22

Regression of Adherence onto Joint Action

		β	R^2	Adjusted R^2	R^2 change
Step 1			.22	.17	
	Age	.06			
	Family T2D	-.13			
	Insurance	.26**			
	Emotional distress	-.33**			
	Stigma (financial insecurity)	.08			
	Stigma (social isolation)	-.11			
	Stigma (internalized shame)	.01			
Step 2			.26	.22	.05
	Age	.07			
	Family T2D	-.15			
	Insurance	.25**			
	Emotional distress	-.36**			
	Stigma (financial insecurity)	.14			
	Stigma (social isolation)	-.08			
	Stigma (internalized shame)	-.00			
	Joint action	.22**			

Note. Family T2D = other family members with diabetes (0 = no, 1 = yes); ***p* < .01.

Table 5.23
Regression of Depressive Symptoms onto Joint Action

		β	R^2	Adjusted R^2	R^2 change
Step 1			.56	.51	
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.07			
	Stigma (social isolation)	-.12			
	Stigma (internalized shame)	.46***			
Step 2			.56	.51	.00
	Gender	-.09			
	Age	-.03			
	Marital status	.06			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.09			
	Locus of control (others)	.03			
	Emotional distress	.30**			
	Stigma (social rejection)	.01			
	Stigma (financial insecurity)	.04			
	Stigma (social isolation)	-.13			
	Stigma (internalized shame)	.46***			
	Joint action	-.07			

**$p < .01$, ***$p < .001$.

Next, each individual diabetes-related outcome was tested in its association with problem-focused coping. For H5a, the relationship between problem-focused coping and glucose self-care was non-significant, $F(2, 156) = 2.98$, $p = .05$ (Table 5.24). The model testing the association between problem-focused coping and diet self-care was significant, but problem-focused coping did not predict significant variance in diet self-care, $F(3, 143) = 2.78$, $p < .05$ (Table 5.25). Problem-focused coping was significantly and positively related to exercise (days per week) self-care, *F*(11, 122) = 7.44, $p < .001$ (Table 5.26); however, problem-focused coping was not significantly associated with exercise (time per day) self-care, although the model was significant, *F*(5, 112) = 5.49, $p < .001$ (Table 5.27). H5b predicted a positive relationship between problem-focused coping and adherence; however, they were not significantly related, *F*(8, 128) = 4.51, $p < .001$ (Table 5.28). H5c predicted a negative relationship between problem-focused coping and depressive symptoms. Although the model was significant, *F*(13, 116) = 11.33, $p < .001$, depressive symptoms and problem-focused coping were not significantly associated ($p = .98$; Table 5.29). Therefore, problem-focused coping was only significantly related to exercise (days per week) self-care.

Table 5.24

Regression of Self-Care (Glucose) onto Problem-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.03	.02	
	Race	-.16*			
Step 2			.04	.02	.01
	Race	-.14			
	Problem-focused	.11			

*$p < .05$.

Table 5.25

Regression of Self-Care (Diet) onto Problem-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.05	.04	
	Emotional distress	-.15			
	Stigma (social isolation)	-.12			
Step 2			.06	.04	.00
	Emotional distress	-.15			
	Stigma (social isolation)	-.11			
	Problem-focused	.07			

Table 5.26

Regression of Self-Care (Exercise Days per Week) onto Problem-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.38	.33	
	Group	.50***			
	Gender	.13			
	Age	-.11			
	Race	-.03			
	Education	.08			
	Employment	-.02			
	Income	-.07			
	Family at home	.01			
	Comorbidities	-.11			
	Stigma (financial insecurity)	-.12			
Step 2			.40	.35	.03
	Group	.53***			
	Gender	.11			
	Age	-.12			
	Race	.01			
	Education	.08			
	Employment	-.01			
	Income	-.09			
	Family at home	-.04			
	Comorbidities	-.12			
	Stigma (financial insecurity)	-.10			
	Problem-focused	.18*			

**p* < .05, ****p* < .001.

Table 5.27

Regression of Self-Care (Exercise Time per Day) onto Problem-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.19	.16	
	Race	-.25**			
	Education	-.17*			
	Complications	.21*			
	Locus of control (others)	.16			
Step 2			.20	.16	.00
	Race	-.25**			
	Education	-.17*			
	Complications	.21*			
	Locus of control (others)	.14			
	Problem-focused	.07			

**p* < .05, ***p* < .01.

Table 5.28

Regression of Adherence onto Problem-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.22	.17	
	Age	.06			
	Family T2D	-.13			
	Insurance	.26**			
	Emotional distress	-.33**			
	Stigma (financial insecurity)	.08			
	Stigma (social isolation)	-.11			
	Stigma (internalized shame)	.01			
Step 2			.22	.17	.00
	Age	.06			
	Family T2D	-.14			
	Insurance	.26**			
	Emotional distress	-.34**			
	Stigma (financial insecurity)	.09			
	Stigma (social isolation)	-.10			
	Stigma (internalized shame)	.01			
	Problem-focused	.06			

Note. Family T2D = other family members with diabetes (0 = no, 1 = yes); ***p* < .01.

Table 5.29
Regression of Depressive Symptoms onto Problem-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.56	.51	
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.07			
	Stigma (social isolation)	-.12			
	Stigma (internalized shame)	.46***			
Step 2			.56	.51	.00
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.07			
	Stigma (social isolation)	-.12			
	Stigma (internalized shame)	.46***			
	Problem-focused	.00			

***p* < .01, ****p* < .001.

Finally, I tested the relationship between emotion-focused coping and self-care, adherence, and depressive symptoms. H2a concerned the relationship between emotion-focused coping and self-care. Emotion-focused coping was not significantly associated with glucose self-care, although the model was significant, *F*(2, 156) = 3.75, *p* < .05 (Table 5.30). Conversely, emotion-focused coping was significantly and positively related to diet self-care, *F*(3, 143) = 7.27, *p* < .001 (Table 5.31). The relationship between emotion-focused coping and exercise (days per week) self-care was also significant and positive, $F(11, 122) = 7.32$, $p < .001$ (Table 5.32). Finally, emotion-focused coping was not significantly related to exercise (time per day) self-care, $F(5, 112) = 5.89$, $p < .001$ (Table 5.33). H2b predicted a positive relationship between adherence and emotion-focused coping, and the relationship was significant in the predicted direction, $F(8, 128) = 5.26$, $p < .001$ (Table 5.34). Finally, H2c predicted that depressive symptoms and emotion-focused coping would be negatively related; however, the two were not significantly associated, $F(13, 116) = 11.34$, $p < .001$ (Table 5.35). Therefore, emotion-focused coping was significantly and positively correlated with self-care (diet and exercise days per week) and adherence, so H5 was partially supported using the emotion-focused coping scale.

Table 5.30
Regression of Self-Care (Glucose) onto Emotion-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.03	.02	
	Race	-.16*			
Step 2			.05	.03	.02
	Race	-.14			
	Emotion-focused	.15			

*$p < .05$.

Table 5.31
Regression of Self-Care (Diet) onto Emotion-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.05	.04	
	Emotional distress	-.15			
	Stigma (social isolation)	-.12			
Step 2			.13	.11	.08
	Emotional distress	-.17			
	Stigma (social isolation)	-.05			
	Emotion-focused	.29***			

***$p < .001$.

Table 5.32

Regression of Self-Care (Exercise Days per Week) onto Emotion-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.38	.33	
	Group	.50***			
	Gender	.13			
	Age	-.11			
	Race	-.03			
	Education	.08			
	Employment	-.02			
	Income	-.07			
	Family at home	.01			
	Comorbidities	-.11			
	Stigma (financial insecurity)	-.12			
Step 2			.40	.34	.02
	Group	.50***			
	Gender	.13			
	Age	-.11			
	Race	-.01			
	Education	.10			
	Employment	-.02			
	Income	-.09			
	Family at home	-.01			
	Comorbidities	-.12			
	Stigma (financial insecurity)	-.11			
	Emotion-focused	.15*			

*p < .05, ***p < .001.

Table 5.33

Regression of Self-Care (Exercise Time per Day) onto Emotion-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.19	.16	
	Race	-.25**			
	Education	-.17*			
	Complications	.21*			
	Locus of control (others)	.16			
Step 2			.21	.17	.02
	Race	-.24**			
	Education	-.15			
	Complications	.20*			
	Locus of control (others)	.14			
	Emotion-focused	.13			

*$p < .05$, **$p < .01$.

Table 5.34

Regression of Adherence onto Emotion-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.22	.17	
	Age	.06			
	Family T2D	-.13			
	Insurance	.26**			
	PAID	-.33**			
	STIG-F	.08			
	STIG-I	-.11			
	STIG-S	.01			
Step 2			.25	.20	.03
	Age	.08			
	Family T2D	-.15			
	Insurance	.27**			
	PAID	-.36**			
	STIG-F	.08			
	STIG-I	-.08			
	STIG-S	.05			
	Emotion-focused	.18*			

Note. Family T2D = other family members with diabetes (0 = no, 1 = yes); *$p < .05$, **$p < .01$.

Table 5.35
Regression of Depressive Symptoms onto Emotion-Focused Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.56	.51	
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.07			
	Stigma (social isolation)	-.12			
	Stigma (internalized shame)	.46***			
Step 2			.56	.51	.00
	Gender	-.10			
	Age	-.03			
	Marital status	.06			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	.00			
	Stigma (financial insecurity)	.06			
	Stigma (social isolation)	-.13			
	Stigma (internalized shame)	.46***			
	Emotion-focused	-.02			

***p* < .01, ****p* < .001.

Relationships among Types of Coping, Family Characteristics, and Individual Diabetes-Related Outcomes

The remaining hypotheses and research questions pertained to the relationships among the types of coping, family characteristics, and individual diabetes-related outcomes. The hypotheses and RQs were designed using the four types of coping outlined in the original communal coping theory: communal coping, individual coping, parallelism, and support seeking

(Lyons et al., 1998). However, the latent class analysis revealed that only three distinct types of coping existed for the participants in this study: communal coping, individual coping, and moderate sharing. Therefore, the hypotheses and research questions that examine relationships with communal coping or individual coping were tested as predicted; however, hypotheses and research questions about parallelism and support-seeking were not tested because parallelism and support-seeking did not exist as types of coping in these data. Instead, I tested associations among moderate sharing (the third type of coping that emerged from the latent class analysis) and family characteristics and diabetes outcomes. LCA assesses the probability that individuals fit into one of the latent classes identified; therefore, all tests of the types of coping are based on the likelihood that individuals in the sample are classified as communal copers, individual copers, or moderate sharers.

The models used to test these relationships were similar to those in the preceding section. To begin, I examined bivariate correlations among the types of coping and the demographic characteristics (Table 5.36). Gender was significantly associated with the probability of being in the communal coping class such that men were more likely to be in that group, and age was negatively correlated with the probability of being in the moderate sharing class. Next, I tested bivariate correlations among the types of coping and disease characteristics (Table 5.37); the presence of comorbid diseases was negatively associated with the likelihood of being in the moderate sharing class. Next, I analyzed correlations among the potential covariates (i.e., locus of control, diabetes-related distress, and stigma) and the types of coping (Table 5.38). Internal locus of control was negatively associated with communal coping and positively associated with individual coping; external locus of control was positively correlated with communal coping, and

Table 5.36

Bivariate Correlations among Types of Coping and Demographic Characteristics

	Group	Gender	Age	Race	Marital Status	Education	Employment Status	Income	Family at Home	Other Family Diabetes	Insurance
Communal Coping	-.04	.19*	.12	-.15	-.13	.04	.04	.08	.03	-.02	.09
Moderate Sharing	.12	-.09	-.17*	.05	.12	-.01	.01	.00	.04	.16	.04
Individual Coping	-.06	-.12	.02	.11	.03	-.04	-.05	-.09	-.07	-.11	-.13

*$p < .05$.

emotional distress was positively associated with moderate sharing. Finally, I examined bivariate relationships among the types of coping and the other independent and dependent variables in the study (Table 5.39). Based on these analyses, I concluded which of the remaining analyses required covariates when the types of coping were dependent variables (see Table 5.40).

Table 5.37
Bivariate Correlations among Types of Coping and Disease Characteristics

	A1C	Time Since Diagnosis	Comorbidities	Diabetes Complications	Severity
Communal Coping	-.07	-.04	.15	.15	.08
Moderate Sharing	-.07	-.09	-.18*	-.06	.07
Individual Coping	.13	.12	-.01	-.11	-.14

Note. A1C = indicates participants' disease control (higher numbers indicate worse control; available only for inpatients); **p* < .05.

Table 5.38
Bivariate Correlations among Types of Coping and Covariates

	Locus of Control (Internal)	Locus of Control (Others)	Emotional Distress	Stigma (Social Rejection)	Stigma (Financial Insecurity)	Stigma (Internalized Shame)	Stigma (Social Isolation)
Communal Coping	-.27**	.16*	-.04	-.05	-.13	-.13	-.04
Moderate Sharing	-.14	-.08	.17*	.12	.06	.14	.09
Individual Coping	.40***	-.11	-.10	-.05	.08	.02	-.03

**p* < .05, ***p* < .01, ****p* < .001.

Table 5.39

Bivariate Correlations among Types of Coping and Independent and Dependent Variables

	Communal Coping	Moderate Sharing	Individual Coping
Communal Coping	--		
Moderate Sharing	-.47***	--	
Individual Coping	-.65***	-.36***	--
Appraisal	.64***	.01	-.68***
Action	.72***	.01	-.76***
Problem-Focused	.54***	-.02	-.55***
Emotion-Focused	.28***	-.07	-.23**
Cohesion	.19*	-.21**	-.02
Adherence	.13	-.07	-.08
Self-care (glucose)	.13	.09	-.22**
Self-care (diet)	.15	.04	-.19*
Self-care (exercise days)	.13	.07	0.19*
Self-care (exercise time)	.17	-.02	-.16
Depression	.01	.03	-.03

**p* < .05, ***p* < .01, ****p* < .001.

Table 5.40

Control Variables for Hypotheses Testing Types of Coping

Dependent Variable	**Control Variables**
Communal Coping Latent Class	Gender Locus of control (internal subscale) Locus of control (other people subscale)
Moderate Sharing Latent Class	Age Comorbidities Emotional distress (PAID)
Individual Coping Latent Class	Locus of control (internal subscale)

H6: Family cohesion and communal coping. Hypothesis 6 predicted a positive association between family cohesion and communal coping. Communal coping was significantly and positively related to family cohesion, *F*(4, 153) = 7.67, *p* < .001 (see Table 5.41). Therefore, H6 was supported.

Table 5.41

Regression of Communal Coping onto Family Cohesion

		β	R^2	Adjusted R^2	R^2 change
Step 1			.14	.12	
	Gender	.19*			
	Locus of control (internal)	-.27***			
	Locus of control (others)	.17*			
Step 2			.17	.15	.03
	Gender	.20**			
	Locus of control (internal)	-.27***			
	Locus of control (others)	.14			
	Cohesion	.18*			

**p* < .05, ***p* < .01, ****p* < .001.

H7: Family cohesion and individual coping. The seventh hypothesis predicted a negative relationship between family cohesion and individual coping. Although the regression model was significant on the second step, $F(2, 155) = 14.67$, $p < .001$, cohesion did not predict significant variance in individual coping (Table 5.42). Therefore, H7 was not supported.

Table 5.42

Regression of Individual Coping onto Family Cohesion

		β	R^2	Adjusted R^2	R^2 change
Step 1			.16	.15	
	Locus of control (internal)	.40***			
Step 2			.16	.15	.00
	Locus of control (internal)	.40***			
	Cohesion	-.02			

****p* < .001.

RQ4-RQ5: Family cohesion and moderate sharing. Research questions 4 and 5 inquired about the relationship between family cohesion and the other types of coping hypothesized in the communal coping model (i.e., parallelism and support-seeking). Analyses in this study revealed that the other distinct type of coping was moderate sharing, so I used a regression model to test the relationship between family cohesion and moderate sharing. Although the model was significant, *F*(4, 132) = 3.57, $p < .01$, cohesion was not significantly related to moderate sharing (Table 5.43).

Table 5.43

Regression of Moderate Sharing onto Family Cohesion

		β	R^2	Adjusted R^2	R^2 change
Step 1			.07	.05	
	Age	-.09			
	Comorbidities	-.16			
	Emotional distress	.17*			
Step 2			.10	.07	.03
	Age	-.08			
	Comorbidities	-.15			
	Emotional distress	.17			
	Cohesion	-.16			

*$p < .05$.

RQ8: Communal coping and self-care, adherence, and depressive symptoms. RQ8 pertained to the relationship between communal coping and individual diabetes-related outcomes (i.e., self-care, adherence, and depressive symptoms). Communal coping and glucose self-care were not significantly related, *F*(2, 155) = 3.03, $p = .05$ (Table 5.44). The model testing the relationship between communal coping and diet self-care was significant on the second step, *F*(3, 143) = 3.65, $p < .05$, but communal coping did not predict significant variance in glucose self-care (Table 5.45). In contrast, communal coping was significantly and positively related to exercise (days per week) self-care, *F*(11, 122) = 7.74, $p < .001$ (Table 5.46). Communal coping did not predict significant variance in exercise (time per day) self-care, although the model was significant, *F*(5, 112) = 5.63, $p < .001$ (Table 5.47). The model testing the relationship between adherence and communal coping was significant, *F*(8, 128) = 5.03, $p < .001$, although communal coping did not explain significant variance in adherence (Table 5.48). Finally, depressive symptoms and communal coping were not significantly associated, *F*(13, 116) = 11. 33, $p < .001$ (Table 5.49). Therefore, communal coping was only significantly associated with exercise (days per week) self-care.

Table 5.44
Regression of Self-Care (Glucose) onto Communal Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.03	.02	
	Race	-.16*			
Step 2			.04	.03	.01
	Race	-.14			
	Communal coping	.11			

*$p < .05$.

Table 5.45
Regression of Self-Care (Diet) onto Communal Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.05	.04	
	Emotional distress	-.15			
	Stigma (social isolation)	-.12			
Step 2			.07	.05	.02
	Emotional distress	-.15			
	Stigma (social isolation)	-.10			
	Communal coping	.14			

Table 5.46

Regression of Self-Care (Exercise Days per Week) onto Communal Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.38	.33	
	Group	.50***			
	Gender	.13			
	Age	-.11			
	Race	-.03			
	Education	.08			
	Employment	-.02			
	Income	-.07			
	Family at home	.01			
	Comorbidities	-.11			
	Stigma (financial insecurity)	-.12			
Step 2			.41	.36	.04
	Group	.50***			
	Gender	.08			
	Age	-.13			
	Race	.01			
	Education	.06			
	Employment	-.05			
	Income	-.06			
	Family at home	-.01			
	Comorbidities	-.15			
	Stigma (financial insecurity)	-.08			
	Communal coping	.21**			

**$p < .01$, ***$p < .001$.

Table 5.47

Regression of Self-Care (Exercise Time per Day) onto Communal Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.19	.16	
	Race	-.25**			
	Education	-.17*			
	Complications	.21*			
	Locus of control (others)	.16			
Step 2			.20	.17	.01
	Race	-.25**			
	Education	-.17*			
	Complications	.20*			
	Locus of control (others)	.15			
	Communal coping	.09			

**p* < .05, ***p* < .01.

Table 5.48

Regression of Adherence onto Communal Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.22	.17	
	Age	.06			
	Family T2D	-.13			
	Insurance	.26**			
	Emotional distress	-.33**			
	Stigma (financial insecurity)	.08			
	Stigma (social isolation)	-.11			
	Stigma (internalized shame)	.01			
Step 2			.24	.19	.02
	Age	.05			
	Family T2D	-.12			
	Insurance	.27**			
	Emotional distress	-.34**			
	Stigma (financial insecurity)	.11			
	Stigma (social isolation)	-.07			
	Stigma (internalized shame)	-.03			
	Communal coping	.15			

Note. Family T2D = other family members with diabetes (0 = no, 1 = yes); ***p* < .01.

Table 5.49

Regression of Depressive Symptoms onto Communal Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.56	.51	
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.07			
	Stigma (social isolation)	-.12			
	Stigma (internalized shame)	.46***			
Step 2			.56	.51	.00
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.06			
	Stigma (social isolation)	-.13			
	Stigma (internalized shame)	.46***			
	Communal Coping	-.00			

**$p < .01$, ***$p < .001$.

RQ9: Individual coping and self-care, adherence, and depressive symptoms. The ninth research question concerned the relationship between individual coping and self-care, adherence, and depressive symptoms. Individual coping was significantly and negatively related to glucose self-care, $F(2, 155) = 5.55$, $p < .01$ (Table 5.50), diet self-care, $F(3, 143) = 4.94$, $p < .01$ (Table 5.51), and exercise (days per week) self-care, $F(11, 122) = 7.52$, $p < .001$ (Table 5.52). However, individual coping did not predict significant variance in exercise (time per day) self-care, although the model was significant on the second step, $F(5, 112) = 5.94$, $p < .001$ (Table 5.53). Individual coping was also not significantly associated with adherence, $F(8, 128) = 4.83$, $p < .001$ (Table 5.54) or depressive symptoms, $F(13, 116) = 11.37$, $p < .001$ (Table 5.55) on the second step of the model. Therefore, individual coping was significantly and negatively associated with three self-care variables: glucose, diet, and days per week of exercise.

Table 5.50

Regression of Self-Care (Glucose) onto Individual Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.03	.02	
	Race	-.16*			
Step 2			.07	.06	.04
	Race	-.14			
	Individual coping	-.21**			

*$p < .05$, **$p < .01$.

Table 5.51

Regression of Self-Care (Diet) onto Individual Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.05	.04	
	Emotional distress	-.15			
	Stigma (social isolation)	-.12	.09	.08	.04
Step 2					
	Emotional distress	-.18			
	Stigma (social isolation)	-.10			
	Individual coping	-.21*			

*$p < .05$.

Table 5.52

Regression of Self-Care (Exercise Days per Week) onto Individual Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.38	.33	
	Group	.50***			
	Gender	.13			
	Age	-.11			
	Race	-.03			
	Education	.08			
	Employment	-.02			
	Income	-.07			
	Family at home	.01			
	Comorbidities	-.11			
	Stigma (financial insecurity)	-.12			
Step 2			.40	.35	.03
	Group	.49***			
	Gender	.10			
	Age	-.10			
	Race	-.01			
	Education	.07			
	Employment	-.03			
	Income	-.07			
	Family at home	.01			
	Comorbidities	-.12			
	Stigma (financial insecurity)	-.10			
	Individual coping	-.17*			

*$p < .05$, ***$p < .001$.

Table 5.53

Regression of Self-Care (Exercise Time per Day) onto Individual Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.19	.16	
	Race	-.25**			
	Education	-.17*			
	Complications	.21*			
	Locus of control (others)	.16			
Step 2			.21	.17	.02
	Race	-.25**			
	Education	-.18*			
	Complications	.20*			
	Locus of control (others)	.16			
	Individual coping	-.13			

*$p < .05$, **$p < .01$.

Table 5.54

Regression of Adherence onto Individual Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.22	.17	
	Age	.06			
	Family T2D	-.13			
	Insurance	.26**			
	Emotional distress	-.33**			
	Stigma (financial insecurity)	.08			
	Stigma (social isolation)	-.11			
	Stigma (internalized shame)	.01			
Step 2			.23	.18	
	Age	.06			
	Family T2D	-.14			
	Insurance	.25**			
	Emotional distress	-.35**			
	Stigma (financial insecurity)	.10			
	Stigma (social isolation)	-.09			
	Stigma (internalized shame)	-.00			
	Individual coping	-.13			

Note. Family T2D = other family members with diabetes (0 = no, 1 = yes); **$p < .01$.

Table 5.55
Regression of Depressive Symptoms onto Individual Coping

		β	R^2	Adjusted R^2	R^2 change
Step 1			.56	.51	
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.07			
	Stigma (social isolation)	-.12			
	Stigma (internalized shame)	.46***			
Step 2			.56	.51	.00
	Gender	-.09			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	.00			
	Stigma (financial insecurity)	.06			
	Stigma (social isolation)	-.13			
	Stigma (internalized shame)	.46***			
	Individual coping	.03			

**$p < .01$, ***$p < .001$.

RQ10-11: Moderate sharing and self-care, adherence, and depressive symptoms.

RQ10 and RQ11 concerned the relationships between parallelism/support-seeking and individual diabetes-related outcomes. Because these types of coping were not evident in the data, I tested the relationship between moderate sharing and self-care, adherence, and depressive outcomes. Moderate sharing was not significantly related to glucose self-care, $F(2, 155) = 2.86$, $p = .06$ (Table 5.56), diet self-care, $F(3, 143) = 2.80$, $p < .05$ (Table 5.57), exercise (days per week) self-care, *F*(11, 122) = 6.68, $p < .001$ (Table 5.58), or exercise (time per day) self-care, *F*(5, 112) = 5.43, $p < .001$ (Table 5.59). Moderate sharing was also not significantly related to adherence, *F*(8, 128) = 4.48, $p < .001$ (Table 5.60) or depressive symptoms, *F*(13, 116) = 11.37, $p < .001$ (Table 5.61). Therefore, moderate sharing was not significantly related to any individual diabetes-related outcomes.

Table 5.56
Regression of Self-Care (Glucose) onto Moderate Sharing

		β	R^2	Adjusted R^2	R^2 change
Step 1			.03	.02	
	Race	-.16*			
Step 2			.04	.02	.01
	Race	-.16*			
	Moderate sharing	.10			

*$p < .05$.

Table 5.57
Regression of Self-Care (Diet) onto Moderate Sharing

		β	R^2	Adjusted R^2	R^2 change
Step 1			.05	.04	
	Emotional distress	-.15			
	Stigma (social isolation)	-.12			
Step 2			.06	.04	.01
	Emotional distress	-.15			
	Stigma (social isolation)	-.12			
	Moderate sharing	.07			

Table 5.58

Regression of Self-Care (Exercise Days per Week) onto Moderate Sharing

		β	R^2	Adjusted R^2	R^2 change
Step 1			.38	.33	
	Group	.50***			
	Gender	.13			
	Age	-.11			
	Race	-.03			
	Education	.08			
	Employment	-.02			
	Income	-.07			
	Family at home	.01			
	Comorbidities	-.11			
	Stigma (financial insecurity)	-.12			
Step 2			.38	.32	.00
	Group	.50***			
	Gender	.13			
	Age	-.12			
	Race	-.03			
	Education	.08			
	Employment	-.02			
	Income	-.07			
	Family at home	.00			
	Comorbidities	-.12			
	Stigma (financial insecurity)	-.12			
	Moderate sharing	-.02			

***$p < .001$.

Table 5.59

Regression of Self-Care (Exercise Time per Day) onto Moderate Sharing

		β	R^2	Adjusted R^2	R^2 change
Step 1			.19	.16	
	Race	-.25**			
	Education	-.17*			
	Complications	.21*			
	Locus of control (others)	.16			
Step 2			.20	.16	.00
	Race	-.26**			
	Education	-.17*			
	Complications	.22*			
	Locus of control (others)	.17			
	Moderate sharing	.05			

*$p < .05$, **$p < .01$.

Table 5.60

Regression of Adherence onto Moderate Sharing

		β	R^2	Adjusted R^2	R^2 change
Step 1			.22	.17	
	Age	.06			
	Family T2D	-.13			
	Insurance	.26**			
	Emotional distress	-.33**			
	Stigma (financial insecurity)	.08			
	Stigma (social isolation)	-.11			
	Stigma (internalized shame)	.01			
Step 2			.22	.17	.00
	Age	.05			
	Family T2D	-.13			
	Insurance	.27**			
	Emotional distress	-.32**			
	Stigma (financial insecurity)	.08			
	Stigma (social isolation)	-.10			
	Stigma (internalized shame)	.00			
	Moderate sharing	-.04			

Note. Family T2D = other family members with diabetes (0 = no, 1 = yes); **$p < .01$.

Table 5.61

Regression of Depressive Symptoms onto Moderate Sharing

		β	R^2	Adjusted R^2	R^2 change
Step 1			.56	.51	
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.07			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.30**			
	Stigma (social rejection)	-.00			
	Stigma (financial insecurity)	.07			
	Stigma (social isolation)	-.12			
	Stigma (internalized shame)	.46***			
Step 2			.56	.51	.00
	Gender	-.10			
	Age	-.03			
	Marital status	.07			
	Comorbidities	.06			
	Complications	.03			
	Disease severity	.08			
	Locus of control (others)	.02			
	Emotional distress	.31**			
	Stigma (social rejection)	.00			
	Stigma (financial insecurity)	.07			
	Stigma (social isolation)	-.12			
	Stigma (internalized shame)	.45***			
	Moderate sharing	-.03			

***p* < .01, ****p* < .001.

Structural Equation Modeling Analyses

As a final step in data analysis, I used structural equation modeling (SEM) in AMOS 22 to test the relationships among family cohesion, coping, and individual diabetes-related outcomes. I ran five models; in the first, I tested the relationships among cohesion, the dimensions of coping (appraisal and action), and individual diabetes-related outcomes (see Figure 5.1). In the second model, I substituted the problem- and emotion-focused coping scales for the action dimension (Figure 5.2). Problem-focused and emotion-focused coping are conceptualized as different types of joint action, so it did not make sense to put them all in a single model, and the second set of analyses were designed to lend further insight into the types of joint action that participants engaged in alongside their families. In the final three models, I assessed the structural relationships among cohesion, the three types of coping (i.e., communal coping, moderate sharing, individual coping), and individual outcomes. Because the variables assessing the types of coping were linearly dependent on each other (i.e., the probabilities of being in each class added up to one for each participant), each type of coping was tested as a mediator in a separate model (Figures 5.3, 5.4, 5.5). Similar to the procedures used for confirmatory factor analyses, three goodness of fit indices were used with a priori criteria set for good model fit: χ^2/df < 3.00, comparative fit index (CFI) > .90, and root mean square error of approximation (RMSEA) < .10. When the criteria indicated poor model fit, I examined modification indices and added paths as necessary.

To assess the hypothesized mediated relationships in the models, I used bootstrapping (Preacher & Hayes, 2008). Five thousand samples were created to test the indirect effects of coping on cohesion and diabetes-related outcomes. To assess whether significant mediation was present, I analyzed the indirect effect of the mediator on the relationship between cohesion and diabetes-related outcomes. The results of the SEM analyses are detailed below.

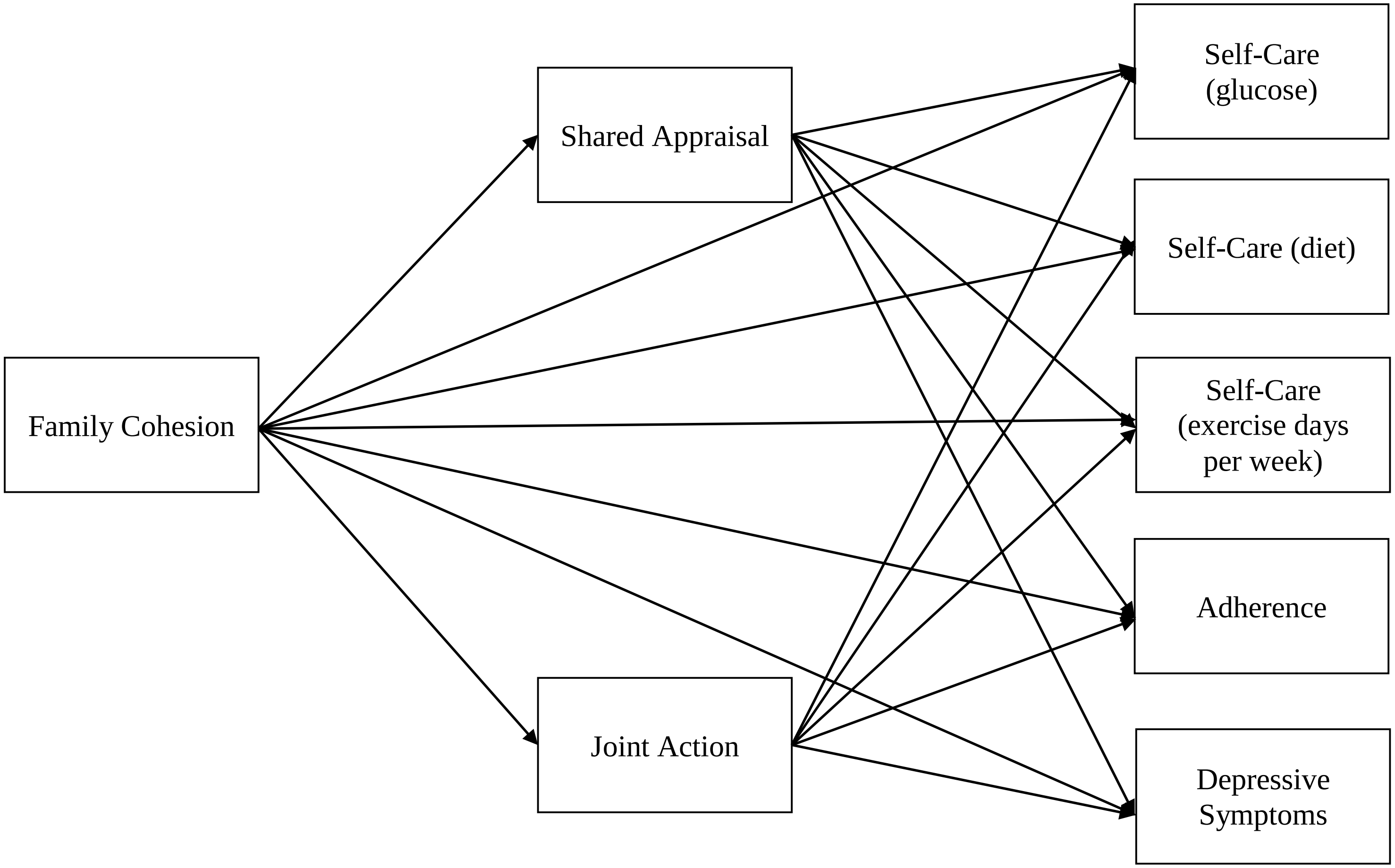

Figure 5.1. The model assessing the relationships among family cohesion, the dimensions of coping (i.e., shared appraisal and joint action) and individual diabetes-related outcomes.

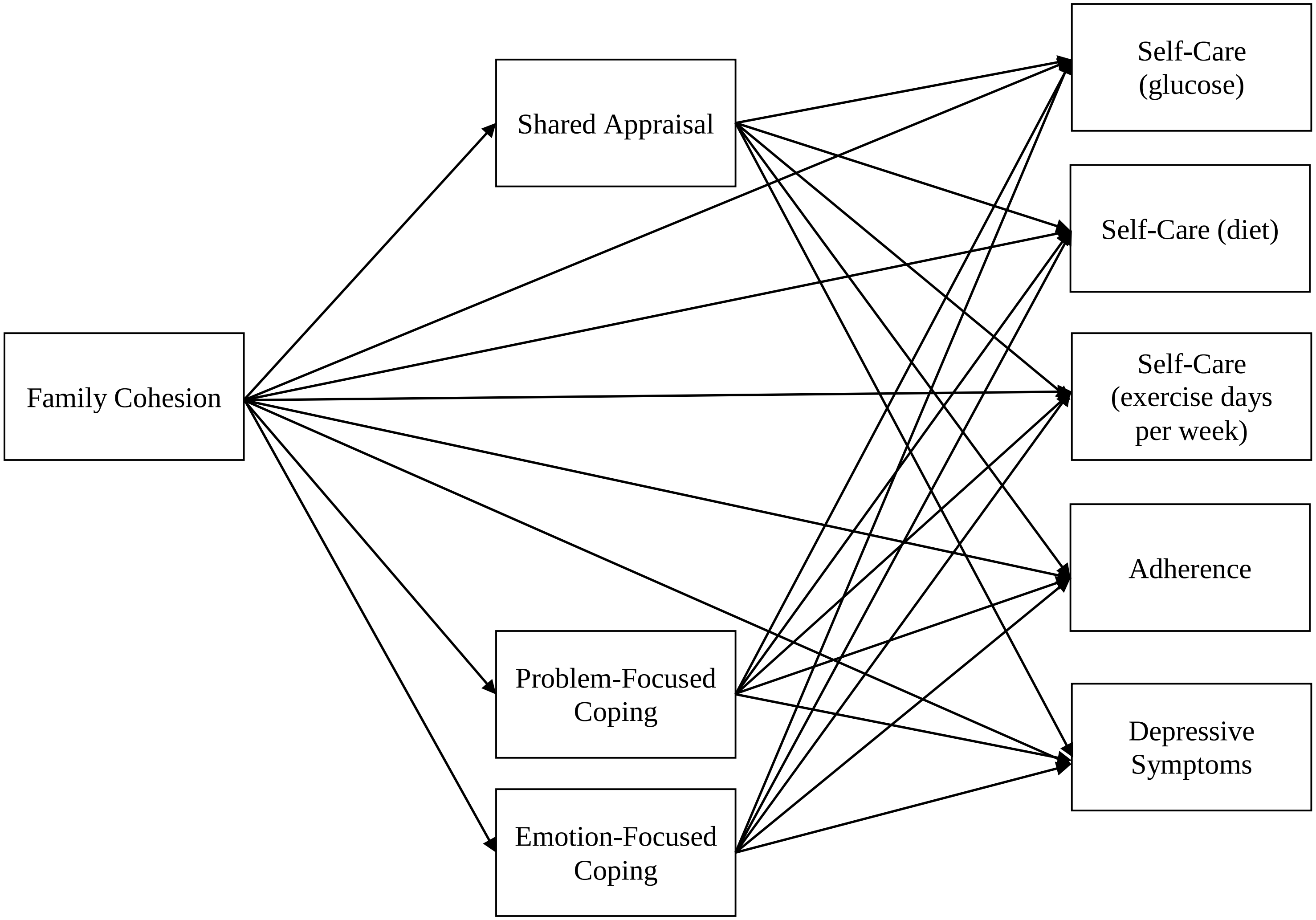

Figure 5.2. The model assessing the relationships among family cohesion, the dimensions of coping (i.e., shared appraisal, problem-focused coping, and emotion-focused coping) and individual diabetes-related outcomes.

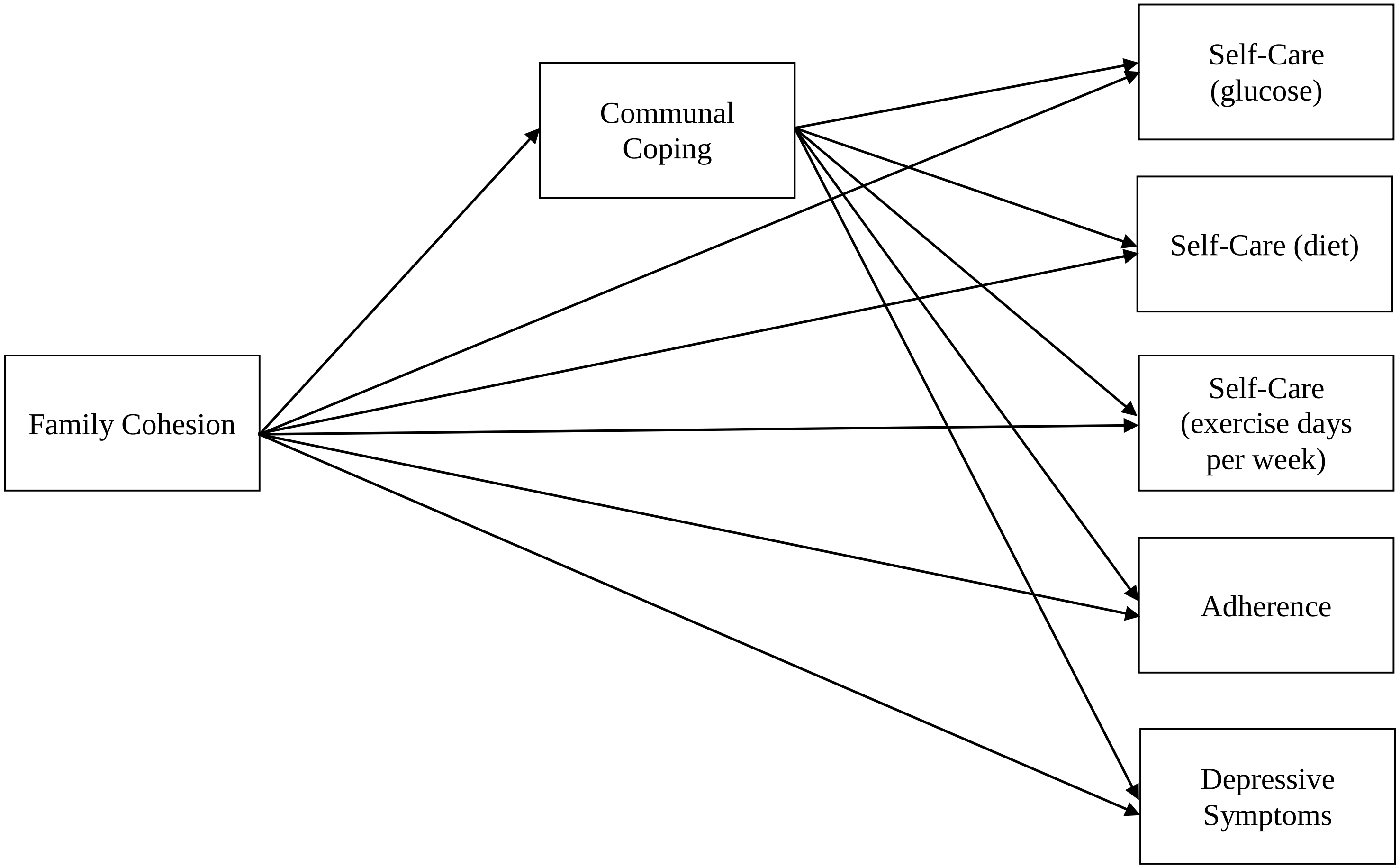

Figure 5.3. The model assessing the relationships among family cohesion, communal coping, and individual diabetes-related outcomes.

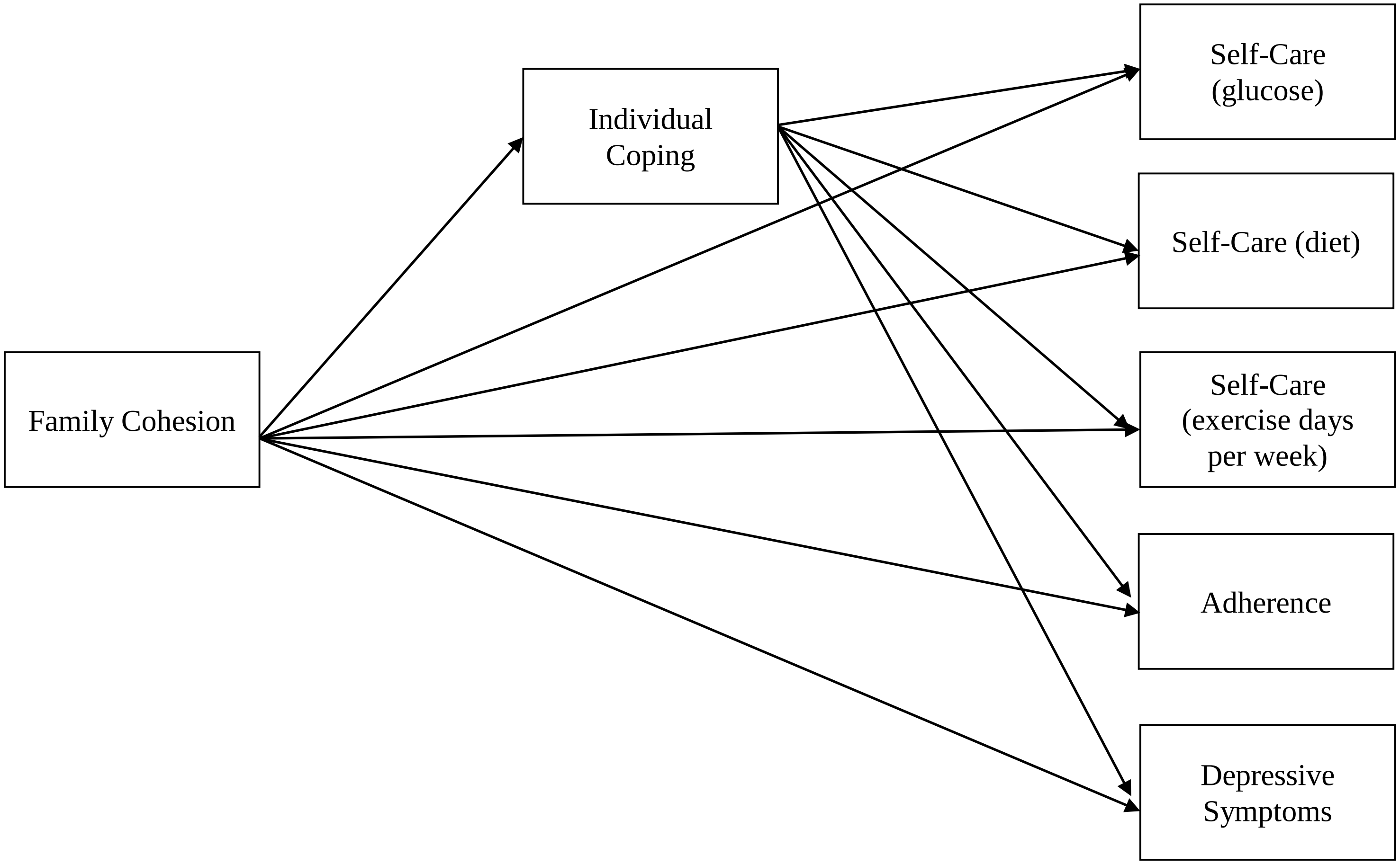

Figure 5.4. The model assessing the relationships among family cohesion, individual coping, and individual diabetes-related outcomes.

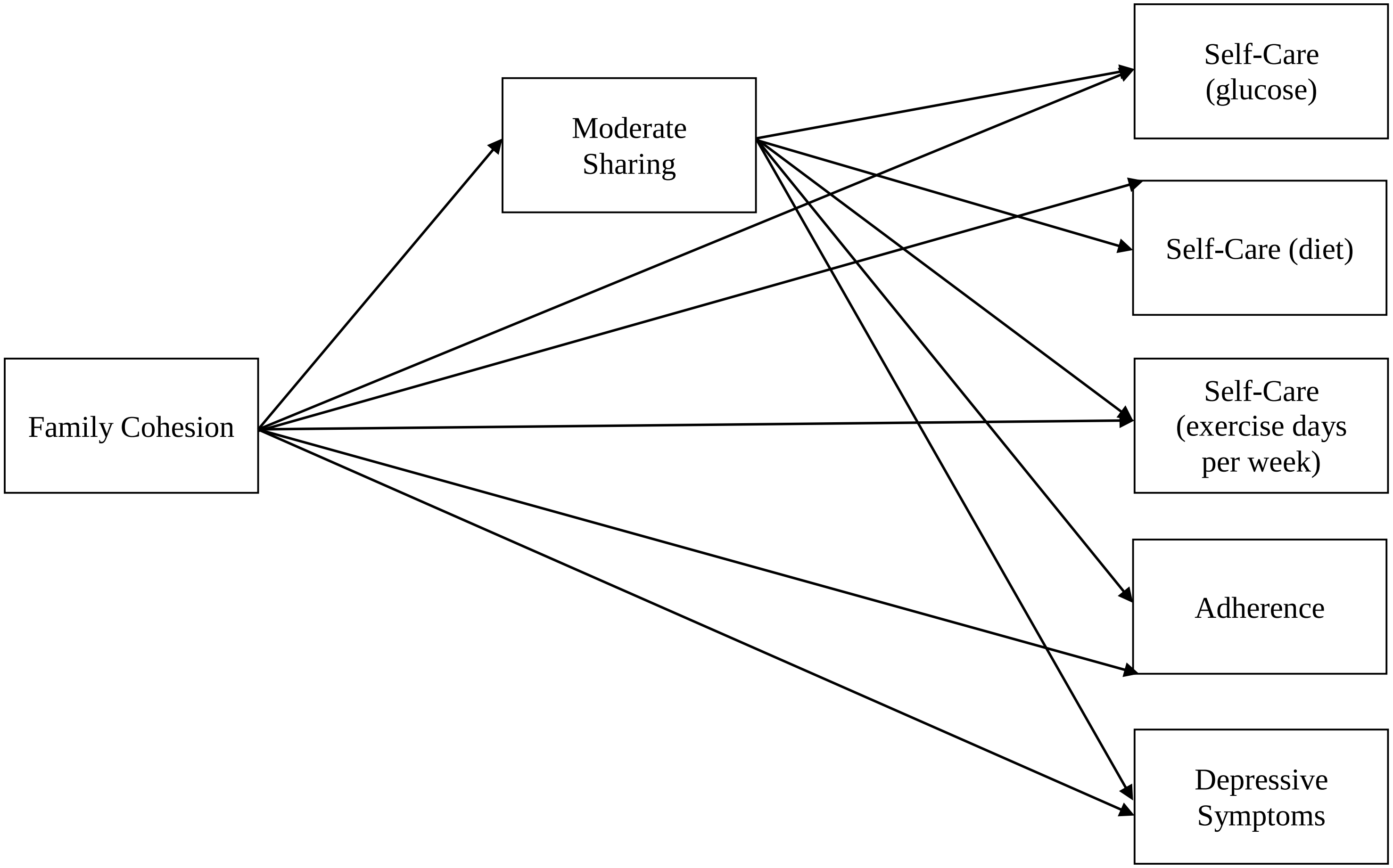

Figure 5.5. The model assessing the relationships among family cohesion, moderate sharing, and individual diabetes-related outcomes.

Dimensions of coping. The first model assessed relationships among cohesion (independent variable), appraisal and action (mediating variables), and self-care (glucose, diet, exercise days per week)^2, adherence, and depressive symptoms (dependent variables). The model is depicted in Figure 5.1. To achieve good model fit, the error terms for the following variables were covaried: appraisal and action, glucose self-care and diet self-care, glucose self-care and adherence, diet self-care and exercise (days per week) self-care, diet self-care and adherence, and adherence and depressive symptoms. Following these modifications, the model indicated good fit, χ^2/df = 1.66, CFI = .98, RMSEA = .08 (90% confidence interval = .00, .16). Although they were not hypothesized in the original hypotheses and research questions, direct paths between cohesion and the diabetes-related outcomes were also included.

The standardized beta coefficients and their significance levels are presented in Table 5.62. Overall, cohesion was significantly and positively associated with joint action (H2) and accounted for a small amount of variance in joint action ($R^2 = .05$). Cohesion was not significantly associated with shared appraisal and did not significantly predict any of its variance, but cohesion did share a direct negative relationship with depressive symptoms. Shared appraisal was not significantly related to any diabetes-related outcomes, whereas joint action was significantly associated with glucose self-care, diet self-care, exercise (days per week) self-care, and adherence. Together, cohesion and the dimensions of coping accounted for a small amount of variance in each of the dependent variables (glucose self-care $R^2 = .12$, diet self-care $R^2 = .07$, exercise days per week self-care $R^2 = .02$, adherence $R^2 = .04$, depressive symptoms $R^2 = .06$).

Table 5.62

Standardized Path Coefficients for the Model Testing the Relationships among Cohesion, Dimensions of Coping (Action and Appraisal), and Diabetes-Related Outcomes

	Standardized β
Cohesion	
Shared appraisal	.03
Joint action	.23*
Self-care (glucose)	-.09
Self-care (diet)	.11
Self-care (exercise days per week)	.01
Adherence	.01
Depressive symptoms	-.20*
Shared appraisal	
Self-care (glucose)	.01
Self-care (diet)	-.15
Self-care (exercise days per week)	-.09
Adherence	-.05
Depressive symptoms	.13
Joint action	
Self-care (glucose)	.34**
Self-care (diet)	.28*
Self-care (exercise days per week)	.18
Adherence	.23*
Depressive symptoms	-.08

Note. $N = 117$; $*p < .05$, $**p < .01$.

Next, I assessed whether shared appraisal and joint action mediated the relationships among cohesion and the individual diabetes-related outcomes by examining the indirect effects of the mediators. Because multiple mediators were simultaneously present in this model, I used Sobel's test to determine the individual indirect effects of each mediator separately, rather than using confidence intervals to determine the indirect effect of both mediators together. Only one significant indirect effect was present; joint action mediated the relationship between cohesion and glucose self-care (Table 5.63).

Table 5.63

Standardized Regression Coefficients for Appraisal and Action as Mediators of the Relationship between Cohesion and Individual Diabetes-Related Outcomes

	Indirect effect (Sobel's test)
Cohesion → Shared appraisal → Self-care (glucose)	.12
Cohesion → Shared appraisal → Self-care (diet)	-.32
Cohesion → Shared appraisal → Self-care (exercise days)	-.30
Cohesion → Shared appraisal → Adherence	-.27
Cohesion → Shared appraisal → Depressive symptoms	.32
Cohesion → Joint action → Self-care (glucose)	1.98*
Cohesion → Joint action → Self-care (diet)	1.78
Cohesion → Joint action → Self-care (exercise days)	1.35
Cohesion → Joint action → Adherence	1.59
Cohesion → Joint action → Depressive symptoms	-.65

Note. $N = 117$; $^*p < .05$.

In a second model assessing the dimensions of coping, I substituted the shared action subscale with the problem- and emotion-focused subscales (see Figure 5.2). After covarying error terms for all of the coping measures (shared appraisal, problem-focused coping, emotion-focused coping) and some of the dependent variables (glucose self-care and diet self-care, glucose self-care and adherence, diet self-care and adherence, adherence and depressive symptoms), the fit criteria indicated good model fit, χ^2/df = 2.16, CFI = .98, RMSEA = .10 (90% confidence interval = .02, .18).

Standardized beta coefficients for the model including shared appraisal and the problem-focused and emotion-focused coping variables are presented in Table 5.64. Cohesion was significantly and positively associated with both problem-focused ($R^2 = .05$) and emotion-focused coping ($R^2 = .24$). Shared appraisal and problem-focused coping were not significantly associated with any of the dependent variables. Emotion-focused coping was significantly and positively related to diet self-care ($R^2 = .13$) and exercise days per week ($R^2 = .05$). The indirect effects of shared appraisal, problem-focused coping, and emotion-focused coping (assessed using

Sobel's test because of the presence of multiple mediators in the same model) are displayed in Table 5.65. Emotion-focused coping mediated the relationship between cohesion and diet self-care and approached significance in mediating the relationship between cohesion and exercise (days per week) self-care (*p* = .05).

Table 5.64

Standardized Path Coefficients for the Model Testing the Relationships among Cohesion, Dimensions of Coping (Appraisal, Problem-Focused Coping, Emotion-Focused Coping), and Diabetes-Related Outcomes

	Standardized β
Cohesion	
Shared appraisal	.03
Problem-focused coping	.21*
Emotion-focused coping	.49***
Self-care (glucose)	-.13
Self-care (diet)	-.01
Self-care (exercise days per week)	-.07
Adherence	.01
Depressive symptoms	-.19
Shared appraisal	
Self-care (glucose)	.13
Self-care (diet)	-.04
Self-care (exercise days per week)	-.05
Adherence	.08
Depressive symptoms	.06
Problem-focused coping	
Self-care (glucose)	.06
Self-care (diet)	-.13
Self-care (exercise days per week)	.02
Adherence	-.07
Depressive symptoms	.10
Emotion-focused coping	
Self-care (glucose)	.21
Self-care (diet)	.41***
Self-care (exercise days per week)	.25*
Adherence	.11
Depressive symptoms	-.10

Note. *N* = 117; **p* < .05, ****p* < .001.

Table 5.65

Standardized Regression Coefficients for Appraisal and Action as Mediators of the Relationship between Cohesion and Individual Diabetes-Related Outcomes

	Indirect effect (Sobel's test)
Cohesion → Shared appraisal → Self-care (glucose)	.32
Cohesion → Shared appraisal → Self-care (diet)	-.25
Cohesion → Shared appraisal → Self-care (exercise days)	-.27
Cohesion → Shared appraisal → Adherence	.30
Cohesion → Shared appraisal → Depressive symptoms	.29
Cohesion → Problem-focused → Self-care (glucose)	.54
Cohesion → Problem-focused → Self-care (diet)	-1.04
Cohesion → Problem-focused → Self-care (exercise days)	.14
Cohesion → Problem-focused → Adherence	-.55
Cohesion → Problem-focused → Depressive symptoms	.83
Cohesion → Emotion-focused → Self-care (glucose)	1.73
Cohesion → Emotion-focused → Self-care (diet)	3.08**
Cohesion → Emotion-focused → Self-care (exercise days)	1.95^{+}
Cohesion → Emotion-focused → Adherence	.92
Cohesion → Emotion-focused → Depressive symptoms	-.81

Note. N = 117; **p < .01, $^{+}$p = .05.

Types of coping. The final three models assessed the relationships among cohesion, types of coping (i.e., communal coping, individual coping, moderate sharing), and diabetes-related outcomes. First, the likelihood of one being in the communal coping group was tested as a mediator between cohesion and self-care, adherence, and depressive symptoms. After covarying error terms for some of the dependent variables (glucose self-care and diet self-care, glucose self-care and adherence, diet self-care and exercise self-care, diet self-care and adherence, adherence and depressive symptoms), the fit criteria indicated good model fit, χ^2/df = 1.96, CFI = .96, RMSEA = .09 (90% confidence interval = .00, .18).

Standardized beta coefficients for the model are presented in Table 5.66. Cohesion was significantly and positively related to communal coping and negatively related to depressive symptoms, and communal coping was significantly and positively related to glucose self-care.

Overall, cohesion predicted a small percentage of variance in communal coping ($R^2 = .05$), and together, cohesion and communal coping predicted a small amount of variance in depressive symptoms ($R^2 = .06$) and glucose self-care ($R^2 = .04$). The indirect effects of communal coping on the relationship between cohesion and diabetes-related outcomes are presented in Table 5.67. Communal coping significantly mediated the relationship between family cohesion and glucose self-care.

Table 5.66

Standardized Path Coefficients for the Model Testing the Relationships among Cohesion, Communal Coping, and Diabetes-Related Outcomes

	Standardized β
Cohesion	
Communal coping	.23*
Self-care (glucose)	-.05
Self-care (diet)	.14
Self-care (exercise days per week)	.03
Adherence	.02
Depressive symptoms	-.24*
Communal coping	
Self-care (glucose)	.19*
Self-care (diet)	.12
Self-care (exercise days per week)	.07
Adherence	.16
Depressive symptoms	.10

Note. $N = 117$; $*p < .05$.

Table 5.67
Standardized Regression Coefficients for Communal Coping as a Mediators of the Relationship between Cohesion and Individual Diabetes-Related Outcomes

	β	95% BC CI
Cohesion → Communal coping → Self-care (glucose)	.04*	.00, .13
Cohesion → Communal coping → Self-care (diet)	.03	-.01, .09
Cohesion → Communal coping → Self-care (exercise days)	.02	-.02, .08
Cohesion → Communal coping → Adherence	.04	-.00, .12
Cohesion → Communal coping → Depressive symptoms	.02	-.02, .09

Note. $N = 117$; BC CI = Bias Corrected Confidence Interval; $*p < .05$.

Second, a model assessing individual coping as a mediator of the relationship between cohesion and diabetes-related outcomes was tested. After some of the error terms were covaried (glucose self-care and diet self-care, glucose self-care and adherence, diet self-care and exercise self-care, diet self-care and adherence, adherence and depressive symptoms), the model indicated good fit, χ^2/df = 1.91, CFI = .97, RMSEA = .09 (90% confidence interval = .00, .17). Standardized beta coefficients for the model are presented in Table 5.68. Cohesion was significantly and negatively related to depressive symptoms, and cohesion and individual coping together predicted a small amount of variance in depressive symptoms ($R^2 = .05$). Individual coping was significantly and negatively associated with glucose self-care, and cohesion and individual coping accounted for a small percentage of variance in glucose self-care ($R^2 = .07$). The indirect effects for the model are presented in Table 5.69. Individual coping did not mediate any relationships in the model.

Table 5.68

Standardized Path Coefficients for the Model Testing the Relationships among Cohesion, Individual Coping, and Diabetes-Related Outcomes

	Standardized β
Cohesion	
Individual coping	-.06
Self-care (glucose)	-.03
Self-care (diet)	.15
Self-care (exercise days per week)	.04
Adherence	.05
Depressive symptoms	-.22*
Individual coping	
Self-care (glucose)	-.27**
Self-care (diet)	-.16
Self-care (exercise days per week)	-.17
Adherence	-.11
Depressive symptoms	-.03

Note. $N = 117$; $^{*}p < .05$, $^{**}p < .01$.

Table 5.69

Standardized Regression Coefficients for Individual Coping as a Mediators of the Relationship between Cohesion and Individual Diabetes-Related Outcomes

	β	95% BC CI
Cohesion → Individual coping → Self-care (glucose)	.02	-.03, .08
Cohesion → Individual coping → Self-care (diet)	.01	-.02, .07
Cohesion → Individual coping → Self-care (exercise days)	.01	-.02, .06
Cohesion → Individual coping → Adherence	.01	-.01, .07
Cohesion → Individual coping → Depressive symptoms	.00	-.01, .04

Note. $N = 117$; BC CI = Bias Corrected Confidence Interval.

Finally, moderate sharing was tested as a mediator in the relationship between cohesion and self-care, adherence, and depressive symptoms. The fit criteria indicated good model fit, $\chi^2/df = 1.88$, CFI = .97, RMSEA = .09 (90% confidence interval = .00, .17) after covarying error terms for some of the diabetes-related outcomes (glucose self-care and diet self-care, glucose self-care and adherence, diet self-care and exercise self-care, diet self-care and adherence, adherence and depressive symptoms). Standardized path coefficients for the model are located in

Table 5.70. Cohesion was significantly and negatively related to moderate sharing, explaining a small percentage of the variance ($R^2 = .04$). Cohesion was also significantly and negatively associated with depressive symptoms, and together, cohesion and moderate sharing predicted a small amount of variance in depressive symptoms ($R^2 = .05$). The indirect effects of moderate sharing as a mediator are presented in Table 5.71. Moderate sharing did not mediate any relationships in the model.

Table 5.70

Standardized Path Coefficients for the Model Testing the Relationships among Cohesion, Moderate Sharing, and Diabetes-Related Outcomes

	Standardized β
Cohesion	
Moderate sharing	-.21*
Self-care (glucose)	.01
Self-care (diet)	.18
Self-care (exercise days per week)	.07
Adherence	.05
Depressive symptoms	-.23*
Moderate sharing	
Self-care (glucose)	.09
Self-care (diet)	.05
Self-care (exercise days per week)	.11
Adherence	-.06
Depressive symptoms	-.09

Note. *N* = 117; *p < .05.

Table 5.71

Standardized Regression Coefficients for Moderate Sharing as a Mediators of the Relationship between Cohesion and Individual Diabetes-Related Outcomes

	β	95% BC CI
Cohesion → Moderate sharing → Self-care (glucose)	-.02	-.10, .02
Cohesion → Moderate sharing → Self-care (diet)	-.01	-.07, .02
Cohesion → Moderate sharing → Self-care (exercise days)	-.02	-.10, .01
Cohesion → Moderate sharing → Adherence	.01	-.01, .07
Cohesion → Moderate sharing → Depressive symptoms	.01	-.01, .08

Note. *N* = 117; BC CI = Bias Corrected Confidence Interval.

Discussion

The dual purposes of this study were to (a) statistically test the communal coping typology and (b) examine the associations among family cohesion, characteristics of coping, and individual diabetes-related outcomes. The results indicate that in partial support of the communal coping theory, which proposes that there are four types of coping (Afifi et al., 2006; Lyons et al., 1998), three distinct types of coping existed for the participants in the study: communal coping, individual coping, and moderate sharing. Moreover, both the dimensions of coping (i.e., appraisal and action) and the types of coping are significantly associated with family characteristics (i.e., cohesion), and individual diabetes-related outcomes (i.e., self-care, adherence, depressive symptoms). In the paragraphs that follow, I offer a summary of the results.

Testing the Communal Coping Typology

Lyons et al. (1998) proposed the communal coping model, suggesting that coping exists along two dimensions: appraisal and action. Appraisal constitutes how people think about their stressors (i.e., as mine, yours, or ours), and action concerns how people act on their stressors (i.e., individually or together). According to the theory, the continuous dimensions cross to create four distinct types of coping: individual coping (individual appraisal and individual action), parallelism (shared appraisal and individual action), support-seeking (individual appraisal and joint action), and communal coping (shared appraisal and joint action). Scholars have found support for the model, but those studies have been qualitative in nature (e.g., Afifi et al., 2006; Lawrence & Schigelone, 2002). Certainly, such studies provide valuable insight into the communal coping model, but triangulating such research efforts with statistical validation of the model is important. Accordingly, one goal of this study was to statistically test the communal coping model.

A first step in testing the communal coping model was to create and test a measure of the appraisal dimension of the theory. Researchers have made some efforts to quantify the communal coping model, but none of them have operationalized the appraisal dimension of the model (e.g., Buchwald, 2003; Koehly et al., 2008; Monnier & Hobfoll, 1997; Wells et al., 1997). Instead, such studies have focused only on the action dimension of the model, assessing how people have worked together behaviorally to reduce the effects of their stress. However, the appraisal dimension makes up half of the model, and extant research demonstrates that couples believe that how they think about their stressors (i.e., as either individual or shared) impacts their experience (e.g., Kayser et al., 2007; Skerrett, 1998). Therefore, one goal in this study was to create a measure assessing appraisal to more accurately operationalize the communal coping model.

The appraisal measure originally contained 10 items (see Appendix F), and consistent with the results of the first study in this dissertation, some items focused on ownership of the participant’s diabetes, and other items assessed how the participant and his or her family were affected by the illness. Two items were dropped from the measure during confirmatory factor analysis: “I think of my diabetes as only my responsibility” and “I think of my diabetes as a responsibility of everyone in my family." Although these items were created to capture participants' cognitions about their diabetes, they also focused on responsibility for the disease, which is geared more toward behavior than cognition. In fact, the communal coping model conceptualizes the action dimension by asking, "Whose responsibility is this stressor?" (Lyons et al., 1998). Given both the poor fit of these two items and the theoretical reasoning in the communal coping model, the items were eliminated, and the final subscale contained eight items (see Appendix F). In addition, although the action dimension has been operationalized in previous research, the subscale was revised to coincide with the theory and with interview data from the first study. The final measure contained seven items (see Appendix G). Confirmatory factor analysis also revealed that the appraisal and action subscales were statistically unique dimensions, which is consistent with how communal coping is conceptualized.

The final 15 items in the communal coping measure were used in a latent class analysis to assess whether distinct clusters (i.e., types) of coping exist. The results revealed three latent classes. Two of the types were consistent with the communal coping model: communal coping (high in shared appraisal and joint action) and individual coping (low in shared appraisal and joint action). The third type, called moderate sharing, included participants who were moderate in their assessments of shared appraisal and low to moderate in their joint action. In this type, rather than participants distinguishing between high shared appraisal/low joint action and low shared appraisal/high joint action (as communal coping theory suggests they would), the third type was moderate on both appraisal and action. Examining this typology statistically adds to communal coping research in a useful way by suggesting that although distinct types of coping exist, they may not map on to the typology as it was originally conceptualized (Lyons et al.,

1998) or in the way it has been empirically examined in qualitative research (e.g., Afifi et al., 2006; Lawrence & Schigelone, 2002).

Associations between Family Cohesion, Dimensions of Coping, and Individual Diabetes-Related Outcomes

A second goal of the current study was to use the appraisal and action measures to test how the dimensions and types of coping were related to family characteristics and individual disease-related outcomes. Each hypothesis and research question was assessed using hierarchical linear regressions and structural equation modeling. Generally, the results were consistent across these tests, with a few exceptions. Table 5.72 provides a summary of the pattern of results. For the dimensions of coping, family cohesion was not significantly associated with appraisal, but it was positively related to the joint action subscale, problem-focused coping, and emotion-focused coping in the structural models; in the regression analyses, cohesion was also positively associated with emotion-focused coping. Overall, then, it seems that families' closeness is related to how they behave in reducing the negative effects of a stressor but not to how they think about a stressor as individually or jointly owned.

In terms of the associations among dimensions of coping and self-care, adherence, and depressive symptoms, appraisal was only significantly and positively associated with glucose self-care in the regression analyses. Conversely, joint action was positively related to glucose and diet self-care and adherence in both the regression analyses and the structural equation models, and it was related to exercise (days per week) self-care in the regression analyses. The problem-focused coping scale was only significantly related to exercise (days per week) self-care in the regression analyses. Emotion-focused coping, however, was significantly and positively correlated with diet and exercise (days per week) self-care in both analyses and with adherence in the regression analyses.

Table 5.72

Summary of Results

Hypothesis/RQ	Hypothesized Relationship	Regression	SEM
H1	Family cohesion + Shared appraisal	*ns*	*ns*
H2	Family cohesion + Joint action	*ns*	*
	Family cohesion + Problem-focused coping	*ns*	*
	Family cohesion + Emotion-focused coping	***	***
RQ3	Shared appraisal ? Self-care (glucose)	* (+)	*ns*
	Shared appraisal ? Self-care (diet)	*ns*	*ns*
	Shared appraisal ? Self-care (exercise days)	*ns*	*ns*
	Shared appraisal ? Self-care (exercise time)	*ns*	*ns*
	Shared appraisal ? Adherence	*ns*	*ns*
	Shared appraisal ? Depressive symptoms	*ns*	*ns*
H5	Joint action + Self-care (glucose)	***	**
	Joint action + Self-care (diet)	**	*
	Joint action + Self-care (exercise days)	**	*ns*
	Joint action + Self-care (exercise time)	*ns*	not tested
	Joint action + Adherence	**	*
	Joint action + Depressive symptoms	*ns*	*ns*
	Problem-focused coping + Self-care (glucose)	*ns*	*ns*
	Problem-focused coping + Self-care (diet)	*ns*	*ns*
	Problem-focused coping + Self-care (exercise days)	*	*ns*
	Problem-focused coping + Self-care (exercise time)	*ns*	not tested
	Problem-focused coping + Adherence	*ns*	*ns*
	Problem-focused coping + Depressive symptoms	*ns*	*ns*

(table continues)

Table 5.72 (cont.)

Hypothesis/RQ	Hypothesized Relationship	Regression	SEM
H5	Emotion-focused coping + Self-care (glucose)	*ns*	*ns*
	Emotion-focused coping + Self-care (diet)	***	***
	Emotion-focused coping + Self-care (exercise days)	*	*
	Emotion-focused coping + Self-care (exercise time)	*ns*	not tested
	Emotion-focused coping + Adherence	*	*ns*
	Emotion-focused coping + Depressive symptoms	*ns*	*ns*
H6	Family cohesion + Communal coping	*	*
H7	Family cohesion – Individual coping	*ns*	*ns*
RQ4-RQ5	Family cohesion ? Moderate sharing	*ns*	* (-)
RQ8	Communal coping ? Self-care (glucose)	*ns*	* (+)
	Communal coping ? Self-care (diet)	*ns*	*ns*
	Communal coping ? Self-care (exercise days)	** (+)	*ns*
	Communal coping ? Self-care (exercise time)	*ns*	not tested
	Communal coping ? Adherence	*ns*	*ns*
	Communal coping ? Depressive symptoms	*ns*	*ns*
RQ9	Individual coping ? Self-care (glucose)	** (-)	** (-)
	Individual coping ? Self-care (diet)	* (-)	*ns*
	Individual coping ? Self-care (exercise days)	* (-)	*ns*
	Individual coping ? Self-care (exercise time)	*ns*	not tested
	Individual coping ? Adherence	*ns*	*ns*
	Individual coping ? Depressive symptoms	*ns*	*ns*

(table continues)

Table 5.72 (cont.)

Hypothesis/RQ	Hypothesized Relationship	Regression	SEM
RQ10-RQ11	Moderate sharing ? Self-care (glucose)	*ns*	*ns*
	Moderate sharing ? Self-care (diet)	*ns*	*ns*
	Moderate sharing ? Self-care (exercise days)	*ns*	*ns*
	Moderate sharing ? Self-care (exercise time)	*ns*	not tested
	Moderate sharing ? Adherence	*ns*	*ns*
	Moderate sharing ? Depressive symptoms	*ns*	*ns*
Mediations	Cohesion → Joint action → Self-care (glucose)	not tested	*
	Cohesion → Emotion-focused coping → Self-care (diet)	not tested	**
	Cohesion → Communal coping → Self-care (glucose)	not tested	*

Note. Only significant mediations are included in this table; The hypothesized direction of the relationships is indicated with a "+" for predicted positive associations and a "–" for predicted negative associations; *$p < .05$, **$p < .01$, ***$p < .001$.

These analyses indicate that measuring joint action as a general measure may not be sufficient for capturing the nuances of acting on a stressor together; the emotion-focused coping measure was associated with more outcomes than the problem-focused coping measure, and the associations with emotion-focused coping differed from those of the more general joint action measure. However, it is also notable that all of the relationships that appeared with the emotion-focused coping measure also appeared using the joint action subscale, so perhaps some overlap exists in how participants thought about joint action generally and emotion-focused coping more specifically. The bivariate correlation between emotion-focused coping and joint action also supports that there is some overlap ($r = .67$, $p < .001$; see Table 5.4), although the correlation is not so high as to suggest that these two ways of coping are the same. Overall, family cohesion was related significantly to joint action, but not appraisal, and more individual diabetes-related outcomes were associated significantly with action than with appraisal. This may indicate that participants are more attuned to their behavior toward the disease than their cognitions toward it.

Associations between Family Cohesion, Types of Coping, and Individual Diabetes-Related Outcomes

In the final set of analyses, I tested associations among family cohesion, the types of coping revealed in the latent class analysis (i.e., communal coping, individual coping, moderate sharing), and individual diabetes-related outcomes. Family cohesion was positively correlated with communal coping in both the regression and SEM analyses and was negatively associated with moderate sharing in the SEM. Individual coping was not significantly correlated with family cohesion. For the diabetes-related outcomes, communal coping was positively associated with glucose self-care in the SEM and with exercise (days per week) self-care in the regression analyses. Individual coping was negatively associated with glucose self-care in both the regression and the SEM analyses and to diet and exercise (days per week) self-care in the regression analyses. Moderate sharing was not significantly associated with any diabetes-related outcomes. Overall, then, communal coping shares positive relationships with diabetes outcomes, and individual coping is negatively associated with diabetes outcomes, so in general, there seems to be some benefit to coping together, rather than separately. Coupled with the first set of analyses, communal behavior toward one's stress may be particularly helpful.

Mediation Analyses

Three significant indirect effects were apparent in the data. First, joint action mediated the relationship between cohesion and glucose self-care. Second, emotion-focused coping mediated the relationship between cohesion and diet self-care. Finally, communal coping mediated the relationship between cohesion and glucose self-care. Therefore, when participants perceived that their families were engaged in collective coping to reduce the negative effects of the stressor (either generally or by reducing the negative emotional effects of the illness), the closeness of their families was also related to their self-care in terms of glucose management and diet. It is important to note that cohesion did not share a direct relationship with either glucose self-care (p = .91) or diet self-care (p = .08), so cohesion is only related to self-care through the indirect effect of joint action, emotion-focused coping, and communal coping.

The data from the second study revealed that three types of coping exist along the two dimensions of coping: communal coping, individual coping, and moderate sharing. Both the continuous dimensions and the types of coping were related to some measures of family cohesion and individual diabetes-related outcomes. Overall, joint action seemed to have a more salient association with the outcomes than did shared appraisal. The theoretical and practical implications of these results are discussed in the following chapter.

CHAPTER 6

GENERAL DISCUSSION

The objectives of this dissertation were threefold: (a) to explicate the appraisal dimension of the communal coping model, (b) to statistically test the communal coping typology, and (c) to assess the associations among family characteristics, coping efforts, and individual diabetes-related outcomes. To achieve these goals, I implemented two studies. The first, designed to conceptualize appraisal, consisted of interviews with type 2 diabetic individuals and their family members, and I used interpretive analyses to uncover two elements of appraisal: (a) problem ownership and (b) problem influence. I used insights from the results of study 1 to create a measure of communal coping. In the second study, diabetic individuals completed a survey assessing their family cohesion, the two dimensions of communal coping (i.e., appraisal and action) and diabetes-related outcomes (i.e., self-care, adherence, and depressive symptoms). Through a series of analyses I evaluated the validity of the communal coping measure and then employed the measure to test the communal coping typology. Then, I tested relationships among the concepts in the study. Overall, communal coping was related to positive outcomes for people living with type 2 diabetes. In this chapter, I describe the results of each study, discuss the theoretical and practical implications of the results, and propose directions for future research on communal coping and type 2 diabetes.

Implications for Conceptualizing Appraisal

According to the communal coping model specifically (Afifi et al., 2006; Lyons et al., 1998) and coping research more generally (e.g., Folkman et al., 1979; Lazarus, 1966), appraisal is a cognitive process in which people make meaning of their stress. Lyons et al. (1998) suggested that because people cope in social groups like families, one way they appraise their stress is by cognitively considering whose problem the stress is: mine, yours, or ours; however, beyond offering a basic explanation of appraisal in the context of communal coping, researchers have not yet fully conceptualized what it means to appraise stress as individually or jointly owned. One goal of this dissertation, therefore, was to explicate this construct. The results of the interview study indicated that appraisal consists of both problem ownership and perceived problem influence. That is, when individuals perceive that they own their type 2 diabetes individually, they think of it as their problem, but they also perceive that only they are affected by their stress. Conversely, when diabetes is jointly owned, family members perceive it as a collective problem that influences the lives of people other than the individual diagnosed with the disease.

This conceptualization of appraisal comports with extant research on stress and coping. Berg et al. (2009), for instance, assessed how type 1 diabetic adolescents' perceived coping effectiveness was influenced by their appraisals of their stress as individual or as shared with their mother and/or father. They operationalized appraisal by asking the children whether the stress was their own (i.e., individual appraisal), whether it was their own but affected their parent (indirectly shared appraisal), or whether the stress belonged to both the child and the parent (directly shared appraisal). The results of their study revealed that no significant differences existed among indirectly or directly shared appraisal in terms of collective coping, which supports the idea that people's judgments about ownership and influence may be comingled. Similarly, analyses of the interview data suggest that appraisal consists of both ownership and influence, not one or the other. This conceptualization adds a higher degree of precision to communal coping research by suggesting what shared appraisal entails.

Assessing the Communal Coping Typology

The second research question focused on testing the communal coping typology, which asserts that the two continuous dimensions of communal coping (i.e., appraisal and action) cross to create four distinct types of coping: individual coping, support-seeking, parallelism, and communal coping (Afifi et al., 2006; Lyons et al., 1998; see Figure 2.1). Although the four types have been empirically supported in qualitative research (Afifi et al., 2006), an important step in communal coping research is to triangulate these findings with quantitative work. One objective of this dissertation, therefore, was to test the typology statistically. I created quantitative measures of the appraisal and action dimensions based on communal coping theory and the results of study 1. Then, I used latent class analysis (LCA; Collins & Lanza, 2009) to test for the types of coping. Latent class analysis is similar to cluster analysis methods in that it identifies similar characteristics among the data to create distinct classes (or clusters), but it offers two benefits over more traditional methods of discovering clusters in the data. First, LCA allows the researcher to make a priori decisions about how many classes to test for, so I tested the data for two, three, four, five, and six clusters. Second, LCA provides fit criteria for each number of classes as a way to compare across the tests. If the data had mimicked what was in theoretical work on communal coping, four classes would have been the best fit for the data; however, in the current study the fit criteria revealed that the best fitting model included three classes, rather than four (Table 5.6).

Based on the characteristics of the classes, I labeled them communal coping (high shared appraisal, high joint action), individual coping (low shared appraisal, low joint action), and moderate sharing (moderate shared appraisal, low to moderate joint action). The results are only partially consistent with theoretical work on communal coping, which would predict that some people would be high on shared appraisal and low on joint action (parallelism), and others would be the reverse: low on shared appraisal and high on joint action (support-seeking; Afifi et al., 2006; Lyons et al., 1998). Parallelism and support-seeking, however, were not apparent in the data. Rather than having types that are orthogonal, then, the three types of coping were almost linear in nature (Figure 6.1). These results raise the question of whether it is more useful to think of communal coping as existing in three types along one continuous line of low to high communal coping, or whether it is more helpful to study communal coping as existing along two distinct dimensions.

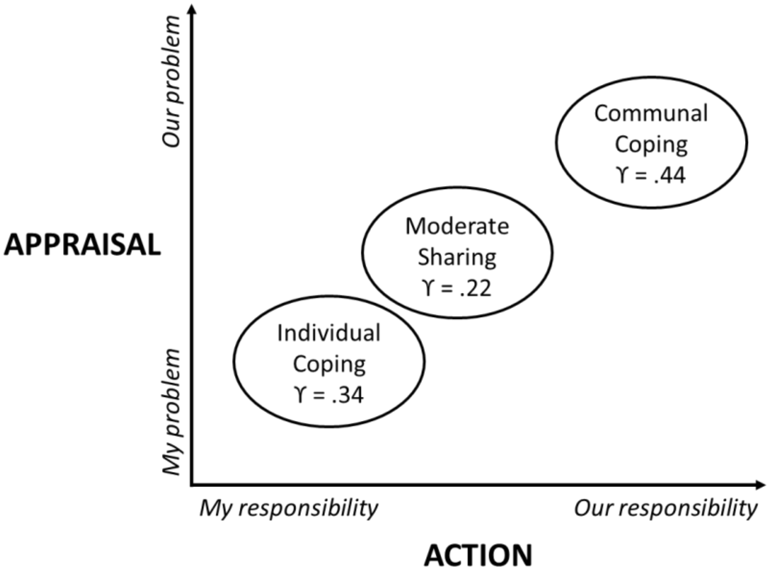

Figure 6.1. Types of coping revealed by latent class analysis.

One way to approach this question is by examining the relative advantages of typological and dimensional approaches, which provide different information and, therefore, are valuable for different purposes. Haslam (1994) suggests that the goal in using any explanatory approach (i.e., dimensions or typologies) is to study mental representations of theoretical constructs. For example, if individuals think of relationships as qualitatively different types (e.g., best friend, acquaintance, stranger) rather than as existing along some relational continuum (e.g., less to more close), then a typology is more appropriate for studying relationships. Dimensions suggest that concepts can be differentiated by degrees, whereas typologies suggest that differences exist among nominal groups (Haslam, 1994; VanLear et al., 2006), and many concepts can be studied using either approach. Specific to communal coping, the goal of this study was to understand whether coping is best thought of as distinct types or as points along two continuua (e.g., less to more shared ownership, less to more jointly acted upon).

Typologies can assist in highlighting important distinctions and interactions between dimensions. Koerner (2016) suggests that types may be established either based on a theoretical heuristic or on the basis of empirical evidence. When scholars use theoretical heuristics for their typology, the underlying dimensions are continuous, and frequency is assumed to be normally distributed along those dimensions. In these cases, individuals may be divided into groups (e.g., low, moderate, high) to examine the main effect of some process on an outcome. In contrast, when individuals naturally cluster along dimensions, rather than being distributed evenly, the typology is empirically supported, and interaction effects may be examined in addition to main effects.

In spite of their strengths, typologies are not always an ideal way to classify relational or other experiences. Data points that do not fit well within the types are anomalous to the categories, and researchers may “throw away” information by simplifying it into categories that are not a perfect fit with their data (VanLear et al., 2006). Moreover, dimensions offer more precise information than typologies about individuals or relationships. Whereas a typology may cluster individuals who are moderate and high together in one group, dimensions recognize the degrees of difference between individuals, and their data can therefore be interpreted with more specificity (VanLear et al., 2006). Finally, typologies are not appropriate when data are evenly spread among dimensions, but rather, typologies provide useful information about cases in which data points group together along those dimensions (VanLear et al., 2006). As such, data that fits a typological approach “should show true discontinuities in the underlying dimensions” (VanLear et al., 2006, p. 2). Given the advantages and disadvantages of typologies and dimensions, scholars ought to demonstrate care in choosing which of these approaches is more valid for their conceptualizations. One contribution of this dissertation, therefore, is that it offers the first statistical test of the communal coping typology, providing a basis on which to evaluate whether communal coping is better thought of as typological or dimensional.

Based on the results of this study, I argue that communal coping is more usefully conceptualized as existing along two continuous dimensions of appraisal and action, rather than as three distinct types (i.e., communal coping, individual coping, and moderate sharing). The primary reason behind this argument is that when the types of coping are used, appraisal and action are collapsed into each group. Individuals in the communal coping group, for example, are characterized by high shared appraisal and high joint action. Putting appraisal and action together into one group, however, obscures the relationships among appraisal and action and other concepts. For example, communal coping was positively related to glucose self-care in the structural equation model (Table 5.66), as was joint action (Table 5.62); however, appraisal was not significantly related to glucose self-care (Table 5.62). Examining only the types of coping, one may be tempted to conclude that for greater glucose self-care, people with diabetes should both think of their disease as collectively owned (i.e., shared appraisal) *and* act on the stressor together (i.e., joint action). Exploring the dimensions separately, however, reveals that only joint action is significantly related to glucose self-care. Therefore, investigating the dimensions separately as continuous dimensions provides a more nuanced understanding of the roles of cognitions and behaviors in coping.

Family Cohesion and Coping

I assessed associations among family cohesion and coping in two ways – using the continuous dimensions of coping (i.e., shared appraisal and joint action) and then using the types of coping that emerged from the latent class analysis (i.e., communal coping, individual coping, and moderate sharing). Together, these tests have implications for how scholars think about family characteristics and coping efforts.

Family cohesion and dimensions of coping. The first two hypotheses made predictions about the associations between family cohesion and dimensions of communal coping (i.e., shared appraisal, joint action, problem-focused coping, and emotion-focused coping). Cohesion was not significantly related to shared appraisal in either the regression analyses or the structural equation model. Families that are high in cohesion feel emotionally close to one another and prioritize the family unit over the individual (Davies et al., 2004; Jacobvitz et al., 2004), so it stood to reason that emotionally connected families would think of their stressors as co-owned, rather than belonging only to one individual. There are two potential explanations for the non-significant findings related to the first hypothesis. First, it is possible that the context for this study influenced participants' perceptions of individual or shared ownership of the disease. Type 2 diabetic individuals often feel stigmatized by others, primarily because of the pervading belief that people cause the disease by making poor choices (Schabert et al., 2013). Moreover, some people with diabetes report feeling isolated from their families because of the impact their illness can have on other family members (Handron & Leggett-Frazier, 1994). The results from study 1 indicated that one element of co-ownership is whether the stressor affects others; accordingly, it is reasonable that under conditions of shared appraisal, participants may have withdrawn from their family members, despite their cohesion. Investigations of communal coping in future research would benefit from testing the relationship between cohesion and shared appraisal in other, less stigmatized contexts.

Second, it is possible that the non-significant results for the first hypothesis are a product of the measure of family cohesion. Only one question in the measure explicitly asked about participants' cognitive/emotional assessments of their families' connectedness (i.e., "We feel very close to each other"). The remaining items tapped into more behavioral elements of cohesion (e.g., "We are involved in each other's lives," "We like to spend some of our free time with each other"; see Appendix H for a complete list of items). Therefore, participants may have been reflecting primarily on their behaviors with their families, rather than their cognitions; a measure that inquires about cohesion with more attention to its cognitive/emotional elements may provide a more accurate representation of the association between cohesion and appraisal.

Although family cohesion was not significantly related to appraisal, it shared a positive association with joint action and problem-focused coping in the structural equation models and with emotion-focused coping in both the regression analyses and the structural model. These findings echo research on cohesion and coping. Highly connected families spend time together and share in activities (Olson, 2000), and in the current study, participants in cohesive families engaged in behaviors to decrease their stress alongside their family members. The significant associations between cohesion and problem-focused and emotion-focused coping shed light on families' collective efforts. Problem-focused coping refers to behaviors aimed at alleviating the threat itself (Lazarus & Folkman, 1984), including problem-solving and other instrumental efforts to decrease the negative effects of the stress (Cohen & Lazarus, 1979). Emotion-focused coping, on the other hand, includes efforts aimed at regulating the emotional response to the threat (Lazarus & Folkman, 1984). When individuals engage in emotion-focused coping, their primary goal is to feel better about their stress, rather than to change their circumstances. Problem-focused and emotion-focused coping are usually interdependent (Cohen & Lazarus, 1979) and are frequently used in tandem (Folkman & Lazarus, 1985; Lazarus & Folkman, 1984). Folkman and Lazarus (1980), for example, found that only two percent of their sample used one type of coping, whereas everyone else used both, so it is not unexpected that participants in the present investigation reported using both problem- and emotion-focused coping.

Family cohesion and types of coping. Another set of hypotheses (H6, H7) and research questions (RQ4, RQ5) inquired about associations with the types of coping identified in RQ2: communal coping, individual coping, and moderate sharing. Family cohesion was positively associated with communal coping in the regression analyses and SEM and negatively related to moderate sharing in the SEM. Cohesion was not significantly related to individual coping, contrary to the prediction in hypothesis 7. Because coping occurs in the context of social relationships (e.g., Bodenmann, 1997b; Fiske et al., 1991; Revenson et al., 2005), it makes sense that the characteristics of those relationships influence individuals' coping responses. The cohesion of the family was related to two types of coping diabetic individuals used, and indeed, work on cohesion and coping lends credence to these findings. For instance, Kliewer and Lewis (1995) found that family cohesion was related to children's active coping with sickle cell disease, and Stern and Zevon (1990) discovered a negative correlation between cohesion and maladaptive coping strategies, like self-blame. Moreover, in a sample of people with type 1 diabetes, low family cohesion predicted the use of two negative coping strategies: ventilation (e.g., blaming others, complaining) and avoidance (e.g., using substances like alcohol to escape stress). Cohesion, then, is related to coping both in previous work and in the current study.

Although cohesion was related to communal coping and moderate sharing, it was not significantly associated with individual coping. This finding is surprising because coping research is clear that stressors are experienced in the context of social relationships, including family relationships (Revenson, 2003). Perhaps, however, when individuals with type 2 diabetes engage in individual coping, their exclusion of the family in their coping efforts points to a more general disregard for the family structure, including its cohesiveness. It is also possible, however, that the relationship between cohesion and individual coping is explained by some other factor not measured in this study; for example, the concept of relationship-focused coping emphasizes how people maintain their relationships in the midst of stress (Coyne & Smith, 1991; Kramer, 1993; O'Brien & DeLongis, 1996). Perhaps the participants in this study were not mindful of attending to their family relationships, so the relative closeness of their family relationships did not affect how they coped when they engaged in individual coping efforts. It makes theoretical sense that cohesion and individual coping are significantly related, so one goal for future research in this area is to continue to tease out the association between family characteristics and individual coping.

Implications for cohesion and coping. Generally, the results concerning the association between cohesion and coping suggest that cohesive families may work together to manage one family member's type 2 diabetes. Indeed, previous work points to a relationship between family connectedness and adaptive coping. In the current study, participants reported that cohesive families engaged in behaviors to alleviate the illness-related stress (i.e., problem-focused coping), and they worked together to manage the emotions associated with the disease (emotion-focused coping). Previous research on type 2 diabetes suggests that cohesion has a protective impact on disease outcomes (Chesla et al., 2004; DiMatteo, 2004; Fisher et al., 1998; Trief et al., 1998), and in the current investigation, the findings are consistent with the idea that cohesion is associated with whether and how participants worked alongside their families to manage the disease.

Coping and Diabetes Outcomes

Another set of hypotheses and research questions concerned the associations between coping efforts and individual diabetes outcomes. Like the hypotheses and research questions regarding cohesion and coping, this set of associations was tested using both the dimensions of coping and the types of coping.

Shared appraisal and diabetes outcomes. Research question 3 and the fifth hypothesis concerned associations between the dimensions of coping (i.e., appraisal, action, problem-focused coping, and emotion-focused coping) and outcomes related to the illness (i.e., self-care, adherence, and depressive symptoms). Shared appraisal was positively associated with glucose self-care in the regression analyses but was not significantly related to any other outcomes (RQ3). That is, the more participants thought of their stressor as shared with their family members, the better they cared for themselves in terms of managing their blood glucose levels. Perhaps appraisal was positively related to glucose self-care because thinking of the illness as “ours” rather than “mine” lifted some of the cognitive burden of the disease, making self-care efforts seem more manageable to the diabetic individual. Alternatively, it is possible that shared appraisal decreased participants’ perceptions of barriers or increased their motivation to manage their glucose.

One potential explanation for the non-significant relationships between shared appraisal and the other individual diabetes-related outcomes (i.e., diet self-care, exercise self-care, adherence, and depressive symptoms) is that glucose management is often the most immediate challenge for diabetic individuals as they handle their disease. The defining feature of diabetes is glucose abnormalities caused by insulin deficiencies, so individuals' primary concern in managing their disease is ensuring that their glucose levels are within an appropriate range (Cox & Gonder-Frederick, 1992). Failure to do so can result in hyperglycemia (high blood glucose) or hypoglycemia (low blood glucose), both of which have immediate effects (American Diabetes Association, 2014, 2015). Symptoms of hyperglycemia can include frequent urination and increased thirst, and in extreme circumstances, ketoacidosis, which is a diabetic coma caused by too much blood sugar in one's system; ketoacidosis can lead to dry mouth, shortness of breath, and nausea and vomiting, and it can be life-threatening (American Diabetes Association, 2014). Hypoglycemia can results in shakiness, anxiety, irritability, confusion, rapid heartbeat, blurry vision, headaches, fatigue, seizures, and unconsciousness (American Diabetes Association, 2015). Appropriate glucose self-care behaviors help diabetic individuals to avoid these effects. The other outcomes assessed in this study, however, represent more long-term investments in the diabetic person's care (diet, exercise, adherence to one's treatment regimen) and their mental health status (depressive symptoms). It is possible, therefore, that shared appraisal of the disease did not offer enough motivation for the participants to engage in behaviors that had less immediate impact on their daily lives.

Joint action and diabetes outcomes. Joint action was related to glucose self-care, diet self-care, and adherence in both the regression analyses and the structural equation model and to days per week of exercise in the regression analyses. When participants perceived that their family members worked alongside them to manage their diabetes, they engaged in better glucose management and dietary and exercise practices and adhered to their treatment regimen as prescribed by their healthcare providers. Contrary to the prediction, however, joint action was not significantly related to depressive symptoms, despite previous research that has linked social support with fewer depressive symptoms (Cheng & Boey, 2000; Fisher et al., 2004). Given these findings, the non-significant relationship between joint action and depressive symptoms in this study was unexpected. Perhaps this was due to the relatively low rates of depressive symptoms in the sample. Alternatively, it could be that because the participants in the sample were hospitalized, they were more attuned to their physical ailments than their psychological ones. Finally, it could be that instrumental support behaviors like the ones assessed in the joint action subscale are helpful to diabetic individuals as they manage some of the more behavioral demands of their illness, but they are less helpful in relation to mental and emotional challenges.

Problem-focused and emotion-focused coping and diabetes outcomes. Problem-focused and emotion-focused coping with family members were also related to some diabetes-related outcomes. Problem-focused coping was positively associated with days per week of exercise self-care in the regression analyses, and emotion-focused coping was positively related to diet and exercise self-care in the regressions and the structural equation model and to adherence in the regressions. Although these findings correspond with research on social support in general, they are dissimilar from investigations of coping with diabetes, specifically. For instance, research suggests that problem-focused coping is generally more helpful for improving general well-being (Kvam & Lyons, 1991; Peyrot et al., 1999). In fact, emotion-focused coping has been linked with negative outcomes in some studies, including poorer diabetic control (DeCoster & Cummings, 2005) and psychological well-being (Karlsen et al., 2004). Though some research about coping more generally touts the benefits of emotion-focused coping (e.g., Worthington & Scherer, 2004), problem-focused coping has been more useful overall to people with type 2 diabetes for improving their outcomes.

In the current investigation, however, both problem-focused and emotion-focused coping with family members were associated with better patient outcomes, and in fact, emotion-focused coping was related to more positive outcomes than was problem-focused coping. One potential explanation for this departure from previous research is that diabetic individuals may have interpreted their emotion-focused coping with family members as emotional support. Most emotion-focused coping research focuses on one individual's coping responses to their stress, rather than collective coping efforts (e.g., Folkman & Lazarus, 1980, 1985; Kvam & Lyons, 1991; Lazarus & Folkman, 1984; Peyrot et al., 1999). In contrast, emotional support includes verbal and nonverbal expressions of care and concern and reassures distressed individuals that they are cared for despite their circumstances (Cohen & Wills, 1985; Helgeson & Cohen, 1996). Moreover, the emotion-focused coping scale items in this study were developed based in part on the American Association of Diabetes Educators' (2015) recommendations for self-care behaviors, reflecting the healthy coping endorsements from the AADE. Some research suggests that diabetes-specific support is related to adherence (Delamater et al., 2001; DiMatteo, 2004) and self-care (Gallant, 2003), so perhaps the participants in this study interpreted the emotion-focused coping items as being diabetes-specific, which they found useful in managing their disease.

Types of coping and diabetes outcomes. The final set of research questions (RQ8-RQ11) asked about associations between the types of coping and diabetes outcomes. Communal coping was positively related to glucose self-care in the structural equation model and to days per week of exercise in the regression analyses. Individual coping was negatively associated with glucose self-care in both the regressions and the structural model and with diet self-care and days per week of exercise in the regressions. Moderate sharing was not significantly related to any diabetes outcomes.

These results suggest that coping alongside one's family members is advantageous, whereas coping in isolation is detrimental. Beyond the research that concludes that collective coping is beneficial, several studies conducted in the context of breast cancer, another chronic illness, echo these findings about the relationship between coping and disease-specific outcomes. For instance, women with breast cancer adjust better to the disease when their partners use positive coping strategies (e.g., Kuijer et al., 2000; Ptacek, Ptacek, & Dodge, 1994), and they report more distress when their partners use poor coping techniques (e.g., Hannum, Giese-Davis, Harding, & Hatfield, 1991; Ptacek et al., 1994). Overall, these studies point to the relationship between coping and adjustment to one's disease, but perhaps more importantly, they illustrate the interdependence inherent in the coping process (Bodenmann, Meuwly, & Kayser, 2011; Kayser & Scott, 2008). Although both communal and individual coping were related to diabetes outcomes, moderate sharing was not significantly associated with any disease outcomes. Participants with the highest probability of being in the moderate sharing category comprised the smallest proportion of the types of coping ($\Upsilon = .22$), so perhaps there was not enough power to detect these relationships. Future work should attend to the potential role of moderate sharing in individual outcomes associated with chronic illness.

Implications for coping and diabetes outcomes. Overall, the tests of associations between coping and diabetes outcomes suggest that coping together is helpful for people with type 2 diabetes in managing their illness, specifically in regard to self-care (glucose management, diet, and exercise) and adherence. Research on social support adds credence to these results. In the context of diabetes, specifically, support from family members has been linked with self-care (Gallant, 2003; Wen et al., 2004; Whittemore et al., 2005) and adherence (Anderson, 1990; Delamater et al., 2001; DiMatteo, 2004; Nagelkerk et al., 2006), and a lack of support is related to negative health behaviors, like poor self-management (Beverly, Miller, & Wray, 2008). Given this body of work, it is not surprising that collective coping efforts were associated with self-care and adherence in the present study.

Mediations

Three mediations were apparent in the analyses: joint action mediated the relationship between family cohesion and glucose self-care; emotion-focused coping mediated the relationship between family cohesion and diet self-care, and communal coping mediated the relationship between family cohesion and glucose self-care. In all of these associations, working together alongside one’s family mediated the relationship between the closeness of the family and the diabetic person’s self-care. Generally speaking, then, as family cohesion increased, family members engaged in more collective action to decrease the stress associated with the illness, and this in turn was related to higher glucose or diet self-care. In other words, the more salient the collective coping in cohesive families, the better self-care the participant reported. This association makes sense based on previous studies. Miller and Brown (2005) discovered that one way cohesive spouses adapted to a diabetic diet together was through a teamwork approach, completing tasks together through rule negotiation and open communication. Couples who used this approach talked about having a clear strategy for adhering to the demands of their diet. Perhaps the same was true of participants in this study; when cohesive families worked alongside the diabetic family member to overcome the challenges of the illness, the participant was more motivated to engage in self-care behaviors.

Theoretical Implications

Two main theoretical implications for communal coping emerge from this research. First, study 1 offers a conceptualization of the appraisal dimension of communal coping, which has previously been absent from this body of research. The work of explicating a construct is important to fully understand it. Chaffee (1991) argues that explication connects theory with research and that to assess constructs well in quantitative or qualitative research, explication should be a major focus of scientists' endeavors. To that end, the explication of appraisal in this dissertation advances communal coping research by discovering the meaning of shared appraisal for individuals coping with type 2 diabetes, rather than relying on the basic definitions proposed by researchers in previous work (e.g., Afifi et al., 2006; Guribye, Sandal, & Oppedal, 2011). Moreover, valid measurement of constructs relies on knowing precisely what those constructs are, and one role of explication is to inform researchers of the overlap between what they are measuring versus what they intend to measure (Chaffee, 1991). That is, explication marries the theoretical with the empirical by highlighting what coding schemes, survey measures, and experimental designs should incorporate. Explication is also related to the validity of constructs. Content validity, for instance, concerns the representativeness or adequacy of an instrument (Kerlinger & Lee, 2000). To assess content validity, the researcher's goal is to understand whether a measure encompasses "the universe of content" of a concept (Kerlinger & Lee, 2000, p. 667). Of course, a critical step in content validation is to know what the full content of a concept is. By explicating appraisal, this dissertation provides a standard by which to assess measures of it. Therefore, to measure appraisal adequately, engaging in the first step of conceptualizing the construct was critical. Researchers undertaking communal coping research in the future would benefit from using this conceptualization in their own assessments of individual or shared appraisal.

Second, the results of RQ2 provide a test of the communal coping typology. The findings suggest that coping can be thought of as three distinct types of coping; however, because the types of coping did not exist in the way the theory originally suggested (Afifi et al., 2006; Lyons et al., 1998), the results raise the question of whether it is useful to think of coping as types, or whether it makes more conceptual sense to think of coping as existing along two continuous dimensions of appraisal and action. Research about family communication patterns theory has faced some of the same challenges as research about communal coping in determining whether there is empirical support for the theoretically proposed types of coping. Family communication patterns (FCP) theory has generated a large body of work over the last two decades (e.g., Fitzpatrick, 2004; Fitzpatrick & Koerner, 2004; Fitzpatrick & Ritchie, 1994). Because it has been assessed using both dimensional and typological approaches, it provides a good example of how communication researchers may use either approach, depending on the purpose of their study.

The premise behind FCP is that family communication patterns are indicative of some underlying schemata. FCP crosses the conformity dimension (i.e., the family's expectations of consistency among family members' attitudes, beliefs, etc.) with the conversation dimension (i.e., the depth, breadth, and frequency of the family's communication; Fitzpatrick, 2004; Fitzpatrick & Koerner, 2004; Fitzpatrick & Ritchie 1994). Together, the conformity and conversation dimensions form four family types: protective (high conformity, low conversation), consensual (high conformity, high conversation), pluralistic (low conformity, high conversation), and laissez-faire (low conformity, low conversation). In applying FCP, researchers have investigated both the conversation and conformity dimensions (e.g., Baxter & Pederson, 2013; Schrodt & Ledbetter, 2007) and the family types as distinct categories (e.g., Koerner & Fitzpatrick, 1997).

Scholars have explained that there are two distinct and valid methods for using the conformity and conversation orientations (i.e., as continuous dimensions or to create four distinct types of families; Koerner & Fitzpatrick, 1997), and both approaches have yielded valuable insights about family communication. For example, Baxter and Pederson (2013) assessed actual versus ideal family communication patterns using the conversation and conformity dimensions as continuous measures. A typological approach would not have offered the same precision of information because of the sometimes subtle differences between actual and ideal communication. In contrast, Koerner and Fitzpatrick (1997) studied each of the four family types as nominally distinct from one another on conflict strategies like avoidance, seeking social support, and venting negative feelings. Although each of these studies represents a valid approach to answering the researchers' questions, other scholars have not adequately justified their choice to use either types or dimensions. Fife, Nelson, and Messersmith (2014), for instance, use the conversation and conformity dimensions as continuous variables, but they mention in their study that this was because of the exploratory nature of their study and because of their small sample size. If their interest was truly in how the family types differed on their constructs of interest (i.e., religious orientation and strength of religious faith), then using the conversation and conformity dimensions as continuous predictors was an invalid choice. Generally, though, literature about FCP represents how researchers can use either of two equally valid approaches in studying one concept. However, scholars should make careful choices in light of (a) the purpose of their research, (b) the conceptualization of the concept, and (c) which approach best captures individuals' mental representations of that concept (i.e., do people think of families as distinct types or as existing along a continuous dimension?). Based on the evidence of the current study, it appears that communal coping is better conceptualized along two non-orthogonal dimensions of appraisal and action, rather than as having four distinct types of coping, although this conceptualization of communal coping would benefit from more validation in future work.

Practical Implications

The results of these studies also have practical implications for individuals managing type 2 diabetes and for their family members. Given the results of study 2, a helpful approach to managing diabetes in the family context is to engage in joint action to decrease the negative effects of the illness. Joint action was positively associated with glucose, diet, and exercise self-care and with adherence to the diabetic person's treatment regimen; in addition, problem-focused and emotion-focused coping, conceptualized as types of joint action, were related to positive outcomes for the individual with type 2 diabetes (see Table 5.72). Taken together, this set of findings suggests that working alongside one's family members to manage the disease is beneficial.

Research suggests that type 2 diabetes is a disease that is often shared with members of the patient's social network (e.g., Anderson et al., 1990). Patients, however, feel a tension about whether they should take sole responsibility of the disease or whether they should share responsibility with their spouses, families, and friends. In several studies, patients talk about wanting to manage their disease independently and feeling responsible for controlling the disease (Kokanovic & Manderson, 2006; Trief et al., 2003). Often, this results in patients resisting family members' attempts to help (Kokanovic & Manderson, 2006; Trief et al., 2003). In contrast, family members are able to carry some of the burden of disease management (Weihs et al., 2002), and spouses, in particular, can become self-care partners who assist in making and maintaining change (Wilkinson et al., 2014) or who help with daily routines (Manoogian et al., 2010). The results of this dissertation suggest that families with a diabetic member may see advantages to making plans for addressing the disease together and to supporting and depending on one another. Moreover, the problem-focused and emotion-focused coping measures were based in part on the American Association of Diabetes Educators' (2015) recommendations for diabetes self-management, which include healthy eating, being active, monitoring blood glucose, taking medication, problem-solving, reducing risks, and healthy coping. This resource, called the AADE7 Self-Care Behaviors™ is publicly available and may prove useful to diabetic individuals and their family members as they learn to navigate the challenges of managing the illness together.

Second, the findings point to the importance of diabetes education for both people with diabetes and for their family members. Type 2 diabetes, like many chronic illnesses, changes over time, and diabetic individuals must constantly manage the difficulties of evolving disease management demands. Because people experience their stress in the context of their social relationships (e.g., Revenson et al., 2005), it is valuable for family members to receive ongoing education about the disease. Intervention research in the context of type 2 diabetes supports this notion. The traditional intervention approach is focused on patient education, and the goal is to increase patients' knowledge about their disease and how to appropriately manage it (e.g., Whittemore et al., 2005). Such patient-focused interventions have a range of success in improving patient outcomes. However, training that happens in a group context, rather than an individual one, shows more improvement in diabetes management (Deakin, McShane, Cade, &

Williams, 2008; Norris, Engelgau, & Narayan, 2001). Family interventions, for instance, have demonstrated some effectiveness because they focus on the family as a team and utilize a naturally existing support system to improve both health and relational outcomes (Weihs et al., 2002). Especially compared to receiving only standard care (e.g., meeting with a primary care physician), physiological outcomes were improved for individuals who took part in a family intervention (Wysocki et al., 2006). Given this work on education and the potential advantages from working together to manage a family member's diabetes, families may benefit from receiving continuous training and education in managing the disease together as its demands change over time.

Limitations and Directions for Future Research

Although I am encouraged by the implications of this dissertation for both theory and practice, it is constrained by some limitations. First, the characteristics of the sample limit the generalizability of the findings. Participants were primarily White/European American (70.0% in study 1 and 78.0% in study 2). More than any other demographic characteristic, scholars have found that both the prevalence of type 2 diabetes and the challenges to coping with diabetes vary by race/ethnicity. For example, in a prospective study of the incidence of type 2 diabetes, Kumari, Head, and Marmot (2004) found an increased incidence in South Asian and Afro Caribbean men over time. In cross-sectional studies, members of a number of other ethnic minority groups in the United States have had a higher prevalence of type 2 diabetes than European Americans. Specifically, Latinos, African Americans, Asian Americans, and Pacific Islanders are at least two times more likely to be diagnosed than European Americans, and American Indians and Alaskan Natives are three times more likely (DeCoster, 2001). Together, these studies indicate that type 2 diabetes is more prevalent in racial/ethnic minority groups than in non-minority groups. Beyond the increased prevalence of the disease, members of different racial/ethnic groups also face unique challenges to coping with it; for example, acculturation was related to positive health outcomes for Latinos (Aranda & Knight, 1997) and Chinese Americans (Fisher et al., 2004). Moreover, there may be some differences in the coping methods that members of different racial/ethnic groups use; for instance, in one study, European Americans used more problem-focused coping methods than African Americans (DeCoster & Cummings, 2005). Therefore, a study with a more accurate representation of race/ethnicity in the United States in terms of type 2 diabetes experience and prevalence may proffer different results.

Relatedly, research suggests that culture and coping are linked, adding credence to the idea that a primarily Western and White sample may not be representative of coping with type 2 diabetes more generally. Researchers have begun to explore the role of collectivism in coping, which provides "a critical counterpoint to the prevailing Western, individualistic stress and coping paradigm" (Kuo, 2013, p. 374). The primary focus in this research has been the influence of collective values and orientations in coping preferences and patterns (Kuo, 2013). In particular, scholars have focused on cultural characteristics like collectivism-individualism, interdependence-independence, and acculturation as correlates of coping responses among different cultural groups (e.g., Guribye et al., 2011; Kuo, 2013; Utsey et al., 2007). This research asserts that not only does culture affect individual level characteristics like health beliefs, adherence, and access to healthcare, it also affects dyadic coping processes (Berg & Upchurch, 2007). For instance, when spouses cope together in an independent culture, they may be more prone to promote individual goals and self-expression than are spouses in interdependent cultures, where connectedness and the promotion of others' goals are valued (Berg & Upchurch, 2007). This body of work demonstrates that an individualistic approach to coping research does not capture the cultural implications in such work.

A second limitation concerns the sample size for study 2. A power analysis indicated that 146 participants would provide adequate power to detect a medium effect, so the final sample (N = 159) was appropriate for the analyses; however, the sample size precluded me from assessing the new communal coping measure with a separate sample of participants. Using a split-half technique would have allowed for a more reliable measure of the internal consistency of items (Crano & Brewer, 2002). Future efforts to evaluate the measure would, therefore, benefit from a larger sample size that allows for one group of participants to test the scale and one to do substantive analyses.

Third, the data for this study are cross-sectional in nature. Although the findings from study 2 provide valuable insights into the coping process, it is not possible to make causal inferences based on the relationships in this study. In addition, coping research emphasizes that assessing change over time is critical. A number of coping researchers have noted that coping responses change substantially even in short amounts of time in response to environmental, emotional, and cognitive shifts (e.g., Folkman & Lazarus, 1980, 1985; Folkman et al., 1986). As a result, some coping scholars have suggested that to truly measure coping, research must be longitudinal to capture the dynamic nature of coping (e.g., Lazarus & Folkman, 1987). One advantage of longitudinal assessments is that measurements taken over time can provide some insight into the changing nature of coping and the outcomes associated with it. In addition, individuals coping with an ongoing stressor like type 2 diabetes may face unique challenges as the illness changes over time. Therefore, future work on coping with diabetes would benefit from longitudinal research.

Taken in isolation, the results of this dissertation suggest that coping alongside one's family members is beneficial, whereas individual coping is disadvantageous. This claim opposes some of Lyons et al.'s (1998) theorization of communal coping. The authors suggest that although communal coping can be advantageous, coping together can also potentially be detrimental for three reasons. First, individuals may not all take on an equal burden of the stressor, so communal coping may not be equitable. In addition, collective coping may harm individual adaptation because people manage stress differently, and some handle it better than others; therefore, communal coping may be harmful for particular individuals. Finally, communal coping can result in stress contagion as people take ownership of others' stress and help them to address its negative effects. The potential drawbacks of communal coping are not reflected in the results of this dissertation, but they are noteworthy and should be systematically investigated in future research.

Finally, the results are limited to the context of this study. Three types of coping emerged from these data; however, it is possible that those three types of coping are specific to coping with type 2 diabetes or to coping with illness more generally. Families coping with different stressors (e.g., natural disaster, divorce, bereavement) may engage in different types of coping than were revealed here. Therefore, it is important that the communal coping typology be tested in the context of other family stressors.

Conclusion

Research on communal coping suggests that when people in social groups like families are faced with challenges, they may appraise their stress as individually or jointly co-owned, and they may act on their stress together or in isolation (Afifi et al., 2006; Lyons et al., 1998). Moreover, coping together may prove beneficial both for the person directly experiencing the stress and for his or her family members. The two studies in this dissertation used communal coping as a framework for understanding how families cope with one member’s type 2 diabetes. The goals of the study were (a) to bolster theoretical work on communal coping and (b) to investigate some of the psychosocial experiences associated with diabetes. The findings advance research in both areas by providing new insights into the process of coping with the illness.

Generally, the studies in this dissertation suggest that (a) appraisal consists of shared ownership and perceived influence, (b) the data did not support a model containing four types of coping, so it is reasonable to either conceptualize coping as three types (i.e., low, medium, and high communal coping) or as existing along two dimensions (i.e., shared appraisal and joint action), and (c) generally, coping together reaps benefits for people with type 2 diabetes. These results advance the communal coping framework by providing a previously absent conceptualization of the appraisal dimension of the theory and by statistically testing the communal coping typology. Moreover, this research has practical implications for families managing type 2 diabetes, suggesting that working together with the diabetic family member may be associated with improved self-care and adherence to the treatment regimen. Overall, these studies advance coping research and open promising avenues for future explorations of communal coping in the context of chronic illness.

ENDNOTES

1 To test the effects of the imputed data on the results, all multiple regressions were also run using listwise deletion. The pattern of results mimicked what is reported in chapter 5, with the exception of one relationship. H5 predicted a positive relationship between joint action and adherence. Using the imputed data, the association was significant ($p < .01$). Using the original data set, however, the relationship was non-significant ($p = .05$), although the relationship was in the same direction. Therefore, the data imputed for missing values did not seem to have an effect on the results presented later.

2 The variable for self-care exercise time per day was omitted from structural models because of the large amount of missing data.

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APPENDIX A

Research Information and Consent for Participation in a Research Study

Coping with Type 2 Diabetes

Principal Investigator:	John Caughlin, Ph.D.
Department and Institution:	Department of Communication, University of Illinois
Address:	3001 Lincoln Hall, 702 S Wright St, Urbana, IL 61801
Contact Information:	217-333-4340

INTRODUCTION

You are being invited to take part in a research study about how families cope with one family member's type 2 diabetes diagnosis and management.

You are being invited to take part in this research study because either you or your family member has been diagnosed with type 2 diabetes.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future dealings with Carle Foundation Hospital or Carle Physician Group. **If you decide to participate, you are free to withdraw at any time without affecting that relationship.**

WHO IS DOING THE STUDY?

The person in charge of this study is Erin Basinger, M. A. of the University of Illinois, Department of Communication. She is being guided in this research by Dr. John Caughlin, the principal investigator for this study. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this study is to understand how individuals with type 2 diabetes and their family members manage the illness individually and together.

By doing this study, we hope to learn which strategies are most effective for managing type 2 diabetes and its individual and relational effects.

HOW MANY PEOPLE WILL TAKE PART IN THE STUDY?

Approximately 40 people will take part in this study.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY?

You should not participate in this study if you are under 18 years of age.

WHERE DOES THE STUDY TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted in your hospital room at Carle Foundation Hospital. Your visit will take about 45-90 minutes. The total amount of time you will be asked to volunteer for this study is 45-90 minutes over the next one day.

WHAT IS INVOLVED IN THE STUDY?

You will participate in a one-on-one interview lasting approximately 45-90 minutes. The interview will be audio-recorded. You will begin by completing a short survey about yourself, your family, and your (or your family member's) type 2 diabetes. Upon completion of the survey, the researcher will begin the interview, which will include questions about your family's experience coping with the illness. As part of the interview, you will complete a timeline that illustrates how your family's coping has changed since the diagnosis. In addition, the researcher will have access to your most recent A1C levels listed in your medical chart.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

You will be reflecting on your own and your family members' coping responses to one person's type 2 diabetes diagnosis and management during the interview. For some people, this may induce negative emotions including sadness, anxiety, or discomfort because of the challenges associated with managing chronic illness. If any of the questions or items make you feel uncomfortable, you can refuse to answer them. In addition, you may discontinue the interview at any time.

ARE THERE BENEFITS TO TAKING PART IN THE STUDY?

There is no guarantee that you will get any benefit from taking part in this study. However, some people have benefitted from the chance to discuss negative experiences. The opportunity to reflect on and discuss difficult experiences can sometimes lead to better or more useful understandings of the events, diminishing stress. Your willingness to take part may help doctors and better understand and/or treat others who have your condition.

WHAT OTHER OPTIONS ARE THERE?

This is not a treatment study. Your alternative is not to participate in this study.

WHAT ABOUT CONFIDENTIALITY?

We respect your right to keep your information private. We cannot promise complete confidentiality. People who may look at your information include the Investigator, research staff, members of the Institutional Review Board (a committee that oversees human subject protections at Carle Foundation Hospital), and representatives of the Sponsor of the research. Your information may also be seen by government employees, such as representatives of the FDA or the Office for Human Research Protections at the Department of Health and Human Services. Other officials, such as state health officials, may also need to see your information.

To help assure quality in research, quality assurance and compliance employees of Carle Foundation Hospital [and the Investigator] may also have access to your information. Employees who work to assure quality and compliance protect the confidentiality of your information unless disclosure is required by law.

We will keep records that include your information safe, and will put them in a locked filing cabinet in the Department of Communication at the University of Illinois when they are not being used. If records that include your information are put on computers, we will use reasonable actions to keep those computers secure.

Once your information is no longer traceable to you, we may share your information with other researchers. Your information will be combined with information about other people participating in the study to be analyzed. Your name will not be used when we publish results. Information from the study will be reported in a way that combines the results of many participants. If possible, we will replace identifiable information about you, such as your name or birth date, with number codes that cannot be connected to you. Only research staff will have access to the key that connects the number code to your identifiable information.

WHAT ARE THE COSTS?

There are no expected costs to you or your insurance company for participating in this study.

In the case of injury or illness resulting from this study, emergency medical treatment is available. It will be provided at the usual charge. No funds have been set aside to compensate you in the event of injury or other problems.

You or your insurance company will be charged for continuing medical care and/or hospitalization.

WILL I RECEIVE ANY PAYMENT FOR TAKING PART IN THIS STUDY?

You will receive a gift card to a national retail store worth $20.00 for taking part in this study.

WHAT ARE MY RIGHTS AS A PARTICIPANT?

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. If you choose not to volunteer or if the research is ended for any reason by you or the researcher, this will not result in any penalty or loss of benefits to which you are entitled.

You will be informed about new information that may affect your health, welfare, or willingness to stay in this study.

There are no plans at this time by Carle Foundation Hospital, the Investigator, or any Sponsor of this study to compensate you if the research results in the development of any drug, device or other article which can be sold, even if your blood or tissues were the basis of the discovery, or if the discovery would not have been made if you had not agreed to participate in the study.

WHAT IF NEW INFORMATION IS LEARNED DURING THE STUDY THAT MIGHT AFFECT MY DECISION TO PARTICIPATE?

If the researcher learns of new information regarding this study, and it might change your willingness to stay in this study, the information will be provided to you. You may be asked to sign a new informed consent form if the information is provided to you after you have joined the study.

WHO DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

For questions about the study or a research-related injury, contact the researcher, Erin Basinger, at 205-243-3223 or basinge2@illinois.edu, or you may contact the PI, John Caughlin, at 217-333-4340 or caughlin@illinois.edu

For questions about your rights as a research participant, including questions, concerns, complaints, or to offer input, contact the Carle Institutional Review Board (a group of people who review the research to protect your rights) at 217/383-4366.

Remember:

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with Carle Foundation Hospital or Carle Physicians Group. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

Signature of Subject or Legally Authorized Representative

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I will be given a copy of this signed and dated form.

______________________________	____________
Signature	Date
______________________________	
Printed Name	
______________________________	____________
Signature of Person Obtaining Consent	Date
______________________________	
Printed Name of Person Obtaining Consent	

APPENDIX B

Form for Permission to Transcribe

As part of our research process to better understand your experiences, your interview will be transcribed either by a member of the research team or by an undergraduate assistant. This document asks for your permission to have an undergraduate research assistant from the Department of Communication at the University of Illinois transcribe your interview.

Your privacy is important to us, so the research assistant will not have access to your name or any other personal information about you. He/she will be trained in the importance of protecting confidential information and will be instructed that if he/she recognizes a voice or story in any of the interviews he/she hears, to stop listening to the interview, and it will be transcribed by another member of the research team.

Please review the list and then choose one of the options below.

_______ I give my permission to have an undergraduate research assistant listen to and transcribe my interview.

_______ I do NOT give my permission to have any the undergraduate research assistant transcribe my interview. I want only a graduate student researcher to listen to and transcribe my interview.

____
Please print your name

____
Please sign your name

____
Date (MM/DD/YYYY)

APPENDIX C

Study 1 Demographic Survey

To begin, please answer the following demographic questions about yourself and your family.

1. What is your gender?
    - ☐ Female
    - ☐ Male
    - ☐ Other (please specify) ____________________

2. How old are you? _______ years

3. Which of the following best describes your race/ethnicity (please mark all that apply)?
    - ☐ American Indian or Alaska Native
    - ☐ Asian
    - ☐ Black or African American
    - ☐ Hispanic or Latino
    - ☐ Native Hawaiian or Pacific Islander
    - ☐ White
    - ☐ Other (please specify) ____________________

4. What is your current marital status?
    - ☐ Married
    - ☐ Widowed
    - ☐ Separated
    - ☐ Divorced
    - ☐ Never married
    - ☐ Domestic partner

5. What is the highest degree or level of school you have completed? If you are currently enrolled in school, mark the previous grade or highest degree received.
    - ☐ Did not complete high school
    - ☐ High school graduate or equivalent
    - ☐ Some college, no degree
    - ☐ Completed vocational school
    - ☐ Associate degree
    - ☐ Bachelor’s degree
    - ☐ Master’s degree
    - ☐ Professional degree (MD, DDS, JD, etc.)
    - ☐ Doctorate degree (PhD, EdD, etc.)

6. What is your employment status?
    - ☐ Employed for wages
    - ☐ Self-employed
    - ☐ Out of work and looking for work
    - ☐ Out of work but not currently looking
    - ☐ Homemaker
    - ☐ Student who is employed for wages
    - ☐ Student not employed for wages
    - ☐ Retired
    - ☐ Unable to work

7. What is your total annual household income?
    - ☐ $0-24,999
    - ☐ $25,000-49,999
    - ☐ $50,000-74,999
    - ☐ $75,000-99,999
    - ☐ $100,000-124,999
    - ☐ $125,000-149,999
    - ☐ $150,000-174,999
    - ☐ $175,000-199,999
    - ☐ $200,000 or more

8. Below, please list all of the family members who live in your home (including yourself). You do not need to include names, but please list each family member's relationship to you, his/her age, and whether he/she has been diagnosed with type 2 diabetes.

Example

Relationship to you	**Age**	**T2D Diagnosis?**
Self	42	Yes
Husband	45	No
Daughter	14	No
Daughter	12	No

Please list your family members below:

Relationship to you	**Age**	**T2D Diagnosis?**

9. When did the type 2 diabetes diagnosis occur? Please provide the month and year of diagnosis.

____

10. On a scale of 1-10, how much does your/your family member's type 2 diabetes cause problems in everyday life? Please circle one number.

Causes no problems at all						**Causes a lot of problems every day**			
1	2	3	4	5	6	7	8	9	10

11. On a scale of 1-10, how much does your/your family member's type 2 diabetes interfere in everyday life? Please circle one number.

Does not interfere at all									**Interferes a lot every day**
1	2	3	4	5	6	7	8	9	10

12. Do you currently have health insurance?
    - ☐ Yes
    - ☐ No

13. Have you (or has your family member) been diagnosed with anything other than type 2 diabetes?
    - ☐ Yes
    - ☐ No

14. Have you (or has your family member) experienced any complications from your type 2 diabetes?
    - ☐ Yes
    - ☐ No

APPENDIX D

Study 1 Interview Schedule

Thank you for agreeing to participate in our study today. Before we begin audio recording, do you have any questions?

Let's begin by talking about your/your family member's diagnosis and what it has been like for your family as you learn how to manage the illness.

1. I'd like you to begin by telling me about how you/your family member found out about your diabetes. How long ago was the diagnosis? What was it like for you when you found out?

2. What was it like for the rest of the family when you/your family member were/was diagnosed?

(Probe for family's communication, how family members felt, whether this was difficult and what made it difficult)

3. Can you describe one or two memorable conversations that happened following the initial diagnosis? Why were these interactions memorable?

4. Can you describe one or two more recent conversations that concern your/your family member's diabetes?

5. What was required of you (or your family member) to manage the disease? How has that changed over time?

(Probe for how family members have felt about their role in managing the diabetes)

Probes: What actions have you taken individually to manage the disease? What actions have other people in your family taken? What actions have you engaged in together? (ask about problem-focused and emotion-focused behaviors)

6. What is your treatment plan like now?

(Probe for diet, exercise, medication regimen, how often doctor visits occur, etc.)

7. How would you describe how diabetes has changed your life on a daily basis and as a whole? What about for your family?

8. What has been challenging about you/your family member having diabetes? For what reasons have these things been challenging?

9. How have the family members living in your home reacted to the experience of managing diabetes?

(Probe for whether different family members have responded differently and potential reasons for these differences)

Now I'd like for us to transition to talk about how your and your family's coping experiences have changed over time since the diagnosis. To do this, we're going to complete an activity where you create a timeline that shows how your family has coped. I will guide you through the activity.

(See attached coping timeline activity)

Next, I'd like to take a couple of minutes to have you look at a survey. You do not need to complete the survey, but I'd like you to tell me if you were given this survey, would you be able to complete it? Are the instructions clear? Do you understand from these instructions what a serial argument is, and would you be able to come up with an example?

(See attached perceived resolvability scale)

To end the interview, I'd like to ask a few more general questions about this experience.

10. If you found out that someone you know has been diagnosed with type 2 diabetes, what advice would you give him or her? What advice would you give his or her family members?

11. What else is important to know about coping with type 2 diabetes as a family?

12. Do you have any questions you'd like to ask me?

Thank you so much for your participation in this study.

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APPENDIX E

Research Information and Consent for Participation in a Research Study

Managing Type 2 Diabetes

Principal Investigator:	John Caughlin, Ph.D.
Department and Institution:	Department of Communication, University of Illinois
Address:	3001 Lincoln Hall, 702 S Wright St, Urbana, IL 61801
Contact Information:	217-333-4340

INTRODUCTION

You are being invited to take part in a research study about how type 2 diabetes patients and their families manage one family member's type 2 diabetes diagnosis and management.

You are being invited to take part in this research study because you have been diagnosed with type 2 diabetes.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future dealings with Carle Foundation Hospital or Carle Physician Group. **If you decide to participate, you are free to withdraw at any time without affecting that relationship.**

WHO IS DOING THE STUDY?

The person in charge of this study is Erin Basinger, M. A. of the University of Illinois, Department of Communication. She is being guided in this research by Dr. John Caughlin, the principal investigator for this study. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this study is to understand how people with type 2 diabetes and their families manage the illness.

By doing this study, we hope to learn which strategies are most effective for managing type 2 diabetes.

HOW MANY PEOPLE WILL TAKE PART IN THE STUDY?

Approximately 250 people will take part in this study.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY?

You should not participate in this study if you are under 18 years of age.

WHERE DOES THE STUDY TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted in your hospital room at Carle Foundation Hospital. It will take approximately 45 minutes to complete the survey. The total amount of time you will be asked to volunteer for this study is 45 minutes over the next one day.

WHAT IS INVOLVED IN THE STUDY?

You will complete a written survey, which will take approximately 30-45 minutes to complete. The survey consists of questions about yourself, your experience managing your type 2 diabetes, and your family. In addition, the researcher will have access to your most recent A1C levels listed in your medical chart.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

You will be reflecting on your management of your type 2 diabetes diagnosis and management and well as characteristics of your family as you complete the survey. For some people, this may induce negative emotions including sadness, anxiety, or discomfort because of the challenges associated with managing chronic illness. If any of the questions or items make you feel uncomfortable, you can skip them. In addition, you may discontinue your participation in the study at any time.

ARE THERE BENEFITS TO TAKING PART IN THE STUDY?

There is no guarantee that you will get any benefit from taking part in this study. However, your willingness to take part may help doctors and better understand and/or treat others who have your condition.

WHAT OTHER OPTIONS ARE THERE?

This is not a treatment study. Your alternative is not to participate in this study.

WHAT ABOUT CONFIDENTIALITY?

We respect your right to keep your information private. We cannot promise complete confidentiality. People who may look at your information include the Investigator, research staff, members of the Institutional Review Board (a committee that oversees human subject protections at Carle Foundation Hospital), and representatives of the Sponsor of the research. Your information may also be seen by government employees, such as representatives of the FDA or the Office for Human Research Protections at the Department of Health and Human Services. Other officials, such as state health officials, may also need to see your information.

To help assure quality in research, quality assurance and compliance employees of Carle Foundation Hospital [and the Investigator] may also have access to your information. Employees who work to assure quality and compliance protect the confidentiality of your information unless disclosure is required by law.

We will keep records that include your information safe, and will put them in a locked filing cabinet in the Department of Communication at the University of Illinois when they are not being used. If records that include your information are put on computers, we will use reasonable actions to keep those computers secure.

Once your information is no longer traceable to you, we may share your information with other researchers. Your information will be combined with information about other people participating in the study to be analyzed. Your name will not be used when we publish results. Information from the study will be reported in a way that combines the results of many participants. If possible, we will replace identifiable information about you, such as your name, with number codes that cannot be connected to you. Only research staff will have access to the key that connects the number code to your identifiable information.

WHAT ARE THE COSTS?

There are no expected costs to you or your insurance company for participating in this study.

In the case of injury or illness resulting from this study, emergency medical treatment is available. It will be provided at the usual charge. No funds have been set aside to compensate you in the event of injury or other problems.

You or your insurance company will be charged for continuing medical care and/or hospitalization.

WILL I RECEIVE ANY PAYMENT FOR TAKING PART IN THIS STUDY?

Your name will be entered into a drawing for one of two $50.00 gift cards for taking part in this study.

WHAT ARE MY RIGHTS AS A PARTICIPANT?

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. If you choose not to volunteer or if the research is ended for any reason by you or the researcher, this will not result in any penalty or loss of benefits to which you are entitled.

You will be informed about new information that may affect your health, welfare, or willingness to stay in this study.

There are no plans at this time by Carle Foundation Hospital, the Investigator, or any Sponsor of this study to compensate you if the research results in the development of any drug, device or other article which can be sold, even if your blood or tissues were the basis of the discovery, or if the discovery would not have been made if you had not agreed to participate in the study.

WHAT IF NEW INFORMATION IS LEARNED DURING THE STUDY THAT MIGHT AFFECT MY DECISION TO PARTICIPATE?

If the researcher learns of new information regarding this study, and it might change your willingness to stay in this study, the information will be provided to you. You may be asked to sign a new informed consent form if the information is provided to you after you have joined the study.

WHO DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

For questions about the study or a research-related injury, contact the researcher, Erin Basinger, at 205-243-3223 or basinge2@illinois.edu, or you may contact the PI, John Caughlin, at 217-333-4340 or caughlin@illinois.edu

For questions about your rights as a research participant, including questions, concerns, complaints, or to offer input, contact the Carle Institutional Review Board (a group of people who review the research to protect your rights) at 217/383-4366.

Remember:

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with Carle Foundation Hospital or Carle Physicians Group. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

Signature of Subject or Legally Authorized Representative

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I will be given a copy of this signed and dated form.

________________________________	____________
Signature	Date
________________________________	
Printed Name	
________________________________	____________
Signature of Person Obtaining Consent	Date
________________________________	
Printed Name of Person Obtaining Consent	

APPENDIX F

Communal Coping Measure: Shared Appraisal Subscale

Think about how you have thought about your disease in the past month. As you answer the following questions, focus on what you have THOUGHT about your type 2 diabetes.

1	2	3	4	5
Strongly disagree				Strongly agree

1. I feel like I am the only one with ownership of my diabetes. (R)
2. My family is affected by my diabetes.
3. My diabetes only influences my life, not anybody else's. (R)
4. Only I am affected by my diabetes. (R)
5. My diabetes is my and my family's problem.
6. I think of my diabetes as only my responsibility.* (R)
7. My diabetes is only my problem. (R)
8. My diabetes influences the lives of others in my family.
9. I think of my diabetes as a responsibility of everyone in my family.*
10. I feel like I share ownership of my diabetes with my family.

(R) indicates the item is reverse-scored.
* Item was dropped following confirmatory factor analysis.

APPENDIX G

Communal Coping Measure: Joint Action Subscale

Think about how you and your family members have managed your type 2 diabetes during the last month. As you answer the following questions, focus on what you and your family have DONE to manage the disease.

1	2	3	4	5
Strongly disagree				Strongly agree

1. My family members and I have joined together to deal with my diabetes.
2. I make plans for dealing with my diabetes by myself. (R)
3. I depend only on myself to manage my diabetes. (R)
4. I do not rely on anyone to cope with my diabetes. (R)
5. I get support from my family to handle my diabetes.
6. I deal with my diabetes alone. (R)
7. I open up to my family often about my diabetes.*
8. I make plans with my family about how to deal with my diabetes.*
9. I depend on others in my family to manage my diabetes.
10. I rely on my family to help me cope with my diabetes.*

(R) indicates the item is reverse-scored.
* Item was dropped following confirmatory factor analysis.

APPENDIX H

Problem-focused and Emotion-focused Coping Scales

The following questions ask about how you and your family have managed your type 2 diabetes. Please indicate the extent to which you agree with each statement.

1	2	3	4	5
Strongly disagree				Strongly agree

Problem-focused Coping

1. I prepare my own meals to fit with my diabetic diet. (R)
2. I exercise by myself. (R)
3. I take my medication without reminders from others. (R)
4. I check my blood glucose without reminders from others. (R)
5. When I encounter problems in my diabetes management, I solve them alone. (R)
6. I work alone to try to reduce my risk of diabetes-related complications. (R)
7. Members of my family exercise with me.
8. Members of my family help me prepare meals that fit my diabetic diet.
9. Others in my family remind me to check my blood glucose.
10. People in my family remind me to administer my insulin.
11. My family helps me solve diabetes-related problems.
12. I get help from others in my family to reduce risks of diabetes-related complications.

Emotion-focused Coping

1. I receive encouragement from my family members about my type 2 diabetes.
2. People in my family support me as I manage my diabetes.
3. People in my family pray for me.
4. I feel better when my family talks to me about my diabetes.
5. I receive emotional support from my family.

(R) indicates the item is reverse-scored.

APPENDIX I

Family Adaptability and Cohesion Evaluation Scales (FACES) IV

Some families are very close, whereas others maintain some separation from one another. The following questions ask you to think about your own family's closeness.

1	2	3	4	5
Strongly disagree				Strongly agree

Balanced Cohesion Subscale

1. We are involved in each other's lives.
2. We feel very close to each other.
3. We are supportive of each other during difficult times.
4. We consult each other on important decisions.
5. We like to spend some of our free time with each other.
6. Although we have individual interests we still participate in family activities.
7. We have a good balance of separateness and closeness.

APPENDIX J

Perceived Resolvability Scale

All families have conflict from time to time, and some are more difficult to resolve than others. Below, you will reflect on conflicts you have had with another family member.

A **serial argument** exists when individuals argue or engage in conflict about the same topic over time, during which they participate in several (at least two) arguments about the topic.

For the next few questions, please think of a serial argument you have had with another family member that is about your type 2 diabetes.

> Can you think of a serial argument that you have had with another family member about your type 2 diabetes?
> - ☐ Yes
> - ☐ No (if no, please skip to the next section)

In the space provided, please briefly describe the topic about which you have had serial arguments with another family member. If you could not think of a serial argument, please write "none."

____

____

1 2 3 4 5 6 7

To a great extent Not at all

Using the scale provided, please indicate to what extent you believe the following about your serial argument?

1. I believe that it will never be resolved.
2. I believe that it will be resolved in the future.
3. I don't think that my partner will ever agree on this issue.
4. I anticipate that it will always be a problem.

APPENDIX K

Adherence Scale

The following questions ask you to reflect on the extent to which you have followed the recommendations that your healthcare provider gave you during the last 7 days. Your healthcare providers include any healthcare worker who gives you recommendations for managing your type 2 diabetes, including physicians, nurse practitioners, nurses, physician's assistants, dietitians, etc. For each question, reflect on the extent to which you have done what your healthcare providers recommended, or write "no recommendation" if your providers have not instructed you how to manage your type 2 diabetes in that area.

1	2	3	4	5
Have not followed recommendations at all				Followed all recommendations exactly

1. To what extent have you followed your healthcare providers' recommendations about your diet?
2. To what extent have you followed your healthcare providers' recommendations about exercise?
3. To what extent have you followed your healthcare providers' recommendations about monitoring your blood glucose?
4. To what extent have you followed your healthcare providers' recommendations about medication?

APPENDIX L

Self-Care Inventory (SCI)

How often have you engaged in each of the following behaviors during the past month?

1	2	3	4	5
Never do it				Do this every day

Blood Glucose Monitoring Subscale

1. Glucose recording
2. Check blood glucose with monitor
3. Check ketones when blood glucose level is high
4. Treating low blood glucose

Diet Subscale

5. Eating the proper foods
6. Keeping food records
7. Reading food labels
8. Eating meals on time
9. Eat snacks on time

Exercise subscale

In a typical week, on how many days do you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking. Think *only* about those physical activities that you did for at least 10 minutes at a time.

1a. ______ days per week

or ☐ none

1b. How much time in total do you usually spend on one of those days doing moderate physical activities? If you selected "none" for question 1a, please leave this question blank.

______ hours ______ minutes

In a typical week, on how many days do you **walk** for at least 10 minutes at a time? This includes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise, or leisure.

2a. ______ days per week

or ☐ none

2b. How much time in total do you usually spend walking on one of those days? If you selected “none” for question 2a, please leave this question blank.

______ hours ______ minutes

In a typical week, how many times do you do physical activities or exercises to **strengthen your muscles**? Do not count aerobic activities like walking, running, or bicycling. Count activities using your own body weight like yoga, sit-ups, or push-ups and those using weight machines, free weights, or elastic bands.

3a. ______ days per week

or ☐ none

3b. How much time in total did you usually spend on one of those days doing activities to strengthen your muscles? If you selected “none” for question 1a, please leave this question blank.

______ hours ______ minutes

APPENDIX M

Center for Epidemiologic Studies Depression (CES-D) Scale

Below is a list of ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

1	Rarely or none of the time (less than 1 day)
2	Some or a little of the time (1-2 days)
3	Occasionally or a moderate amount of time (3-4 days)
4	Most or all of the time (5-7 days)

During the past week:

1. I was bothered by things that usually don’t bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt that I was just as good as other people. (R)
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt everything I did was an effort.
8. I felt hopeful about the future. (R)
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy. (R)
13. I talked less than usual.
14. I felt lonely.
15. People were unfriendly.
16. I enjoyed life. (R)
17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not get “going”

(R) indicates the item is reverse-scored.

APPENDIX N

Multidimensional Health Locus of Control (MHLC) Form 3

Please read the following statements and indicate how strongly you agree or disagree with each one using the following scale.

1	2	3	4	5	6
Strongly disagree					Strongly agree

Internal Subscale

1. If my condition worsens, it is my own behavior which determines how soon I feel better again.
2. I am directly responsible for my condition getting better or worse.
3. Whatever goes wrong with my condition is my own fault.
4. The main thing which affects my condition is what I myself do.
5. If my condition takes a turn for the worse, it is because I have not been taking proper care of myself.
6. I deserve the credit when my condition improves and the blame when it gets worse.

Other People Subscale

7. Other people play a big role in whether my condition improves, stays the same, or gets worse.
8. The type of help I receive from other people determines how soon my condition improves.
9. In order for my condition to improve, it is up to other people to see that the right things happen.

APPENDIX O

Problem Areas in Diabetes (PAID) Scale

How often is each of the following a problem for you as you manage your diabetes?

1	2	3	4	5
Never a problem				Always a problem

1. Worrying about the future and the possibility of serious complications
2. Feeling guilty or anxious when you get off track with your diabetes management
3. Feeling scared when you think about living with diabetes
4. Feeling discouraged with your diabetes regimen
5. Worrying about low blood sugar reactions
6. Feeling constantly burned-out by the constant effort to manage diabetes
7. Not knowing if the mood or feelings you are experiencing are related to blood glucose
8. Coping with complications of diabetes
9. Feeling that diabetes is taking up too much mental and physical energy
10. Feeling constantly concerned about food
11. Feeling depressed when you think about living with diabetes
12. Feeling angry when you think about living with diabetes
13. Feeling overwhelmed by your diabetes regimen
14. Feeling alone with diabetes
15. Feelings of deprivation regarding food and meals
16. Not having clear and concrete goals for your diabetes care
17. Uncomfortable interactions around diabetes with family/friends
18. Not accepting diabetes
19. Feeling that friends/family are not supportive of diabetes management efforts
20. Feeling unsatisfied with your diabetes regimen

APPENDIX P

Social Impact Scale

Please think about your interactions with other people in your life as you reflect on each of the following questions.

1	2	3	4
Strongly disagree			Strongly agree

Social Rejection Subscale

1. My employer/co-workers have discriminated against me.
2. Some people act as though I am less competent than usual.
3. I feel I have been treated with less respect than usual by others.
4. I feel others are concerned they could “catch” my diabetes through contact like a handshake or eating food I prepare.
5. I feel others avoid me because of my diabetes.
6. Some family members have rejected me because of my diabetes.
7. I feel some friends have rejected me because of my diabetes.
8. I encounter embarrassing situations as a result of my diabetes.
9. Due to my diabetes others seem to feel awkward and tense when they are around me.

Financial Insecurity

10. I have experienced financial hardship that has affected how I feel about myself.
11. My job security has been affected by my diabetes.
12. I have experienced financial hardship that has affected my relationship with others.

Internalized Shame

13. I feel others think I am to blame for my diabetes.
14. I do not feel I can be open with others about my diabetes.
15. I fear someone telling others about my diabetes without my permission.
16. I feel I need to keep my diabetes a secret.
17. I feel I am at least partially to blame for my diabetes.

Social Isolation

18. I feel set apart from others who are well.
19. I have a greater need than usual for reassurance that others care about me.
20. I feel lonely more often than usual.
21. Due to my diabetes, I have a sense of being unequal in my relationships with others.
22. I feel less competent than I did before my diabetes.
23. Due to my diabetes, I sometimes feel useless.
24. Changes in my appearance have affected my social relationships.