The Possible Selves of Adults with Diabetes

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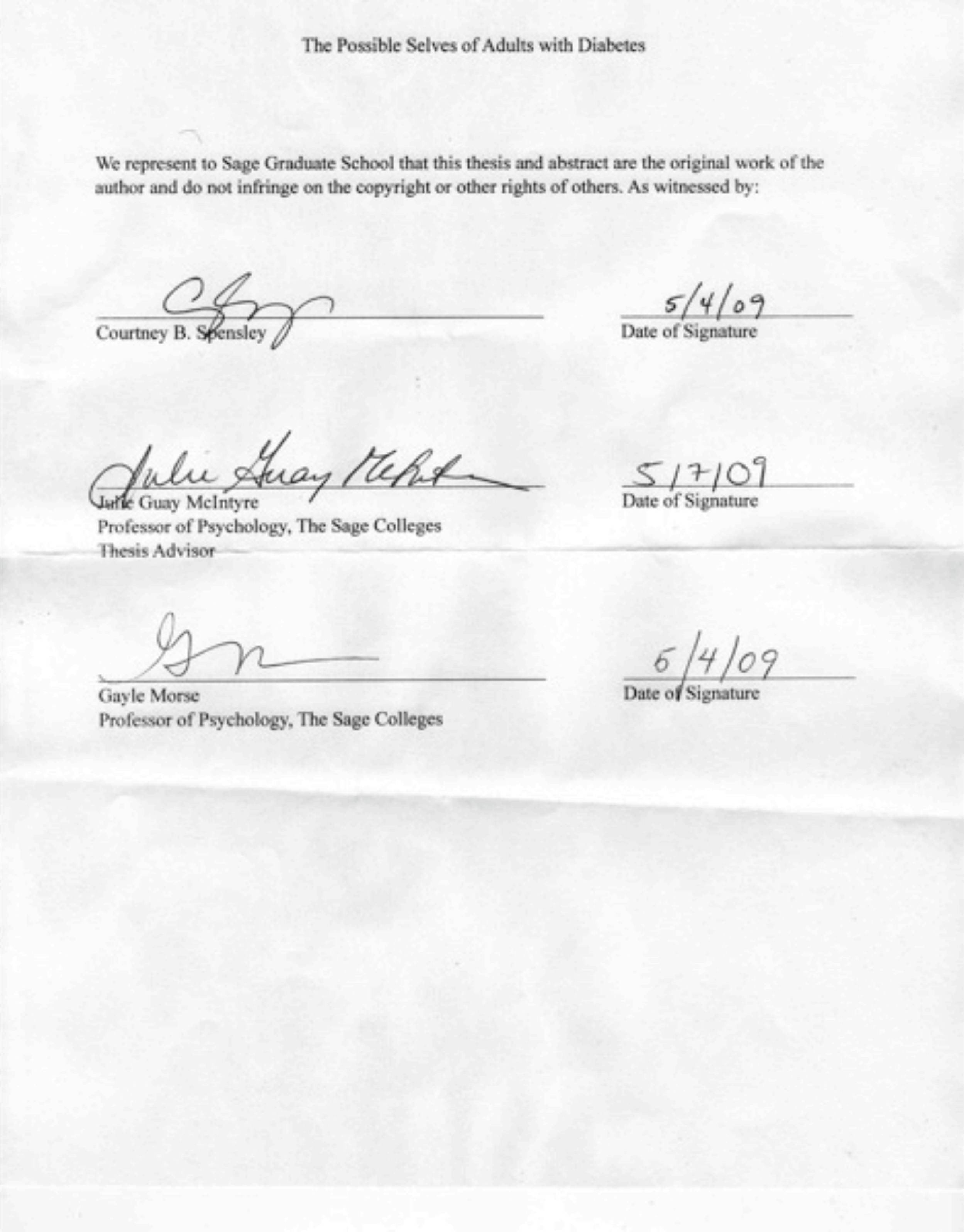

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ABSTRACT

This study examined the impact of diabetes on personal goals and quality of life. Adults with type 1 and type 2 diabetes ($N = 15$) wrote about current goals and goals they had before they were diagnosed with diabetes, using a possible selves narrative approach (King & Patterson, 2000). They completed demographic and health-related questions and measures of salience of each narrative, perceived diabetes control, and health-related quality of life. Presence of diabetes complications was associated with reduced salience of current goals. Participants with complications also had less salient past goals than participants without complications. Narratives were coded using 16 possible self domains (Hooker, 1999). Many participants had health-related selves, but not all health-related selves were diabetes-specific. The results of this study suggest health is not the most important self-concept domain for all chronically ill adults and that complications impact goals more than presence of illness alone. Implications for future research will be discussed.

Suggested Keywords: possible selves, diabetes, chronic illness, adults, narrative

Chapter 1

Introduction and Review of the Literature

According to a 2008 press release from the Centers for Disease Control and Prevention (CDC), nearly 24 million, or eight percent, of people in the United States are currently diagnosed with diabetes mellitus. This number represents an increase of nearly three million over the two previous years, highlighting diabetes as a significant healthcare concern (CDC, 2008). Diabetes is a disease that affects both children and adults and for which there is no known cure. In 2001, it was the sixth leading cause of death (CDC, 2004). It disproportionately affects the elderly as well as African American, Hispanic, Native American, and Asian/Pacific Islander populations (CDC, 2007). In 2002, the direct and indirect costs of diabetes amounted to 132 billion dollars (CDC, 2004).

Diabetes can be managed through diligent self-monitoring of behaviors, medication, and consistent follow-ups with healthcare providers. Concerted efforts are made to educate patients about diabetes and self-management techniques. However, the burden of diabetes care falls primarily upon patients. Knowing this, it is important to understand diabetes from the patient perspective in order to improve both education and subsequent adherence to medical advice.

Overview of Diabetes Mellitus

Diabetes mellitus is a disease in which the body does not produce the hormone insulin or poorly manages its use. Insulin helps regulate the use of glucose, or sugar, in the blood stream. Too little insulin results in dangerously high levels of glucose in the blood and can lead to serious complications. Diabetes can be subdivided into three main types: type 1, type 2, and gestational diabetes. Type 1 diabetes, also referred to as insulin-dependent diabetes mellitus

(IDDM) or juvenile diabetes, results when the body does not produce insulin. This type tends to be diagnosed in children and young adults and is often attributed to genetics; there is no way to prevent type 1 diabetes. Type 1 diabetes accounts for 5 to 10 percent of diagnosed cases in adults (CDC, 2007).

Type 2 diabetes, the more prevalent form of diabetes in adults, results from the body's failure to produce enough insulin coupled with the inability to use it effectively. Type 2 diabetes has been referred to as non-insulin-dependent diabetes mellitus (NIDDM) and adult-onset diabetes; it is typically first diagnosed in adulthood. Risk factors for type 2 diabetes include "older age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical inactivity, and race/ethnicity" (CDC, 2007, p. 1). Type 2 diabetes mellitus represents a growing public health concern because it is preventable and is linked with the growing obesity epidemic. Additionally, it is being diagnosed more and more frequently in children, adolescents, and people who have minority status (CDC, 2007).

The third type of diabetes, gestational diabetes, only occurs during pregnancy in approximately four percent of women (ADA). It results from glucose intolerance and is most often diagnosed in pregnant women who are African American, Hispanic, Native American, obese, or who have a family history of diabetes (CDC, 2007). Gestational diabetes increases a woman's chance of developing another type of diabetes, usually type 2, following pregnancy (CDC, 2007). If gestational diabetes is not properly controlled it can put the baby at risk for problems including increased weight, troubled breathing, and, later in life, obesity and diabetes. Other types of diabetes also exist, but they are rare, accounting for roughly one to five percent of cases diagnosed in adults (CDC, 2007). The present study will focus only on type 1 and type 2 diabetes.

Diabetes complications and treatment

Symptoms of diabetes include excessive thirst or hunger, blurred vision, fatigue, irritability, and frequent urination (ADA). Many of these symptoms are subtle, and they might not trigger concern. Although diabetes is presently incurable, early diagnosis is essential, as it can be managed with insulin, oral medications, and proper diet and exercise.

Diabetes management hinges on controlling blood glucose levels. High levels of glucose in the blood, called hyperglycemia, can result in serious long-term damage including coma, blindness, kidney disease, and nerve damage. Each year, there are approximately 12,000 to 24,000 cases of blindness and 43,000 cases of kidney failure due to diabetes (CDC, 2004). Nerve damage can result in lessened sensation in the extremities, particularly the feet. As a result, serious infections may go unnoticed and untreated, leading to lower limb amputations. People with diabetes experience amputation at a rate 10 times higher than the rest of the population (ADA).

Diabetes also puts people at risk for other health conditions. People with diabetes are two to four times more likely to die from heart disease and are at two to four times more risk of stroke than people without diabetes (ADA). Additionally, diabetes puts people at risk for periodontal (gum) disease and complications during pregnancy and can worsen the prognosis of other illnesses. People who depend on insulin or oral medications to control their diabetes may also experience dangerously low levels of blood glucose, called hypoglycemia. Hypoglycemia could cause an individual to pass out if normal blood glucose levels are not quickly restored.

In addition to physical complications, people with diabetes might also be at an elevated risk for developing psychological complications. Studies of depression and anxiety in people with diabetes have yielded mixed results. A recent survey of 17 countries conducted by the World Health Organization determined that people with diabetes, across various cultures, show higher rates of depression and anxiety than non-diabetic people (Lin & Von Korff, 2008). However, the study noted that rates of depression and anxiety were not as high as studies of smaller, clinical samples suggest. Another study found only a slightly elevated risk of depression in people with type 2 diabetes compared to non-diabetic people (Nichols & Brown, 2003). This study controlled for other risk factors including age, sex, cardiovascular disease, and obesity and still found that people with type 2 diabetes were 1.26 times more likely to be diagnosed with depression than a matched, non-diabetic comparison group. The association between specific anxiety disorders and diabetes is less clear (Lin & Von Korff, 2008). In general, sub-clinical and not otherwise specified (NOS) presentations of anxiety are more common in people with diabetes than diagnosable anxiety disorders (Grigsby, Anderson, Freeland, Clouse & Lustman, 2002). This finding might suggest that anxiety in people with diabetes is due to continuous health and treatment concerns and is not a sign of clinical pathology.

No matter the cause or prevalence, it is important to recognize and treat symptoms of psychological disorders in diabetic patients. “Distress created by problems in living with diabetes can trigger a negative cascade involving diminished motivations, less active self-care, higher blood glucose levels, increased risk of complications, and poorer quality of life” (Rubin & Peyrot, 2001, p. 465). Depression has been found to have significant effects on several important self-care behaviors including adherence to diet and medication, keeping medical appointments, and monitoring blood glucose levels (Gonzalez et al., 2008), demonstrating that psychological symptoms can have a detrimental effect on physical health outcome.

Perception of Health and Diabetes Control

In recent decades, an increased attempt has been made to understand diabetes from the patient perspective in hopes of improving diabetes education and adherence to medical advice. One area of study has focused on the doctor-patient relationship. Amir, Rabin, and Galatzer (1990) proposed that positive interactions between diabetes patients and medical providers are essential to achieving treatment adherence. They examined patient assertiveness, self-reported adherence to medical advice, and reactions to scenarios depicting positive and negative doctor-patient interactions. Adherence to treatment behaviors varied: patients were compliant in coming to follow-up visits for one year but not for keeping a required meal schedule for one week (Amir et al., 1990). It may be that some measures of adherence prove to be more difficult from a patient perspective than others. A restrictive diet, for example, may not be perceived as a lifestyle change that is worth the effort, particularly if the diet results in ongoing feelings of hunger or fatigue. Another finding of Amir and colleagues' (1990) study was that patient compliance increased closer to the date of medical follow-up visits. Patients may be wary of negative responses from doctors as their visits draw nearer, leading to increased last-minute efforts to improve treatment compliance. Reduced criticism of patient behaviors may result in greater adherence to advice (Amir et al., 1990).

Doctor-patient relationships were identified as an obstacle to adherence in a study conducted by Vermeire and colleagues (2007). Although some individuals felt they had a good relationship with their doctor, others felt they had little opportunity to talk about the details of diabetes management, and still others felt doctors should be more insistent in their professional recommendations (Vermeire et al., 2007). This last finding suggests that patients might be willing to hand responsibility for poor health outcomes over to healthcare providers. Gillibrand and Flynn (2001) explained the doctor-patient relationship's role in treatment adherence in terms of locus of control theory. They point out that some patients may have difficulty taking ownership of their illness and that poor self-management is related to lack of diabetes-specific knowledge. Some patients attribute control to external sources, particularly to their doctors, perhaps in an attempt at relieving the burden of responsibility. This highlights the need for diabetes education to enable better self-care by raising feelings of self-efficacy.

Since people with diabetes are largely responsible for their own care, many studies have sought to identify variables that influence health perception and diabetes control. It is possible that the perception of one's health as good or bad might influence self-efficacy. Lange and Piette (2005) studied the influence of psychosocial and physical variables on patients' perception of overall health and diabetes control. They also examined the impact of mood on the accuracy of health perceptions, using a clinical blood glucose test (i.e., HbA1c). Insulin-dependent patients reported poorer health than non-insulin-dependent patients. Patients with a negative mood (depression) more accurately detected poor diabetes control, and patients with a positive mood more accurately detected good or adequate control. Better perceived health was related to fewer comorbid health conditions, fewer diabetes complications, and lower blood glucose levels. High blood glucose levels, physical symptoms, diabetes-related worry, and negative emotion all predicted poorer perceived diabetes control. Overall, patients used more information to rate their diabetes control and diabetes-specific health than their general health. This study demonstrates that patients incorporate more than just physical information into their health perceptions. It also indicates that insulin-dependent patients, patients who have experienced diabetes or other health complications, and patients with a longer duration of illness perceive their health in more negative terms than others.

Gillibrand and Flynn (2001) also examined variables involved in perception of diabetes control. They found duration of illness to have a positive impact on perceived diabetes control in the form of improved coping. They explain this impact on coping in terms of rationalizing, or trying to make sense of one's illness, suggesting that the longer someone has diabetes, the better they are able to adapt to the psychological burden of illness. This finding, which suggests improved adjustment over time, seems to contradict the finding of Lange and Piette (2005). However, like Lange and Piette (2005), Gillibrand and Flynn (2001) found that insulin-dependent patients and patients who experienced physical complications felt an increased psychological burden due to diabetes over time.

It is clear that physical health factors and psychological factors interact to influence perceived health and diabetes control. It is more difficult to determine how these perceptions relate to actual self-management techniques. Sprague, Schultz, and Branen (2006) surveyed patients to determine whether beliefs about diabetes management corresponded with actual self-care behavior. They found that feeling successful upon completing a self-care behavior (e.g., exercising) did not guarantee that a person would actually continue to adhere to that behavior. Additionally, although patients most often used self-monitoring blood glucose, exercise, and meal plans to determine whether or not they were in control of their diabetes, many also indicated using how they felt emotionally or physically (Sprague et al., 2006). If a patient is feeling happy and energetic, for example, she might assume her diabetes is in good control. Some patients shift from using diet, exercise, and self-monitoring blood glucose to using less accurate physical and psychological indicators to determine their diabetes control (Sprague et al., 2006). Following diabetes education, it may become easier to rely on one's own experience, including physical symptoms and emotions, than on proven self-management techniques, demonstrating the importance of understanding patient perception when conducting education follow-up.

Personal Models of Diabetes

To better understand the personal experience of diabetes, it is useful to examine personal models, or illness representations. Illness representations have been proposed to explain the impact of chronic illness on the self-system. They illustrate the ways in which personal beliefs and attitudes influence understanding of one's illness. Leventhal et al. (1998) identified five attributes of disease that contribute to people's illness representations: identity, cause, course, consequences, and controllability. Attributes vary according to personal experience. Causes, for example, can be external or internal. Culture might influence whether individuals believe disease to be caused by bacteria or by demon possession. Similarly, consequences "may be represented by a variety of physical, social and economic effects" (Leventhal et al., 1998, p. 27). One person's primary disease concern might be social exclusion while another's could be hospital bills. Leventhal and colleagues (1998) argue that recognizing attributional variations is extremely important for understanding and predicting behaviors related to the proper treatment maintenance.

Understanding of and adherence to treatment is largely influenced by personal illness experience (Leventhal, Idler, & Leventhal, 1999). Although an individual might understand how illness *should* be treated, his or her behavior could deviate from this understanding based on whether or not the illness is currently producing physical symptoms (Leventhal et al., 1999). Individuals often view treatment as either necessary or unnecessary based on personal somatic experience. For example, a diabetic person might abstain from a regular dose of medication as a result of feeling energetic and healthy. Leventhal and colleagues (1999) also propose that the experience of illness is interpreted by an individual based on other important aspects of the self such as family history, occupation, or level of activity. This may explain how someone with an extensive family history of diabetes adopts a fatalistic view of their illness even when other indicators point to a good prognosis.

Personal models are further shaped by the context of the illness itself (Leventhal et al., 1999). A non-diabetic person in unlikely to recognize a drop in their blood glucose level as such, but a diabetic person labels dizziness or weakness as symptoms of hypoglycemia. The diagnosis of diabetes provides a context from which to interpret these symptoms. People also form illness representations based on previous experiences with that illness, including information acquired from doctors, friends, family, and others (Leventhal et al., 1999). Complications might arise when general knowledge about diabetes is not consistent with personal experience. Ongoing diabetes education is important to help people adjust to changes in their experience of the illness.

Hampson (1998) has demonstrated how diabetes can be interpreted using a personal model framework. She reviewed several diabetes studies to identify commonly held beliefs about each of the five disease attributes. However, Hampson (1998) concluded that many beliefs about diabetes, particularly about its time-line and consequences, overlap, making it difficult to delineate constructs. Hampson (1997) reported similar findings in an earlier study about the personal models of people with both diabetes and osteoarthritis. She has instead proposed the construct Seriousness (Hampson, 1998), which encompasses beliefs about the chronic nature of diabetes and the long-term risk of complications.

Lange and Piette (2006) have also attempted to identify Seriousness, along with Treatment Effectiveness (i.e., controllability), dimensions in a diverse group of patients and to explore variations in diabetes illness representations with regard to sociocultural and health factors. The sociocultural factors thought to impact personal beliefs included race, age, sex, income, education, marital status, having a primary care physician, taking a diabetes education class, and the type of health care system that one belongs to (Lange & Piette, 2006). The health factors thought to influence personal beliefs included years since diagnosis, diabetes type, existence of diabetes complications, use of insulin, and existence of comorbid health conditions (Lange & Piette, 2006). Type 1 patients, patients diagnosed with diabetes for more than 10 years, patients with comorbid health conditions or diabetes complications, and patients using insulin rated their condition as more serious than others (Lange & Piette, 2006). Patients with a stronger belief that their diagnosis is serious had poorer diabetes control. Health factors far outweighed other contextual factors in explaining variation in seriousness beliefs, suggesting that somatic symptoms weigh heavily on personal definitions of illness. Belief in treatment effectiveness was associated with being Caucasian but was otherwise most positively associated with level of education. Hampson (1998) also noted this trend, suggesting that beliefs about the controllability of diabetes are influenced by Western adoption of the medical model. Greater variability in beliefs about the course and consequences of diabetes are seen in people with minority status (Hampson, 1998).

The diabetes research presented thus far shows that patients incorporate physical, psychological, and emotional variables into their understanding of diabetes and treatment effectiveness. However, as Hampson's research demonstrates, it is sometimes difficult to fit unique experiences into generalized models and constructs. Research in the area of personality psychology shows that self-concept includes a variety of domains that are more or less important to an individual's global, or overall, sense of self at any given time (Dusek & McIntyre, 2003). Research on children and adolescents has demonstrated that chronic illness may affect specific self-concept domains, such as physical ability, without reducing one's global self-esteem (Barton & North, 2007). Through chronic illness can have a significant impact on several areas of a person's life, it is not necessarily a central, or defining, feature of the self. Diabetes must, therefore, be placed within the context of each individual's life and characteristics to truly understand how it influences overall sense of self and well-being.

Possible Selves, Motivation and Behavior

The concept of possible selves provides a way to understand the impact of chronic illness on the self-concept. Possible selves are personal representations of the self in the future, representing both what we hope for and what we fear (Markus & Nurius, 1986). Some possible selves are better defined and perceived as more likely than others. For example, many of us have a rich and famous possible self, but few of us are likely to see a rich and famous possible self as highly likely. The number and kind of possible selves that one imagines are highly influenced by experience and social context (Markus & Nurius, 1986). Possible selves are constrained by what we know ourselves to be capable of as well as by social convention.

Markus and Nurius (1987) conceptualized possible selves in terms of the "working self-concept," or that part of an individual's self-concept that is most readily accessible at any given point in time. The working self-concept incorporates past, present, and future representations of the self but is immediately influenced by an individual's present experience. An individual's immediate experience can positively or negatively influence his or her view of what is possible in the future: "Thoughts about what is possible allow the individual to develop a narrative of the self, to construct a self that is different from the present one" (Markus & Nurius, 1987, p. 164). Markus and Nurius (1987) state that, although possible selves are often private and unknown to others, they are reinforced through social interactions. However, possible selves are most readily influenced by other aspects of an individual's self-concept.

Markus and Nurius (1986) explain that possible selves are an important construct because "they provide the essential link between self-concept and motivation" (p. 954). Having an important hoped-for or feared self forces individuals to select among the behaviors that will allow them to achieve or to avoid that self. In this regard, possible selves can be described as personal representations of goals (Markus & Ruvolo, 1989). They are not abstractions of what we hope to accomplish but very particular illustrations of ourselves achieving some desired end. As personalized goals, possible selves are strong behavioral motivators. Markus and Ruvolo explain:

> A goal will have an impact on behavior to the extent that an individual can personalize it by building a bridge of self-representations between one's current state and one's desired or hoped-for state. The critical determinant of whether a given goal will guide and sustain instrumental action is thus the ability to create

> and maintain the possible selves that allow one to appropriate a desired end state and to make it one's own (p. 211).

Pervin (1989) states that having a cognitive representation of a future goal allows us to choose our actions free of current stimulus-response patterns. Imagining a future goal enables us to imagine the various paths for achieving that goal and to actively choose the best option. A student wishing to get an 'A' on an important midterm can, for example, forego the gratification of attending a party with friends and choose the much less appealing task of studying alone, knowing that the latter choice is much more likely to result in achieving her desired grade on the exam. Possible selves, like the A-student possible self, motivate us to choose the actions that will help us to achieve our goals, even at the expense of presently rewarding consequences. However, possible selves are said to regulate performance effectively only if they draw upon one's current abilities (Markus & Ruvolo, 1989). To use the example of the A-student possible self, if the exam is in Calculus and the student never learned the requisite Algebraic functions, she is likely to fail at achieving her hoped-for possible self. To attain a hoped-for possible self, or even to perceive it as highly likely, depends upon building relevant knowledge and abilities.

Oyserman and James (2008) have attempted to explain the ways in which possible selves motivate and influence behavior. As a motivator, possible selves are only effective to the extent that they are notably different from one's current self. This is a theory shared by Stein and Markus (1996): "The idea here is that when the current behaviors threaten the realization of the desired possible self, negative affect is generated and the need for behavioral change is brought into focus" (p. 366). Oyserman and James (2008) identify several other requirements that must be met by possible selves in order for them to motivate behavior. First, they must be detailed and integrated with other aspects of the self. That is, new possible selves must mesh well with other parts of the self-concept that are important to the individual, such as the student self or the daughter self. Second, they must be perceived as likely and as more salient, or important, than current or past selves. Only salient possible selves will result in selection of appropriate behaviors to reach future goals. Third, possible selves must be clearly linked to strategies for attaining the desired goal. It is necessary that an individual be equipped with the knowledge and skills needed to attain his or her hoped-for possible selves. Understanding how possible selves motivate behavior might be important for improving self-management techniques in people with diabetes and other chronic conditions.

Health and Chronic Illness in Possible Selves Research

Few studies have examined possible selves in relation to health or chronic illness. Hooker (1992) surveyed college students and older adults to determine whether they identified a health-related possible self as important. Not surprisingly, older individuals identified more health-related hoped for and feared possible selves than college students. This may be because older individuals are more likely to have experienced or to know someone who has experienced a decline in health than college-aged individuals. To further test the assumption that health-related possible selves emerge as a function of age, Hooker and Kaus (1994) compared middle-aged and young adults. Middle-aged adults had more health-related possible selves than young adults. Yet, the health-related possible selves of both age groups were more likely to be feared than hoped-for, suggesting that avoiding poor health is important to healthy adults.

The types of possible selves created by older adults have been examined in a number of more recent studies. Hooker (1999) has developed a coding scheme consisting of 16 self-concept domains referenced in the possible selves of adults. In a five-year longitudinal study of older adults, Frazier, Hooker, Johnson, and Kaus (2000) found that possible self domains are fairly stable over time. The authors suggest that older adults likely find it preferable to maintain a consistent sense of self whereas younger adults often imagine a more expansive variety of possible selves. Possible selves contained references to independence, lifestyle, and family domains. However, as in past research (Hooker, 1992; Hooker & Kaus, 1994), more health-related possible selves emerged over time, showing that health becomes more relevant with age.

It appears that age is an important factor in predicting the importance of health-related possible selves in relatively health individuals. While this may be true in the context of normal development, very different possible selves might be found among individuals whose development is interrupted by chronic pain or illness. Frazier, Johnson, Gonzalez, and Kafka (2002) studied three cohorts of older adults to determine whether health-related possible selves emerged as a function of age or poor health/illness. They found that better physical functioning and better health-related quality of life predicted the presence of hoped-for health-related possible selves. However, they measured general health and physical functioning rather than the onset of specific illness and found that age was the strongest predictor of health-related possibles selves.

Frazier, Cotrell, and Hooker (2003) examined the impact of specific illnesses, Parkinson’s disease and Alzheimer’s disease, on older adults’ possible selves. The specific problems associated with each disease were reflected in participants’ feared possible selves. For example, Alzheimer’s patients reported feared selves in the realm of cognitive ability, whereas Parkinson’s patients reported feared selves in the realm of physical ability. Both groups showed lower perceived self-efficacy than a healthy control group for attaining their hoped-for possible selves. Other possible self domains appear relatively stable in older adults despite chronic illness. Cotrell and Hooker (2005) found that Alzheimer's patients and cognitively healthy older adults shared similar possible selves content, including family, health, and leisure. The main difference between these groups was, again, an increased likelihood of Alzheimer's patients to have both hoped-for and feared possible selves in the domain of cognitive ability. Studies of older adults demonstrate that possible selves are consistent with the course of one's illness.

The effect of chronic pain on possible selves has also been studied. When faced with chronic pain, individuals may view the self in the past with more positive overtones than the present self (Hellstrom, 2001). Some perceive that their healthy selves are forever lost, while others attempt to hold onto aspects of the past self that they consider important (Hellstrom, 2001). Hellstrom (2001) reports that patients with chronic pain perceive themselves as trapped in the present, making them unsure and unable to imagine future possible selves. Hellstrom (2001) also suggests that for patients with chronic pain the range of future possible selves is limited, not only by the pain itself but by "projections" made by others about the course and likely prognosis of pain. When pain limits an individual's future possible selves or when an individual feels his or her future possible self is only attainable if pain can be eliminated, that individual is likely to experience a sense of hopelessness or depression (Morley, Davies, & Barton, 2005).

Although studies of possible selves and chronic illness are limited, one can make assumptions about their relationship based on previous research. The experience of acute symptoms of chronic illness could have an impact on an individual's ability to imagine possible selves and to perceive them as likely. Diagnosis of chronic illness may force an individual to give up some hoped-for possible selves and to develop new ones in their wake. New possible selves are likely to change and develop as knowledge and experience regarding the illness evolves. Beliefs about the course of one's illness, treatment effectiveness, and the related likelihood of achieving a hoped-for possible self might influence an individual's present quality of life or well-being.

Possible Selves Narratives: Lost and Best Possible Selves

To better understand how the onset of chronic illness changes an individual's possible selves, it is necessary to examine both lost and found possible selves. King has developed a narrative technique for eliciting the possible selves of individuals who have undergone some major life change (King & Patterson, 2000; King & Raspin, 2004; King & Smith, 2004). In looking at retrospective possible selves, or "lost possible selves," before some major life event and comparing them to current hoped-for possible selves, or "best possible selves," it is apparent whether and how possible selves are changed by significant life events. King has employed a narrative approach to study the lost and found possible selves of parents of children with Down syndrome (King & Patterson, 2000) and divorced women (King & Raspin, 2004) as well as the straight (lost) and gay possible selves of gay men and lesbians (King & Smith, 2004). Participants in King's studies composed narratives to describe their possible selves and answered questions to measure the salience of each self. Salience of best possible selves positively correlated with self-reported well-being (King & Patterson, 2000; King & Raspin, 2004) and life satisfaction (King & Smith, 2004), showing that thinking often and having a clear depiction of one's present goals leads to increased well-being. Age also correlated positively with the salience of best possible selves (King & Patterson, 2000), suggesting that "lost goals fade from our minds as our current life situations become settled" (p. 22).

Increased salience of lost possible selves might indicate regret (King & Raspin, 2004). The inability to divest oneself of old goals, or to alter them in the aftermath of significant life change, might increase negative feelings. "To successfully negotiate a major life change...one must recommit to goals in order to restore positive functioning" (King & Hicks, 2007a, p. 28). However, salient lost possible selves do not invariably lead to decreased well-being. King and Hicks (2007b) suggested that the ability to reflect upon lost possible selves following a significant life disruption may be indicative of personality growth and ego development. Elaborate or salient lost possible selves are, therefore, not always a sign of denial or unhappiness. Considering losses, though painful, is an important task of ego development, leading to maturity and increased well-being (King & Hicks, 2007a).

To date, the use of lost and best possible self narratives has not been applied to the study of chronic illness. Because diabetes requires major lifestyle adjustments and can be diagnosed fairly suddenly at any point in an adult’s life, it is likely to have a significant impact on existing life goals and well-being. Possible self narratives provide a useful tool for understanding how diagnosis of diabetes changes and, perhaps, constrains one’s hoped-for possible selves.

Current Study

The manner in which one’s illness experience is interpreted can have dramatic effects on perceived health and quality of life. Yet, chronic illness is not always interpreted as a wholly negative experience. On the contrary, acquiring disability or chronic illness can prompt individuals to reframe their experience in a positive light, casting their disability or illness as a challenge and opportunity for growth (Dunn, Elliott & Uswatte, in press). Paterson, Thorne, Crawford, and Tarko (1999) found that several individuals with type 1 diabetes agreed that they had undergone a positive transformative experience as a result of learning to live with diabetes. People who had experienced transformation viewed their diagnosis and treatment management as challenges as opposed to insurmountable obstacles. They recognized their illness as an undeniable part of the self and continually revised the construction of their experience as a result of new and unfolding diabetes challenges. In a study of adolescents with diabetes, Helgeson and Novak (2006) found that illness centrality (i.e., the extent to which illness is integrated into an individual's self-concept) was linked to good health outcome only when negativity was low. It is possible that the interpretation of one's illness as having either a positive or negative impact will factor into the development of hoped-for possible selves and quality of life.

Though informative, illness representations and personal models give the impression that illness is a more central domain of self-concept than may actually be true. The possible selves narrative method allows us to explore the impact of diabetes on various aspects of a patient's life using a less constrained format than models that prime participants to focus on their illness. The more open-ended narrative approach allows the individual to choose which aspects of the past and present self are important to talk about.

The purpose of this study was to examine the relationship between subjects' possible self narratives, quality of life, and perceptions of overall health and diabetes control, using the possible selves narrative method. The study had several goals: 1) to examine the relationships between possible self salience and health-related quality of life, 2) to identify themes within the content of possible selves narratives, and 3) to examine personal and health variables to determine their impact upon possible selves and health perception. Specifically, it was expected that individuals with salient best possible selves would exhibit higher quality of life scores and better perceived diabetes control. Conversely, individuals with salient lost possible selves would exhibit lower quality of life scores and poorer perceived diabetes control. It was also expected that individuals who mentioned a negative impact of living with diabetes would have lower quality of life than individuals who mentioned a positive impact.

Chapter 2

Research Design and Methodology

Participants and Procedure

Of 18 potential participants, 15 (83.3%) returned their completed study materials. The final sample included 3 males (20%) and 12 females (80%). Four participants had type 1 diabetes (26.7%), and 11 had type 2 diabetes (73.3%). Participants ranged in age from 32 to 78 years (*M* = 60.47, *SD* = 12.54).

Potential participants were recruited from hospital-based support groups and a diabetes conference in Upstate New York. Participants had to be at least 18 years of age and be diagnosed with either type 1 or type 2 diabetes mellitus to be included in this study. The researcher informed all potential participants of the study being conducted and provided an explanation of participant rights. Interested parties were asked to read and sign an informed consent form and to provide a telephone number where they could be reached for follow-up. The researcher gave each participant a packet of study materials, a pre-addressed, postage-paid envelope and five dollars as incentive to complete the study materials. Participants were then allowed to take the study materials home with instructions to return them to by mail within two weeks. The researcher made a single reminder phone call to each participant five to seven days later to improve the return rate.

Materials

Study materials included a demographic and health questionnaire developed by the researcher, instructions for the completion of two narratives, measures of narrative salience, and the Diabetes Quality of Life Measure (DQOL; Jacobson & DCCT, 1994; see Appendix A).

Demographic and Health Questionnaire

The demographic information collected included sex, age, race/ethnicity, marital status, and education. Participants also answered questions about their diabetes including the length of time since diagnosis, type of diabetes, method of diabetes management (i.e., pills, insulin, diet), and whether they have experienced any complications. In addition, participants completed a checklist indicating whether they have been diagnosed with any other health conditions. Finally, participants provided a subjective rating of their diabetes control using a seven-point Likert scale (1 = Very poor; 7 = Excellent). Self-report was chosen over an objective blood glucose measure because the current study is concerned with patient perception.

Narrative Instructions

The narrative method was adapted from prior possible selves research examining the personal impact of major life events (King & Patterson, 2000; King & Raspin, 2004; King & Smith, 2004). Participants received instructions for the completion of two narratives (see Appendix A). The first set of instructions asked participants to complete a retrospective description of the future they had hoped for before being diagnosed with diabetes. This was the lost possible self (LPS) narrative. The second set of instructions asked participants to complete a description of the future that they currently hope for. This was the best possible self (BPS) narrative. Instructions for each narrative were written at the top of a blank piece of paper. Participants were given the front and back of two pages of paper to complete their narratives.

Salience

Three questions followed each narrative to measure salience: “How easy was it for you to imagine the scenario?”; “How clear was the mental image you imagined?”; and “How often do you think about this future?”. Participants responded to each question on a six-point Likert scale (1 = Not at all; 6 = Extremely easy/clear/often). The salience questions were drawn directly from a study conducted by King and Patterson (2000).

Diabetes Quality of Life Measure (DQOL)

This instrument, developed by Jacobson and the Diabetes Control and Complications Trial (DCCT) Research Group, has been administered to adult patients with insulin-dependent and non-insulin-dependent diabetes mellitus (Jacobson & DCCT, 1994). The DQOL addresses four areas: satisfaction with treatment, impact of treatment, worry about future effects of diabetes, and worry about social/vocational issues. Responses are made on a five-point Likert scale (1 = very satisfied/no impact/never worried; 5 = very dissatisfied/always affected/always worried). It also includes an overall health-related quality of life item rated on a four-point scale (1 = Excellent; 4 = Poor). The DQOL was chosen for this study because it addresses diabetes holistically, taking into account the psychosocial as well as the physical impact of diabetes. It has high test-retest reliability for both adolescents and adults (.78 to .92 Cronbach alpha range), and tests of construct validity have shown significant correlations with other scales measuring the impact of illness on patients’ psychological well-being (Jacobson & DCCT, 1994).

Chapter 3

Results

<u>Demographics</u>

Frequencies, including number in sample and percentage in sample, were calculated for the demographic variables sex, race/ethnicity, education, and marital status. The results are presented along with diabetes type and treatment type in Table 1.

Table 1

Demographics for Study Participants

Variable	*N*	% in sample
Sex		
Male	4	26.7
Female	11	73.3
Race/Ethnicity		
Caucasian	15	100.0
Education		
High school/GED	5	33.3
Some college	1	6.7
2-year college degree	3	20.0
4-year college degree	4	26.7
Doctorate	1	6.7
Professional Degree	1	6.7
Marital Status		
Single (never married)	2	13.3
Married	8	53.3
Divorced	3	20.0
Widowed	2	13.3

Variable	*N*	% in sample
Diabetes Type		
Type 1	4	26.7
Type 2	11	73.3
Treatment Type		
Pills only	3	20.0
Pills and insulin	4	26.7
Insulin only	7	46.7
Insulin and diet	1	6.7
Total	15	100.0

Descriptive Statistics

DQOL subscale scores (Satisfaction, Impact, Worry) were calculated on a scale of 1 to 100, with higher scores indicating higher quality of life. The DQOL overall health-related quality of life item was reverse-scored to make it more intuitive and consistent with other measures in this study (1 = Poor; 4 = Excellent). The majority of participants rated their overall health-related quality of life as ‘Good’ (*n* = 8; 53.3%) or ‘Fair’ (*n* = 5; 33.3%). The remaining two participants rated their overall quality of life as ‘Excellent’ and ‘Poor.’ The DQOL Diabetes and Social Worry subscale was eliminated from further analyses because too few participants (*n* = 4) completed all items in the subscale. Means and standard deviations for DQOL scores and relevant health variables are presented in Table 2.

Table 2

Descriptive Statistics for DQOL Scores and Health Variables

Variable (Min, Max)	*N*	*M*	*SD*
Years since diabetes diagnosis (3.00, 53.42)	15	18.26	14.67
Number of diabetes complications (0, 3)	15	1.07	1.03
Number of other health conditions (0, 8)	15	3.00	2.04
Perceived diabetes control (3, 6)	15	4.80	0.94
DQOL Satisfaction (32.14, 94.64)	15	67.37	17.19
DQOL Impact (42.10, 86.84) [a]	14	67.57	13.76
DQOL Worry (58.33, 81.81) [b]	3	70.79	11.81
DQOL Overall health (1, 4)	15	2.60	0.74

[a] Impact score was eliminated if more than four values were missing. [b] Worry score was eliminated if two or more values were missing.

Diabetes complications reported by participants included eye complications (*n* = 6), neuropathy or nerve damage (*n* = 5), kidney disease (*n* = 3), and foot complications (*n* = 2). However, it is important to note that a substantial number of participants (40%) did not report experiencing any diabetes complications. Nearly all participants (93.3%) reported being diagnosed with at least one other health condition. The most frequently reported conditions were high blood pressure (*n* = 8), ‘other’ health condition (*n* = 7), thyroid condition (*n* = 5), and asthma (*n* = 4).

Analysis and Test of Hypotheses

A composite salience score was calculated for each narrative by averaging the scores of the three salience questions. A paired samples t-test was conducted to compare means. The difference between salience scores was moderately significant, with participants rating their best possible self as more salient ($M = 5.00$ (0.95), $t = -2.37$, $p < .05$) than their lost possible self ($M = 4.07$ (1.54), $t = -2.37$, $p < .05$). A word count was also calculated for each narrative. Although not significant, the mean length of BPS narratives ($M = 163.87$, $SD = 250.50$) was greater than that of LPS narratives ($M = 100.80$, $SD = 109.61$), but there was a positive correlation between narrative length such that participants generally wrote a similar amount for each of their narratives ($r = .65$, $p < .05$). An interesting and somewhat counterintuitive finding was that LPS narrative length was positively correlated with overall health-related quality of life ($r = .55$, $p < .05$), meaning that participants with better health wrote more about their lost goals.

Correlations were calculated among the hypothesized measures LPS salience, BPS salience, quality of life, and perceived diabetes control. Results are presented in Table 3. No significant correlations emerged between salience of either narrative and the outcome measures. Scatterplots with overlaid regression lines only revealed very slight trends in the predicted directions with LPS salience negatively correlated with DQOL subscale scores and BPS salience positively correlated with DQOL subscale scores. Unsurprisingly, the measure of perceived diabetes control showed a strong positive correlation with both the DQOL Satisfaction subscale and the overall health-related quality of life item. However, it is unclear whether higher perceived diabetes control leads to better quality of life or vice versa.

Table 3

Correlations Among Narrative and QOL measure

	LPS salience	BPS salience	Satisfaction	Impact	Overall QOL	Diabetes control
LPS salience	_					
BPS salience	.32	_				
Satisfaction	-.47	.04	_			
Impact	-.26	.11	.79**	_		
Overall QOL	_	-.24	-.47	-.34	_	
Diabetes control	-.20	-.08	.65**	.47	.70**	_

** $p < 0.01$ (two-tailed)

Histograms showed that LPS salience, BPS salience, and outcome variables all had fairly normal distributions. However, the total number of participants was too small to conduct meaningful regression analyses to test the study hypotheses. The negative or positive impact of living with diabetes was addressed during narrative analysis, as no significant quantitative group comparisons could be made.

With regard to other contextual variables it was assumed that age, diabetes type, illness duration, and presence of diabetes complications or other health conditions might influence salience, quality of life, and perceived diabetes control. However, only one significant relationship emerged. Number of diabetes complications was moderately negatively correlated with BPS salience ($r = -.57$, $p < .05$), indicating that disease complications might limit the perceived likelihood of achieving one’s current hoped-for self. Furthermore, an independent-samples *t*-test revealed that mean LPS salience was higher for those without diabetes complications ($M = 5.34$ (0.70), $t = 3.50$, $p < .05$) than for those with diabetes complications ($M = 3.22$ (1.35), $t = 3.50$, $p < .05$). Group means did not differ significantly for BPS salience, demographics, or outcome measures. These findings might indicate that individuals who have not experienced diabetes complications might feel less proximally removed from their pre-diabetes selves and more capable of achieving desired goals, both past and present.

Narrative Analysis

Qualitative analysis focused on the content domains of LPS and BPS narratives. Possible selves narratives were coded using the 16 self-concept domains developed by Hooker (1999; see Appendix B). A domain was coded as either present or not present for each possible self narrative. The overall frequency of each domain is presented in Table 4.

Table 4

Content Domains for Lost and Best Possible Selves

	LPS		BPS	
Domain name	*N*	%	*N*	%
Health	7	46.7	8	53.3
Family	6	40.0	8	53.3
Leisure	6	40.0	4	26.7
Occupation	5	33.3	4	26.7
Personal	3	20.0	3	20.0
Physical	2	13.3	6	40.0
Bereavement	2	13.3	1	6.7

	LPS		BPS	
Domain name	*N*	%	*N*	%
Abilities/Education	1	6.7	1	6.7
Lifestyle	1	6.7	3	20.0
Material	1	6.7	2	13.3
Relationships	1	6.7	2	13.3
Success	1	6.7	_	_
Death	_	_	1	6.7
Independence/ Dependence	_	_	1	6.7

Note. Percentages do not add up to 100 because multiple domains were present in most narratives. The domains *Social Responsibility* and *Threats* did not appear in either narrative for any participants.

In general, more domains were present in the BPS narratives than in the LPS narratives. Health was mentioned frequently in both the LPS and BPS narratives. In their BPS narratives, some participants expressed diabetes-specific goals (e.g., ‘I wouldn’t have lows or highs with sugars’) while others simply mentioned a desire to be in good health. Additionally, health-related possible selves were both hoped-for and feared. Feared selves often reflected a desire to avoid certain diabetes complications or treatments. For example, ‘I am scared of insulin, but I do know that if my numbers don’t come down...I would eventually be put on it’ and ‘getting my diabetes under control so I can get off medications.’ Though roughly half the participants had a health-related possible self in either their LPS or BPS narrative, health did not emerge as an important domain for all participants. Furthermore, health references were not necessarily diabetes-specific. These findings suggest that health-related possible selves do not invariably emerge as a function of diabetes and that overall perception of health is not always tied to having diabetes.

Family and occupation were also frequently mentioned in both LPS and BPS narratives. In this sample, occupation was more frequently coded in reference to retirement than to a paid job or career. This is unsurprising given the average age of study participants. Interestingly, leisure appeared less frequently in BPS narratives than in LPS narratives, and physical references appeared more frequently in BPS narratives. Like health-related possible selves, physical selves were both hoped-for and feared. Also, not all physical references were diabetes-specific. Most participants made generic references to being physically-fit or avoiding disability; few offered concrete goals (e.g., ‘I would also like to lose 15 pounds’). Increased physical references in the BPS narrative could be a function of age, as physical abilities are likely to decline as one grows older (Frazier et al., 2002; Frazier & Hooker, 2006). However, increased physical references in BPS narratives could also reflect concerns about the likelihood of diabetes complications (e.g., amputation) and comorbid conditions (e.g., obesity) relative to increased duration of illness.

Few participants mentioned any negative (n = 5) or positive (n = 3) chronic illness impact. Negative impact was defined as having been unable to accomplish a desired goal or to imagine new goals due to diabetes or another health condition. For example, ‘I didn’t think diabetes would ever stop me...Now it stops my dreams’ and ‘Because of [my disease] my plans for the future no longer exist.’ Positive impact was defined as having learned something or improved in some way as a result of living with diabetes. For example, ‘I believe I have taken better care of myself due to my illness’ and ‘Diabetes has shown me...how to eat better, exercise and listen to my body.’ Participants whose narratives indicated negative chronic illness impact were more likely to rate their overall health-related quality of life as ‘Fair’ (*n* = 2) or ‘Poor’ (*n* = 1) than participants who described some positive impact. Still, it is important to note that these participants’ goals were not necessarily interrupted by diabetes alone; some described being negatively impacted by another chronic health condition or a combination of diabetes and other health conditions. Unfortunately, too few participants indicated either negative or positive impact to draw any other conclusions regarding group differences.

Chapter 4

Discussion

This study did not confirm its main hypotheses regarding salience, quality of life, and perceived diabetes control. However, mean BPS salience was significantly higher than mean LPS salience, suggesting that most participants were more invested in their current goals than their past goals. The presence of diabetes complications also influenced salience of possible selves. For those with diabetes complications, BPS was less salient. For those without diabetes complications, LPS was more salient. In addition, those with better overall health-related quality of life wrote longer LPS narratives. Together, these findings suggest that experiencing complications due to one's illness might limit the perceived likelihood of current hoped-for selves, rendering them less important. Conversely, freedom from complications and better perceived health and quality of life make past goals seem attainable. In this sense, they are not lost goals at all. Past and current hoped-for selves are very similar for those whose diabetes has not produced remarkable limitations.

Implications for Past Research and Theory

Unlike King and her colleagues, who were able to demonstrate relationships between lost and best possible self salience and well-being (King & Patterson, 2000; King & Raspin, 2004; King & Smith, 2004), the current study only found a relationship between lost possible self *length* and quality of life. This finding does correspond with King and Hicks' (2007a; 2007b) position that elaboration and integration of one's lost goals might be indicative of maturational growth and well-being. However, the current study measured health-specific rather than general quality of life, so it is difficult to say whether findings would be different if a different well-being or quality of life scale were used.

As in previous studies of older adults, health, family, and leisure emerged as important possible self domains (Frazier et al., 2000; Frazier et al., 2002; Frazier et al., 2006; Cotrell & Hooker, 2005). Adults with diabetes mentioned domains similar to healthy older adults, showing, like Cotrell and Hooker (2005), that health is not necessarily a central part of self-concept for chronically ill adults. Like adults with Alzheimer's disease and Parkinson's disease, who had feared selves in the domains of cognitive and physical functioning (Frazier et al., 2003), adults with diabetes had feared selves representing specific aspects of their disease. Specifically, adults with diabetes mentioned fears regarding management of blood glucose and potential complications. For most, however, diabetes did not appear to limit current hoped-for selves. Unlike chronic pain (Hellstrom, 2001), diabetes alone may not impede day-to-day functioning so severely that it extinguishes important goals. Diabetes complications was the only variable that emerged as a potential impediment for being able to imagine possible selves. This finding conforms to previous research that showed complications from diabetes negatively influence health perception (Lange & Piette, 2005; Lange & Piette, 2006) and increase psychological burden (Gillibrand & Flynn, 2001).

As Frazier et al. (2002) noted, it is difficult to determine whether health-related possible selves emerge as a function of age or poor health/illness. The fact that not all participants in this study mentioned a health-related possible self would suggest that the emergence of health-related possible selves is, in fact, a function of age. However, the current study did not explicitly test this assumption, and more studies involving younger chronically ill adults are needed.

Limitations

This study had several limitations. First, the sample size was far too small to draw any conclusions about the original hypotheses regarding salience and quality of life, using objective quantitative analysis. Second, there was no ethnic diversity in this sample, which was comprised of 100 percent Caucasian respondents. Ethnicity was also a limitation in King's studies, for which study samples were also primarily Caucasian (King & Patterson, 2000; King & Raspin, 2004; King & Smith, 2004). People who have minority status might have very different possible selves and quality of life scores due to cultural factors and differing access to health care. Third, there might be something inherently different about patients who voluntarily attend diabetes support groups or conferences compared to those who do not. It is important that future studies involve individuals who do not regularly access healthcare services. Finally, the Worry subscale of the DQOL had to be eliminated from data analysis in this study because there were too many missing values. Several items on the subscale might not have been relevant to older participants (e.g., How often do you worry about whether you will not get a job you want?). Another general well-being or quality of life scale might be used to avoid missing values. Taken together, these limitations mean the findings of this study cannot be generalized to other populations.

Implications for Future Research

This study added to the extant literature by examining how goals are changed by the onset of chronic illness. Though narratives allow the individual to choose those aspects of the self that are important to discuss, interviews might encourage more elaboration and help clarify participant responses. This would be particularly useful because, in the present study, brief narratives sometimes made it unclear whether participants were referring to diabetes or a combination of (chronic) health conditions. Future research on chronic illness and possible selves should also include younger samples, as much of the existing literature focuses on middle-aged and older adults. Studies of chronic illness and quality of life should also include ethnically diverse samples as well as people who are unable or unwilling to access health services.

Another important area of study involves linking possible selves to health behaviors. Future research might include a measure of health behaviors to ascertain whether individuals are utilizing strategies necessary to achieve their health-related possible selves. It would also be beneficial to determine how possible selves can be used in conjunction with counseling and diabetes education to motivate people with diabetes to develop and maintain effective health behaviors. The simple act of writing about possible selves might be used to improve health and quality of life (see Burton & King, 2008), as it is a reasonably easy and accessible thing for most patients to do.

This study demonstrated that some individuals' goals are negatively impacted by diabetes and/or other chronic illnesses. However, others are able to describe some benefit to living with diabetes. A deeper analysis of the possible selves of those who do not define themselves in terms of their illness will yield useful information. A better understanding of what these individuals do to stay resilient can inform interventions for those who are struggling to control their diabetes and who define themselves in terms of their chronic illness.

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Appendix A

Questionnaires and Narrative Instructions

Please answer the following demographic questions. Your answers to these questions are confidential.

1. Are you male or female? __ Male __ Female

2. What is your age? ____

3. What is your ethnicity?

__ Caucasian, non-Hispanic
__ Black
__ Hispanic
__ Asian/Pacific Islander
__ Native American
__ Other

4. What is your current marital status?

__ Single (never married)
__ Married
__ Separated
__ Divorced
__ Widowed

5. What is the highest level of education you have completed?

__ Some high school
__ High school/GED
__ Some college
__ 2-year college degree
__ 4-year college degree
__ Master's degree
__ Doctoral degree
__ Professional degree

The following questions are about your general health and your diabetes diagnosis. Please answer each question to the best of your ability.

1. How long has it been since you were diagnosed with diabetes? ____ Year(s) ____ Month(s)

2. Are you diagnosed with Type 1 or Type 2 diabetes? __ Type 1 __ Type 2

3. Which of the following methods do you use to manage your diabetes?

__ Pills
__ Insulin
__ Diet only

4. Have you experienced any of the following diabetes complications? (Check all that apply.)

___ Kidney disease
___ Hyperglycemic coma
___ Neuropathy or nerve damage
___ Eye complications
___ Foot complications
___ Other ________________________________

5. Have you ever been diagnosed with any of the following health conditions? (Check all that apply.)

___ Heart disease or angina
___ Heart attack
___ High blood pressure
___ Stroke
___ Tuberculosis
___ Chronic bronchitis or emphysema
___ Asthma
___ Hay fever
___ Immune suppression
___ Auto-immune disorder
___ Chronic colitis
___ Thyroid condition
___ Bladder disease
___ Liver cirrhosis
___ Hepatitis A or B
___ Gastrointestinal ulcers
___ Rheumatoid arthritis
___ Osteoporosis
___ Prostrate trouble (Men only)
___ Abnormal pap smear (Women only)
___ Any cancer
___ Parkinson's disease
___ Other _________________________________

6. How would you rate your overall diabetes control?

Very poor Excellent
1 2 3 4 5 6 7

For this exercise, think about the life you imagined for yourself ***before you were diagnosed with diabetes***. Try to remember how you imagined your future to be. What kinds of things did you hope for or dream about? Imagine that your life has gone as well as it possibly could have and that you have achieved your goals. **Think of this as your best possible life**. Use this page and the next to write a description of the things you imagined.

Please answer the following questions about the description you just wrote. Circle your answer.

1. How easy was it for you to imagine the scenario?

Not at all Extremely easy
1 2 3 4 5 6

2. How clear was the mental image you imagined?

Not at all Extremely clear
1 2 3 4 5 6

3. How often do you think about this future?

Not at all Extremely often
1 2 3 4 5 6

For the next exercise, think about the life that you ***currently imagine for yourself.*** Think about how you imagine your future to be. What kinds of things do you hope for and dream about? Imagine that your life has gone as well as it possibly could have and that you have achieved your goals. **Think of this as your best possible life.** Use this page and the next to write a description of the things you imagined.

Please answer the following questions about the description you just wrote. Circle your answer.

1. How easy was it for you to imagine the scenario?

Not at all					Extremely easy
1	2	3	4	5	6

4. How clear was the mental image you imagined?

Not at all					Extremely clear
1	2	3	4	5	6

5. How often do you think about this future?

Not at all					Extremely often
1	2	3	4	5	6

Please read each statement carefully. Please indicate how satisfied or dissatisfied you currently are with the aspect of your life described in the statement. Circle the number that best describes how you feel. There are no right or wrong answers to these questions.

	Very satisfied	Moderately satisfied	Neither	Moderately dissatisfied	Very dissatisfied
1. How satisfied are you with the amount of time it takes to manage your diabetes?	1	2	3	4	5
2. How satisfied are you with the amount of time you spend getting checkups?	1	2	3	4	5
3. How satisfied are you with the amount of time it takes to determine your sugar level?	1	2	3	4	5
4. How satisfied are you with your current treatment?	1	2	3	4	5
5. How satisfied are you with the flexibility you have in your diet?	1	2	3	4	5

	Very satisfied	Moderately satisfied	Neither	Moderately dissatisfied	Very dissatisfied
6. How satisfied are you with the burden your diabetes is placing on your family?	1	2	3	4	5
7. How satisfied are you with your knowledge about your diabetes?	1	2	3	4	5
8. How satisfied are you with your sleep?	1	2	3	4	5
9. How satisfied are you with your social relationships and friendships?	1	2	3	4	5
10. How satisfied are you with your sex life?	1	2	3	4	5
11. How satisfied are you with your work, school, and household activities?	1	2	3	4	5
12. How satisfied are you with the appearance of your body?	1	2	3	4	5
13. How satisfied are you with the time you spend exercising?	1	2	3	4	5
14. How satisfied are you with your leisure time?	1	2	3	4	5
15. How satisfied are you with life in general?	1	2	3	4	5

Please indicate how often the following events happen to you. Circle the appropriate number.

	Never	Very seldom	Sometimes	Often	All the time
1. How often do you feel pain associated with the treatment for your diabetes?	1	2	3	4	5

	Never	Very seldom	Sometimes	Often	All the time
2. How often are you embarrassed by having to deal with your diabetes in public?	1	2	3	4	5
3. How often do you have low blood sugar?	1	2	3	4	5
4. How often do you feel physically ill?	1	2	3	4	5
5. How often does your diabetes interfere with your family life?	1	2	3	4	5
6. How often do you have a bad night's sleep?	1	2	3	4	5
7. How often do you find your diabetes limiting your social relationships and friendships?	1	2	3	4	5
8. How often do you feel good about yourself?	1	2	3	4	5
9. How often do you feel restricted by your diet?	1	2	3	4	5
10. How often does your diabetes interfere with your sex life?	1	2	3	4	5
11. How often does your diabetes keep you from driving a car or using a machine (e.g., a computer)?	1	2	3	4	5
12. How often does your diabetes interfere with your exercising?	1	2	3	4	5
13. How often do you miss work, school, or household duties because of your diabetes?	1	2	3	4	5
14. How often do you find yourself explaining what it means to have diabetes?	1	2	3	4	5

	Never	Very seldom	Sometimes	Often	All the time
15. How often do you find that your diabetes interrupts your leisure-time activities?	1	2	3	4	5
16. How often do you tell others about your diabetes?	1	2	3	4	5
17. How often are you teased because you have diabetes?	1	2	3	4	5
18. How often do you feel that because of your diabetes you go to the bathroom more than others?	1	2	3	4	5
19. How often do you find that you eat something you shouldn’t rather than tell someone you have diabetes?	1	2	3	4	5
20. How often do you hide from others the fact that you are having an insulin reaction? *If you are not taking insulin, please check this box.*	1 ☐	2	3	4	5

Please indicate how often the following events happen to you. Please circle the number that best describes your feelings. If the question is not relevant to you, circle “Does not apply.”

	Never	Very seldom	Sometimes	Often	All the time	Does not apply
1. How often do you worry about whether you will get married?	1	2	3	4	5	0
2. How often do you worry about whether you will have children?	1	2	3	4	5	0
3. How often do you worry about whether you will not get a job you want?	1	2	3	4	5	0

	Never	Very seldom	Sometimes	Often	All the time	Does not apply
4. How often do you worry about whether you will be denied insurance?	1	2	3	4	5	0
5. How often do you worry about whether you will be able to complete your education?	1	2	3	4	5	0
6. How often do you worry about whether you will miss work?	1	2	3	4	5	0
7. How often do you worry about whether you will be able to take a vacation or a trip?	1	2	3	4	5	0
8. How often do you worry about whether you will pass out?	1	2	3	4	5	0
9. How often do you worry that your body looks differently because you have diabetes?	1	2	3	4	5	0
10. How often do you worry that you will get complications from your diabetes?	1	2	3	4	5	0
11. How often do you worry about whether someone will not go out with you because you have diabetes?	1	2	3	4	5	0

Compared to other people your age, would you say your health is (circle one)

1. Excellent
2. Good
3. Fair
4. Poor

Appendix B

Possible Selves Coding Categories (Hooker, 1999)

01 Personal: Included references to personal attributes or attitudes ("independent," "intelligent," "harried," or "dissatisfied with my life") and to philosophical or spiritual issues.

02 Physical: Included references to fitness ("in good shape"), attractiveness ("thin" or "fat"), or a physical problem ("disabled").

03 Abilities/Education: Included references to creative or artistic expression ("to be a good artist"), to education ("to have an advanced degree," "flunking out of school"), and to general knowledge ("becoming fluent in another language," "being well read").

04 Lifestyle: Included geographical references ("to live on the East Coast"), references to living in a nursing home, and references to quality of life ("living a simpler lifestyle," "having children move far away").

05 Family: Included all references to marriage or divorce, spouse, grandparenting, relating to one's own parents, and family illness. Refers to anything family related.

06 Relationships: Included references to friendship ("being a sympathetic friend," "being alone and lonely") and personal relationships not clearly indicated as family.

07 Occupation: Included all references to jobs ("having a job I truly enjoy," "having a boring job"), careers ("to be an effective therapist"), and retirement.

08 Material: Included references to financial security ("self-supporting," "poor") and to specific possessions ("having a medium-size comfortable home").

09 Success: Included references to achieving goals ("to finish the story of my family," "to be a failure") and to recognition or fame ("becoming a dominant authority in my field").

10 Social Responsibility: Included all references to volunteer work, community involvement, and activity relating to other social issues ("a leader in eliminating the threat of nuclear war").

11 Leisure: Included references to travel or vacations ("traveling with my husband as semi-retirees"), hobbies and recreational sports ("a good tennis player and runner"), and other leisure activities ("someone who appreciates music").

12 Health: Included references to general health ("in poor health," "long-lived"), specific diseases ("having Alzheimer's disease"), or substance abuse ("being an alcoholic").

13 Independence/dependence: Included references to being dependent on others for activities of daily living ("couldn't take care of myself," "maintaining my independence").

14 Death: Included references to personal death ("having a prolonged death," "terminal illness").

15 Bereavement: Included references to death of a loved one ("losing a spouse," "widowed," "child's death").

16 Threats: Included references to events that were perceived to be threatening to the individual ("being raped," "having my house broken into").