

PERSONAL CREATIVE ACTIVITY, MALE CHRONIC ILLNESS AND PERCEIVED
STRESS: AN EXPLORATORY STUDY

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ABSTRACT

The purpose of this exploratory study was to investigate whether personal creative activity predicted perceived stress in men living with a chronic physical illness. Personal creative activity was measured with the *Creative Achievement Questionnaire* (Carson, Peterson, & Higgins, 2005), select questions from the *Flow Questionnaire* (Collins, 2006), the *Everyday Creativity Questionnaire* (Ivcevic & Mayer, 2009) and the *Creative Behaviour Inventory* (Hocevar, 1979). Perceived stress was measured with the *Perceived Stress Scale* (Cohen, Kamarck, & Mermelstein, 1983). Sequential Multiple Regression was used to assess the relationship between personal creative activity and perceived stress levels of males with chronic illness. It was hypothesized that there would be a negative relationship between men's personal creative activity involvement and their perceived level of stress; that is, higher personal creative activity scores would be associated with lower perceived stress levels. This relationship was expected to be demonstrated by all men regardless of their diagnosis.

Participants included 139 males with chronic illness (mean age: 50 years). Findings indicated that personal creative activity was not related to perceived stress. However the participants reported being involved in many different personal creative activities not included in the four creative measures, which may help explain the low scores on the creativity measures that may have skewed the data and resulted in low correlations. Age and number of symptoms were related to perceived stress. As the participants aged, their perceived stress decreased; and the more symptoms they reported, the higher their perceived stress. The strengths and limitations of the current study are outlined, along with implications for future research and practice. Future research is needed to further examine the relationship between creativity and perceived stress in

men with chronic illness as well as to develop creativity measures that include more male-oriented activities.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Physical chronic illnesses are widespread in Canada and the prevalence of chronic illnesses will continue to increase as people age and as the life expectancy in Canada rises (Statistics Canada, 1999b; Statistics Canada, 2010e). A 1996 survey (Statistics Canada, 1999b) found that over half of the people in Canada, 12 years of age and older, were diagnosed with at least one type of chronic illness and almost one third of Canadians lived with more than one type of chronic illness. The prevalence of chronic illnesses continues increases each year, with an increase from 16.29% of males with asthma, diabetes, high blood pressure and arthritis in 2004 to 17.29% in 2009 (Statistics Canada, 2010a; Statistics Canada, 2010b; Statistics Canada, 2010c). The prevalence of the same illnesses has increased in the female population but by a smaller percentage (from 21.50% in 2004 to 21.64 in 2009). Cancer rates also rose between 2002 and 2006, from .24% to .26% in males and from .22% to .24% in females (Statistics Canada 2010a; Statistics Canada, 2010b; Statistics Canada, 2010c). Finding ways to help people manage as they adjust to the chronic illness experience becomes increasingly important as more and more people are affected by chronic illnesses each year.

Chronic illnesses impact many areas of people's lives (Lubkin & Larsen, 2006) and those affected must adapt and adjust to a changed physical status (Fennell, 2003). Chronic illness does not have a cure and follows an unpredictable course and irregular trajectory, which creates a challenge when people are learning to cope with the illness (Livneh, 2001; Lubkin & Larsen, 2006; Sperry, 2006; Thorne & Paterson, 2001). The psychosocial adaptation to a chronic illness follows a long-term, complicated and irregular course that is continually evolving (Livneh,

2001). The challenge is for affected individuals to find ways to heal and improve their health as much as possible, while still living with the illness (Sperry, 2006).

Although the illness experience varies from person to person, certain experiences are shared (e.g., physical discomfort, activity limitations, uncertainty, and identity difficulties) (Lubkin & Larsen, 2006). More specifically, men with chronic illness report concerns about loss of control (Kiviruusu, Huurre & Avo, 2007; Lindqvist, Widmark & Rasmussen, 2006), disclosure issues (Ablon, 1996; Gannon, Glover, O'Neill & Emberton, 2004; Lindqvist et al., 2006), uncertainty (Charmaz, 1995; Mishel et al., 2002; Wallace, 2005), loss of identity (Charmaz, 1995; Gannon et al., 2004; Lummerding, 2004; Paulson, Danielson & Soderberg, 2002), social challenges (Gannon et al., 2004; Lummerding, 2004; Navon & Morag, 2003; Moskowitz & Wrubel, 2005), relationships issues (Gannon et al., 2004; Lummerding, 2004; Navon & Morag, 2003; Kiviruusu et al., 2007), depression (Kiviruusu et al., 2007) and bodily obstruction (Paulson et al., 2002). Men have used different strategies to manage these challenges including a change in their way of thinking (Gannon et al., 2004; Lummerding, 2004; Navon & Morag, 2003), emotion-focused coping (Kiviruusu et al., 2007), avoiding the illness (Gannon et al., 2004; Navon & Morag, 2003; Moskowitz & Wrubel, 2005), striving to live (Paulson et al., 2002), increasing their health habits (Gannon et al., 2004) or social support system (Lummerding, 2004), gaining a new perspective (Gannon et al., 2004), reconstructing their identity (Gannon et al., 2004; Lummerding, 2004), using spirituality (Krupski et al., 2006), managing uncertainty (Charmaz, 1995; Mishel et al., 2002), preserving the self (Navon & Morag, 2003) and having an outward or forward focus (Moskowitz & Wrubel, 2005).

Men use both short-term (Gannon et al., 2004; Kiviruusu et al., 2007; Lummerding, 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003; Paulson et al., 2002) and long-term

strategies (Charmaz, 1995; Gannon et al., 2004; Krupski et al., 2006; Lummerding, 2004; Mishel et al., 2002; Moskowitz & Wrubel, 2005; Navon & Morag, 2003) for coping with chronic illness. The longer-term strategies have shown to be more effective (Gannon et al., 2004; Krupski et al., 2006; Mishel et al., 2002; Moskowitz & Wrubel, 2005) because men who used long-term strategies were less affected by the illness, had less difficulty adapting to the illness, showed better health-related outcomes and felt less uncertainty than men who did not use long-term strategies (Gannon et al., 2004; Krupski et al., 2006; Mishel et al., 2002; Moskowitz & Wrubel, 2005). Therefore, more long-term strategies are needed to help men successfully manage the challenges of living with a chronic illness.

Creativity and coping have been linked, both generally (Bent & Taylor, 2005; Collins, 2006; Cropley, 1990; Kerr, Shaffer, Chambers, Hallowell, 1991; Millar, 2001) and in the specific context of chronic illness (Cangelosi & Sorrell, 2008; Collie, Bottorf, & Long, 2006; Heiney & Darr-Hope, 1999; Nainis et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b). Creativity is a multi-faceted concept (Mumford, 2003; Ghousoub & Gustafson, 1998) that can be assessed using creative thinking, personality factors associated with a creative person, characteristics of the creative environment or a person's creative products (Plucker & Renzulli, 1999). A growing body of studies (Bent & Taylor, 2005; Kerr et al., 1991; Millar, 2001; Collins, 2006) suggests that creativity provides many benefits associated with well-being. More specifically, various studies have implicated creativity in providing many benefits for women with a variety of chronic illnesses including: (a) increased control (Reynolds, 2002; Reynolds & Prior, 2003b), (b) increased emotional expression (Collie et al., 2006), (c) decreased uncertainty (Reynolds & Prior, 2003b), (d) stronger identity (Reynolds, 2002), (e) filled the void (Reynolds & Prior, 2003a), (f) increased positive outlook

and view of themselves (Collie et al., 2006; Nainis et al., 2006; Reynolds, 2002; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b), (g) create new meaning in life (Reynolds & Prior, 2003a; Reynolds & Prior, 2003b), (h) distract from the illness (Nainis et al., 2006; Reynolds & Prior, 2003b), (i) increased knowledge (Heiney & Darr-Hope, 1999), (k) increased self-esteem (Heiney & Darr-Hope, 1999), and (l) increased learning (Cangelosi & Sorrell, 2008).

A link has also begun to be established between creativity and benefits for men with chronic illness. Two studies have suggested that creativity benefits both women and men with chronic illness by increasing their knowledge and self-esteem (Heiney & Darr-Hope, 1999) as well as by increasing their emotional expression, sense of identity and positive outlook on life (Nainis et al., 2006). However, both of these studies only focused on women and men with cancer. As well, another study that focused on women with MS suggested that a comparative study of men's strategies for coping with MS is needed (Reynolds & Prior, 2003a). Therefore, these studies suggest that creativity may also be of benefit to men with chronic illness and more studies are needed that investigate the relationship between creativity and well-being in men with a variety of chronic illnesses.

1.2 Relevance and Significance of the Study

The limitations of the studies reviewed included a lack of quantitative data, a lack of data that can be generalized to the wider population, few Canadian samples and limited studies regarding males, chronic illness and creativity. Only 11 of the 37 studies reviewed used a quantitative approach (Collins, 2006; Hamborg, Vehse & Bludau, 2004; Hanscom, Lurie, Homa & Weinstein, 2002; Kerr et al., 1991; Kiviruusu et al., 2007; Krupski et al., 2006, Millar, 2001; Mishel et al., 2002; Nicol & Long, 1996; Strickland et al., 2003; Wallace, 2005). Many of the qualitative and quantitative studies reviewed were unable to generalize the results to the wider

population (Ablon, 1996; Brown et al., 2007; Cangelosi & Sorrell, 2008; Collie et al., 2006; Gannon et al., 2004; Krupski et al., 2006; Lindqvist et al., 2006; Lummerding, 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003; Paulson et al., 2002; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b; Reynolds, 2003; Wallace, 2005). As well, only three studies used Canadian samples (Eaton & Struthers, 2002; Lummerding, 2004; Nicol & Long, 1996). Lastly, only two studies reviewed investigated the topic of males, chronic illness and creativity (Heiney & Darr-Hope, 1999; Nainis et al., 2006). The current study was designed to address some of these limitations; specifically, the limitations indicating that there was a need for more quantitative studies of men and creativity using specific measures of creativity.

Studies of men's experiences with chronic illness and the benefits of creativity are scarce; only two were identified (Heiney & Darr-Hope, 1999; Nainis et al., 2006). The current literature has tended to focus on chronic illness, creativity and well-being with women (Cangelosi & Sorrell, 2008; Collie et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b). However, gender impacts how people cope with illness (Sarafino, 2005). Evidence indicates women adjust differently to chronic illness than men do (e.g., Ablon, 1996; Statistics Canada, 1999b). Although women tend to experience more stress, illness and disability than men, they are also more resilient (Statistics Canada, 1999b). They tend to be more resistant to illness-associated depression and when diagnosed with a chronic illness, women have a higher life expectancy than men (Statistics Canada, 1999b). Two studies have suggested that creativity may also be of benefit to men with chronic illness (Heiney & Darr-Hope, 1999; Nainis et al., 2006) and more studies are needed that investigate the relationship between creativity and well-being in men with chronic illness. Research that examines potential ways to increase the

resiliency of men with chronic illness (e.g., creativity) will contribute further knowledge regarding the relationship between creativity and the well-being of men with chronic illness.

Studies of men and chronic illness are lacking, in part, because men are a difficult population to access (Lummerding, 2004). Men are less likely to talk about personal feelings or experiences (Ablon, 1996; Gannon et al., 2004; Lindqvist et al., 2006; Lummerding, 2004; Navon & Morag, 2003) and therefore may be less likely to volunteer for research projects (Lummerding, 2004). Given the difficulty men show in describing their experience of living with a chronic illness (Ablon, 1996; Gannon et al., 2004; Lindqvist et al., 2006), an internet survey was used in the present study.

There are many benefits and limitations to using the internet for research as well as many solutions that have been developed to reduce to impact of the limitations. The benefits include the ability to reach a large and diverse population (Burgess, Donnelly, Dillard & Davis, 2001; Duncan, White & Nicholson, 2003; Kaye & Johnson, 1999), excellent data quality (Eaton & Struthers, 2002; Hanscom et al., 2002; Joinson, 1999; Strickland et al., 2003), time and cost effectiveness (Schleyer & Forrest, 2000), voluntary participants (Eaton & Struthers, 2002); and increased anonymity and confidentiality (Cantrell & Lupinacci, 2007; Joinson, 1999). However, there are also limitations to using the internet for conducting research studies such as selection bias (Cantrell & Lupinacci, 2007), low response rates (Cantrell & Lupinacci, 2007), lack of informed consent (Burgess et al., 2001), lack of rigor (Strickland et al., 2003), lack of control (Eaton & Struthers, 2002), and decreased truthfulness (Joinson, 1999; Strickland et al., 2003). Despite these limitations, many solutions have been developed to decrease the limitations and increase the benefits (Burgess et al., 2001; Cantrell & Lupinacci, 2007; Joinson, 1999; Kaye & Johnson, 1999; Strickland et al., 2003).

In the present study, solutions included using a strong sampling method of purposive sampling and contacting the leaders of organizations to control who the survey was sent to (Burgess et al., 2001; Joinson, 1999; Kaye & Johnson, 1999), multiple contacts to increase response rates (Burgess et al., 2001; Kaye & Johnson, 1999), the inclusion of a consent page to inform participants (Burgess et al., 2001), questions that easily transfer to online formats (Strickland et al., 2003), information sent to an online leader to increase control and using a secure server to protect anonymity and confidentiality (Burgess et al., 2001; Cantrell & Lupinacci, 2007).

To conclude, although limited, a promising literature has developed that links chronic illness and the benefits of creativity in general and more specifically, women with chronic illness and the benefits of participating in creative activities (Cangelosi & Sorrell, 2008; Collie et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b). Certain studies have also made a connection between men with cancer and the benefits of creative activities (e.g., Heiney & Darr-Hope, 1999; Nainis et al., 2006). Creativity may be one method to help increase the resiliency of men with chronic illness. This study contributes to the literature on creativity and chronic illness by exploring whether men with chronic illness may also benefit from creativity, specifically personal creative activity.

1.3 Statement of Purpose

This study examined the relationship between personal creative activity and the perceived stress levels of men living with chronic illness. The results contribute to the literature of men with chronic illness and creativity, providing preliminary findings that suggest further directions in research to help clarify the relationship between the benefits of creativity and resiliency in the context of men diagnosed with a chronic illness, as well implications for counselling practice.

1.4 Definitions

The terminology in the health and chronic illness literature is complex (Lubkin & Larsen, 2006). Certain health terms are often used interchangeably but actually have quite different meanings (Lubkin & Larsen, 2006; Sperry, 2006). The following terms were defined as follows in the present study.

1.4.1 Chronic Versus Acute

The term chronic refers to an illness marked by: (a) a long duration, (b) frequent recurrence over a long period of time and (c) often slowly progressing in seriousness (Merriam-Webster's Medical Dictionary, n.d.).

Acute refers to when an illness has a rapid onset followed by a short, severe course and is also curable (The American Heritage© Dictionary of the English Language, n.d.).

1.4.2 Disease versus Illness

Disease refers to the objective process in treatment when an illness is seen from a pathophysiological point of view, in which the body structure and function are physically changed (Lubkin & Larsen, 2006; Sperry, 2006).

On the other hand, illness is the subjective experience of the disease. The term illness refers to how a person and his or her family perceives, lives with and responds to the symptoms and suffering of the disease (Lubkin & Larsen, 2006; Sperry, 2006).

1.4.3 Chronic Disease and Chronic Illness

A chronic disease is defined as any long-term physical health condition developed after birth, that has lasted or is expected to last six months or more, has been diagnosed by a health professional and requires ongoing care (Lubkin & Larsen, 2006; Statistics Canada, 1999a).

Chronic disease is used to refer to the physical aspects of the disease. Chronic illness refers to

the “illness experience”, a person’s experience of the symptoms and suffering from the chronic disease (Lubkin & Larsen, 2009).

1.5 Chapter Organization

The thesis is organized into five chapters. Chapter 1 provides an overview of the study, its purpose and significance. Chapter 2 consists of a review of the literature including information on: (a) chronic illness in general, (b) chronic illness in men, (c) creativity research, (d) the connection between creativity research and this study, and (e) the use of the internet in research. Chapter 3 summarizes the research method procedure and analysis used. Chapter 4 presents the results and Chapter 5 provides a discussion and interpretation of the results.

CHAPTER 2: LITERATURE REVIEW

The literature review is organized into six sections. The first section describes important aspects of the chronic illness experience, including its prevalence and associated challenges. The second section describes key aspects of men's chronic illness experiences. The third section introduces the concept of creativity and how creativity may facilitate wellbeing and provide a means for coping with chronic illness. The fourth section presents the limitations of the reviewed literature. The fifth section of the chapter summarizes the use of the internet in research, identifying benefits, limitations, and solutions. The final section provides the key conclusions of the literature review that lead to the present study and its hypotheses.

Based on Pinch's (1995) suggestion for organizing a literature review, key articles are summarized and displayed with the use of tables that indicate the purpose, sample, design, instruments, results and implications of key studies. Some of the research areas are large (e.g., chronic illness, creativity and internet research) and therefore review sources were consulted. Four tables are included: Table 2.1 (Appendix A), men and chronic illness; Table 2.2 (Appendix B), creativity and well-being; Table 2.3 (Appendix C), creativity in the context of chronic illness; and Table 2.4 (Appendix D), internet research, its benefits, limitations and solutions.

2.1 Chronic Illness

2.1.1 Prevalence

Investigating ways to help people with chronic illness manage their experiences becomes important as the prevalence of chronic illnesses increases. A significant number of people in Canada live with chronic illness (Statistics Canada, 1999b; Statistics Canada, 2010a). A 1996 survey (Statistics Canada, 1999b) demonstrated that over half of the people in Canada, 12 years of age and older, had experienced at least one type of chronic illness. Most conditions were

more likely to be reported by females than by males, with 66% of males and 98% of females experiencing at least one type of chronic illness (Statistics Canada, 1999b). As well, almost one third of Canadians live with more than one type of chronic illness.

The prevalence of chronic illnesses continues to increase each year, with an increase from 16.29% of males with asthma, diabetes, high blood pressure and arthritis in 2004 to 17.29% in 2009 (Statistics Canada, 2010a; Statistics Canada, 2010b; Statistics Canada, 2010c). The prevalence of the same illnesses has increased in the female population but by a smaller percentage (from 21.50% in 2004 to 21.64 in 2009). Cancer rates also rose between 2002 and 2006 from .24% to .26% in males and from .22% to .24% in females (Statistics Canada 2010a; Statistics Canada, 2010b; Statistics Canada, 2010c). Finding ways to help people manage as they adjust to the chronic illness experience becomes increasingly important as more and more people are affected by chronic illnesses each year.

2.1.2 Chronic Illness Experience

Coping with a chronic illness is very different than coping with an acute illness (Lubkin & Larsen, 2006; Sperry, 2006). An acute illness follows a predictable course in which consistent symptoms emerge (Sperry, 2006). The onset of symptoms is sudden and the illness lasts for only a short period of time, usually ending in recovery or death (Lubkin & Larsen, 2006). On the other hand, a chronic illness follows an unpredictable course in which there are no consistent symptoms (Lubkin & Larsen, 2006; Sperry, 2006). The illness has a variable pattern of onset and continues for an unknown length of time. The symptoms and illness may appear suddenly; however, they may also appear subtly and/or go into long periods of remission (Lubkin & Larsen, 2006; Sperry, 2006).

In addition to the variable pattern of onset and symptoms, people with chronic illnesses also experience an irregular trajectory (Thorne & Paterson, 2001). As such, people's attention to their illness moves between a foreground and a background perspective (Thorne & Paterson, 2001). Sometimes, people's awareness of the illness is in the background while they focus on other aspects of their lives, whereas at other times, the severity of the symptoms causes the illness to be at the forefront of their lives. Various personal, social and cultural factors in people's lives influence when the symptoms of the illness are in the background and when they are in the foreground (Thorne & Paterson, 2001). It is important to find coping strategies that are responsive to the unique difficulties that arise from the unpredictable nature of chronic illness.

The psychosocial adaptation to a chronic illness also follows a long-term, complicated and irregular course that is continually evolving (Livneh, 2001). The process is complex because a cure is not possible and people do not always reach a recovery phase (Livneh, 2001; Lubkin & Larsen, 2006; Sperry, 2006). Instead, people must find a way to heal and improve their health as much as possible, while still living with the illness (Sperry, 2006). Healing from a chronic illness refers to when people experience an overall sense of well-being, even though the illness is still present (Sperry, 2006). The key challenge that people with chronic illnesses face is finding ways to manage the chronic illness experience that will help them enjoy a sense of wellness and decrease their perceived level of stress, despite living with the unpredictable nature of chronic illness.

Helping people with chronic illness find ways to manage their experiences in order to enjoy a sense of wellness and decrease perceived stress may be understood with the Transactional Model of Stress developed by Lazarus and Folkman (1984). In this model, stress is conceptualized as a discrepancy between a person's demands and resources, or pressure that

exceeds a person's perceived ability to cope. A stressor, or demands, placed on a person are not automatically perceived as stress by a person (Lazarus & Folkman, 1984). Instead, a person's resources and ability to cope mediate the stress response and can therefore, be controlled and changed. Coping is defined as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p.141). The level of stress a person experiences in relation to the amount of demands placed on them is related to their cognitive appraisal, or the evaluation of harm, threat, or challenge, of the stressors or demands within the environment and of the resources they have to cope with the stressor. If a person views a stressor or demand as positive or challenging, rather than as threatening, and the person knows they have effective resources and coping strategies, they may not feel stressed about the potential stressor or demand (Lazarus & Folkman, 1984). Thus, this model suggests that stress can be decreased by helping people who feel stressed to change the way they view stressors and demands, provide them with effective coping strategies and increase their confidence in their ability to cope.

Fennell (2003) developed a model to specifically help people with chronic illness and their caregivers find ways to manage the challenges of chronic illness and adjust to their experiences. The model describes phases and actions that help people progress between phases. The goal is integration, whereby people reconstruct their lives to incorporate the illness experience with their sense of self (Fennell, 2003). According to this model, people must find ways to incorporate the illness experience into their lives in order to manage the illness.

There are four phases of this model (Fennell, 2003). Crisis is the first phase that begins with the onset of sufficiently severe symptoms, which lead people to seek medical, psychological or spiritual help (Fennell). During this phase, people must find ways to cope with the pain and

trauma of the symptoms. In the second phase, Stabilization, people continue to feel unsettled but they begin to have more control as the symptoms begin to plateau (Fennell). People in this phase must find a way to integrate the illness with their pre-illness lives by stabilizing the symptoms and reorganizing their lifestyle. Resolution is the third phase, in which people begin to understand the pattern of the symptoms and they begin to accept that their pre-illness self will not return (Fennell). They must develop a new sense of self and find new meaning in their lives, as well as accept the severity and uncertainty of the chronic illness experience. The fourth and final phase called Integration is when people have incorporated their experiences and may begin to heal (Fennell). However, they may still experience relapses of symptoms. Although some people do not constantly experience the symptoms of an illness, many do experience the symptoms continuously (Fennell, 2003). People must continue to find ways to achieve the highest level of wellness possible, despite their health problems, through supportive networks and new activities for example. In the last phase, people with chronic illness remain in this stage and work at continuing to sustain their new sense of self (Fennell, 2003).

Fennell (2003) notes that some people become stuck between phase one and two. Once stuck, new crises cause destabilization repeatedly. Each time people experience stable plateaus, they recall experiences of what their lives were like before the chronic illness and refuse to believe that the change is permanent (Fennell). This causes continual relapses, either from the way they behave, the nature of the illness or from a crisis that is not connected with the illness. Even people who progress to phase four are not free from the pain and suffering and most only experience phase four temporarily (Fennell). The goal according to this model is to prevent repetitive relapses by decreasing the symptoms experienced and helping people find a way to

integrate their experiences into a meaningful life story. Strategies must be found to help people reach this goal in order to decrease their perceived level of stress.

People's ability to adapt to chronic illness and improve their quality of life is demonstrated through their success in three domains: intrapersonal, interpersonal and extrapersonal (Csikszentmihalyi, 1990; Livneh, 2001). The first two domains, interpersonal and extrapersonal, involve trying to match external conditions to personal goals (Csikszentmihalyi). The interpersonal domain of people's lives can be enhanced through family life, marriage, friendships and social activities (Livneh). The extrapersonal domain of people's lives can be improved through work activities, recreational pursuits, education, housing and finances (Livneh). The last domain, intrapersonal involves changing how external conditions are experienced so they better fit personal goals (Csikszentmihalyi). The intrapersonal domain refers to enhanced health, subjective well-being, life satisfaction, self-concept and psychological functioning (Livneh).

All three domains represent possible areas to focus on in helping people manage the demands of illness (Livneh, 2001). None of these strategies can effectively be used alone (Csikszentmihalyi, 1990). Changing external environments may appear to work initially, but previous fears and desires will resurface if they are not resolved and if a person is not intentionally managing how they perceive the external environment. Quality of life is not solely dependent on what other people think of us or on what we have, but on how we feel about ourselves and what happens to us (Csikszentmihalyi). To increase quality of life, a person must improve the quality of their experiences. Instead of finding ways to change external conditions, quality of life can more effectively be improved by finding ways to make everyday life more harmonious and satisfying (Csikszentmihalyi).

Some people believe that in order to be happy, one must experience pleasurable things such as good food, a nice house and the ability to travel places (Csikszentmihalyi, 1990). While pleasure is an important component of quality of life and provides contentment by involving us in activities we have been socially conditioned to, it does not bring happiness by itself.

According to Csikszentmihalyi, enjoyment is characterized by the experience of flow or forward movement: a sense of novelty and of accomplishment. For example, reading a book that reveals things in a new light and having a conversation that leads us to express ideas we didn't know we had are enjoyable.

The phenomenology of enjoyment that leads to optimal experiencing, or the experience of flow, has eight components: a challenging activity that requires skills; actions and awareness merge; goals and feedback are clear; concentration on the task; the person has control; self-consciousness is lost; and time is transformed (Csikszentmihalyi, 1990). The experience of flow, most often occurs from structured activities, from a person's ability to make flow occur, or both. Many creative activities can give the experience of flow, such as making music, dancing, rock climbing, art, sports, chess, sailing and so forth (Csikszentmihalyi). Involvement in activities that help people to experience a sense of enjoyment and flow can improve a person's quality of life.

2.1.3 Chronic Illness Challenges

There are many potential challenges associated with chronic illness that can have an impact on all areas of people's lives, including physical, social, psychological and emotional functioning (Lubkin & Larsen 2006). The challenges of chronic illness vary from person to person based on factors such as age, personality traits, beliefs and values (Lubkin & Larsen, 2006). However, certain challenges are shared such as: pain, fatigue, activity limitations, social

isolation, stigma, uncertainty, loss of identity, and psychological difficulties (Lubkin & Larsen, 2006). These shared challenges demonstrate the difficulties people with chronic illness face that must be addressed in order to manage the illness experience and decrease their perceived level of stress.

2.1.3.1 Pain. Pain affects many people living with chronic illness. Some people have chronic pain as their diagnosed illness (McCaffrey, Frock & Garguilo, 2003) or it may be an illness symptom (Shvartzman et al., 2003; Hawley & Wolfe, 1997; Godfrey, Harrison, Friedberg, Medves & Tranmer, 2007; Nicassio, Moxham, Schuman & Gevirtz, 2002). Chronic pain itself affects about 30% of adult Canadians and the prevalence increases in older age groups (University of Western Ontario Interdisciplinary Pain Program, 2007). For example, pain is a significant symptom of fibromyalgia (FM) (Nicassio et al., 2002), heart failure (Godfrey et al., 2007) and chronic fatigue syndrome (CFS) (Hawley & Wolfe, 1997). As well, chronic pain due to malignant illness is very common (Shvartzman et al., 2003). For example, Shvartzman and colleagues (2003) assessed the pain control of ambulatory cancer patients at three oncology clinics. They found that 77% of the 218 cancer patients experienced substantial pain, 81% of the patients were not adequately treated, and 75% of the patients were under medicated. As well, 64% of the patients with pain experienced a moderate to severe impact on their daily living activities.

Pain that has not been effectively controlled has a widespread and deeply negative effect on a person's quality of life (Katz, 2002). Chronic pain can create feelings of hopelessness and helplessness which can then intensify a person's perception of pain (McCaffrey et al., 2003). In people with FM, the pain experienced creates a circular pattern whereby pain increases when the participants had non-restful sleep and experienced fatigue (Nicassio et al., 2002). A review of 22

high-quality studies found consistent evidence for a relationship between fatigue and pain (Fishbain et al., 2003), and other studies that looked at the relationship between chronic pain and sleep disturbances, anxiety and depression found that all three have a significant and positive relationship with chronic pain (e.g., Call-Schmidt & Richardson, 2003; Currie & Wang, 2004; McWilliams, Goodwin & Cox, 2004).

2.1.3.2 Fatigue. Fatigue is a lack of energy and tiredness, not related to muscle weakness, that is a frequent complaint and occurs almost invariably in patients with chronic illnesses (Colombo et al., 2000). Severe fatigue is a distressing, significant and frequent problem in the experience of cancer and its treatment, especially those with advanced stages of cancer (Glaus, Crow & Hammond, 1996; Potter, 2004; Stone, Richards, A'Hern & Hardy, 2000a). For example, patients with prostate cancer reported a significant increase in fatigue after treatment (Stone, Hardy, Huddart, A'Hern & Richards, 2000b). Fatigue is also one of the most distressing and debilitating symptoms of HIV (Barroso, Carlson & Meynell, 2003; Bormann, Shively, Smith & Gifford, 2001; Phillips et al., 2004). Many people with Parkinson's disease (PD) have a significant amount of sleep disturbance and fatigue (Shulman, Taback, Bean & Weiner, 2001) as do patients with FM and multiple sclerosis (MS) (Colombo et al., 2000; Nicassio et al., 2002).

Fatigue can have a significant impact on daily functioning (Colombo et al., 2000). Fatigue was reported to affect the psychological, physical, social, and spiritual aspects of the lives of patients with cancer (Potter, 2004), and was significantly related to the severity of psychological and physiological symptoms experienced such as anxiety, depression, pain and dyspnoea (Potter, 2004; Stone et al., 2000a; Stone et al., 2000b). Anxiety and depression were reported by Stone et al. (2000b) as responsible for 28% of the variance in fatigue scores for cancer patients after receiving hormone therapy treatment. Similarly, fatigue affects all

dimensions of a person's quality of life when living with human immunodeficiency virus (HIV) (Phillips et al., 2004) and daytime sleepiness, sleep quality, HIV related symptoms, health distress, depression, situational anxiety, trait anxiety and perceived stress are also all related to fatigue in people with HIV (Barroso et al., 2003; Phillips et al., 2004). The main symptoms related to fatigue in people living with FM are depression and pain (Nicassio et al., 2002), and depression accounts for 18% of the variability in fatigue. As well, people with PD have shown widespread comorbidity between anxiety, depression, sleep disorders, sensory symptoms and fatigue symptoms (Shulman et al., 2001).

2.1.3.3 Activity limitations and functional loss. Activity limitations and functional loss are another physical problem experienced by many people with chronic illness (Ailinger & Schweitzer, 1993; Statistics Canada, 2003). Activity limitations are defined as when an illness or disability limits the kind or amount of activity an individual can do at home, at school, at work, or in other settings (Statistics Canada, 1999a). Functional loss means that people have trouble completing day to day tasks. In the early 1990's, Ailinger and Schweitzer (1993) found that 80% of patients with chronic illness reported functional loss and stated this as the major difficulty of living with the illness. Years later, Statistics Canada (2003) found that over 5.9 million Canadians who were 12 years of age and older have suffered daily activity restrictions due to a long-term health problem.

The prevalence of chronic illnesses and severe disabilities within the working population has increased (Bhattacharya, Choudhry & Lakdawalla, 2008). The number of people who have disabilities but no chronic illness has fallen and those with chronic illness who experienced a severe disability accounted for 60% of the rise in disability (Bhattacharya et al., 2008). The amount of mobility lost cannot be changed but by finding new activities, that people with limited

mobility can do, to replace the activities they are now unable to do can help them adjust to the illness experience.

2.1.3.4 Isolation. Isolation is a pervasive social problem faced by many people living with chronic illness (Holley, 2007). Being isolated is heightened for ill people because functional impairments further decrease their openness and ability to interact with others (Riegel & Carlson, 2004). Social isolation has been reported across illnesses such as heart failure (Riegel & Carlson, 2004), HIV (Mallinson, 1999), and MS (Beal & Stuifbergen, 2007; Courts, Buchanan & Werstlein, 2004; McReynolds, Koch & Rumrill, 1999).

Social isolation has both physical and psychological implications that can negatively affect people's lives (Beal & Stuifbergen, 2007; Holley, 2007). Social contact is essential for people to live a full and meaningful life (Holley, 2007). People are naturally sociable and social contact is the main source of human comfort. The unwanted but increased need for social support can be a main reason for psychological distress, especially for those who were high functioning before their diagnosis (McReynolds et al., 1999). There is an association between loneliness and problematic drinking behaviours (Bonin, McCreary & Sadava, 2000), elevated blood pressure (Hawkey, Masi, Berry & Cacioppo, 2006) and depressive symptoms (Cacioppo, Hughes, Waite, Hawkey & Thisted, 2006).

However, these social difficulties can be addressed to prevent the negative impact. Assisting the person and their family with reconnecting to personal and social resources can help them cope with the incapacitating psychological effects of the illness (Riegel & Carlson, 2004). For example, Riegel and Carlson (2004) examined effectiveness of a peer support intervention for patients hospitalized with heart failure and found that peer support improved self-care in the

patients who had a peer mentor. Mallinson (1999) found that creating grieving support groups within a person's social network can provide the socialization needed by men with HIV.

2.1.3.5 Stigma. Stigma is another social problem that is experienced by people with various chronic illnesses (Brakel, 2006). Stigma is defined as feelings of shame based on the way people are socialized through society's belief about issues such as illness and disability (Lubkin & Larsen, 2006). Stigma is a main challenge for those living with HIV and cancer (Fife & Wright, 2000). As well, people with diabetes report negative experiences with stigma such as getting strange looks when injecting insulin in public and fear of being dismissed at work (Tak-Ying Shiu & Yee-Man Wong, 2002). People with MS tend to conceal their diagnosis in order to prevent being deprived of social belonging (Grytten & Maseide, 2005). Stigma has a negative effect on a person's self-image, social interaction and relationships with friends and family, mobility, employment, income and housing, access to care, ability to seek support, education, leisure activities and attendance at social functions and affects people across different countries and chronic illnesses (Brakel, 2006; Chapple, Zeibland, & McPherson, 2004; Markowitz, 1998). People living with chronic illness and stigma may also experience anxiety, depression, fear, activity restrictions and uncertainty about increased risk of disability and advanced illness, which can lead to psychological stress (Brakel, 2006; Markowitz, 1998). However, this experience is not inevitable as people who do not accept society's views of themselves and reject these views as being related to them were not affected by the stigma (Camp, Finlay, & Lyons, 2002)

2.1.3.6 Uncertainty and loss of identity. Uncertainty about one's health, future, and identity is experienced by people living with a chronic illness. Mishel (1999) reviewed 47 studies of uncertainty in chronic illness and found that changes in self concept can increase people's uncertainty as they wonder about their own identity and what type of person they may

become. The effect of a chronic illness on daily life significantly changes people's life stories and creates uncertainty as their sense of self changes (Mishel, 1999). Variations in the severity of the symptoms, the unpredictable nature of the symptoms, lack of information about the future and a person's inability to discriminate symptoms from other changes in the body can also increase uncertainty and loss of identity (Brashers et al., 2003; Mishel, 1999).

People with many different chronic conditions experience uncertainty and lack of identity. One study examined the experiences of people living with MS and found people with MS have difficulties dealing with the unknowns of MS symptoms, including uncertainty, fear about the diagnostic process and anxiety about the future (Barker-Collo, Cartwright & Read, 2006). Another study found that uncertainty has an impact on the self-esteem and sense of identity of people with CFS as their relationships and social connections deteriorate (Clarke & James, 2003). As their worlds became restricted through the loss of their jobs, friends, and their recognizable selves, they experienced a loss of self and had to separate from their previous way of life and understanding their self identity (Clarke & James, 2003; Dickson, Knussen, & Flowers, 2008). As well, focus group data suggest that that people with HIV experience medical, social, and personal uncertainty (Brashers et al., 2003). The results of a phenomenological study found that people with HIV feel a sense of chronic uncertainty and increasing tiredness because their feelings, thoughts and behaviours are constantly changing (Mallinson, 1999).

The uncertainty and loss of identity can cause much of the pain and suffering in living with a chronic illness if it is not addressed (Carpenter, 1994; Coyler, 1996). The experience of losing one's sense of self can be very distressing and disorienting. Uncertainty and losing a sense of self can increase a person's stress and anxiety (Brashers et al., 2003). One study looked

at the relationship between uncertainty and other negative outcomes (Bailey et al., 2009). It was found that people who feel uncertain may also experience depressive symptomology, pain and fatigue as well as a decreased quality of life. The uncertainty and loss of identity does not need to permanently affect people living with chronic illness though (Clarke & James, 2003). In a study on people's experiences with chronic fatigue syndrome, many took the chance to invent a new and better self (Clarke & James, 2003). Discovering ways to help people to manage their uncertainty and redefine their sense of self can help decrease the amount of stress they perceive to be in their lives.

2.1.3.7 Psychological difficulties. Psychiatric disorders and other negative effects on well-being may occur from living with a chronic illness. Many major psychiatric disorders are prevalent among cancer patients of both genders, including anxiety, delirium, depression, post-traumatic stress disorder and suicidal ideation (Amir & Ramati, 2002; Breitbart, 1995). One study reported that cancer patients had high levels of distress and scored low on psychological, physical and general quality of life scales (Amir & Ramati, 2002). As well, some men and women with MS experienced depression and they tended to score lower on quality of life scales than those that do not develop depression (Wang, Reimer, Metz & Patten, 2000). High rates of depression, other affective/anxiety disorders and substance use disorders in other chronic illnesses have also been demonstrated; especially in adults with lower incomes (Ailinger & Schweitzer, 1993; Hance, Carney, Freedland, & Skala, 1996; Thomas, Jones, Scarinci, & Brantley, 2003). All of the physical, social, psychological and emotional symptoms listed above must be addressed in order to help people manage their chronic illness and lower their perceived level of stress.

2.1.4 Summary

As the prevalence of chronic illness increases each year in Canada (Statistics Canada, 1999b, Statistics Canada, 2010a; Statistics Canada, 2010b; Statistics Canada, 2010c), the need to find ways to help people manage the associated challenges becomes more and more important. Managing chronic illnesses is difficult because of the unpredictable nature of the illness (Lubkin & Larsen, 2006; Sperry, 2006). People must find a way to integrate their chronic illness experiences with their pre-illness self in order to experience a sense of wellness while still living with a chronic illness, because no cure is possible (Fennell, 2001).

People with chronic illnesses experience many physical, social, psychological and emotional challenges such as pain, fatigue, activity limitations, social difficulties, stigma, uncertainty, loss of identity and decreased psychological well-being (Lubkin & Larsen, 2006). These symptoms can become a vicious circle with one symptom leading to the next without an end (Glaus et al., 1996). Finding ways to reduce the negative effect of the challenges can help people to cope (Fennell, 2001). Certain factors in people's lives that can be managed by the person, such as the use of coping strategies, may be identified to help men adjust to the chronic illness (Lazarus & Folkman, 1984; Livneh, 2001). One way of helping people experience a sense of wellness through coping is by helping them decrease their perceived level of stress. Stress is caused by conflicting, ambiguous or overloading demands that are perceived as exceeding a person's resources (Lazarus & Folkman, 1984). In the context of chronic illness, stress is related, in part, to a person's perception of their illness and the coping strategies they use.

A significant goal in helping people increase their ability to manage the illness is finding ways to help them cope; for example, by increasing their well-being through changing their

external conditions and changing how they view the external conditions (Csikszentmihalyi, 1990). Changing the external conditions and changing how external conditions are viewed can occur in the interpersonal, extrapersonal and intrapersonal domains of their lives through social or recreational activities (Csikszentmihalyi, 1990; Livneh, 2001). Increasing well-being in these all these areas involves experiencing flow, or enjoyment through activities that provide a sense of novelty and accomplishment (Csikszentmihalyi, 1990).

2.2 Men and Chronic Illness

Table 2.1 (Appendix A) a summary and critique of 13 studies that investigated the challenges and coping strategies of men living with chronic illness and were identified by searching the PsychInfo, Eric Ovid, CINAHL and MedLine databases with the following search terms: men, chronic illness and coping in May 2010.

The study topics included gender differences in neurofibromatosis (Ablon, 1996), goal setting and hypertension (Brown et al., 2007), identity dilemmas in males with chronic illness (Charmaz, 1995), men's experiences of living with Lower Urinary Tract Symptoms (LUTS) (Gannon et al., 2004), depression and chronic illness in men (Kiviruusu et al., 2007), spirituality and chronic illness in men (Krupski et al., 2006), men's experiences of living with hormone refractory prostate cancer (Lindqvist et al., 2006), men's adjustment to a variety of chronic illnesses (Lummerding, 2004), investigating the effectiveness of uncertainty management in men with chronic illness (Mishel et al., 2002), depression, men with HIV and psychosocial resources (Moskowitz & Wrubel, 2005), men's experiences of living with prostate cancer (Navon & Morag, 2003), men and fibromyalgia (Paulson et al., 2002) and antecedents of uncertainty management in men with chronic illness (Wallace, 2005). The research discussed in Table 2.1 was completed in Canada, USA, Sweden, Finland UK, and Israel. Eight studies used qualitative

methodology while four used quantitative methodology and one used a mix of quantitative and qualitative.

Many themes related to men's challenges and coping strategies with chronic illness are found in these studies. The themes of the challenges men faced included: (a) gender differences in how patients with NF1 respond (Ablon, 1996), (b) lack of goal-setting ability to increase health (Brown et al., 2007), (c) awakening to death (Charmaz, 1995), (d) disclosure issues (Ablon, 1996; Gannon et al., 2004; Lindqvist et al., 2006), (e) identity issues (Ablon, 1996; Charmaz, 1995; Gannon et al., 2004; Lummerding, 2004; Paulson et al., 2002), (f) uncertainty (Gannon et al., 2004; Mishel et al., 2002; Wallace, 2005), (g) social challenges, relationship challenges and stigma (Gannon et al., 2004; Kiviruusu et al., 2007; Lummerding, 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003), (h) depression and chronic illness (Kiviruusu et al., 2007), (i) difficulties coping and adjusting to the illness (Kiviruusu et al., 2007; Lindqvist et al., 2006), (j) loss of control (Kiviruusu et al., 2007; Lindqvist et al., 2006), (k) loss of physical ability (Lummerding, 2004), (l) bodily changes and obstruction (Paulson et al., 2002) and (m) managing the illness (Paulson et al., 2002).

The themes regarding men's coping strategies included: (a) accommodating and managing uncertainty (Charmaz, 1995; Mishel et al., 2002), (b) defining illness and disability (Charmaz, 1995), (c) preserving the self (Charmaz, 1995; Navon & Morag, 2003), (d) increasing their health habits (Gannon et al., 2004), (e) avoiding or hiding the illness (Gannon et al., 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003), (f) changing their way of thinking (Gannon et al., 2004; Lummerding, 2004; Navon & Morag, 2003), (g) gaining a new perspective (Gannon et al., 2004), (h) reconstructing their identity (Gannon et al., 2004; Lummerding, 2004; Moskowitz & Wrubel, 2005), (i) understanding the illness (Gannon et al., 2004) (j) emotion-

focused coping (Kiviruusu et al., 2007), (k) using spirituality (Krupski et al., 2006), (l) striving to live (Lindqvist et al., 2006; Navon & Morag, 2003; Paulson et al., 2002), (m) accepting the illness (Lummerding, 2004), (n) increasing resources and social support system (Lummerding, 2004), (o) gaining an illness-future or outward focus (Moskowitz & Wrubel, 2005), (p) gaining awareness of the illness (Moskowitz & Wrubel, 2005), (q) becoming detached (Moskowitz & Wrubel, 2005) and (r) avoiding events (Navon & Morag, 2003).

These studies had various strengths including: (a) detailed literature review (Ablon, 1996), (b) research based on a theoretical framework that was clearly described (Mishel et al., 2002; Wallace, 2005), (c) clear definitions of the terms to ensure clarity (Ablon, 1996), (d) clearly posed theoretical questions (Charmaz, 1995), (e) clear and detailed description of the method and analysis (Brown et al., 2007; Charmaz, 1995; Lindqvist et al., 2006; Lummerding, 2004; Mishel et al., 2002; Navon & Morag, 2003; Paulson et al., 2002), (f) differences controlled for or compared between participants (Kiviruusu et al., 2007; Krupski et al., 2006; Lummerding, 2004), (g) ability to generalize the results with large sample sizes (Kiviruusu et al., 2007; Krupski et al., 2006) and diverse participants (Brown et al., 2007; Krupski et al., 2006) with a wide range of illnesses (Kiviruusu et al., 2007) or a wide variety of demographics (Mishel et al., 2002), (h) strict inclusion criteria (Gannon et al., 2004), (i) use of more than one method of collecting data (Krupski et al., 2006), (j) use of charts, tables, diagrams, and/or quotes to clarify and supplement the data (Ablon, 1996; Brown et al., 2007; Charmaz, 1995; Gannon et al., 2004; Kiviruusu et al., 2007; Krupski et al., 2006; Lindqvist et al., 2006; Moskowitz & Wrubel, 2005; Navon & Morag, 2003; Paulson et al., 2002; Wallace, 2005), (k) use of structured data analysis methods such as double checking the transcripts (Gannon et al., 2004) and reading the interviews several times with an open mind (Paulson et al., 2002), (l) analyzed the data several times

(Lindqvist et al., 2006), (m) divided the interview into meaning units to provide structure (Paulson et al., 2002), (n) detailed descriptions of the results (Ablon, 1996; Brown et al., 2007; Charmaz et al., 1995; Kiviruusu et al., 2007; Lummerding et al., 2004; Mishel et al., 2002; Navon & Morag, 2003), (o) detailed discussion (Ablon, 1996; Kiviruusu et al., 2007; Mishel et al., 2002), (p) connected the hypothesis, results and conclusion to prior research (Krupski et al., 2006; Lummerding, 2004; Wallace, 2005), (q) integrated the themes, (r) and implications/limitations were discussed (Gannon et al., 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003).

These studies also had various limitations including: (a) no clear description of the method and analysis (Ablon, 1996; Gannon et al., 2004; Krupski et al., 2006; Moskowitz & Wrubel, 2005), (b) informal and non-empirical methods of data collection (Ablon, 1996), (c) descriptions of reliability and validity evidence not provided for all measures (Krupski et al., 2006), (d) inability to generalize data because of small sample sizes and homogeneous samples (Ablon, 1996; Brown et al., 2007; Gannon et al., 2004; Krupski et al., 2006; Lindqvist et al., 2006; Lummerding, 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003; Paulson et al., 2002; Wallace, 2005), (e) inability to reach saturation (Lummerding, 2004), (f) inability to control for certain variables (Krupski et al., 2006), (g) inability to reduce potential bias in sample (Paulson et al., 2002), and (h) difficulty gathering information from participants (Gannon et al., 2004; Lummerding, 2004).

The themes of the studies provide many implications regarding men and chronic illness. The first implication is that these studies build on the limited literature on men, health and illness but more studies are still needed in this area (Lummerding, 2004). There are many challenges that men with chronic illness face and they have developed many ways of coping with the illness

(Gannon et al., 2004; Lummerding, 2004; Navon & Morag, 2003). Although all men experience some challenges while living with chronic illness, some men were more troubled and felt more impact than others (Gannon et al., 2004).

Men used both short-term (Gannon et al., 2004; Kiviruusu et al., 2007; Lummerding, 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003; Paulson et al., 2002) and long-term strategies (Charmaz, 1995; Gannon et al., 2004; Krupski et al., 2006; Lummerding, 2004; Mishel et al., 2002; Moskowitz & Wrubel, 2005; Navon & Morag, 2003) for coping with chronic illness. The longer-term strategies were shown to be more effective (Brown et al., 2007; Gannon et al., 2004; Krupski et al., 2006; Mishel et al., 2002; Moskowitz & Wrubel, 2005). For example, the cognitive, emotion-focused and avoidance strategies (Gannon et al., 2004; Kiviruusu et al., 2007; Lummerding, 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003) were temporary solutions that helped men cope with the illness for a short while. However, these strategies did not help them to effectively deal with the challenges or to integrate their experiences. On the other hand, the striving to live, health, social support, preserving the self, new perspective and future or outward focus strategies (Gannon et al., 2004; Lummerding, 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003; Paulson et al., 2002) were long-term methods that addressed most of the challenges but did not deal with the psychological challenges.

Most of the studies focused on describing the men's challenges and coping strategies. However, two of the studies examined the effectiveness of using long-term coping strategies such as uncertainty management (Mishel et al., 2002) and spirituality (Krupski et al., 2006) that did address all of the challenges the men faced when living with chronic illness and found them to be very effective. These themes suggest that men may need more long-term strategies for effectively managing the many challenges they experience while living with chronic illness in

order to increase their well-being. As well, more studies are needed which examine the effectiveness of the long-term strategies. The next section describes ways of understanding and studying creativity as one possible long-term strategy that may help men manage the challenges of living with chronic illness.

2.3 Ways of Understanding Creativity

2.3.1 *Research in Creativity*

Research trends in the area of creativity did not significantly develop until after 1950 (Simonton, 2000) when J. P. Guilford (1950) gave an address to the American Psychological Association (APA), stating that creativity was an important area to investigate. After that, the study of creativity began to rise. Since then, many different ways of understanding and studying creativity have developed (Mumford, 2003).

As research in creativity increased dramatically, disagreements also emerged. The appropriate way to define and measure creativity has been debated for years (Ghoussoub & Gustafson, 1998). A comprehensive single definition of creativity has not been identified. This ambiguity has led to inconclusive contributions in many empirical studies (Ghoussoub & Gustafson, 1998). Therefore, the history of research trends in creativity will be briefly summarized in order to situate the conceptualization of creativity used in the present study.

2.3.1.1 Creative thinking. Creative cognitive processes were the first area of creativity research that emerged (Plucker & Renzulli, 1999). It was determined that while intelligence is associated with convergent thinking, creativity is characterized by divergent thinking (Plucker & Renzulli, 1999). Guilford (1950) was the first to present a practical way to study creative cognitive processes with the development of a divergent thinking test. Divergent thinking tests require a person to give many novel answers to specific questions (Plucker & Renzulli, 1999).

Since Guilford's invention, divergent thinking tests have become a popular measure of a person's creative potential. Many tests for divergent thinking have been developed over the years as a way to quantify creative thinking (Plucker & Renzulli, 1999).

Although these tests continue to be popular ways of measuring divergent thinking, further research has shown that creativity requires more than just divergent thinking (Plucker & Renzulli, 1999). Mumford (2003) stated that "for many years we lacked multiple alternative theoretical perspectives, progress was slow and halting" (p. 109). Smith (2005) agreed, stating that although divergent thinking is important for understanding creativity, it does not fully explain the concept of creativity. Therefore, tests of divergent thinking must be combined with other measures in order to assess creativity as a whole.

2.3.1.2 The creative person. Measurements and descriptions of the creative person was the next area of personal creativity to develop. The first attempt to examine the creative personality was based on the genetic correlates of creativity (Plucker & Renzulli, 1999). However, studies have not been able to confirm a link between creativity and genetics (Sawyer, 2006). More recently, studies of creative people have examined the characteristics that are common among highly creative people (Plucker & Renzulli, 1999). People with creative personalities are identified by matching their personality traits to the list of highly creative traits. Personality checklists, self-report forms and biographical inventories can be used to identify these characteristics in people (Plucker & Renzulli, 1999).

2.3.1.3 The creative environment and creative products. Two other areas of creativity research that developed focused on assessing external aspects of creativity. Evaluations of the creative environment aimed to identify environmental variables related to creative production (Plucker & Renzulli, 1999). Through this information, the goal was to develop environments

that would encourage creativity in schools and workplaces. Although a creative environment is important to help predict or develop people's creative abilities, it does not give an indication of a person's current level of personal creative activity (Plucker & Renzulli, 1999).

The second area of external creativity focuses on creative products. Creativity is based on ratings of people's products (Plucker & Renzulli, 1999). The most common method is to have external judges evaluate the creativity of items people produce. However, raters can also be teachers, parents, or experts (Plucker & Renzulli, 1999). This method is relatively rare and is fairly subjective because it is hard to judge what should be classified as creative (Plucker & Renzulli, 1999). This area of research also focuses on predicting or developing a person's creative ability, rather than looking at an individual's current level of personal creative activity.

2.3.2 Defining Creativity

Mumford (2003) suggested that researchers should combine theoretical perspectives on creativity. Different psychological theories account for different aspects of creativity. For example, the psychoanalysis literature on creativity discusses the motivational forces to become involved in creative activities (Gedo, 1997). On the other hand, the literature on personality psychology illustrates creativity in regards to the creative person and the types of personalities that creative people portray (Eysenck, 1997). Therefore, researchers should specify what aspect of creativity (e.g., creative thinking, creative personalities and creative products) is under study.

Assessment of creativity has often been restricted to areas traditionally thought of as creative (e.g., arts and sciences) or to achievements of social value (Richards, Kinney, Benet, & Merzel, 1988). Many definitions of creativity assume that the concept involves developing creative products or ideas that are novel, useful, appropriate, or have social value (Gruber & Wallace, 1999; Martindale, 1999; Nickerson, 1999). More recently, creative success has been

associated with personal areas rather than professional or public areas (Millar, 2001), and has been recognized as something that can be learned, used and identified in any type of role, activity, or work setting (Millar, 2001; Richards et al., 1988). Therefore, assessment of creativity does not need to be limited to items that are produced or actions that are recognized socially. People can benefit from being personally creative in their daily lives without developing a creative product or even being recognized for their creativity (Millar, 2001; Richards et al., 1988).

Personal creativity is the term used to denote creativity that does not involve external validation of creativity or making creative products (Richards et al., 1988). A personally creative individual is defined as someone who finds innovative solutions for day-to-day problems in his or her life (Collins, 2006).

2.4 Creativity and Well-Being

Over the last 30 years, an interest in the relationship between creativity and well-being has existed. In 1990, Cropley presented a meta-analysis of several small studies that examined the relationship between creativity and mental illness, creativity and positive mental health and the existence of everyday creativity. Cropley (1990) first discussed the limitations of studies that had found a relationship between creativity and mental illness. The studies on creativity and mental illness investigated creativity in the context of professional and aesthetic (practical/scientific/artistic/literary) production, in the context of people who are publically acclaimed for their unusual or rare creativity and only in the context of mental illness. Following the discussion of limitations in previous studies, Cropley (1990) reviewed studies that described “everyday creativity” as emerging from a person’s way of thinking, characteristics and motivation. Within these three components, “everyday creativity” has shown to be related to

positive psychological characteristics such as flexibility, openness, autonomy, humour, playfulness, willingness to try things, elaboration of ideas, and realistic self-assessment.

These characteristics are not a prerequisite to creativity emerging (Cropley, 1990). Instead, these same characteristics develop as a result of normal and healthy personality development and creativity can be fostered in people to encourage positive mental health growth. Cropley argues that a relationship exists between “everyday creativity” and the preservation of daily mental health. Everyday creativity can be accentuated in day-to-day life in order to foster a person’s positive psychological characteristics such as openness, flexibility and autonomy.

Other researchers have inquired further about the connection between creativity and well-being. Table 2.2 (Appendix B) provides a summary and critique of Cropley’s review as well as five other illustrative studies that were identified by searching the PsychInfo and Eric Ovid databases with the following search terms: creativity and well-being in May 2010. The study topics included pottery and mental health (Bent & Taylor, 2005), creativity and subjective well-being (Collins, 2006), everyday creativity, mental illness and positive mental health (Cropley, 1990), creativity and substance abuse (Kerr et al., 1991), creativity and lifetime achievements (Millar, 2001) and creativity and perceived stress levels (Nicol & Long, 1996). These studies supported Cropley’s (1990) findings and suggest that creativity can increase a person’s well-being and can help a person in day-to-day life (Bent & Taylor, 2005; Collins, 2006; Kerr et al., 1991; Millar, 2001; Nicol & Long, 1996). Four of the studies discussed in Table 2.2 were completed in the United States, one was completed in Canada and one was completed in Germany. Three of the studies used quantitative methodology, two used qualitative methodology and one was a meta-analysis of previous studies.

Many themes related to creativity and well-being are found in these studies. The themes of creativity and well-being included: (a) pottery can help patients with depression reconnect with themselves and seek more meaningful roles in their lives (Bent & Taylor, 2001), (b) lifetime personal creativity significantly predicts positive affect and vocational creativity and is a positive predictor of life satisfaction (Collins, 2006), (c) creativity and mental illness are not related (Cropley, 1990) (d) creativity and maladjustment are not related (Kerr et al., 1991), (e) creativity increases a person's mental health through fostering positive psychological characteristics and normal personality growth and creative problem solving of daily stress and future problems (Cropley, 1990; Millar, 2001), and (f) creative thinking was related to decreased stress levels in music hobbyists (Nicol & Long, 1996).

The themes of these studies provide many implications regarding creativity and well-being. The themes not only disproved the notion that creativity and maladjustment/mental illness are related, but the themes also show that everyday creativity is important to the development of positive psychological characteristics and normal personality growth throughout life (Bent & Taylor, 2005; Collins, 2006; Cropley, 1990; Kerr et al., 1991; Millar, 2001; Nicol & Long, 1996). Everyday creativity and flow play an important role in subjective well-being and leads to positive outcomes (Bent & Taylor, 2005; Collins, 2006; Cropley, 1990; Millar, 2001). For example, creative activities can help people reconnect to a period in their life when they felt creative, secure and loved (Bent & Taylor, 2005). As well, creative activities can help people to grow and break away from former roles in order to reconstruct their identity (Bent & Taylor, 2005). In addition, everyday creativity can foster positive mental health. Creative activities can also help to decrease stress levels, especially in those who use creativity as a hobby rather than as

a profession (Nicol & Long, 1996). Last of all, creative success comes more from personal areas of life than from public or professional areas of life (Millar, 2001).

These studies have various strengths including an in-depth and detailed understanding of the relationship between creativity and well-being (Bent & Taylor, 2005; Millar, 2001), use of standardized instruments with the reliability and validity provided (Collins, 2006; Nicol & Long, 1996), use of strict inclusion criteria (Collins, 2006), several studies reviewed (Cropley, 1990), in-depth, logical argument for everyday creativity and positive mental health connection (Cropley, 1990), described the method and analysis clearly (Kerr et al., 1991), provided table, charts or graphs to clarify and supplement the data (Kerr et al., 1991; Millar, 2001), gave descriptive results and implications (Collins, 2006; Millar, 2001), connected the themes with the hypothesis and prior research (Collins, 2006; Millar, 2001), discussed limitations of studies reviewed (Cropley, 1990) and discussed areas for future research (Collins, 2006).

These studies also have various limitations including no purpose stated and no introduction or conclusion discussed (Cropley, 1990), small sample size (Collins, 2006), lack of empirical data (Bent & Taylor, 2005), use of non-standardized measures (Kerr et al., 1991), limited in the ability to accurately capture the creativity construct (Nicol & Long, 1996), inability to control for potential bias (Collins, 2006), participant dropout and missing data (Collins, 2006), possible cohort effects (Collins, 2006), lack of control over extraneous variables (Nicol & Long, 1996) and no limitations discussed (Cropley, 1990).

Creativity and coping have been linked, both generally (Bent & Taylor, 2005; Collins, 2006; Cropley, 1990; Kerr, Shaffer, Chambers, Hallowell, 1991; Millar, 2001) and in the specific context of chronic illness (Cangelosi & Sorrell, 2008; Collie, Bottorf, & Long, 2006; Heiney & Darr-Hope, 1999; Nainis et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior,

2003a; Reynolds & Prior, 2003b). Creativity is a multi-faceted concept (Mumford, 2003; Ghossoub & Gustafson, 1998) that can be assessed using creative thinking, personality factors associated with a creative person, characteristics of the creative environment or a person's creative products (Plucker & Renzulli, 1999). A specific conceptualization of creativity must be described in order to measure a certain aspect of creativity. A growing body of studies (Bent & Taylor, 2005; Kerr et al., 1991; Millar, 2001; Collins, 2006) suggests that creativity provides many benefits associated with well-being. Thus, creativity may be one type of strategy men with chronic illness may be able to use to effectively manage the illness and increase their well-being.

2.5 Creativity and Chronic Illness

Table 2.3 (Appendix C) provides a summary and critique of eight studies that investigated creativity in the context of chronic illness and were identified by searching the PsychInfo, Eric Ovid, CINAHL and MedLine databases with the following search terms: creativity, chronic illness and coping in May 2010. The study topics included storytelling with adults who have chronic illness (Cangelosi & Sorrell, 2008), how women with cancer use art to meet their needs (Collie et al., 2006), an art program for cancer patients (Heiney & Darr-Hope, 1999), the effectiveness of an art therapy program for cancer patients (Nainis et al., 2006), the meaning of art for women with chronic illness (Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003b) and strategies women use to cope with MS (Reynolds & Prior, 2003a). Four of the studies discussed in Table 2.3 were completed in the United Kingdom, one was conducted in the USA and three did not specify the location. Seven of the studies used qualitative methodology, while one used quantitative methodology. Six of these eight studies investigated creativity in the context of only women with chronic illness.

The themes of the benefits for women with chronic illness included: (a) increased control (Reynolds, 2002; Reynolds & Prior, 2003b), (b) increased emotional expression (Collie et al., 2006; Nainis et al., 2006), (c) decreased uncertainty (Reynolds & Prior, 2003b), (d) stronger identity (Reynolds, 2002), (e) filled the void (Reynolds & Prior, 2003a), (f) increased positive outlook and view of themselves (Collie et al., 2006; Nainis et al., 2006; Reynolds, 2002; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b), (g) created new meaning in life (Reynolds & Prior, 2003a; Reynolds & Prior, 2003b), (h) distracted from the illness (Nainis et al., 2006; Reynolds & Prior, 2003b), (i) increased knowledge (Heiney & Darr-Hope, 1999), (j) increased self-esteem (Heiney & Darr-Hope, 1999), and (k) increased learning (Cangelosi & Sorrell, 2008).

The themes of the studies provide implications regarding creativity and chronic illness. These studies indicate that women with a variety of chronic illnesses have found many benefits in using various creative activities to help cope with the challenges and achieve an adequate quality of life (Cangelosi & Sorrell, 2008; Collie et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b). One of the studies suggested that a comparative study of men's strategies for coping with MS is needed (Reynolds & Prior, 2003a). Another study indicated that both men and women can benefit from combining traditional supports (chronic care) with creative processes such as the healing arts (Heiney & Darr-Hope, 1999). Art therapy has also shown to be effective in reducing a wide variety of symptoms that occur with chronic illness in men and women (Nainis et al., 2006). However, these last two studies were only conducted with cancer patients. Therefore, more studies are needed to look at the relationship between creativity and well-being in men with a variety of chronic illnesses.

These studies had various strengths including: (a) detailed literature review (Reynolds, 2003), (b) clear information on the need for creative educational strategies with seniors with chronic illness (Cangelosi & Sorrell, 2008), (c) clear description of the method and analysis (Collie et al., 2006; Nainis et al., 2006), (d) discussion of the instruments and reliability and validity evidence (Nainis et al., 2006), (e) large (Reynolds, 2002; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b) and adequate sample sizes (Collie et al., 2006; Nainis et al., 2006), (f) diverse participants (Reynolds, 2003), (g) ensured data was clear by planning questions to focus the interview (Reynolds, 2003), (h) verifying and member checking the themes (Collie et al., 2006), (i) obtaining two people to analyze the data (Reynolds et al., 2003b) and utilizing a second coder to validate themes (Reynolds, 2002), (j) detailed descriptions of the results (Nainis et al., 2006; Reynolds, 2002; Reynolds et al., 2003b), (k) comprehensive description of themes (Collie et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds et al., 2003a; Reynolds et al., 2003), (l) connected the themes to previous research (Collie et al., 2006; Reynolds, 2002; Reynolds et al., 2003; Reynolds et al., 2003a), (m) used quotes, charts, graphs and diagrams to supplement the data (Cangelosi & Sorrell, 2008; Collie et al., 2006; Heiney & Darr-Hope, 1999; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b), and (n) discussed areas for future research (Reynolds et al., 2003a).

These studies also had various limitations including: (a) unclear descriptions of the method and analysis (Cangelosi & Sorrell, 2008; Reynolds, 2002), (b) non-empirical study with no specific methodology (Cangelosi & Sorrell, 2008), (c) lack of control and random sampling for extraneous variables (Nainis et al., 2006), (d) homogeneous samples (Collie et al., 2006; Reynolds & Prior, 2003a, Reynolds & Prior, 2003b), (e) inability to generalize (Cangelosi &

Sorrell, 2008; Collie et al., 2006; Reynolds & Prior, 2003a, Reynolds & Prior, 2003b), and (f) the limitations were not discussed (Reynolds, 2003).

Creativity and coping have been linked in the specific context of chronic illness (Cangelosi & Sorrell, 2008; Collie, Bottorf, & Long, 2006; Heiney & Darr-Hope, 1999; Nainis et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b). This growing body of studies (Bent & Taylor, 2005; Kerr et al., 1991; Millar, 2001; Collins, 2006) suggests that creativity provides many benefits associated with well-being. More specifically, various studies have implicated creativity in providing many benefits for women with a variety of chronic illnesses. A link has also begun to be established between creativity and men with chronic illness in two studies (Heiney & Darr-Hope, 1999; Nainis et al., 2006). Therefore, the connection between these studies suggests that creativity may also be of benefit to men with chronic illness and more studies are needed that investigate the relationship between creativity and well-being in men with a variety of chronic illnesses.

2.6 Summary

The many ways of understanding and studying creativity suggest that creativity is a multi-dimensional construct that should be assessed using multiple theoretical perspectives and with the aspects of creativity that are being measured explicitly stated (Mumford, 2003; Smith, 2005). Creativity assessment in the past has been restricted to external evaluation of traditional areas of creativity to predict or develop people's creative abilities (Richards et al., 1988). Current research shows that creativity, especially "everyday" creativity, may help increase people's well-being in many ways (Bent & Taylor, 2005; Collins, 2006; Cropley, 1990; Kerr et al., 1991; Millar, 2001; Richards et al., 1988). Therefore, personal creative activity may also benefit men and help them to cope with chronic illness.

The studies in Table 2.3 indicate that women with a variety of chronic illnesses have found many benefits in using various creative activities to help cope with the challenges and achieve an adequate quality of life (Cangelosi & Sorrell, 2008; Collie et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b). Two of the studies found that art therapy can help both men and women with cancer to cope (Heiney & Darr-Hope, 1999; Nainis et al., 2006). However, studies of creativity and the well-being of men with chronic illnesses are scarce. Therefore, more studies are needed to look at the relationship between creativity and well-being in men with a variety of chronic illnesses. Based on the idea that creativity more often emerges from personal areas and may be of benefit to men with chronic illness, the current study focused on assessing men's level of personal creative activity with the use of multiple measures.

2.7 Limitations of the Reviewed Literature

One of the major limitations of the literature on chronic illness is that most of the studies are qualitative. Men and women's challenges and coping are described but the relationship between the methods of coping and the person's well-being (or perceived level of stress) has not received as much attention. Only six of the studies reviewed investigated the relationship between coping and participant's well-being (Collins, 2006; Kiviruusu et al., 2007; Krupski et al., 2006, Millar, 2001; Mishel et al., 2002; Nicol & Long, 1996). Qualitative information provides in-depth information from a smaller number of people with more focused questions while quantitative information provides more general information from a larger number of people from standardized measures. Qualitative research also tends to be conducted face-to-face with participants whereas quantitative research can be conducted in ways that are more anonymous (e.g., online) and may allow the participants to feel more comfortable in sharing

information. Given the preponderance of in-depth, face-to-face qualitative information that has been gathered, it would extend the literature to use larger participant samples with standardized measures. More quantitative studies are needed to add to and support the qualitative results and to look at the relationship between methods of coping and well-being.

Another major limitation of the literature is that many of the results are not generalizable to the general population. Many of the studies reviewed were unable to generalize the results to the wider population for various reasons (Ablon, 1996; Brown et al., 2007; Cangelosi & Sorrell, 2008; Collie et al., 2006; Gannon et al., 2004; Krupski et al., 2006; Lindqvist et al., 2006; Lummerding, 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003; Paulson et al., 2002; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b; Reynolds, 2003; Wallace, 2005). For example, almost all of the studies reviewed conducted the research with a restricted sample of people who had a similar chronic illness (Heiney & Darr-Hope, 1999; Nainis et al., 2006) or ethnicity/geographical location/socioeconomic status (Ablon, 1996; Brown et al., 2007; Gannon et al., 2004; Krupski et al., 2006; Lindqvist et al., 2006; Lummerding, 2004; Moskowitz & Wrubel, 2005; Navon & Morag, 2003; Paulson et al., 2002; Wallace, 2005). Almost all of the studies used specific types of creativity or creative groups (Cangelosi & Sorrell, 2008; Collie et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior 2003a; Reynolds and Prior, 2003b; and only three studies used Canadian samples (Eaton & Struthers, 2002; Lummerding, 2004; Nicol & Long, 1996). Thus, a study that focuses on a wider range of participants with varying illnesses and a broader range of creative assessments is needed. This may allow the results to be generalized to other populations.

Last, the literature on creativity in the context of chronic illness with men is limited. Two studies investigated men with cancer and their experience of art therapy. However, one (Heiney

& Darr-Hope, 1999) was a description of the participants in a program and was not an empirical study. The other study (Nainis et al., 2006) provides preliminary evidence for the effectiveness of art therapy in decreasing many symptoms of cancer in a diverse sample of men. Other studies that looked at creativity in the context of any other type of chronic illness with men were not found during the database search. One study of women's experiences (Reynolds & Prior, 2003a) suggested that a comparative study of men's strategies for coping with MS is needed. Therefore, more studies of men and creativity in the context of a variety of chronic illnesses are required.

2.8 Internet Research

The internet has become more and more common in daily use for many people as a way of communicating with others (Strickland et al., 2003), and unsurprisingly, become a means for conducting research. The information from Table 2.1 suggests that men have difficulties discussing the challenges of living with chronic illness (Ablon, 1996; Gannon et al., 2004; Lindqvist et al., 2006). With the difficulty men have in describing their experiences (Ablon, 1996; Gannon et al., 2004; Lindqvist et al., 2006), using an online survey to gather data on men's experiences seems promising. While there are many benefits to using the internet for research, there are also limitations. The benefits, limitations and solutions to the limitations when using the internet for research are discussed in this next section.

Table 2.4 (Appendix D) provides a summary and critique of 10 illustrative studies that investigated the benefits, limitations and solutions to using the internet for research. The studies were identified by searching the PsychInfo and Eric Ovid databases with the following search terms: internet based research and online research in May 2010. The study topics include: recommendations regarding internet research (Burgess et al., 2001; Kaye & Johnson, 1999), the use of internet research to study hidden populations (Burgess et al., 2001), evaluation of online

data collection method (Cantrell & Lupinacci, 2007; Strickland et al., 2003), comparisons of online data collection to paper-and-pencil surveys (Eaton & Struthers, 2002; Hamborg et al., 2004; Hanscom et al., 2002; Joinson, 1999) and review of advantages and disadvantages of online research (Schleyer & Forrest, 2000). Most of the research discussed in Table 2.4 was completed in the United States (six studies) with other studies completed in Canada, Germany and Wales. Seven studies used quantitative methodology while one used a mixed methodology of quantitative and qualitative and one was a review of past studies.

Identified benefits included: (a) ability to reach a large and diverse populations (Burgess et al., 2001; Kaye & Johnson, 1999), (b) increased anonymity (Cantrell & Lupinacci, 2007; Joinson, 1999) and confidentiality, (Cantrell & Lupinacci, 2007) (c) excellent data quality (Eaton & Struthers, 2002; Hanscom et al., 2002; Joinson, 1999), (d) voluntary participants (Eaton & Struthers, 2002), (e) equivalency of paper and online survey (Hamborg et al., 2004), (f) accurate and efficient data entry and analysis (Hanscom et al., 2002) and (g) time and cost effectiveness (Schleyer & Forrest, 2000).

Limitations included: (a) lack of informed consent (Burgess et al., 2001), (b) maintenance of anonymity and confidentiality (Burgess et al., 2001), (c) selection bias (Cantrell & Lupinacci, 2007), (d) low response rates (Cantrell & Lupinacci, 2007), (e) lack of control (Eaton & Struthers, 2003), (f) decreased truthfulness (Joinson, 1999), (g) increased time collecting data (Kaye & Johnson, 1999), (h) technical difficulties (Schleyer & Forrest, 2000) and (i) lack of rigor (Strickland et al., 2003).

Suggested solutions used in the present study included: (a) purposive sampling (Burgess et al., 2001; Joinson, 1999; Kaye & Johnson, 1999), (b) multiple methods of contact (Burgess et al., 2001; Kaye & Johnson, 1999), (c) ensuring participants fully aware of benefits, risks and

ways data will be used (Burgess et al., 2001), (d) informing participants about measures taken to ensure anonymity and confidentiality (Burgess et al., 2001), (e) measures to increase control such as sending a message to the online group leader first (Burgess et al., 2001; Cantrell & Lupinacci, 2007), (f) design that is suited for online use to increase control such as use of a simplistic survey design with Likert scales for ease of online adaptation (Strickland et al., 2003) and (g) pilot testing and incorporating suggestions from feedback (Strickland et al., 2003).

The themes of these studies provide many implications for the use of the internet for conducting research. Although there are many benefits to conducting research online, researchers must be aware of the unique issues regarding online studies in order to overcome the challenges (Kaye & Johnson, 1999). Online studies require careful thought and planning about advertising and data collection to increase the advantages and decrease the disadvantages as well as ensure high quality data is gathered (Cantrell & Lupinacci, 2007). The limitations and solutions listed above must be considered before conducting online research (Burgess et al., 2001). When used with caution, the internet can be an effective method of completing research (Eaton & Struthers, 2002) that improves data quality and accuracy (Hanscom et al., 2002) as well as completion rates (Schleyer & Forrest, 2000). As well, online data collection show equal evidence of acceptable reliability compared to paper and pencil surveys (Hamborg et al., 2004) and may enhance instrument validity evidence (Hamborg et al., 2004; Hanscom et al., 2002). However, only measures with strong evidence of reliability should be used to ensure that the measures will still show evidence of reliability even with potential loss of reliability when adapted to an online format (Strickland et al., 2003). As well, only measures with simple designs should be used to ensure that it is not difficult for participants to complete the survey accurately (Strickland et al., 2003).

The studies have various strengths including: (a) clearly discussed benefits, limitations and solutions to internet research (Burgess et al., 2001), (b) suggestions of past studies followed (Cantrell & Lupinacci, 2007), (c) large and diverse samples (Burgess et al., 2001; Kaye & Johnson, 1999), (d) participants well suited to online format (Burgess et al., 2001), (e) used pilot testing (Cantrell & Lupinacci, 2007), (f) screened participants with demographic information (Strickland et al., 2003), (g) compared two samples on demographics, psychometrics of the measures and response patterns to ensure they were similar (Eaton & Struthers, 2002), (h) detailed descriptions of measures used (Eaton & Struthers, 2003), (i) detailed data analysis description (Hamborg et al., 2004), (j) used charts to supplement data (Hamborg et al., 2004), (k) maintained similar format of surveys by printing out online survey (Joinson, 1999), (l) utilized random selection (Joinson, 1999), (m) detailed description of survey development and survey/internet issues (Kaye & Johnson, 1999; Strickland et al., 2003), (n) blended controlled mail survey with web-based data collection (Schleyer & Forrest, 2000), (o) provided more than one completion option (email/fax) (Schleyer & Forrest, 2000), (p) high response rate (Schleyer & Forrest, 2000), (q) and suggestions for future online studies provided (Kaye & Johnson, 1999; Strickland et al., 2003).

These studies have various limitations including: (a) lack of comparable populations and variables were not measured uniformly (Burgess et al., 2001), (b) non-diverse sample (Joinson, 1999), (c) unable to use random sampling (Burgess et al., 2001; Schleyer & Forrest, 2000) or recruit representative sample (Burgess et al., 2001), (d) no standardized questionnaires used (Burgess et al., 2001), (e) only pilot tested survey with healthy controls (Cantrell & Lupinacci, 2007), (f) low response rate (Cantrell & Lupinacci, 2007), (g) increased missing data (Cantrell & Lupinacci, 2007), (h) significant amount of data cleaning needed (Cantrell & Lupinacci, 2007),

(i) lacked control over the test setting (Eaton & Struthers, 2002), (j) participants self-selected (Eaton & Struthers, 2002) and results cannot be generalized (Eaton & Struthers, 2002), (k) method for the study was not described (Eaton & Struthers, 2002), (l) no limitations discussed (Hamborg et al., 2004; Strickland et al., 2003), (m) possible confounders in study (Burgess et al., 2001; Hanscom et al., 2002; Joinson, 1999), (n) strategies for increasing response rates not used (Hanscom et al., 2002), (o) unable to calculate response rate (Kaye & Johnson, 1999), and (p) technical and usability problems/programming errors (Schleyer & Forrest, 2000).

In sum, although there are limitations to using the internet for research, there are also many benefits. The benefits of using the internet outweigh the limitations when the researcher is careful in the planning and takes the possible limitations into consideration during the planning (Strickland et al., 2003). Planning was undertaken in the present study to the best of the researcher's ability.

2.9 Key Conclusions

There is a clearly established literature that identifies the challenges associated with chronic illness (e.g., Amir & Ramati, 2002; Bailey et al., 2009; Chapple et al., 2004; Grytten & Maseide, 2005; Holley, 2007; Statistics Canada 2003; Stone et al., 2000a; Thomas et al., 2003). A small number of studies have explored the value of creativity to help cope with these challenges (Cangelosi & Sorrell, 2008; Collie et al., 2006; Heiney & Darr-Hope, 1999; Nainis et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b). The literature directs researchers to the need for more quantitative studies of men living with a variety of chronic illnesses (e.g., Collins, 2006; Kerr et al., 1991; Kiviruusu et al., 2007; Krupski et al., 2006; Millar, 2001; Mishel et al., 2002; Nicol & Long, 1996). Qualitative studies have described men's experiences with specific chronic illnesses, and the literature on creativity and

chronic illnesses has focused on female samples (Cangelosi & Sorrell, 2008; Collie et al., 2006; Heiney & Darr-Hope, 1999; Nainis et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b). Quantitative research is now needed to examine the relationship between creativity and coping in men with a variety of chronic illnesses, as well as, studies of men and creativity use a specific conceptualization of creativity and multiple measures. Furthermore, using the internet for research, which is comparable to using traditional paper-and-pencil methods of gathering information, may offer a more effective way to collect data from men who feel less comfortable sharing information via face-to-face (Burgess et al., 2001; Cantrell & Lupinacci, 2007; Eaton & Struthers, 2002; Hamborg et al., 2004; Hanscom et al., 2002; Joinson, 1999; Kaye & Johnson, 1999; Schleyer & Forrest, 2000; Strickland et al., 2003).

The present study conducted a preliminary multiple regression exploration using an online survey to investigate whether men's level of personal creative activity is related to their perceived level of stress while living with a chronic illness. It was expected that personal creative activity levels would be negatively correlated to perceived stress levels in males with various chronic illnesses. That is, the higher men's involvement in personal creative activities, the lower their perceived stress would be.

CHAPTER 3: METHODOLOGY

This chapter describes the methodology that was utilized for the current study. First, information on ethical considerations, participants, procedures and materials is presented. Then the criterion variable and predictor variable measures are identified and reviewed. The chapter concludes with a description of the steps for data analysis.

3.1 Ethical Considerations

The Behavioral Research Ethics Board at the University of Saskatchewan reviewed and provided ethics approval for this study (Appendix E). No risk or deception was involved or required, as participants were fully informed about how the data collected was to be used. Confidentiality and anonymity were rigorously protected and participants were free to withdraw at any time without penalty.

3.2 Participants

In total, 173 participants were recruited. Participants recruited for this study were required to be males who were 18 years and older. The participants must have been diagnosed with a chronic illness for at least two years prior to the study. As shown in a study by Moskowitz and Wrubel (2005), two years post-diagnosis provides the participants some time to fully experience living with the illness and to have made some adjustments in their lives. It was found in a two year study that most participants changed from using coping strategies such as avoiding the illness or feeling detached or stigmatized to feeling less stressed by using an outward focus strategy (Moskowitz & Wrubel, 2005). Socio-demographic and illness-related information was used to screen the participants to ensure they met this criteria as well as to describe the sample and by extension, the population that the results could be generalized to. Demographic data were also analyzed in evaluating the research hypotheses.

3.2.1 Socio-Demographic and Illness-related Information

Socio-demographic information included age, race, language, education completed, employment status, relationship status, living arrangements and household income. Additional questions asked for general information about the men's chronic illness including diagnosed illness, time since diagnosis, current health status, symptoms experienced and the impact of the symptoms.

3.3 Procedures

3.3.1 Recruitment

Participants were recruited online through several different chronic illness organizations across Canada. A list of organizations was generated based on researching Public Health Agency of Canada (2004) for the top six chronic illnesses in men and searching for online groups related to these illnesses via Google, an internet search engine. The top six chronic illnesses in men according to the Public Health Agency of Canada (2004) are cardiovascular illness, arthritis, diabetes, cancer, bronchitis and asthma. The primary recruitment process was via emails to the leaders of chronic illness organizations across Canada. An email was sent asking if the leaders would be willing to send a message to their members regarding this study (Appendix F). The email included an attached letter with the introduction to the research, the researchers' contact information and a direct link to the study (Appendix G). The leaders were asked to pass on the message to the members of the agency, either through email, by posting on their website or by putting up a poster (Appendix H).

After a small selection of willing organizations sent out information, only thirty potential participants responded. Therefore, the recruitment process eventually expanded to include all types of chronic illness from many organizations across Canada in order to recruit a large enough

sample. Even with contacting all these organizations the response rates were still low, with only 60 participants recruited. A snowball sampling procedure was used, in which participants who have already agreed to be part of the research are asked to pass on recruitment information to help find other participants, and these people would continue this process (Ray, 2003). Chronic illness organizations and the current survey participants were asked to forward the survey on to all of their contacts to increase the number of surveys completed (Appendix I). All the organizations that had previously been contacted were sent an email requesting them to pass on an email with a description of the research and survey link to be passed on to all their contacts. This method was used until 95 more participants responded and enough data was collected until a sufficient number of participants were recruited. A sufficient number was determined to be at least the recommended minimum number of participants per predictor variable (five participants) or 104 participants plus the number of potential predictor variables (26) to test individual predictors (Tabachnick & Fidell, 2007). The 173 participants recruited were sufficient as the recommended minimum level and as the recommended number in order to test individual predictors.

3.4 The Survey

The data for this study were collected through the use of an online, self-report survey, accessed with an online link. The online survey was created through the University of Saskatchewan (U of S) survey methodology.

3.4.1 *Development of the Survey*

Two pilot tests were completed in developing the online survey. For each pilot test session, six healthy pilot participants who were male and female completed the survey. They noted how long it took to complete and identified difficulties encountered in accessing or

completing the survey. The pilot participants were also asked if they had suggestions to improve the ease of completing the survey.

The first pilot test indicated that the divergent thinking measure was difficult to access, that the creative achievement measure seemed narrow in what types of activities were considered creative and some of the questions from the flow measure were difficult to understand. Based on this feedback, the divergent thinking test was removed and replaced with a measure of everyday creativity in order to focus on the concept of “personal creative activity”, which does not involve external validation of creativity and can occur across many types of activities and with varying degrees of expertise (Collins, 2006; Richards et al., 1988). The flow measure was also modified to retain only three items. The concept of flow experience was still of interest in the current study as another facet of personal creativity because personally creative people may experience a superior form of flow (Csikszentmihalyi, 1996). In order to facilitate the participants' understanding of the flow questions, only three questions from the flow questionnaire that seemed to be straightforward and easy to understand were kept in the survey for exploratory purposes, rather than to be included in the analysis. The questions were chosen in order to obtain the following information from the participants: whether or not the participants have experienced flow, how often they have experienced flow, and the types of activities in which they experience flow.

The second pilot test indicated that the questions were clear and there were no difficulties with any of the measures. Therefore, no major modifications were made to the survey after the second pilot test. In both pilot tests, the average time to complete the survey varied among the participants ranging from 15-30 minutes.

3.4.2 Survey Elements

The first page of the survey was a consent form for the participants to read (Appendix J – Page 160). They were required to click a button at the bottom of the consent form to accept the invitation to participate in order to continue on with the survey. Once the consent form was completed, the first page of the survey appeared for the participants to complete. The survey consisted of five existing paper-and-pencil questionnaires of perceived stress (*Perceived Stress Scale*, Cohen et al., 1983), social desirability (*Marlowe-Crowne Social Desirability Scale 1 (10)*, Crowne & Marlowe, 1960) and four measures of personal creative activity (*The Creative Achievement Questionnaire*, Carson et al., 2005; *Flow Questionnaire*, Collins, 2006; *The Everyday Creativity Questionnaire*, Ivcevic & Mayer, 2009; *The Creative Behaviour Inventory*, Hocevar, 1979) as well as standard socio-demographic questions, illness-related questions and select questions from a *Flow Questionnaire* (Collins, 2006). All of the questions were adapted from paper format to be used for online delivery. At the bottom of each page, there was a previous and next button for the participants to navigate through the survey. A submit button appeared for participants to send the survey to the researcher after they completed the survey. After completing the survey, the last page with a note to participants appeared, thanking them for contributing to chronic illness research through this project.

3.5 The Measures

3.5.1 Self-Enhancing Bias

Social desirability was measured using the *Marlowe-Crowne Social Desirability Scale 1 (10)*, which contains 10 true or false items from the original MCSD (Appendix M – Page 165). The original *Marlowe-Crowne Social Desirability Scale* (MCSD), developed by Crowne and Marlowe in 1960, contains 33 true or false items and is a widely utilized measure (Strahan &

Gerbas, 1972). Using a sample of 500 university students in two introductory psychology courses, Strahan and Gerbas (1972) conducted a principal components analysis on the MCSD in order to select items for the three short forms. Strahan and Gerbas (1972) investigated the reliability of the original MCSD and the three short forms using four samples from the 500 university students: 64 University Males, 34 University Females, 130 College Females and 44 British Males. The results indicated reliability coefficients for the original MCSD of the four samples as: .83 (University Males), .87 (University Females), .73 (College Females) and .78 (British Males) (Strahan & Gerbas, 1972), which demonstrate evidence of respectable and very good reliability (DeVellis, 1991). The results also indicated reliability coefficients for the MCSD 1 (10) of the four samples as: .70 (University Males), .66 (University Females), .61 (College Females) and .59 (British Males) (Strahan & Gerbas, 1972). The reliability coefficients of .59 and .61 are unacceptable and undesirable but the reliability coefficients of .66 and .70 are minimally acceptable and respectable (DeVellis, 1991). The correlation between the short scales and the MCSD were in the .80s or .90s (Strahan & Gerbas, 1972), indicating that the shorter versions have very good consistency with the original MCSD (DeVellis, 1991).

3.5.2 Predictor Variables

Several instruments were selected as predictor variables in order to examine personal creative activity. These included: *The Creative Achievement Questionnaire* (Carson et al., 2005), *Flow Questionnaire* (Collins, 2006), *The Everyday Creativity Questionnaire* (Ivcevic & Mayer, 2009) and *The Creative Behaviour Inventory* (Hocevar, 1979).

3.5.2.1 Creative Achievement Questionnaire (Carson et al., 2005). Creative achievement was measured using the *Creative Achievement Questionnaire (CAQ)* created by Shelley Carson et al. (2005) (Appendix O – Page 167). The CAQ contains 96 items that measure ten areas of creative

achievement on different levels of public approval including: visual arts (e.g., I have taken lessons in this area.), music (e.g., I play one or more musical instruments proficiently.), dance (e.g., I have danced with a recognized dance company.), architectural design (e.g., I have designed an original structure.), creative writing (e.g., I have written an original short work.), humour (e.g., People have often commented on my original sense of humor.), inventions (e.g., I regularly find novel uses for household objects.), scientific discovery (e.g., I often think about ways that scientific problems could be solved.), theater and film (e.g., I have performed in theater or film.) and culinary arts (e.g., I often experiment with recipes.). Items in each creative achievement area were assigned ascending weights, with the lowest weight (0) assigned to the item “I have no training or recognized talent in this area” and with the highest weight (7) assigned to the item “I have won a national prize in this area”. The items of each area are summed to provide a total score for each creative achievement area (Carson et al., 2005). As well, a total creative achievement score is provided by adding the total scores from all of the creative achievement areas together. Higher scores indicate higher creative achievement.

Carson et al. (2005) investigated the reliability and validity of the CAQ using 117 undergraduate students (66 males and 51 females) enrolled in a Theories of Personality psychology course at Harvard College. The results indicate an internal consistency of .96 for the Total CAQ (Carson et al., 2005), which shows evidence of very good reliability but is almost too high and consideration should be taken in shortening the scale (DeVellis, 1991). Despite this high correlation for the overall CAQ, the internal consistency of the subscales ranges from .77 to .87 (Carson et al., 2005), which indicates evidence of respectable and very good internal consistency (DeVellis, 1991). Discriminant validity was evaluated by comparing the CAQ score to the MCSD and Wechsler Adult Intelligence Scale-Revised (WAIS-R) scores. The CAQ

shows evidence of discriminant validity and that it measures a construct separate from self-enhancement and intelligence as shown by the weak correlations (DeVellis, 1991) with the MCSD and WAIS-R ($r = -.05$ & $.14$) (Carson et al., 2005).

3.5.2.2 Flow Questionnaire (Collins, 2006). The experience of flow was measured using three items selected from the *Flow Questionnaire* (Collins, 2006) for use in the current study (Appendix P – Page 178). Participants were asked to read two quotes. One quote states, "I am so involved in what I am doing. I don't see myself as separate from what I am doing". The other quote states, "My mind isn't wandering. I am not thinking of something else. I am totally involved in what I am doing...I don't seem to hearing anything...I am less aware of myself and my problems". Participants were then asked these survey questions: "Can you recall a similar experience of your own?", "If yes, could you give examples of the kinds of activities you do that give you this kind of experience?" and "Approximately how many times did you have a similar experience in the last month?" (Collins, 2006). The response categories for the first question was "no" (0) and "yes" (1). The second question gave the participants the opportunity to type in their answers into a text box, rather than pick from a preselected list. The response categories for the third question was "0-10 times in the last month" (0), "10-20 times in the last month" (1), "20-30 times in the last month" (2), "40-60 times in the last month" (3), "60 times +" (4) (Collins, 2006).

Only three items were chosen from the measure because feedback from the pilot test demonstrated that some of the flow questions from the *Flow Questionnaire* were difficult to understand. However, the concept of flow experiences was still of interest in the current study as another facet of personal creativity because personally creative people may experience a superior form of flow (Csikszentmihalyi, 1996). The three questions from the *Flow Questionnaire* that

appeared to be straightforward and easy to understand were kept in the survey for exploratory purposes. The questions were chosen in order to obtain the following information from the participants: whether or not the participants have experienced flow, how often they have experienced flow, and the types of activities in which they experience flow.

These response selections were modified from the original measure to ensure consistency between all the measures. The response selections were modified to ask the participants to provide information based on a one month time to match the time frame of the response selections of the standardized PSS. As well, the wording of the questions was changed to ensure that participants understood what was being asked. For example, instead of asking how many times they had experienced flow, the participants were asked simply if they had experienced flow, with a response selection of "Yes" or "No". The flow questions were changed because the flow questions selected are not standardized and the PSS is standardized. With the changes to the response selections, the level of differentiation between each response (more differentiation on the lower end, rather than on the top end) was created to reflect responses collected in the pilot testing. For example, the pilot test indicated that more people selected the lower end of flow frequency, and few selected the higher end of frequency. Thus, the response selections with a one month time frame were created using the same differentiation between the lower and higher response options. One limitation of this study is that because only three items were selected and modified from the original questionnaire, reliability and validity evidence is not available.

3.5.2.3 Everyday Creativity Questionnaire (Ivcevic & Mayer, 2009). Everyday creativity was measured by the Everyday Creativity Questionnaire (ECQ) (Appendix Q – Page 179) created by Ivcevic and Mayer (2009). This measure assesses everyday creativity defined as

unique and proper expressions of creativity in regular life situations and communication (Ivcevic & Mayer, 2009). It measures a person's actual behaviour, rather than a person's preferences or behaviour tendencies (Ivcevic & Mayer, 2009) as is the approach used with the CBI (Hocevar, 1979). The ECQ contains 85 items that assesses five types of everyday creativity including crafts (e.g., How many times in the last year have you taken pictures?), self-expressive creativity (e.g., How many times in the last two weeks have you altered or painted a piece of clothing?), interpersonal creativity (e.g., How many times in the last two weeks have you conversed with a stranger?), cultural refinement (e.g., How many foreign movies have you ever seen?) and sophisticated media use (e.g., How many movies (at a theatre) have you gone to in the last month?) (Ivcevic & Mayer, 2009). Each item is rated on a five point scale from 1 – 5 with response selections of never, rarely, sometimes, often and very often. All the items of each scale are summed to provide a total score for each area of everyday creativity and all of the total scores for each scale are summed to provide a total everyday creativity score (Ivcevic & Mayer, 2009).

A limitation of using the ECQ is that it is a relatively new measure and therefore, little reliability and validity evidence is available. Despite the lack of psychometric information, this measure was used for exploratory purposes to examine a broader concept of personal creative activity that focuses on real-life creative activities and avoids the pitfalls of artificial measurement designed to “elicit” creative behaviour (Hocevar, 1981). As well, the ECQ scores can then be compared against the scores on the measures of personal creative activity that have a narrower focus (creative achievement and creative behaviour).

Ivcevic and Mayer (2009) investigated the reliability and validity of the ECQ using 416 students (115 males and 300 females) enrolled in lower level psychology courses at the University of New Hampshire. The results indicate a range of internal consistency from .68 to

.88 for the five scales of the ECQ (Ivcevic & Mayer, 2009), which shows evidence of reliability that is minimally acceptable to very good (DeVellis, 1991). Two of the ECQ subscales were minimally acceptable but very close to a respectable level (DeVellis, 1991) with the correlation coefficient of Self-Expression at .68 and Media at .69 (Carson et al., 2005). The other subthree scales showed very good reliability (DeVellis, 1991) with Crafts at .88, Cultural Refinement at .83 and Interpersonal at .81 (Carson et al., 2005). Convergent and discriminant validity were assessed by comparing an artistic creativity measure with the everyday creativity measure. The results indicated convergent validity of .61 and discriminate validity of .52 (Ivcevic & Mayer, 2009). Although the ECQ shows evidence of low convergent validity (DeVellis, 1991), it shows some support for the similarity between everyday creativity and artistic creativity without being high enough to consider the measures overlapping. The evidence of discriminate validity of .52 is in the unacceptable range, indicating that everyday creativity could be distinguished from artistic creativity (DeVellis, 1991).

Some modifications of this measure were made for two reasons. The first reason for modifications is that this measure was developed specifically for college students and contains some items that are not relevant to the population of interest in this study (adult, non-students). The second reason for modifications was that the inconsistent response format with varying scales did not seem viable as a way to measure the relationship between everyday creativity and perceived stress. With permission from the author, the varied scale formats and response options were modified to create a uniform scale of the same response options and same scoring for every question. This provided a more consistent way to evaluate the participant scores and assess the reliability and validity of the measure for this study.

3.5.2.4 Creative Behaviour Inventory (Hocevar, 1979). Creative behaviour was measure by the Creative Behaviour Inventory (CBI) developed by Hocevar (1979). This measure defines creative behaviour as activities and achievements that require a certain level of expertise that society acknowledges as being creative (Hocevar, 1979). The CBI consists of 90 items (Appendix R – Page 186) that measures seven areas of creative activities and accomplishments including: literature (e.g., Worked as an editor for a newspaper or similar organization), music (e.g., Gave a recital), craft (e.g., Made candles), fine arts (e.g., Made cartoons), math-science (e.g., Had a scientific paper published), performing arts (e.g., Received an award for acting) and nonscalable (e.g., Entered a speech contest) (Hocevar, 1979). For each creative behaviour, respondents are asked to circle the answer that best describes the frequency of the behaviour in their adolescent and adult life (Hocevar, 1979). The items are scored on a 4-point Likert scale ranging from 0 (never) to 3 (more than 5 times). Scores on the CBI can be calculated for each creative area by adding up all the items in that area (Hocevar, 1979). A total creative behaviour score is created by adding all six area totals together. Higher scores indicate higher creative behaviour.

The reliability of the CBI was evaluated using 239 (129 females, 110 males), 99 students were from an introductory psychology course and 140 students were from two educational psychology courses (Hocevar, 1979). The CBI shows an internal consistency ranging from .74 - .84 for all of the scales except for the math-science subscale that showed an internal consistency of .63 (Hocevar, 1979). Overall, the CBI demonstrates evidence of respectable and very good internal consistency for all scales except the math-science subscale shows evidence of an undesirable level of internal consistency (DeVellis, 1991).

3.5.3 Criterion Variable

3.5.3.1 Perceived Stress Scale (Cohen et al., 1983). Perceived stress was measured by the *Perceived Stress Scale (PSS)* developed by Cohen et al. (1983). The PSS is designed to assess the extent to which people see situations in their lives as stressful and the extent to which people are experiencing stress currently (Cohen et al., 1983; Cohen & Williamson, 1988). The original PSS contained 14 items but two shorter versions have been created and validated. The PSS 10, which consists of 10 items (Appendix N – Page 166), was used in the current study (Cohen & Williamson, 1988). The questions in the PSS ask about people's feelings and their thoughts about situations in their life during the last month (Cohen & Williamson, 1988). For each question, participants are asked how often they felt a certain way on a five point Likert scale ranging from 0 (never) to 4 (very often). Scores on the PSS are acquired by adding the scores of the six negative items (items 1, 2, 3, 6, 9, & 10) with the value given for the response (ranging from 0 for never to 4 for very often) and inverting and adding the scores (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) on the four positive items (items 4, 5, 7, & 8) (Cohen et al., 1983; Cohen & Williamson, 1988). The final score is derived from adding all ten scale items together. Higher scores indicate higher perceived stress levels.

The reliability and validity of the PSS 14 was evaluated using three samples: 332 freshman college students (121 male, 209 females) from the University of Oregon, 114 students (53 females and 60 males) in an introductory personality psychology course and 64 people (37 females and 27 males) participating in a smoking-cessation program run by the University of Oregon Smoking-Control Program (Cohen et al., 1983). The results showed coefficient alpha reliabilities of .84 (freshman college students), .85 (introductory psychology students) and .86

(smoking-cessation participants) (Cohen et al., 1983). These results indicate evidence of very good reliability for the PSS (DeVellis, 1991).

The correlation between the PSS and depressive/physical symptomatology for the two student samples was .76, .65, .52, .65 and the correlation between the PSS and life event scales was .18, .14, .31, .36 (Cohen et al., 1983). Although most of the PSS correlations showed evidence of an unacceptable or undesirable level of predictive validity, one of the correlations showed evidence of respectable predictive validity and all of the correlations are higher than the depressive symptomatology correlations, indicating that the PSS shows some evidence of predictive validity (DeVellis, 1991). The concurrent validity between the PSS and life-event scale in all three samples were .35 (freshman), .24 (introductory psychology) and .33 (smoking-cessation) (Cohen et al., 1983). These low correlations are in the unacceptable range, indicating that the PSS shows evidence of concurrent validity in that it measures a different construct than the life-event scale (DeVellis, 1991).

The reliability and validity of the PSS 10 was evaluated using 960 and 1427 residents of the United States, 18 years and older (Cohen & Williamson, 1988). The PSS 10 showed an internal reliability of .78 (Cohen & Williamson, 1988), which indicates evidence of a respectable level of reliability (DeVellis, 1991). The construct validity of the PSS 10 ranged from .26 to .39 when compared to other measures of stress (Cohen & Williamson, 1988). This indicates unacceptable evidence of validity, which means that the PSS 10 does not show that it measures perceived stress as precisely as the PSS 14 (DeVellis, 1991). Although there is some loss in the evidence of reliability and validity from the PSS 14 to the PSS 10, the PSS 10 is almost as reliable and valid as the PSS 14, (DeVellis, 1991).

3.6 Changes to Measures for Online Format

For most questionnaires, modifications need to be made in order to accommodate an online format (Strickland et al., 2003). For example, modifications may be needed to allow participants to easily check and change their responses if they desire. Therefore, clearly defining the process for adapting a paper survey to an online format is important because non-equivalence between a paper and online version is inherent and minimizing format changes is not possible (Oliver & Zak, 1999).

For the current study, modifications were made for participants to easily select and change their responses. Radio buttons were used in place of the space given in a paper survey to select an answer. With radio buttons, participants were required to select only one of the options but they were able to change the selection by selecting another radio button. As well, the response selections of all of the measures except the ECQ and Flow Questionnaire were placed below the statements, rather than beside for ease of reading the information on a screen and to ensure participants selected the response they wanted for each item correctly. This was not changed for the ECQ and Flow Questionnaire. For the ECQ, putting the response selections under each statement created a lengthy page in which the participants would have to scroll the page to see all of the questions. As well, the Flow Questionnaire originally had the response selections below. The response selections for the PSS were listed as words (never and always) instead of numbers to ensure clarity in selecting answers.

Participants were also pre-screened for involvement in various creative areas for the CAQ, ECQ and CBI to shorten the length of time required to fill out the survey. The participants were asked to click the activities they are involved in on one page and then only the page with questions for the areas they clicked appeared. Each creative area and the list of items for that

area were on separate pages to ensure participants could easily view all the items on one page without scrolling. All the original measures, except the CAQ, did not give a list of selections to choose before answering the items in each creative area. This method of presenting the items changed the order in which items appeared to participants. One creative area in the ECQ, Everyday Creativity, was presented to all participants and was shown in a different order, depending on the other creative activities participants chose. As well, the original CBI listed all the items for all the creative areas together, with items from each area mixed in with each other.

The wording of statements and questions in some of the measures were changed to match the online item selection. For example, the words, “please select” and “click” were used instead of “you will be asked to indicate”, “place a check mark” or “circle”. As well, to ensure participants did not pre-screen themselves out of areas they were involved in, extra information was given in brackets to describe each area of creativity for the CAQ and CBI.

3.7 Data Analysis

Statistical analyses were completed using SPSS REGRESSION. Descriptive statistics, such as the means, standard deviations, and correlations were calculated for all the demographic, illness-related, predictor and criterion variables. A sequential multiple regression was run to test the hypothesis. The regression analyses explored whether personal creative activity can predict perceived stress levels in men with chronic illnesses. As creativity has shown to increase well-being as well as benefit women with a variety of chronic illnesses and men with cancer this study used personal creative activity as the main predictor variable. In step 1, the socio-demographic and illness-related variables. In step 2, the personal creative activity variables were entered into the regression. Each overall scale and subscale of personal creative activity measure was analyzed separately in order to determine what dimension of creativity is responsible for the

relationship. The statistical significance was set at 0.05 to reduce the risk of Type 1 errors as well as to balance between Type 1 and Type 2 errors.

CHAPTER 4: RESULTS

This chapter presents the results of the data analysis that examined the relationship between perceived stress levels and personal creative activity in men with chronic illness. The results are organized into four sections. The first section describes preliminary analysis including data cleaning and assumptions evaluation. The second and third section presents the participant characteristics and the variable intercorrelations. The fourth section discusses the Sequential Multiple Regression that was run to test one hypothesis. The purpose of this study was to investigate men's personal creative activity, and its strength and direction of association with their perceived stress levels, while living with a chronic illness. It was hypothesized that there would be a negative relationship between men's personal creative activity involvement and their perceived level of stress; that is, higher personal creative activity scores would be associated with lower perceived stress levels. This relationship was expected to be demonstrated by all men regardless of their diagnosis.

4.1 Preliminary Analysis

4.1.1 Data Cleaning

The data were downloaded to an excel spreadsheet and then into the SPSS program on a secure server. Of the 173 participants who entered the site and completed the survey, 139 comprised the final sample size. Thirty-four cases were deleted for various reasons. Thirty-two cases were deleted because they did not match the criteria (17 were female, 11 had been diagnosed with the illness one year ago or less, two did not report their age and two did not report the time since diagnosis). Another case in which over half of the questions were not answered was deleted. One outlier was present in the CBI music subscale and this case was also deleted from the analysis.

The descriptive statistics and the frequency statistics tables showed that the data were exported from the online survey to SPSS within the range of scores expected for each measure (Tabachnick & Fidell, 2007). The continuous variables displayed means and standard deviations that matched the range of scores and the dichotomous variables displayed a regular range (Tabachnick & Fidell, 2007). After deleting the case that left over half the questions unanswered, the tables indicated that less than 5% of the data were missing (Tabachnick & Fidell, 2007). The correlation matrices were examined to ensure the correlation values were honest (Tabachnick & Fidell, 2007). All of the variable correlations values fell within a normal range between -1 and $+1$. None of the correlations were inflated or deflated (larger or smaller) than they should be, therefore no corrections were necessary (Tabachnick & Fidell, 2007). Thus, no other measures were taken to increase the accuracy of the data or to account for missing data.

4.1.2 Assumptions Evaluation

The assumptions of multiple regression were evaluated to ensure that they were met. This study used a potential maximum of 26 predictor variables in the data analysis, which requires a minimum of 130 participants (Tabachnick & Fidell, 2007). The sample size of 139 participants was sufficient for this minimum requirement.

The correlation matrix was examined to check for multicollinearity and singularity. There appeared to be no concerns with singularity or multicollinearity. Although some of the predictor variables were moderately correlated, none of the variables had correlations high enough (.9 or above) to affect the data analysis (Berry, 1993; Princeton University, 2007). There was one correlation between the CAQ music subscale and CBI music subscale that was almost too high ($r = .867$). However, the next highest correlations between the CAQ writing subscale and CBI literature subscale ($r = .677$), the CAQ visual art subscale and CBI art subscale ($r = .639$) and the

CAQ overall scale and CBI art subscale ($r = .602$) were not as large. As well, the CAQ science subscale and CBI math-science subscale ($r = .556$) and the CAQ overall scale and CBI overall scale ($r = .526$) had moderately high correlations. The rest of the correlations between the IV's were .4 or less.

In regards to singularity, although some of the subscales of each creativity measure were assigned a similar name (i.e., craft subscale in two measures, a performance and theatre measure in separate scales) each asked different types of questions with a different type of focus. None of the measures overlapped completely and were not part of the same measure. The overall scale scores were tested separately from the subscale scores to ensure the data was not affected by singularity. Therefore, the absence of singularity assumption (Tabachnick & Fidell, 2007) appears to be met.

The scatterplot of the PSS data was examined to check whether the assumptions of homoscedasticity, normality and linearity of the PSS scores appear to be met. Homoscedasticity of the PSS scores appeared to be met because the residual data points were all similar distances from the best line of fit on the scatterplot for PSS scores (Tabachnick & Fidell, 2007).

Normality was examined on the histogram of the PSS scores. Normality of the PSS scores appeared to be met because the residual scores appeared to fall along the normal distribution curve around each of the PSS scores using the histograms (Tabachnick & Fidell, 2007).

Linearity of the PSS scores appeared to be met because the residual scores formed a line along the best line of fit on the scatterplot of the PSS scores (Tabachnick & Fidell, 2007). Once the one outlier in the data set was deleted from the analysis, no other outliers were present. The independence of errors assumption appeared to be met because the predictor variables chosen in this study showed evidence of reliability in the literature (DeVellis, 1991).

4.2 Participant Characteristics

4.2.1 Socio-Demographic Data

Table 4.1 presents the frequencies and percentages for the socio-demographic variables. The present sample (139 participants) consisted of males recruited from various chronic illness organizations across Canada ranging in age from 20 to 80 years of age ($M = 50.32$; $SD = 14.96$); the majority were Caucasian (93.5%) and English speaking (90.6%). This sample was highly educated, as 57.6% of the sample reported a college or university degree and 24.5% reported obtaining some college/university credits. A smaller percentage of the sample had a high school education (15.8%) or less (1.4%). The amount of participants working (56.1%) was slightly higher than the percentage of participants not working (42.4%). Most of the participants lived with someone ($n = 126$), with 77% of these 126 participants cohabiting or married (77.0%). According to Table 4.1 and in comparison with 2008 the average wage in Canada of \$89,700 for economic families with two people or more (Statistics Canada, 2010d), over a fifth of the participants (22.3%), reported a higher than average annual income (\$100,000 or greater). Another fifth (18.0%) reported an average annual income (\$75,000 - \$99,999) and almost half of the participants (45.2%) reported to be lower than average income (\$74,999 or less).

Table 4.1

Frequencies and Percentages for the Socio-Demographic Variables

Variable	N	Percentage
Age		
20-30	20	14.3%
31-50	44	31.7%
51-64	47	33.8%
65 +	28	20.1%
Race		
Caucasian	130	93.5%
Other	9	6.5%
English First Language		
Yes	126	90.6%
No	12	8.6%
No response	1	0.7%
Education Completed		
Less than highschool	2	1.4%
Highschool graduate	22	15.8%
Some college/university	34	24.5%
College/university graduate	80	57.6%
Employment Status		
Not Working	59	42.4%
Casual Work	6	4.3%
Part Time Work	9	6.5%
Full Time Work	63	45.3%
Relationship Status		
Single	21	15.1%
Cohabiting/Married	107	77.0%
Divorced/Separated	4	2.9%
Widowed	3	2.2%
Living Arrangements		
Alone	13	9.4%
With Spouse/Partner	95	68.3%
With Family	22	18.0%
With Roommate/Other	5	4.1%

Table 4.1-Continued

Frequencies and Percentages for the Socio-Demographic Variables

Variable	N	Percentage
Household Income		
Less than \$5, 000	1	0.7%
\$5, 000 through \$11, 999	1	0.7%
\$12, 000 through \$15, 999	2	1.4%
\$16, 000 through \$24, 999	7	5.0%
\$25, 000 through \$34, 999	10	7.2%
\$35, 000 through \$49, 999	16	11.5%
\$50, 000 through \$74, 999	26	18.7%
\$75, 000 through \$99, 999	25	18.0%
\$100, 000 and greater	31	22.3%
Don't know	6	4.3%
No response	14	10.1%

4.2.1 Illness-Related Data

Table 4.2 presents the frequencies and percentages for the illness-related variables. The participants had a wide variety of chronic illnesses, with 20 participants reporting multiple diagnoses. Some illnesses were more common than others, with the largest number of participants reporting being diagnosed with diabetes (n=21), colitis (n=16), Parkinson's disease (n=30), arthritis (n=10), Crohn's disease (n=25). A smaller number of participants reported being diagnosed with ankylosing spondylitis (n=4), lung disease (n=6), scleroderma (n=3), cancer (n=6), cardiovascular disease (n=9), degenerative/ruptured discs (n=3), irritable bowel syndrome/disorder (n=2), chronic pain (n=2), FM (n=6) and Myalgic Encephalomyelitis/CFS (n=2).

There was variation in the amount of time since participants had been diagnosed with a chronic illness. Almost two thirds of the sample received a diagnosis 2 to 10 years ago, whereas the remaining 37.4% had been living with their diagnosis for more than 10 years, with a full

17.3% diagnosed more than 20 years ago. Almost half of the participants reported that their health was stable over the past year (i.e., that their health was about the same as a year ago) whereas more than a third reported deterioration in their health (i.e., that their health was somewhat or much worse than one year ago). The remaining sample (17.3%) felt that their health was better than one year ago.

The participants experienced a variety of symptoms, many experiencing multiple symptoms, including all the ones listed in the survey as well as others that they reported. A third of the participants experienced 0-5 symptoms (31.3%) and another third experienced 6-10 symptoms (33.8%). Almost one fifth of the participants experience 11-15 symptoms (17.9%) while 10.9% experienced 16-20 symptoms. A smaller number of participants experienced 21 +

Table 4.2

Frequencies and Percentages for the Illness-Related Variables

Variable	N	Percentage
Type of Illness		
Ankylosing Spondylitis	4	2.9%
Arthritis	10	7.2%
Axonal-degenerating sensorimotor polyneuropathy	1	0.7%
Cancer	6	4.3%
Cardiovascular Illness	9	6.5%
Chronic Fatigue Syndrome	2	1.4%
Chronic Pain	2	1.4%
Colitis	16	11.5%
Crohn's	25	18.0%
Degenerative Disc Illness	2	1.4%
Diabetes	21	15.1%
Fibromyalgia	6	4.3%
Hypermobility Syndrome	1	0.7%
Irritable Bowel Syndrome/Inflammatory Bowel Illness	2	1.4%
Lung Illness	6	4.3%
Manic Depression	1	0.7%
Migraines	1	0.7%
Multiple Sclerosis	3	2.1%

Parkinsons	30	21.6%
Post-Traumatic Stress Disorder	1	0.7%
Ruptured disc	1	0.7%
Sacroillitis	1	0.7%
Scleroderma	3	2.1%
Systemic Lupus	1	0.7%
Unknown/No response	2	1.4%
Multiple diagnosis	20	14.4%

Table 4.2 Continued

Frequencies and Percentages for the Illness-Related Variables

Variable	N	Percentage
Type of Symptoms		
Abdominal pain	39	28.1%
Activity restrictions or limited mobility	84	60.4%
Anxiety	41	29.5%
Breathlessness	16	11.5%
Cognitive problems	24	17.3%
Depression	48	34.5%
Diarrhea or irregular bowel function	58	41.7%
Difficulty falling asleep or wakefulness at night	74	53.2%
Dizziness	28	20.1%
Dry mouth	31	22.3%
Excessive perspiration without physical effort	37	26.6%
Fatigue	100	71.9%
Hair loss	7	5.0%
Headache	33	23.7%
Hot flashes	10	7.2%
Impotence	35	25.2%
Lack of bladder control	16	11.5%
Less contact with friends	57	41.0%
Loss of appetite	28	20.1%
Memory loss	33	23.7%
Muscle spasms or burning muscles	39	28.1%
Nasal Problems	17	12.2%
Nausea or vomiting	19	13.7%
Numbness	27	19.4%
Pain	72	51.8%
Palpitations	16	11.5%
Poor concentration	54	38.8%
Shortness of breath	25	18.0%
Sleep disruptions	84	60.4%

Stomach acid problems (heartburn, cramps, pain)	33	23.7%
Stuttering or difficulty speaking	23	16.5%
Swollen feet	21	15.1%
Taste changes	19	13.7%
Tremor of hands	32	23.0%
Wounds	10	7.2%
Vision problems or light sensitivity	23	16.5%
Other	12	8.6%

Table 4.2 Continued

Frequencies and Percentages for the Illness-Related Variables

Variable	N	Percentage
Number of Symptoms		
0-5 symptoms	42	30.2%
6-10 symptoms	47	33.8%
11-15 symptoms	25	18.0%
16-20 symptoms	15	10.8%
21 + symptoms	10	7.2%
Time Since Diagnosis		
2-3 years	28	20.1%
4-5 years	22	15.8%
6-10 years	37	26.6%
11-19 years	28	20.1%
20 years +	24	17.3%
Current Health Status		
Much better than 1 year ago	14	10.1%
Somewhat better than 1 year ago	10	7.2%
About the same	63	45.3%
Somewhat worse than 1 year ago	44	31.7%
Much worse than 1 year ago	8	5.8%
Impact of Symptoms		
No impact	3	2.2%
Very little impact	15	10.8%
Some impact	44	31.7%
Quite a bit of impact	43	30.9%
Significant impact	33	23.7%

symptoms (7.1%). The most common symptoms experienced were limited fatigue (71.9%), mobility (60.4%), sleeping difficulties (53.2%), and pain (51.8%). Other symptoms the men listed in addition to the list of symptoms presented including bladder infection, drooling, excessive urination, itching/hives reaction, frequent gas, joint problems and inflammation, neuropathy, reduced sperm count, swollen neck glands and tremor of the lower lip. These symptoms had a negative impact on daily living for almost the entire sample. Only 13% reported very little or no impact. Almost a third of the participants (31.7%) reported that the illness had some impact on their daily life and another third (30.9%) felt that the illness had quite a bit of impact on their daily life, while almost a quarter (23.7%) felt it had a significant impact on their daily life.

4.3 Variable Intercorrelations

Correlation coefficients were calculated for the sample in order to assess the relationship between perceived stress and the self-enhancing bias, socio-demographic, illness-related and personal creative activity variables. The first set of correlations indicated no relationship between perceived stress and any of the personal creative activity variables. These results may have been due to the fact that many scores on the personal creative activity measures were low, with many of the men indicating little or no involvement in many of the creative activities listed. Therefore, scores of zero on the personal creativity measures were excluded and the correlations between perceived stress and the personal creative activity variables were re-run. The means, standard deviations and intercorrelations for the personal creative activity variables in Tables 4.3 and 4.4 were reported based on excluding the men who scored 0 for each area of creativity.

Table 4.3

Means, Standard Deviations and Significant and Moderate Intercorrelations

Variables	N	Mean	Standard Deviation	PSS
PSS	139	16.97	7.46	1
MCSD	139	5.57	2.40	-.155
CAQ Total	92	11.75	15.63	-.041
Visual Arts	22	6.95	4.47	-.428*
Music	24	7.54	8.10	.215
Architecture	8	12.00	19.55	.513
Writing	17	5.88	5.70	.139
Humour	35	2.54	2.21	-.137
Invention	25	6.24	9.98	-.063
Science	29	7.76	17.57	-.043
Theatre	4	3.75	2.06	-.432
Culinary Arts	32	2.03	2.06	.181
Flow Experience	133	.51	.502	.063
Flow Frequency	67	.78	1.01	-.067
≤10 times in last month	110	.19	.39	-.040
10-20 times in last month	110	.70	.46	.016
ECQ Total	138	92.95	34.31	-.004
Culture	136	29.11	16.53	-.028
Media	135	16.75	5.96	.054
Crafts	138	10.72	10.69	.091
Inter	138	28.09	9.70	-.034
Express	138	9.39	3.36	-.043
CBI Total	89	18.97	18.81	-.060
Literature	34	9.03	5.69	-.014
Music	29	8.41	6.51	.064
Crafts	43	14.16	9.81	-.220
Art	24	8.21	4.96	-.253
Math-Science	43	6.40	5.53	-.235
Perform	18	3.89	3.60	.393

* $p < .05$

Table 4.4

Descriptive Statistics for the Categorical Measure Information

Variable	N	Frequency
Flow Experience		
No	73	47.1%
Yes	76	49.0%
Flow Frequency		
0-10 times in the last month	88	56.8%
10-20 times in the last month	24	15.5%
20-30 times in the last month	7	4.5%
40-60 times in the last month	3	1.9%
60+ times in the last month	2	1.3%
CAQ Other People's Perspective	52	33.5%
One of the first things people mention about me when introducing me to others is my creative ability in the above areas.		
People regularly accuse me of being an absent-minded professor" type."	21	13.5%
People regularly accuse me of having an artistic "temperament."	10	6.5%

4.3.1 Perceived Stress Scale

The scores on the Perceived Stress Scale indicated that many of the men perceived themselves to be experiencing high levels of stress in the last month. The scores ranged was 0 to 38 ($M = 16.83$; $SD = 7.23$). The maximum value that can be scored on the PSS10 is 40. Therefore, some of the participants scored almost the maximum amount. These values were consistent with the mean, standard deviation, and range reported by Cohen and Williamson in 1988 (Range = 0-34; $M = 13.02$, $SD = 6.35$).

4.3.2 *Self-enhancing bias*

The mean MCSD score for the sample was 5.59 ($SD = 2.43$). The correlations between the CAQ and the MCSD ($r = -.159$), between flow experience and the MCSD ($r = -.083$) between the ECQ and the MCSD ($r = -.079$), between the CBI and the MCSD ($r = -.125$) and between the PSS and MCSD ($r = -.155$) were all negative and weak relationships. This indicates some confidence that the participants in this sample were answering honestly and not with a desire to self-enhance.

4.3.3 *Creative Achievement Questionnaire*

The mean CAQ score for the 92 participants who scored 1 + on the overall CAQ scale was 11.75 ($SD = 15.63$). These values were inconsistent with the values found by Carson et al. (2005). Carson et al. (2005) found a mean of 15.1 ($SD = 12.2$) for the 249 student participants from Harvard University, a mean of 13.5 ($SD = 14.7$) for the 287 members of a community sample from Toronto, Canada, and a mean of 13.5 ($SD = 14.7$) for the 311 student participants from the University of Toronto. Contrary to what was expected, there was almost no correlation between the CAQ and the PSS ($r = -.041$). Visual arts was the only CAQ subscale that had a sufficient number of participants (≥ 15) and a significant and moderate correlation (.3) with perceived stress. The mean score for visual arts with 22 people was 6.95 ($SD = 5.47$). There were no reports in the literature of the subscale totals for comparison. The correlation between the PSS and visual arts was moderate and negative ($r = -.428$, $p < .05$) which was in the direction expected.

Some additional questions on the CAQ that were not scored asked participants three questions about other people's perspectives of them as well as provided a section for the men to identify other creative achievements they had been involved in but were not listed in the CAQ.

Just over a third of the participants (34.3%) indicated that one of the first things people mention about them when introducing them to others is their creative ability in the above areas. Fewer men (11.2%) reported that people regularly accuse them of being an absent-minded professor "type" and even fewer (6.3%) stated that people regularly accuse them of having an artistic temperament."

The men listed many activities that they considered creative but which did not appear in the CAQ. These other creative achievements included web/graphic design, helping others with their computers and personal life, building/fixing things (e.g., building motorcycles, houses, businesses, boats, furniture, construction, repairing vehicles, building and repairing guitars, repairing electronics, modifying house to make living easier and carpentry), family (having a well-developed family and being loving husband), work (creative scientific hypothesis predictions, developed work safety programs, excelling in chosen field, good staff management and training), creative activities (Aboriginal artwork, three years headlining exhibit at craft show, making driftwood candles, cross stitching, creating family tree with photography and stained glass production), hobbies (cooking, gardening, landscaping, history and geological research and designing/building wood work), exercise/sport (long distance running, running a marathon and martial arts), spirituality resonance, writing books and publishing articles, volunteering (hockey instructor, toast masters, fundraising for community and for foundations and radio programs for the elderly), problem solving and creating puzzles and production (producing training videos, student drama and radio documentary) and creating sustainability and environmental efficiencies.

4.3.4 Flow Questionnaire

Almost half of the participants (48.9%) identified themselves as having had a flow experience. Of these 68 participants, the majority had had this experience between 0-10 times in the last month (55.4%) with 15.1% experiencing flow 10-20 times in the last month. Very few of the participants had had the experience more than 20 times in the last month, but 5.0% reported experiencing it 20-30 times in the last month, 2.2% experienced it 40-60 times in the last month and 1.4% experienced it 60 + times in the last month. There was almost no correlation between the PSS and flow experience and flow frequency ($r = .063$ and $-.067$ respectively).

Similar to the results of the CAQ, when asked what kind of activities provided the flow experience, the men listed many other creative activities that did not appear in any of the personal creative activity measures. Some of the activities men were involved in were similar to the activities in the measures including music (singing, listening to music, mixing/recording music, composing music and playing music and guitar), crafts (art work, drawing, painting, sculpting and making candles, birthday cards or costumes), performing, writing and photography. However, many other activities that men were involved in were not activities listed in any of the measures. These activities include education, planning trips, doing things for others (helping others, creating gifts like woodworking, and writing about family history), work/volunteer responsibilities (solving problems at work, chair or executive at volunteer organizations, teaching, advocacy, research), working on projects (building motorcycles, house renovations and designing bridges), participation in a club (men's group, group chairperson, Parkinson's society and church), sports/exercise (road cycling, sports, ice hockey, baseball, target shooting, martial arts/judo, running, working out, exercising and walking), electronics (watching

TV/movies, playing video games, using the computer/digital camera, computer programming, computer scripting, solving computer problems and graphic design), problem solving (fixing/repairing things with the resources at hand and troubleshooting), family (watching daughter's birth and playing with grandkids) and other hobbies (fishing, bird watching, cooking/barbequing, solving puzzles, reading, sex, gardening, mechanics and wood working).

4.3.5 Everyday Creativity Questionnaire

The mean ECQ score for 138 participants who scored 1 + on the overall ECQ scale was 92.95 ($SD = 34.31$). The only paper published regarding this measure (Ivcevic & Mayer, 2009) discusses the ECQ's development but does not report the means or standard deviations of scores for the final measure. Thus, there were no reports in the literature of the overall scale and subscale totals for comparison. Contrary to what was expected, there was no relationship between the ECQ and the PSS ($r = -.004$) and none of the ECQ subscales had a relationship with PSS.

4.3.6 Creative Behaviour Inventory

The mean CBI score for 89 participants who scored 1 or more on the overall CBI scale was 18.97 ($SD = 18.81$), a score inconsistent with the values reported by Nicol and Long (1996) with a mean of 38.9 ($SD = 15.8$). Contrary to expectations, there was almost no relationship between the CBI and the PSS ($-.060$). Performance was the only CBI subscale that had a sufficient number of participants (≥ 15) and a moderate correlation ($.3$) with perceived stress. The mean score for performance with 18 people was 3.89 ($SD = 3.60$). These values are consistent with the values reported by Nicol and Long (1996). Music had a mean of 5.1 and 15.7 ($SD = 4.1$ & 7.7), craft had a mean of 24.8 and 22.4 ($SD = 10.9$ & 9.1), art had a mean of 6.1 and 7.0 ($SD = 4.8$ & 4.6), math-science had a mean of 2.3 and 2.5 ($SD = 2.1$ & 2.7) and performance

had a mean of 4.5 and 6.3 ($SD = 4.6$ & 5.1). The correlation between the PSS and visual arts was moderate and positive ($r = .393$, $p < .05$) which was in the opposite direction to what was expected.

Some creative behaviours were in the non-scalable category of the CBI, and therefore were not part of the analysis because they were not part of the CBI score. Many of the participants were involved in a speech contest (31.0%), writing a play (12.8%), planning and presenting an original speech (63.9%), taking/developing photographs (53.6%), designing a game (27.1%), directing/organizing a political group (18.7%), performing on television (23.3%), making or helping to make a film or videotape (45.9%), making a musical instrument (14.8%), helping to design a float (18.6%), planning/directing a school or community event (32.9%), winning an award for speech and debate (18.8%), writing a play that was publicly performed (5.8%), making up magic tricks (10.9%) and having artwork or craftwork publicly exhibited (25.2%).

4.4 Sequential Regression

A Sequential Multiple Regression was performed using SPSS REGRESSION. Table 4.5 displays the Descriptive Statistics for the Predictor and Criterion Variables. Table 4.6 displays the Intercorrelations Between All of the Predictor Variables and the Criterion Variable. Table 4.7 displays the Intercorrelations Between the Significant Predictor and Criterion Variables. Table 4.8 displays the Sequential Multiple Regression Analysis Predicting Perceived Stress from Symptoms, Age Visual Arts and Performance including the unstandardized regression coefficients (B), the standardized regression coefficients (β), R , R^2 , adjusted R^2 , and R^2 change after each step in the model. A Sequential Multiple Regression was chosen for the present study to allow the researcher to enter the predictor variables in a specified order and assess each set of

predictor variables in terms of whether it significantly added to the prediction equation when it was entered and if it accounted for any variance in perceived stress. Therefore, the socio-demographic and illness-related data were entered into the analysis first to see if they accounted for any variance in perceived stress. Then, the performance CBI subscale and visual arts CAQ subscale were entered because they had at least a .3 correlation with perceived stress and at least 15 men involved in that area of personal creative activity. These two subscales were entered to see if they added anything to the prediction above the socio-demographic and illness-related variables.

Table 4.5

Descriptive Statistics for the Criterion and Predictor Variables

Variables	M	SD
PSS	16.83	7.23
Age	50.32	14.96
Symptoms	9.60	6.63
Visual Arts	0.16	0.37
Performance	0.12	0.33

95% confidence from -.22 to -.08

Table 4.6 – Intercorrelations Between All Predictor Variables and Criterion Variable

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	22	24	25	26
1. Stress	1	.16	-.10	-.10	.18*	-.01	.05	-.01	.08	-.04	.17	-.23**	-.23**	-.02	-.13	-.06	. ^a	. ^a	.02	.08	.02	.07	.16	.06	-.07	.11
2. Art	.16	1	.17*	.15	.14	.11	.05	.07	.28**	.18*	.30**	.15	.07	.06	-.16	.04	. ^a	. ^a	-.28**	.17	.07	.18*	.64**	.09	.20*	.16
3. Mus	-.10	.17*	1	.13	.24**	.13	-.02	-.05	.04	.20*	.33**	.13	-.03	-.06	-.04	-.19*	. ^a	. ^a	-.03	.23**	.70**	.07	.14	-.02	.29**	.23**
4. Arch	-.10	.15	.13	1	.00	.28**	.29**	.10	.14	.31**	.17	.12	-.05	-.18*	.04	.02	. ^a	. ^a	.01	.08	.10	.17*	.21*	.30**	.29**	.12
5. Write	.18*	.14	.24**	.00	1	.09	.05	-.03	-.06	.11	.27**	-.06	.02	.06	.06	-.23**	. ^a	. ^a	-.23**	.50**	.24**	.27**	.29**	-.06	.26**	.23**
6. Hum	-.01	.11	.13	.28**	.09	1	.20*	.07	.10	.35**	.42**	.03	.11	.09	.10	.05	. ^a	. ^a	-.15	.21*	.03	-.03	.13	.22**	.19*	.16
7. Invent	.05	.05	-.02	.29**	.05	.20*	1	.22**	.14	.28**	.33**	-.04	.01	-.06	.08	-.18*	. ^a	. ^a	-.07	-.01	-.01	.09	.23**	.25**	.05	.04
8. Sci	-.01	.07	-.05	.10	-.03	.07	.22**	1	.12	.14	.37**	.07	.11	.08	-.02	.04	. ^a	. ^a	-.10	.04	-.09	.00	.09	.35**	.02	.13
9. Thea	.08	.28**	.04	.14	-.06	.10	.14	.12	1	.11	.11	.13	.12	.03	.03	.02	. ^a	. ^a	-.10	.00	-.09	.07	.15	.16	.07	.04
10. Cul	-.04	.18*	.20*	.31**	.11	.35**	.28**	.14	.11	1	.38**	.11	.10	-.04	.09	-.16	. ^a	. ^a	-.22**	.25**	.06	.30**	.38**	.30**	.47**	.27**
11. CAQ	.01	.42**	.36**	.46**	.31**	.42**	.33**	.37**	.11	.38**	1	.14	.08	.10	.06	-.06	. ^a	. ^a	-.18*	.22*	.19*	-.01	.28**	.22*	.22*	.26**
12. FE	.06	.15	.13	.12	-.06	.03	-.04	.07	.13	.11	.14	1	.4**	.20*	.20*	.30**	.24**	.23**	.32**	.12	.14	.22*	.23**	.10	.14	.26**
13. FF	-.00	.07	-.03	-.05	.02	.11	.01	.11	.12	.10	.08	.4**	1	.10	-.07	.04	.22	.25**	.12	.21*	-.07	.06	.14	.211*	.04	.14
14. Cult	-.02	.06	-.06	-.18*	.06	.09	-.06	.08	.03	-.04	.10	.20*	.10	1	.57**	-.01	. ^a	. ^a	-.09	.09	-.05	-.01	.07	-.01	.06	.10
15. Med	-.13	-.16	-.04	.04	.06	.10	.08	-.02	.03	.09	.06	.20*	-.07	.57**	1	-.02	. ^a	. ^a	-.10	.10	-.02	.02	-.04	.02	.06	.05
16. Craft	-.06	.04	-.19*	.02	-.23**	.05	-.18*	.04	.02	-.16	-.06	.30**	.04	-.01	-.02	1	. ^a	. ^a	-.05	-.15	-.17	-.13	-.19*	.06	-.23**	-.06
17. Inter	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	.24**	.16	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	
18. Exp	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	.23**	.25**	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	
19. EAQ	.02	-.28**	-.03	.01	-.23**	-.15	-.07	-.10	-.10	-.22**	-.18*	.32**	.12	-.09	-.10	-.05	. ^a	. ^a	1	-.28**	-.02	-.21*	-.34**	-.10	-.23**	-.20
20. Lit	.08	.17	.23**	.08	.50**	.21*	-.01	.04	.00	.25**	.22*	.12	.21*	.09	.10	-.15	. ^a	. ^a	-.28**	1	.20*	.20*	.32**	-.02	.30**	.43**
21. Mus	.02	.07	.70**	.10	.24**	.03	-.01	-.09	-.09	.06	.19*	.14	-.07	-.05	-.02	-.17	. ^a	. ^a	-.02	.20*	1	.23**	.19*	.12	.19*	.39**
22. Craft	.07	.18*	.07	.17*	.27**	-.03	.09	.00	.07	.30**	-.01	.22*	.06	-.01	.02	-.13	. ^a	. ^a	-.21*	.20*	.23**	1	.44**	.26**	.27**	.50**
23. Arts	.16	.64**	.14	.21*	.29**	.13	.23**	.09	.15	.38**	.28**	.23**	.14	.07	-.04	-.19*	. ^a	. ^a	-.34**	.32**	.19*	.44**	1	.23**	.35**	.34**
24. Math	.06	.09	-.02	.30**	-.06	.22**	.25**	.35**	.16	.30**	.22*	.10	.21*	-.01	.02	.06	. ^a	. ^a	-.10	-.02	.17	.26**	.23**	1	.13	.50**
25. Perf	-.07	.20*	.29**	.29**	.26**	.19*	.05	.02	.07	.47**	.22*	.14	.04	.06	.06	-.23**	. ^a	. ^a	-.23**	.30**	.19*	.27**	.35**	.13	1	.28**
26. CBI	.11	.16	.22**	.12	.23**	.16	.04	.13	.04	.27**	.26**	.26**	.14	.10	.05	-.06	. ^a	. ^a	-.20*	.43**	.39**	.50**	.34**	.50**	.28**	1

a. Cannot be computed because at least one of the variables is constant. * Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table 4.7

Intercorrelations Between Significant Criterion and Predictor Variables

Variables	PSS	Age	Symptoms	Visual Arts	Performance
Age	-.347**	-	-	-	-
Symptoms	.422**	-.106	-	-	-
Visual Arts	.161*	-.107	.122	-	-
Performance	-.070	-.113	-.064	.199	-

* $p < .05$ ** $p < .01$ 95% confidence from -.22 to -.08

Table 4.8

Sequential Multiple Regression Analysis Predicting Perceived Stress from Symptoms, Age Visual Arts and Performance

Variables	R	R ²	Adjusted R ²	R ² Change	B	β
1. Symptoms	.42	.18	.17	.18	.435	-.296
2. Age	.52	.27	.26	.09	-.143	.399
3. Visual Arts			EXCLUDED		EXCLUDED	
4. Performance			EXCLUDED		EXCLUDED	

95% confidence from -.22 to -.08

In step 1, the socio-demographic and illness-related variables which showed a significant and moderate correlation ($\leq .3$ +/-) at least at the .05 level with perceived stress in the correlational analysis were entered into the regression. There were two variables that had significant and moderate correlations with perceived stress: number of symptoms ($r = .422$, $p < .01$) and age ($r = -.347$, $p < .01$).

In step 2, the personal creative activity variables that showed a significant and moderate correlation ($\leq .3$ +/-) at least at the .05 level with perceived stress in the correlational analysis and had at least 15 men involved in the creative area after men scoring 0 were excluded were entered into the regression. The CAQ visual arts subscale (.161, $p < .05$) and the CBI performance

subscale (-.070) were the only two variables that had significant and moderate correlations with perceived stress. Therefore, they were the only two variables entered into the regression.

R was significantly different from zero at the end of each step. After step 1, with number of symptoms in the equation, $R^2 = .18$, $F_{\text{inc}}(1, 137) = 29.66$, $p < .01$. After step 2, with age added to the prediction of perceived stress by number of symptoms, $R^2 = .27$, $F_{\text{inc}}(2, 136) = 25.23$, $p < .01$. The addition of age to the equation with number of symptoms resulted in a significant increase in R^2 . Entering the personal creative activity variables into the regression after the socio-demographic and illness-related variables did not add anything to the prediction because they were excluded from the analysis. After all predictor variables were entered into the equation, $R^2 = .27$ with 95% confidence limits from -.22 to -.08, $F(2, 136) = 25.23$, $p < .01$. The final model, which included number of symptoms and age as predictors of perceived stress, accounted for approximately 27% of the variance in the perceived stress and addition of the creative overall scales and subscales to the equation with number of symptoms and age did not reliably improve R^2 .

The positive relationship between the number of symptoms participants experience and the PSS demonstrates that the higher number of symptoms experienced by a participant, the higher their perceived stress tends to be. Thus, perceived stress is related to the number of symptoms experienced, with participants who experience more symptoms reporting higher levels of perceived stress. In addition, the negative relationship between the participant's age and PSS indicates that the older a participant is, the lower their perceived stress tends to be. Thus, perceived stress is related to the age of the participant, with older participants reporting lower levels of perceived stress.

CHAPTER 5: DISCUSSION

This chapter includes a summary of the present study, followed by a discussion of the findings in terms of the extant literature. Research contributions and implications for future research and for practice conclude the chapter.

5.1 Summary of the Research Study

The purpose of this study was to examine the role of personal creative activity in predicting perceived stress levels in a sample of 20-80 year old men who are living with a chronic illness. There is some research that has investigated the benefits of creativity for women living with chronic illness (Cangelosi & Sorrell, 2008; Collie et al., 2006; Reynolds, 2002; Reynolds, 2003; Reynolds & Prior, 2003a; Reynolds & Prior, 2003b) but little has looked at the benefits of creativity for men living with chronic illness (Heiney & Darr-Hope, 1999; Nainis et al., 2006). This study explored personal creative activity as a possible predictor of perceived stress in men living with chronic illness. Personal creative activity was comprised of four creative factors: creative achievement, the experience and frequency of flow, everyday creative activity and creative behaviour.

5.2 Discussion of Findings

Based on previous research conducted within the field, it was hypothesized that there would be a negative relationship between men's personal creative activity involvement and their perceived level of stress; that is, higher personal creative activity scores would be associated with lower perceived stress levels. This relationship was expected to be demonstrated by all men regardless of their diagnosis. Contrary to expectation, the null hypothesis was accepted. The results of a sequential multiple regression indicated that there was no statistically significant

relationship between the perceived stress levels and personal creativity activity involvement of men with chronic illness.

5.2.1 Personal Creative Activity

In the present study, contrary to what was expected, none of the personal creative activity variables were significantly or moderately related to men's reported levels of perceived stress. Most of the correlations were close to zero, indicating that there was no relationship between personal creative activities and perceived stress in men with chronic illness. These variables did not influence the men's level of perceived stress and therefore, could not be used to predict perceived stress.

The rejection of the hypothesis in the current study appears to contradict the literature that reports men with chronic illness benefit from creativity (Heiney & Darr-Hope, 1999; Nainis et al., 2006). It has been suggested that creativity is one activity that can mediate the relationship between chronic illness and well-being in men (Heiney & Darr-Hope, 1999; Nainis et al., 2006). If creativity can play this important role, then creativity should be associated with decreased levels of perceived stress.

Three possible explanations are suggested to explain the differences between the findings of the current study and those of previous studies. The first explanation and most significant finding in the current study is that the creativity measures used may not be as suitable for men as women because they did not include the types of personal creative activities this sample of men tend to be involved in. Many of the men scored 0 or close to 0, resulting in low average mean scores compared to the average mean found in previous literature when females also participated. For example, the average CAQ mean in the current study was 11.75 ($SD = 15.63$) where as the means reported by Carson et al. (2005) were 15.1 ($SD = 12.2$) for the 249 student participants

from Harvard University, 13.5 ($SD = 14.7$) for the 287 members of a community sample from Toronto, Canada and 13.5 ($SD = 14.7$) for the 311 student participants from the University of Toronto. Between these three samples, there was approximately a 40%/60% with a higher percentage of female participants. As well, the average CBI mean in the current study with all male participants was 18.97 ($SD = 18.81$), compared with the mean reported by Nicol and Long (1996) with all female participants of 38.9 ($SD = 15.8$). Thus, it seems that these personal creative activity measures may be better suited to females because female participants tend to score higher on these measures than male participants.

The personal creative activity measures used may also not be as suitable for men because the men with chronic illness in the current study were involved in many activities they considered creative despite the low scores on the personal creative activity measures. The lower scores resulted from the men's lack of involvement in the personal creative activities that were listed in the measures; many creative activities that they were involved in were not listed in the measures. When asked what types of creative activities the men were involved in that were not listed in the measures, 55% of the men described other different creative activities they are involved. Many of these participants also reported being involved in multiple creative endeavours. As well, when asked what types of activities allowed the participants to experience flow, they listed almost all of the same activities as they listed for the creative activities, as well as some additional ones.

Activities that appeared in the creative activity and the flow experiences lists were: solving puzzles and problems, exercise and sports, helping others, building/fixing things, family experiences, electronics, computers and web/graphic design, work and volunteer activities, photography, arts and crafts and writing. Some activities that were specific to the CAQ were:

spirituality resonance, fundraising for community and for foundations and radio programs for the elderly, production (producing training videos, student drama and radio documentary) and creating sustainability and environmental efficiencies. Some activities that were specific to the Flow Questionnaire were: music (singing, listening to music, mixing/recording music, composing music and playing music and guitar), performing, education, planning trips and participation in a club (men's group, group chairperson, Parkinson's society and church).

The Flow Questionnaire and ECQ may be measures that are more suited to men and that may be better able to capture the concept of "everyday creativity". The Flow Questionnaire generated many of the same answers about the creative activities men are involved in and contains more open-ended questions about activities people are involved in. As well, the ECQ appeared to generate higher creativity scores for the men but did not show a relationship with perceived stress. More research is needed on the ECQ to test the psychometrics and produce a more standardized measure to capture "everyday creativity". The CAQ and CBI are used often because they are standardized and have been used for many years. However, the Flow Questionnaire and ECQ may become more accurate measures of "everyday creativity", especially when investigating men's involvement in "everyday creativity".

The lack of suitable measures may have accounted for the low scores on the creativity measures as well as for the rejection of the hypothesis. One participant also contacted the researchers to discuss his concern over the survey being biased towards women. This participant felt that the creative activities listed in the survey were geared more towards females and that he may have selected more creative activities if a different selection of activities that are more male oriented were available to choose from. He suggested that the results would be skewed as a result of the types of measures used.

The second explanation for the contradiction of previous findings is that the two studies discussed in the literature (Heiney & Darr-Hope, 1999; Nainis et al., 2006) looked at the effects of formal art therapy programs, as opposed to informal personal creative activities. It may be that men can benefit more from formal types of creative involvement (art therapy) rather than their own personal creative activities. For example, art therapy groups are set with a specific number of sessions that men would register to go to. This can be a motivating factor to continue on with the process, rather than personal creative activity in which the men may not continue on with if they do not feel well. Art therapy also provides other therapeutic factors, such as relationships among group members and group dynamics, which are not present in personal creative activities and may be the reasons why art therapy is effective. Perhaps group process and its associated therapeutic factors (e.g., Yalom, 2005) are more pertinent than the creative activity.

The third explanation for the contradiction of findings is that it may be possible that participating in personal creative activities may generate more perceived stress, depending on the context in which the men are involved in the creative activities. Although not strongly correlated, one of the personal creative variables, the Performance subscale of the CBI, did have a positive correlation with perceived stress. This would indicate that higher involvement in some types of creative activities is associated with higher perceived stress. This position is further supported by the finding that anxiety was not improved by the art therapy (Nainis, 2006). Perhaps the men in this study were involved in personal creative activities that were listed in the measure but experienced difficulty or frustration doing them because of some limitation due to the chronic illness. Therefore involvement in the activity might actually increase perceived stress if they are unable to participate in a way that they previously could participate before. That is, when men are involved in creative activities that they enjoy doing but may have

difficulty continuing because of the constraints of the illness, they may perceive increased stress from their inability to complete the activity.

The fourth explanation is that the aspect of well-being focused on in the present study, stress, may not have been the most effective ways to measure the relationship between creativity and well-being in men with chronic illness. Stress is only one broad dimension of a person's experience that does not provide much information regarding of person's struggle to adapt to changes in his or her life (Lazarus, 1999). Focusing on a particular emotion may provide a more narrow and specific way of viewing a person's adaptation to stress in greater depth. The literature review discussed many different challenges associated with chronic illness for men and many benefits of creativity. A relationship between creativity and well-being in men with chronic illness may have been found if a specific emotion, as an indicator of well-being, had been measured in relationship to specific challenges faced by men and specific benefits of creativity. For example, a study looking at the relationship between creativity and anxiety (as an indicator of well-being) may have produced better results. Anxiety is a more specific experience of person's challenges with losing control or losing a sense of identity that may relate more to the benefits of creativity such as increasing control and reconstructing identity.

5.2.2 Socio-Demographic Variables

With no relationship between personal creative activities and perceived stress found, the relationship between the socio-demographic and illness-related variables and perceived stress was also investigated. Although the participants indicated a wide range of perceived stress scores, involvement in creative activities was not associated with perceived stress. Conversely, the results of the sequential multiple regression showed that number of symptoms and age were

significant predictors of perceived stress, accounting for 27% of the variance in the final regression model.

Thus, it was observed that an increased number of symptoms experienced was associated with higher levels of perceived stress. This finding supports the premise of the Transactional Model of Stress developed by Lazarus and Folkman (1984), which hypothesized that stress is caused by a discrepancy between a person's demands and resources, or pressure that exceeds a person's perceived ability to cope. The more symptoms the men had, the more demands placed on them which eventually exceed their resources for coping. It was also observed in this study that as the participants aged, their perceived stress decreased. This finding supports the premise of the model of chronic illness developed by Fennell (2001), which hypothesized that there are various phases of the chronic illness experience in which people must take action in order to progress through the phases, reconstruct their lives and incorporate the illness experience with their sense of self. As people age, their knowledge of the illness and actions they must take to heal may increase and they may find more effective ways of coping, which may explain the relationship between perceived stress and the participants' age.

5.3 Research Contributions and Implications

The results of the current study provide some implications for future research and practice.

5.3.1 Research Contributions and Implications for Future Research

The current study makes two key contributions to the chronic illness, well-being, and creativity literature. The first contribution is about men's experiences of living with chronic illness and the factors that affect their well-being. The findings of the current study suggest that the well-being of men with chronic illness was affected by the illness; experiencing multiple

symptoms was associated with increased levels of perceived stress. Many of the main symptoms reported by the participants were similar those identified in the literature such as pain, fatigue, limited mobility, social isolation and psychological difficulties. As well, this study suggested age had an impact on perceived stress. As the men aged, their perceived stress tended to decrease. More research is needed to determine strategies that will help decrease the negative impact of the illness on men's well-being.

The second contribution is regarding the measurement of creativity and its relationship with the well-being of men with chronic illness. There are many different facets of creativity and many facets of well-being that can be measured. In past creativity measurement, everyday creativity was generally ignored (Holland & Nichols, 1964) or examined only in craft activities (Hocevar, 1979). The current study used the newly developed ECQ as an exploratory measure offering a new way to assess creativity in everyday life and the standardized CAQ or CBI measures as a basis for comparison. Men obtained much higher scores on the ECQ than on the CAQ and CBI, suggesting that men are more involved in different types of everyday creativity than in more specific types of creative activities. However, the ECQ still did not show a relationship with perceived stress levels, which may have been a result of using a newly developed measure that has not yet been psychometrically tested. Further research is needed to test the reliability and validity of using the ECQ as a measure that may more effectively assess men's creativity.

There is some evidence that creativity influences the well-being of people with chronic illness. Perhaps other creativity measures or new measures including activities suggested by this study's participants coupled with other measures of well-being (i.e., other than perceived stress) could provide more clarity about the relationship between creativity and the well-being of men

with chronic illness. For example, the studies evaluating art therapy programs found that art therapy benefited men by decreasing the number of symptoms experienced and increasing their ability to express feelings (Heiney & Darr-Hope, 1999; Nainis et al., 2006). Although this logically might translate into lower levels of perceived stress, perhaps perceived stress is not a nuanced enough measure. The men's low scores on the creativity measures may be related to the limited inclusion of activities and need for new creativity measures that tap into activities men might more commonly be involved in. Thus, even though the men in this study did not report lower levels of perceived stress as a result of involvement in creative activities, it is possible that alternate measures of creativity and well-being might generate different findings.

Further research is needed to continue examining creativity as a possible way of helping men with chronic illness increase their well-being. It may be that narrowing in on specific aspects of the creative experience (e.g., self-expression, competency, play, catharsis) and using a more nuanced measure than perceived stress (e.g., investigating specific emotions associated with stress such as fear, anxiety, sadness) will prove more fruitful. As well, further research is needed to create a creativity measure that better taps into men's creativity involvement.

5.3.2 Implications for Practice

The research findings suggest implications for counsellors. The current findings may increase counsellors' awareness about men's experiences with chronic illness as well as suggest potential therapeutic interventions for men living with chronic illness. More specifically, these findings identify the range of symptoms experienced by men living with chronic illness and associated difficulties. As well, it may help them to intervene if they recognize the stress that some men with chronic illness may be experiencing. For example, based on the association between the number of symptoms and age with perceived stress, practitioners can gauge when

male clients may need extra supports to help decrease stress and increase their ability to cope with the illness.

The finding that there was no relationship between perceived stress and personal creative activities, contrary to past literature that indicates art therapy is beneficial for men, has important implications for the practice of counselling. First, this finding suggests that the type of creative activities, the structure of the creative activities, the type of illness and the men's experience of the illness are important factors to consider when creating a self care plan for men with chronic illness. Using a client centred approach to listen to what the men think might be helpful and most effective in ensuring helping men with chronic illness effectively manage their experiences. This may have optimistic implications for counsellors working with chronic illness, as it suggests it is more important to focus on what the men already do that may or may not be working for them and to modify their attempts accordingly. Men may participate in activities they were able to complete before they became ill but find it difficult to complete the same activities since becoming ill. This would increase their perceived stress and the practitioner can intervene to modify the men's attempts. Men may already be involved in creative activities but the success in these pursuits as well as the men's level of enjoyment should be taken into account. This finding suggests that interventions can start with a focus on the men's current activity involvement, which may be easier than starting from the beginning with no sense of the men's abilities.

5.3 Limitations

This study has a number of limitations that must be considered when interpreting the findings. First, is that the results of this study were not representative and cannot be generalized to a wider population of people. The use of an online survey methodology may have created a self-selection bias, in that people who chose to participate were self-selected because the people

who tend to have access to the internet often are from a specific population of people. As well, the snowball sampling technique was used, which can also create a self-selected group. The people who passed on the message would tend to pass it to people who were demographically similar to themselves. While the participants do represent a large variety chronic illnesses across Canada, with 36 different types of illnesses being reported, the sample was not representative in ethnicity and education level. The majority of the participants were Caucasian (93.5%) and highly educated (82%) with at least some university/college education or university/college degrees. Therefore, the results may have fewer implications for men of different ethnic backgrounds with lower education levels and may suggest that the results of the study are more applicable to Caucasian, well-educated adult men. Future studies should aim to examine the experiences of men with a wider range of chronic illnesses who vary more in ethnic background and differ more in education levels. Therefore, caution must be taken in generalizing the results to the population.

Second, many of them men were not involved in any of the creative activities, which left a significant amount of missing data and produced low creativity scores (34% scored 0 on CAQ, 51% scored 0 on flow and 36% scored 0 on CBI). The lack of involvement in creative activities and low scores may also skew the results and affect the reliability, in which the results look as though there is something more in the data than there actually is.

Third, the adaptation of the paper-and-pencil questionnaires to an online format may have affected the results. Although adapting questionnaires from paper to online surveys has worked well in the past and online surveys have shown to be equivalent to the paper version, there can still be differences that affect the results. One adaptation that may have affected the results is the modifications made to the Flow Questionnaire and the ECQ. Only select questions were used

from the Flow Questionnaire and some questions were omitted from the ECQ. As well, the response selection of the questions used from each was modified to fit the same time frame (one month period) as the PSS scale.

Another adaptation that may have affected the results is the way the online survey pre-screened participants for each personal creative activity in each measure. The survey was set up to ask participants which activities they are involved in and then only the questions relevant to the activities they are involved in would appear. This was done in order to cut down the amount of time required to complete the survey in an attempt to increase response rates and decrease drop out/uncompleted survey rates. However, using pre-screening categories can introduce a greater margin of error because it is a significant change to the original format of the measure, it creates a very different experience of the survey for participants and may cause participants to inadvertently screen themselves out of categories that may have been applicable to them. Yet removing one of the measures to decrease the length of time to complete the survey instead would decrease the comprehensiveness of measuring personal creative activity and would not allow for a comparison of the three measures. The current study chose to keep all the selected measures and pre-screen participants to reduce the amount of time needed to complete the survey and the possible limitations of doing this are acknowledged.

One strategy was used to try to avoid the problem of participants inadvertently screening themselves out of categories that may have been applicable to them. A detailed description of each of the creative categories was provided to ensure participants understood what types of activities would be included in a certain category. As well, participants were prepared for this experience ahead of time by being given instructions at the beginning that forewarned them that parts of the survey may be skipped over, depending on the answers they gave.

Fourth, some of the measures did not have reliability and validity evidence available. The ECQ is a relatively new measure and therefore, has not been utilized in studies and has not been psychometrically tested. The items were also modified from the original measure, which also changes the preliminary reliability and validity evidence that has been found by the authors. As well, because only three items were selected and modified from the original Flow Questionnaire, reliability and validity evidence was not available for the measurement of flow experiences. These measures were used for exploratory purposes for comparison with more standardized measures of creativity.

Fifth, the lack of significance in the relationship between the predictor variables and the criterion variable might be due to the predictor variables selected for the test. All the predictor variables had low correlations with the criterion variable and many of the predictor variables had higher correlations with other predictor variables than the predictor-criterion variable correlation. These correlations mean that these variables might not have been useful predictors of the criterion variable. Two of the variables (creative achievement and creative behaviour) were chosen based on past literature. The other two (flow experiences and everyday creativity) were used for exploratory purposes, one was only tested using select questions and the other was a new measure that has not been rigorously tested. However, other variables may have been better predictors and may have shown stronger relationships with perceived stress. For example, the other types of creative activities the men reported as being involved in (i.e., woodworking and mechanics) may have been better predictors of perceived stress. As well, some variables that were not measured such as men's ability to carry out daily tasks or the amount of social support they experience may be greater predictors of perceived stress. Future studies should try examining these other variables to assess their contribution to perceived stress.

Sixth, the type of study/data collection, the measures used and the ability of this method to assess creativity may be a limitation. The variables chosen may have shown stronger relationships if the survey was administered to multiple informants. This study was reliant only on self-report, which is not always an accurate, comprehensive and complete representation of the situation being studied. As well, the experiences of the men with chronic illnesses may be better understood or portrayed through a qualitative method of study. The quantitative nature of this study may not have been accurate because this method reduces the men's experiences to numbers. Future research should investigate creativity in men with chronic illness through varying methods of measurement, including measurements that do not rely on self-report and quantitative methods.

In addition, the measures that were used may not have been as appropriate for the population being studied. The CBI and ECQ were developed specifically with college students in mind and were developed using a college student population. Therefore, the frequency of some behaviors might differ in student and non-student samples. With adults there might be other relevant behaviors (e.g., in relation to co-workers or supervisors) or areas of creativity that are not covered in these measure (e.g., parenting). Ivcevic and Mayer (2009) also expressed concern that although measures such as the Everyday Creativity Questionnaire purports to measure day to day creativity, it is hard to tell whether the items adequately reflect real-world behaviour. This measure is new and therefore does not have research to show the evidence of psychometric properties. Therefore, this will be something to watch for in the future as psychometric testing is completed on this measure.

5.4 Conclusions

In the current study, men with chronic illness reported perceiving a significant amount of stress but reported a low level of participation in creative activities. As a result, there was no significant relationship between any of the personal creative activity variables and perceived stress, which suggests that personal creative activity does not predict perceived stress of men with chronic illness. Yet, perceived stress was demonstrated to be predicted by the number of symptoms participants experience and by the participant's age. As the number of symptoms decreased and age increased, perceived stress decreased.

Many of the personal creative activity scores were low and this may have affected these results. Despite the low personal creative activity scores, the men reported involvement in many personal creative activities but not in the personal creativity activities listed in the measures used in the current study. Hence, because men with chronic illness are experiencing high levels of perceived stress (especially younger males with a larger number of symptoms) and creativity has shown to increase well-being in past studies, more research is needed to clarify this relationship between male chronic illness, creativity and well-being. There are many ways of measuring well-being (besides perceived stress) and many ways of measuring creativity (besides personal creative activity) and future research may want to focus on conceptualizing well-being and creativity differently to help clarify the relationship. As well, because the measures appeared unsuitable for male participants, more research is needed to develop creativity measures that better captures men's creative involvement.

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: Table 2.1 Men and Chronic Illness (13 studies)

Authors	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Ablon (1996)	To examine the difference in the way males and females respond to neurofibromatosis 1 (NF 1), a neurological genetic disorder.	28 affected adults (14 men; 14 women) and two unrelated, non-affected parents recruited through NF support groups and from the caseloads of to hospitals.	Discussion of themes based on interviews.	Interviews in which participants were asked specifically about gender responses to NF1.	Many participants had strong opinions about the differences in men's and women's perceptions to NF1. However, their opinions seemed to be based on their own experiences and views instead of their knowledge of how each gender actually responds. Men and women do respond differently to NF1. Although both genders have concerns about their health and appearance, men have a more matter-of-fact, practical and detached way of viewing NF1. NF1 also greatly affects men's identity.	Men's surrendered to NF1 early in life. Parents may need to focus more on strengthening the self-esteem and confidence of their sons affected by NF1 rather than their daughters. Daughters are better equipped to function in social situations because they have increased social coping strategies such as imagining their normality. When support services are created, gender must be accounted for in the development.	Informal and non-empirical sources of data collection. Method and analysis not clearly described. Discuss definition of terms used to ensure clarity. Detailed literature review. Neurofibromatosis and its effects described. Tables and quotes provided to clarify data. Small sample and data not generalizable. Subjective information provided based on researcher's observations of participants. Described participant's thoughts and quotes regarding three main viewpoints. Detailed discussion.
Brown, Bartholomew & Naik (2007)	To give information about how self-management goals for hypertension can be created.	30 patients ages 50-87 from the Michael DeBakey Veterans Affairs Medical Center	Qualitative methodology and constant comparative method of analysis.	Semi-structured interviews	Patients with hypertension understood what the dangers of hypertension are. They had plans to help control their hypertension and had set a general type of goal and used at least one type of self-care strategy. However their goals were not specific, which makes it difficult to start and keep behaviour change.	Goal-setting with hypertension patients is poorly developed. More studies need to look at different types of supports to increase patient goal-setting. Health care providers should find a way to include time to provide patients support and help with goal-setting in order to improve their self-care attempts.	Small sample size from one hospital and results not generalizable. Method clearly described. Charts, quotes and diagram used to supplement data. Diverse participants and detailed descriptions. Conclusive statements regarding goal-setting and hypertension care can be made as qualitative methodologies are used to generate hypotheses regarding unexplored observations.

Table 2.1 Men and Chronic Illness (13 studies)

Authors	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Charmaz (1995)	To examine men's identity difficulties by looking at men's experiences with chronic illness and how their perceptions of masculinity affect their identity.	20 men ages 40-85)	Data were analyzed through the strategies of grounded theory.	40 in-depth formal , semi-structured interviews, informal interviews, and an extensive collection of published and unpublished personal accounts.	Four themes were discovered including: awakening to death, accommodating to uncertainty, defining illness and disability and preserving the self. Men with chronic illness may either increase their sense of self or suffer a weakened sense of self, or may move back and forth between the two.	If men are able to see future possibilities, they can strengthen their identity. How men make sense of their lives can be better understood when the gender differences in the experience of chronic illness are considered.	Many theoretical and substantive questions clearly posed. Describes sources and nature of data and steps used in analysis. Provides analytic and descriptive analysis integrated with four themes. Part of larger qualitative research to confirm results. Detailed description of challenges men provided. Quotes used to supplement and clarify data.
Gannon, Glover, O'Neill, & Emberton (2004)	To assess the relationship between men's ability to identify symptoms and get medical help. To understand how the symptoms of chronic illness affect men and the ways they cope.	16 men ages 56-80; Symptoms suggestive of Lower Urinary Tract Symptoms (LUTS); No evidence of prostate cancer. Men recruited from the outpatient urology clinic	Interviews 1-1:40 hours; Conducted prior to the first hospital appointment or shortly after but before results received. Analyzed using interpretative phenomenological analysis.	Semi-structured interviews, descriptive information & measure of LUTS severity	Men with chronic illness experience uncertainty and difficulties with social life, work, future plans & daily roles. They used coping strategies such as keeping regular contact with doctors, maintaining self-care, avoiding dwelling on problems, normalizing symptoms, comparing themselves with others, seeing illness as a problem to solve & reconstructing their identity.	These results provide an understanding of men's challenges/coping. Men have many ways of responding & ways of coping. Some men were not affected by their illness while others had significant difficulty. Men especially had difficulties recognizing and adapting to the illness. Men need to be more informed about the chronic illnesses they are prone to. When LUTS identified, more men coped effectively.	Results not generalizable: all participants Caucasian & middle SES. Men found it difficult to discuss issues with female researchers. Small sample size. A strict inclusion criteria to ensure data fits experience. Specific method of analyzing (IPA) but not described. Transcript double checked to ensure accurate information. Quotes provided to clarify data. Described data themes in a chart. Implications discussed and themes tied together.

Table 2.1 Men and Chronic Illness (13 studies)

Authors	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Kiviruusu, Huurre & Aro (2007)	To investigate the relationship between chronic illness, depression, and psychosocial resources (coping styles, locus of control (LOC) and social support).	People with self-reported chronic illness (e.g. diabetes, asthma, migraine) were grouped together (n = 257) and compared to healthy controls (n = 664).	Differences between the chronically ill and healthy controls were analysed by comparing the means using analysis of variance, the proportions using the chi-square test and logistic regression analysis.	Beck Depression Inventory (S-BDI); 13-item checklist of coping; Finnish version of Rotter's Internal-External Locus of Control Scale; Questions related to social support.	Males with chronic illness experience more depression than healthy males. Males with chronic illness used more emotion-focused coping, had a more external locus of control (LOC) and were less often married or cohabiting. When emotion-focused coping and external locus of control were controlled for, the relationship between depression and males with chronic illness decreased. Thus, these factors may play a role in the relationship between depression and chronic illness.	There's a difference in the relationship between chronic illness and depression for young males and females. The psychosocial resources young males with chronic illness have plays a factor because the way they cope and their perception of control mediates the relationship between depression and chronic illness. Thus, young adult males with chronic illness may be considered a group who is at risk for developing depression. Chronic illness care should include strategies such as active coping skills and ways of maintaining personal control.	Problem with attrition in longitudinal study but analyzed thoroughly to find reasons why. Large sample size despite attrition. Wide range of illnesses but the majority had migraines or asthma. Compared socio-demographics of males and females. Differences between people with chronic illness and healthy controls compared. Detailed results and discussion sections with detailed charts to supplement the information.
Krupski, Kwan, Fink, Sonn, Maliski & Litwin (2006)	To examine the relationship between spirituality and health-related quality of life (HRQOL).	287 men with prostate cancer Age 50 to 65+ 17 younger than 50	Separate linear regression models were completed using the spirituality measure scores as dependent variable.	Medical Outcomes Study Short Form, 12-Item Health Survey-Version 2; Functional Assessment of Chronic Illness; Spiritual Well Being Scale Instrument; Medical Outcomes Study; Mental Health Index; Symptom Distress Scale	Spirituality was strongly related to the physical and mental health of the men. As spirituality increased, the physical, mental or emotional health also increased and symptom distress/anxiety decreased. Results were the same after ethnicity was controlled for.	Spirituality may be an effective way of coping for males living with chronic illness. If men do not understand the meaning in their life, they may experience decreased health. Interventions that take spirituality into account and include spirituality may increase the quality of life for men with chronic illness.	Results not generalizable. Inability to control for illness stage may affect spirituality scores. Controlled for ethnicity. Used more than one method of data collection. Provided validity and reliability information for some measures but not for all. Large sample. Charts provided. Connected results and hypotheses to prior research. Participants rewarded. Method not described clearly.

Table 2.1 Men and Chronic Illness (13 studies)

Authors	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Lindqvist, Widmark & Rasmussen (2006)	To understand the meaning of living with hormone refractory prostate cancer (HRPC).	18 men with HRPC and skeletal metastases Four men younger than 65 and 14 men older than 65	2 interviews; 10-33 days between each interview. Data analyzed using phenomenological-hermeneutic approach	Semi-structured interview created based around a quality of life questionnaire.	Men had difficulties controlling the symptoms and adjusting to the illness in order to feel well. They were unwilling to say they were ill and used metaphors to describe their experiences.	The men struggled to feel well and did not want to admit when they did not feel well. Instead of describing their difficulties they said they were striving to live their best. Men benefited from and were able to feel well when they found meaning in their experiences and constructed a new sense of self.	Homogenous sample-unable to generalize. Method described. Data analyzed several times. Provided quotes to help audience understand themes. One of the themes is reflected and ties all the information together to give full understanding of the men's experiences.
Lummerding (2004)	To examine how men adjust to & make sense of chronic illness & how the illness influences self-perception.	13 men Recruited from Mar-Sept, 2003. Social class and illness varied. Age 54-83	Narrative method: asked to talk about what is important about their illness. Techniques used to prompt men to clarify & elaborate. Grounded theory used to analyze data.	Semi-structured, open ended interview guide	Men create their identity through activities like work and sports. Younger and older men are affected differently. Young men with chronic illness were affected by their inability to work and inability to provide for their family. Older men are affected by physical inability & loss of identity. Coping included: accepting illness, recreating identity, increasing resources, & talking to others.	Men have many experiences with chronic illness and have developed many coping strategies. This study contributes to the limited literature on men, health and illness. More studies about men's health are needed. Studies in this area are important to help men build a new identity around the experiences of their chronic illness.	Small, homogenous sample. Different illness types controlled for. Limited by time: unable to reach saturation. Men less likely talk & more likely to have less time for interview. Female interviewer may get limited answers. Methodology described well. Conclusions interpreted & connected with prior research.

Table 2.1 Men and Chronic Illness (13 studies)

Authors	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Mishel, Belyea, Germino, Stewart, Bailey, Robertson & Mohler (2002)	To examine the effectiveness of an individualized uncertainty management intervention administered over the phone to Caucasian and African-American men with localized prostate cancer.	134 Caucasian men and 105 African-American diagnosed with localized prostate Carcinoma.	3 x 2 randomized block, repeated-measures design with three intervention levels and crossed with two levels of ethnicity.	Psychoeducational intervention delivered by phone; Mini-Mental State Examination (MMSE); Mishel Uncertainty in Illness Scale	The uncertainty management was effective - most effective between baseline to 4 months postbaseline. This time period is when treatment side effects are strongest. Both types of uncertainty management were effective strategies for managing chronic illness with both Caucasian men and African-American men.	It is suggested to replicate these findings because studies looking at the effectiveness of a psychoeducational intervention for men with chronic illness are limited. This was the first study that used a sufficient number of African American men.	Used intervention based on the "Theory of Uncertainty in Illness"-interventions selected. Hypothesis in study derived from theory. Strategies for overcoming uncertainty described in detail. Intervention used described in detail. Recruited from nine treatment facilities in North Carolina. Wide variety of demographics, including ethnicity. Detailed discussion and results.
Moskowitz & Wrubel (2005)	To describe various appraisals of HIV and look at which are most effective to helping men with HIV cope.	57 HIV+ gay men age 24-48 who were enrolled as non-caregiving comparison participants in a study of caregiving partners of men with AIDS	Interpretive phenomenological approach.	In person interviews with both qualitative and quantitative items conducted twice per month for two years. Bradburn Affect Balance Scale; Center for Epidemiologic Studies Depression Scale (CES-D); Physical exams every six months; 12-item Life Orientation	Men with HIV use six appraisals of the illness including: illness-future focus, detached, stigma, outward focus, aware/avoid and change. Five groups appraised HIV in different ways and one group moved from one type of appraisal to another over a two year period. This study provides a more in-depth understanding of the HIV experience.	Coping interventions may be more effective if they are tailored to each person and their way of appraising the illness. Different ways of coping may be more or less effective depending on whether they match how a person views the illness. Incorporating the six ways of appraising HIV into coping strategies may help to create more effective interventions.	Discussed the need for qualitative studies in this area. Quantitative measures used to elaborate on and corroborate the typology. Small sample size for quantitative section. Study based on data from 20 years ago. Method not described clearly. Used three ways of analyzing narratives, all three described in detail. Gathered a detailed account of experience of living with HIV. Chart used to supplement data and clarify details. Difficult to generalize results to the population due to homogenous sample. Described six ways of appraising and managing illness. Limitations discussed.

Table 2.1 Men and Chronic Illness (13 studies)

Authors	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Navon & Morag (2003)	To identify unique daily needs of men with prostate cancer and suggest suitable coping strategies.	15 men with advanced PC who are receiving hormonal therapy at outpatient clinic. Treatment started at least six months before study Ages 57-85; Mean age: 70	15 in-depth interviews lasting about 2 hours in length. Each interview analyzed using a comparative method of data analysis.	Unstructured in-depth interviews	The men felt staying alive was work the sacrifice of living with the illness. They used cognitive strategies to cope with the illness. They viewed sex as part of their previous life and only thought of sex only on certain days, avoided saying they were ill, avoided events, continued to live a normal life, wore baggy clothes, avoided public, acted masculine, separated sleeping locations, divided chores, acted intimate and maintained role expectations.	The men used many strategies for coping with illness that were effective but only temporary. They also experienced negative side effects from these strategies (e.g., increased negative memories and social alienation, decreased intimacy with partner and increased false pretense). The cognitive and avoidance strategies were useful daily solutions but these strategies mislead the men and others. These strategies did not solve the main problems and made it difficult for the men to solve their problems.	Preliminary analysis with a small sample of participants who were all from the same country. Used a combination of unstructured and structured interviews to get more detailed data. Method of data analysis given and described. Data analyzed more than once to ensure the data were clear. Themes provided in a chart and tied together in discussion.
Paulson, Danielson & Soderberg (2002)	To investigate the meaning of men's lived experiences of living with pain of fibromyalgia.	Fourteen men with fibromyalgia (FM)-type pain, ages 41-56	Phenomenological hermeneutic method was used to interpret the transcribed interviews.	Narrative interviews conducted with the men regarding their experiences.	Three themes: bodily obstruction, new sense of self, and striving to live. The men with FM felt that their body, their identity and their relationships had changed. They struggled to find a balance between the calmer and more difficult times of the illness. They fought to experience an adequate quality of life.	The results from this study can be used as guide for health care professionals.	Method and data analysis described in detail. Read the interview text several times and open-mindedly to gain a naive understanding. Divided interview into meaning units to provide structure. Used quotes to clarify data. Results cannot be generalized. Took measures to reduce potential bias but one bias unable to solve was gathering data only from married men.

Table 2.1 Men and Chronic Illness (13 studies)

Authors	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Wallace (2005)	To explore whether certain antecedents explained uncertainty of men undergoing an uncertainty management program for prostate cancer.	A convenience sample of 19 men, older than 65 (range from 65-85), undergoing an uncertainty management program for prostate cancer.	The study used a correlational single group non-experimental design.	12-item Prostate Cancer Symptom Inventory; Health Care Orientation Subscale of the Psychosocial Adjustment to illness Scale; Norbeck Social Support	There is relationship between uncertainty and factors affecting the uncertainty. A person's education level and the amount of time they have had the illness plays a role in the amount of uncertainty they feel. Education level explained 52% of the variance in uncertainty.	The significant relationship between illness and education level/length of time with illness provides evidence for the Uncertainty in Illness Model. These findings give a better understanding of the variables that affect uncertainty. This understanding can helping professionals more effectively identify these factors in men with chronic illness.	Described theoretical framework from which study is based. Small convenience sample, therefore results cannot be generalized. Participants from various states. Incentive given. Pearson product moment correlations were used to analyze the relationships between the antecedents of uncertainty and uncertainty in the population. Charts used to supplement and clarify data. Discussion of results connects to previous research.

Appendix B: Table 2.2 Creativity and Well-being (6 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Bent & Taylor (2005)	To describe how pottery was used for occupational therapy as an intervention program at a community mental health facility.	One female, a law student with depression who was admitted for overdose.	Provided a description of what occupational therapy is and a 10 session case study in working with a mentally ill patient.	No instruments used.	Creative activities are connected to well-being in many ways. One creative activity, pottery, has shown to increase the quality of life for people with mental health illnesses. Pottery allowed Claire to grow and develop as well as to redefine herself and create meaning in her life.	The person was able to remember past times in her life when she felt creative, safe, and loved. She was also able to reunite with previous artistic occupations. The pottery memories helped her develop and allowed her to move away from previous roles and gain a sense of new roles in her life.	Good, detailed description of working with a patient with depression. Not a specific study with measures but a descriptive case study.
Collins (2006)	To examine the relationship between subjective well-being, flow and creativity in the lives of older adults.	55 older adults ranging in age from 70-86. 14 males and 41 females	Mailed package with description of study and measures to be filled out. Descriptive and exploratory analyses used to look at variable distribution. Hierarchical Linear Modeling used to analyze the longitudinal data over a seven day period.	Satisfaction with Life Scale; 2 Flow questionnaires; Activity Checklist; Biographical Questionnaire; Holland Code; Lifetime Creativity Scales	Creativity is significantly related to positive emotions, occupational creativity and life satisfaction.	Creativity is important all through life and provides positive results. Creativity plays an important role in the perceived well-being of older adults.	Discussed areas for future research. Daily observations not obtained randomly. Potential bias from dropouts, missing data and data collection time. Possible cohort effects. Small but adequate sample size. Personal reward for participating. Strict inclusion criteria. Reliability & validity of measures described. Tables provided for main information. Clear analysis. Results discussed & connected with hypotheses & prior research.

Table 2.2 Creativity and Well-being (6 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Cropley (1990)	A meta-analysis of studies that looked at how everyday creativity can increase positive mental health.	The results of several small studies.	Meta-analysis of several small studies.	No instruments used.	The studies in the past that found a relationship between creativity and mental illness had limitations. Creativity comes from thoughts, personality and motivation and is associated with healthy personality development and positive psychological traits. Personal and psychological traits are a part of everyday behaviour, showing that “everyday creativity” exists.	Creativity is related to everyday behaviour such as healthy personality development and positive psychological traits, which supports the existence of “everyday creativity”. Everyday creativity can help people increase their positive mental health.	Reviewed several studies. No purpose stated. No introduction or conclusion stated. Studies organized and set up logical explanation of everyday creativity and its connection with positive mental health. Discussed limitations of past studies about creativity and mental illness. No limitations discussed regarding studies of everyday creativity and positive mental health.
Kerr, Shaffer, Chambers & Hallowell (1991)	To compare substance use of 3 adult groups with creative jobs (writers, artists and musicians) with adult control group without creative jobs.	The study did not specify how many people were in the sample and how old they were. Four groups of people participated. The control group consisted of individuals attending art, writing and music events.	A substance use survey was given to the four groups of people. Two-way MANOVA used to analyze data. Four substances asked about in the study: caffeine, alcohol nicotine, and marijuana.	A survey was developed to assess substance use among the individuals tested. The survey consisted of 11 biography questions and questions related to use of substances.	The results did not show a significant difference in substance use across the groups. Even the people who used substances daily used a low amount.	This study demonstrated that creativity and maladjustment are not related.	Only one instrument that was not standardized was used to assess substance use. Quantitative study. Charts used to show statistics clearly. Methodology and analysis described clearly. The discussion short without detailed information and is not connected with previous studies. This study is the only one to examine creativity and substance use focused on productive creative adults.

Table 2.2 Creativity and Well-being (6 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Millar (2001)	To describe a longitudinal study by Dr. Paul Torrance in Minneapolis. To examine creativity in students and how it influences who they become and their career.	Students grades one to six from two elementary schools 204 females and 187 males in first study 116 females and 95 males in the second study. 56 females and 45 males in the third study.	Creative thinking test administered to the children and 40-year update questionnaire administered regarding education, career growth and creative success 18 people interviewed, creative achievements rated. Repeated Analysis of Variance.	Minnesota Tests of Creative Thinking Manifesto for Children; Questionnaires on education, career development and creative achievements; Stanford Binet Intelligence test; Wechsler Intelligence Scales for Children; California Test of Mental Maturity.	Creative success emerges more from personal areas of life than public or professional areas of life. Creativity included making events happen and finding novel answers to problems. Seven traits found that the creative adults exhibit. Creativity learned and used in all life and work roles. TTCT identified creativity and success in adults. Creativity helps mental health by effective coping with daily and future stresses.	17 creative factors and strengths identified including: fluency, flexibility, originality, putting ideas into context, elaboration, openness, highlighting the essence, awareness of emotions, combining and synthesizing, visualizing, fantasizing, enriching imagery, having unusual and internal visual perspective, extending boundaries, sense of humour, and concern for things outside of the self.	Longitudinal study-lost many participants throughout the years. Started with large sample but still ended with adequate sample size. 10 cases picked to elaborate on to give detailed understanding of connection between creativity and well-being. Method and data analysis described thoroughly. Charts and graphs used to portray information. Good discussion of results, themes and implications for studying creativity.
Nicol & Long (1996)	To assess the relationship between creative traits and stress levels of female music therapists and female music hobbyists.	95 female musicians (46 music hobbyists and 49 music therapists) who played an instrument for a minimum of 8 years.	Participants given the tests listed and then a hierarchical multiple regression was used to test the hypothesis.	Torrance Tests of Creative Thinking, Adjective Checklist, Creative Behaviour Inventory, Barron-Welsh Art Scale, Current Musical Activity, Perceived Stress Scale	Increased creative thinking and decreased stress levels in music hobbyists. Relationship between creative thinking and stress levels low in music therapists.	Exploratory study as research is lacking in this area. Creative thinking has negative relationship with stress levels in music hobbyists and weak positive relationship in female music therapists. Shows that creative thinking needs to be re-examined.	Good instrument descriptions with reliability and validity data. Charts given with statistics. Results limited in who to generalize to – volunteered & may be different results than non-volunteers. Results cannot identify causal relationships because cross-sectional design. Possible that a third, unmeasured variable may account for the relationship between creative thinking and stress level. The measures limited in ability to accurately capture the creativity construct. Connections between results discussed and connected with previous research.

Appendix C: Table 2.3 Creativity and Chronic Illness (8 studies)

Authors	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Cangelosi & Sorrell (2008)	To illustrate how storytelling using the basic principles of gerogogy can be used as an effective teaching tool for older adults with chronic illness.	1 elderly lady's story of being diagnosed with a chronic illness.	Not a formal study - information provided through storytelling.	Interview	Explored the needs of seniors with chronic illness using storytelling strategies can be helpful because patients may not be aware that they are lacking information. Educational strategies can help older adults learn new information that is connected to their past experiences. Further research into the teaching-learning styles and needs of older adults is needed.	This study shows that using storytelling and other educational strategies guided by gerogogy may more effectively fulfill senior's needs. Health care providers need to be aware of how to incorporate gerogogy into health care services. Storytelling strategies can be used by health care providers to help them fully hear the senior's stories.	Method not described clearly. Detailed in depth information based on one person's story. Used quotes to clarify information. Provides information on the need for creative educational strategies for seniors with chronic illness and used the person's story and empirical data to confirm this need. Discusses storytelling as an educational strategy using person's story and empirical data to confirm the effectiveness. Information based on one person's account and therefore the data is not generalizable. Not an empirical study.
Collie, Botorff, & Long (2006)	To investigate how women with breast cancer used art therapy and art making to fulfill their needs.	17 women with breast cancer who became involved in art.	In-depth interviews	Narrative research methods	Many women are involved in art making to increase their sense of self and their happiness, to gain a new perspective on the illness, and to resolve emotional issues.	Women with cancer use various types of art to help cope with challenges of living with a chronic illness.	Adequate sample size. Some major ethnic groups in the two regions (Canada and US) not represented. Professional and non-professional art used. Method and data analysis described clearly. Themes verified and member check used. Quotes used and participant's lives described in detail. Themes were connected with previous research.

Table 2.3 Creativity and Chronic Illness (8 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Heiney & Darr-Hope (1999)	To describe the Healing Icons program including the goals and how it is set up with the sessions, and an evaluation of the program.	The number of participants was not specified. Approximately 4-9 in each program. In the one described, three men participated and the rest were women. The participants were diagnosed with either prostate cancer, breast cancer or liver cancer. Ages ranged from 24-68.	An art therapy program was described. Six, one and a half hour sessions. The sessions consisted of three parts: Group Discussion, Art Making Time, and an Educational Piece. Discussed evaluations from participants and practitioners.	Art supplies and written evaluation forms	Both the men and women were able to re-create a positive image, gain more knowledge about themselves and increase their self-esteem.	Blending traditional supports with creative supports provides many benefits for men and women with cancer. This study provides information on how to include the healing arts into cancer care.	This was not a traditional study and no specific methodology was used. Small sample size. Researchers gathered evaluation forms from participants and program facilitators discussed results and implications. However, the program has evolved through revisions based on evaluations.
Nainis, Paice, Ratner, Wirth, Lai & Shott (2006)	To examine the effect of art therapy on pain, anxiety and a variety of other symptoms common to people with cancer.	Participants from the inpatient oncology units at an urban academic medical center over a four month period. Patients diagnosed with cancer that were 18 years old or older. 50 people, both men and women.	A cart full of art supplies; Edmonton Symptom Assessment Scale (ESAS); Spielberger State-Trait Anxiety Index (STAI-S); Three open-ended questions for evaluation.	Baseline assessment of anxiety and symptoms measured. Questions about demographic data, diagnosis and previous art therapy experiences. One-hour art therapy session. Counsellor came to the subject's room with a cart that held arts and crafts materials.	Both men and women found it easier to express their feelings about the illness non-verbally. The creative arts distracted them and re-focused their thoughts onto something positive.	This shows evidence for the effectiveness of art therapy in decreasing the symptoms of cancer in a diverse group of men and women.	Adequate sample size but not large. Instruments used were described in detail. Reliability and validity evidence was discussed. Procedure and method of data analysis were described. Charts and graphs used to show statistics. Good discussion of results. No control or randomization to account for many variables that may have influenced the outcome of the study. Long term effects of art therapy were not evaluated.

Table 2.3 Creativity and Chronic Illness (8 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Reynolds (2002)	To investigate whether people involved in artistic pursuits find meaning in their art and if it plays a role in helping them cope.	Women ages 29-75 and the majority were between 50 and 60	In-depth semi-structured interviews	Qualitative interviews with 30 women. Five women gave extensive written answers to the interview questions.	Women who created textile arts were able to re-establish a positive self image, create a stronger identity, and gain control over their illness.	Women with different types of chronic illness use various types of art to help cope with challenges.	Large sample. Second coder used to validate themes. Stated analysis approach being used but no method or analysis description. Used quotes and connected themes in discussion. Examined the results in relation to previous findings. Many types of illness and creative activities have been used to cope with illness.
Reynolds (2003)	To explore the part that illness played in motivating engagement in creative arts.	Women with a variety of long-term illnesses who regularly engaged in textile arts. 24 women, ages 29–72. Most were hobbyists, but some were textile artists.	Analyzed data using the constant comparative approach-the researcher moves between emerging themes and the original data, to check that themes represent a good summary of the respondents' meanings. Some of the specific issues were coded into larger, more abstract themes.	In-depth, semi-structured audiotaped interviews, 1–2 hour in duration. Open questions formulated to guide a focused conversation about the process of discovering textile arts and benefits of it.	The women began textile arts when faced with the challenges of a chronic illness. They had never defined themselves as artistically talented before this new development. Many factors played a role in increasing the women's creativity.	Provides evidence that chronic illness can change a person's perspective and may be a pivotal moment in an artist's life. Rehabilitation workers may want to incorporate the arts as a technique or resource for working with people with chronic illness.	Detailed literature review. Qualitative approach fit with the exploratory study. Diverse demographics of participants. Questions to ask were planned to provide focused interview. Used two data analysis procedures. Diagram outlined salient aspects of information. Detailed descriptions of themes with quotes to supplement information. Detailed discussion and connected to previous research. No discussion of limitations.

Table 2.3 Creativity and Chronic Illness (8 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Reynolds & Prior (2003a)	To examine strategies women use to achieve quality of life with MS.	27 women, most of whom had been living with MS for more than 5 years.	Semi-structured interviews	Interpretative phenomenological approach to analyze interviews	Creative activities help women with MS to cope. Some continued activities they had done prior to their illness and others tried new things. The benefits the creative activities included giving them a new life and new goals to replace the void of work as well as allowing them to focus on re-gaining their prior lifestyle and seeing a positive side to MS.	Women with MS use many activities to cope. They used a wide range of strategies to achieve an adequate quality of life. The researchers suggested that a comparative study of men's strategies is needed. These strategies may be viewed as methods that men could also use to cope.	Describes themes. Uses women's quotes & charts provided. Describes procedure & data analysis. Discussion connects themes & relates them to prior findings. Ideas for future research suggested. Sample not representative. Women all fairly experienced with illness and coping. Large sample.
Reynolds & Prior (2003b)	To explore the meanings and functions of art for a group of women living with chronic illness.	35 women; Five women submitted extensive written answers to the interview questions	Interviews	Interpretive phenomenological analysis	Women created artwork to cope. The benefits artwork provided them included: decreased uncertainty, view of a positive future, distraction from the illness, filled time and replaced working, allowed women to contribute more and increased control.	Women living with various chronic illnesses use art. The benefits provided to women may also help men. Some benefits may be specific to artwork but may also feel a similar experience from other personally valued activities.	Sample of women and types of creative activities not representative. Participant's quotes provided & charts used. Large sample size. Clear analysis. Two people analyzed the data. Discussed themes and results in relation to previous studies.

Appendix D: Table 2.4 Internet Research (9 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Burgess, Donnelly, Dillard & Davis (2001)	To look issues regarding internet research and discussing guidelines for using the internet for research.	300 involuntary celibates	Participants recruited and interviewed through search engines, email, listservs and web pages.	13 demographic questions & 58 questions about past sexual experiences, current relationships, initiating relationships, sexuality and celibacy, non-sexual relationships and the consequences of celibacy.	Before using the internet, researchers must determine whether the internet fits their research. Suggestions for online research include: identifying online places to gain access to subjects, informing participants of benefits/risks and how the data will be used and being observant during data collection.	This study provided information on issues to think about and plan for when using the internet for research including: protecting the participant's confidentiality (because many are afraid their privacy will be violated) and ways to obtain online informed consent.	Surveys do not necessarily represent comparable populations and variables were not measured uniformly. Clearly discussed benefits, limits and solutions of internet research. Large, diverse sample. Attempt to increase representation but did not work. Subjects of study (involuntary celibates) suited the online method well. Random sampling was not possible. There were many early and late responders, which may provide differences in data collected. No specific standardized questionnaires used.
Cantrell & Lupinacci (2007)	To assess using the internet for collecting data from early survivors of childhood cancer.	Majority of the participants were white, single and female. Mean age: 23. Most survivors had been off treatment for one year and diagnosed with cancer at the age of 15.	While guided by literature on data collection via the internet, online protocol was developed. Six months of data collection.	Affect Balance Scale; Coopersmith Self-Esteem Inventory; The General Health Rating Index; Nowotny Hope Scale; Personal Resource Questionnaire; Minneapolis-Manchester Quality of Life Instrument	The results of this study were skewed due to a low response rate and a significant amount of missing data.	Internet research allows data to be collected all over the world, including hard to reach populations. There is also increased anonymity because people feel more safe to answer sensitive questions. However, the internet must be used cautiously for data collection. Suggestions provided: use multiple methods of contact, careful planning for collecting data to ensure high quality is gathered, requiring answers, & dropouts should be contacted to discuss reasons for dropping out.	Followed past study suggestions. Pilot tested but only with healthy controls. No difficulties with pilot. Screened participants with demographic data. Required answers to all items; changed this to increase response rate but increased missing data. Needed significant amount of data cleaning. Left out data if case had more than two missing values in one scale. Low response rate. Too many questions may be reason for lots of missing values. Researchers must ensure participants are fully aware of the study procedures used to protect anonymity and confidentiality.

Table 2.4 Internet Research (9 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Eaton & Struthers (2002)	To look at the perceptions of employees from various companies.	135 people completed paper-and-pencil surveys and 220 completed online surveys.	A snowball sample and a sample recruited over the internet completed the survey. The two groups were compared on demographic characteristics and on attitudes towards the organization.	The participants were asked to describe a negative incident involving their company and answer questions regarding how they felt about their company and how they behaved following the incident. Measures of organizational cynicism & job satisfaction used.	There were not many differences between the paper and online surveys. The online group was more critical with their evaluation of the organization but the response patterns of both groups were similar. Thus, online participants may be more honest, which can allow more accurate data to be gathered. Timed or interactive studies cannot be used in an online format.	When carefully used, the internet can be a useful way of gathering data. Outside factors that were not controlled for (such as the way participants were recruited) may have accounted for the differences between the groups.	The study introduction, focus and results are specific to organizational research. The researchers lacked control over the test setting. Participants were self-selected and the results cannot be generalized to non-internet users and settings outside of organizational research. The two samples were compared on demographics, measure psychometrics and response patterns to ensure they were similar. Good descriptions of measures used. Method for the study was not described.
Hamborg, Vehse, Ollermann & Bludau, (2004)	To examine whether paper and online surveys are equivalent when scale mean values and reliabilities are compared.	106 responses; Mean age 38 years (Range: 24-61 years). 55 people (51.9% female & 34% male). Computer knowledge: 22 novice, 27 intermediate and 30 expert users.	Scale mean values and reliabilities for both questionnaire formats calculated to assess the ergonomic quality of the application .	IsoMetrics Usability Inventory	There was not a significant difference in the mean values and reliabilities between the online and the paper-and-pencil answers on the IsoMetrics Usability Inventory.	The similarity between the means and reliabilities of the paper and online surveys provides evidence that two types of surveys can be seen as equivalent.	Detailed discussion of the measure used and the population that uses the inventory with charts to supplement the information. Data analysis and results also described in detail with charts to provide extra information. Rated inventory on many different aspects (suitability, error tolerance etc) and compared it to other systems. No limitations discussed.

Table 2.4 Internet Research (9 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Hanscom, Lurie, Homa, & Weinstein (2002)	To evaluate differences between computerized and paper surveys.	Online population included 3574 people. Paper population included 14,815 people. Mean age 50.3. Gender split approx 50%.	Retrograde data quality analysis. Compared Pearson's test & means using t-test. Multivariate logistic regression	National Spine Network Health Status Survey. Study Cohort and Missing Value Rates. Short Form-36 Response Consistency Index.	The paper surveys had almost double the amount of missing data than that of the computerized survey. The computerized survey also showed evidence of better internal consistency.	The higher response rates and internal consistency of the computerized survey suggests that online surveys may produce more accurate data.	Computerized and paper survey differences may have explained data variance. Computer questions harder to skip, font larger, buttons clearer and easier to read and data entry accurate because automatic entry. Two common online strategies for increasing response rates not used: requiring responses & re-asking skipped questions.
Joinson (1999)	To evaluate differences in data collection through online surveys versus paper surveys and through anonymous methods and non-anonymous methods.	82 students enrolled in introductory research methods course at the University of Glamorgan. Internet sample: 20 females and 21 males with mean age of 22.89. Paper-and-pencil: 23 females and 18 males with mean age of 20.95.	A 2 x 2 between subjects factorial design was used. The independent variables were the types of questionnaire and the anonymity status. The dependent variable was the participant's scores on the measures.	Self-consciousness measure, Self-Esteem Scale and Balanced Inventory of Responding Bias	The people in the anonymous and internet groups reported lower social anxiety and social desirability and higher self-esteem. The people in the anonymous group were less inhibited. Although this can be helpful in gathering data and increasing response rates, disinhibition can increase the amount of false data by affecting the responses to the questions.	No clear conclusion as to whether questions were answered differently in the online or paper groups. However the low social desirability scores in the online group suggests their responses may be more accurate.	Anonymity was taken into account as a possible confounder in the differences between internet and paper-and-pencil surveys. The sample was not diverse. Paper version was a print out of the online version to ensure similar formats. Random selection was used. Potential problems with applicability of the findings. Perceived anonymity may be greater among the genuinely internet-based participants and results might underestimate disinhibition for on-line questionnaires. If the web is perceived as anonymous, even by both samples, the differences between the samples could be seen as main effect of medium (web vs. paper) not the differences in perceived anonymity.

Table 2.4 Internet Research (9 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Kaye & Johnson (1999)	To explore using the internet to gather political information as well as to examine issues with internet research and provide recommendations for using the internet.	306 participants; Mean age 31.2 years; 75.5% males; 24.5% females; 88.3% Caucasian	Designed a paper-and-pencil survey and adapted it to the internet to place the survey on the web.	20 questions using Likert-type scales.	Suggestions for using the internet for research provided including: using purposive sampling and multiple methods of contact to increase generalizability, watching for duplicate responses and ensuring the survey design is simplistic.	Internet research can be useful if careful planning is done to overcome the challenges of online data collection and specific steps are followed.	Designing a paper survey first than modifying it for online use seems time consuming and would make online adaptation more difficult. Detailed description of survey development and issues. Described places survey posted to gather potential participants. Large sample size. Unable to calculate response rate. Detailed discussion of issues that occurred during study and guidelines for future research.
Schleyer & Forrest (2000)	To examine use the internet in clinical practice by 450 dental professionals.	450 dental professionals	The survey blended controlled mail survey with web-based data collection.	Online survey with a series of simple HTML pages.	This online study had a 74.2% response rate and cut research costs by 38%. However, the researchers had some difficulties in using the internet including technical, usability, and programming difficulties.	Online research can reduce the amount of time needed to collect data, decrease research costs and increase response rates but must be planned carefully to avoid difficulties.	Blended principles of a controlled mail survey with online data collection. More completion options provided (email/fax). Survey tested with different operating environments. High response rate (74.2%). Technical and usability problems and a programming error. Presented formula to calculate breakeven points of electronic and hardcopy surveys. Random selection not used.

Table 2.4 Internet Research (9 studies)

Author	Purpose	Sample	Design	Instruments	Results	Implications	Comments
Strickland, Moloney, Dietrich, Myerburg, Cotsonis & Johnson (2003)	To investigate the experiences of perimenopausal women with migraine headaches and to determine whether collecting the data via the internet is effective.	Women who are perimenopausal and experience migraine headaches. Did not say how many women.	Mixed methodology: quantitative online survey and qualitative on-line discussion board focus group.	Health history tool, Migraine-Specific Quality of Life and Short Form Health Survey-36	Suggestions provided based on past study experiences included: screening participants carefully to ensure the criteria is met, using more than one method of communication besides the internet, providing time to help participants with using the survey, and providing public computers for participants to use to complete the survey.	Careful planning should be done before conducting online data collection in order to increase the effectiveness, increase the advantages and decrease the difficulties. To increase the strength of the study, only measures with strong reliability evidence and simple designs should be used online. Most self-report measures show evidence of good reliability and validity and may be adapted easily to put online.	The researchers used information gathered from the current study to discuss suggestions. Discussed issues for both quantitative and qualitative research as they came up in the studies. Dual purpose: learn about migraines and discuss internet research. Mixed methods with multiple discussion boards used to gather varied types of information. Diverse sample. Gathered participant's perceptions of internet study. Suggestions given, including information regarding adapting paper measures to online format. No limitations listed.

Appendix E: Ethics Approval



UNIVERSITY OF
SASKATCHEWAN

Behavioural Research Ethics Board (h-REB)

Certificate of Approval

PRINCIPAL INVESTIGATOR
Jennifer J. Nicol

DEPARTMENT
Educational Psychology and Special Education

BEH#
08-38

INSTITUTION(S) WHERE RESEARCH WILL BE CONDUCTED
University of Saskatchewan
Saskatoon SK

STUDENT RESEARCHERS
Tara Storie

SPONSOR
UNFUNDED

TITLE
Creativity, Male Chronic Illness, and Coping: An Exploratory Study

ORIGINAL REVIEW DATE
20-Feb-2008

APPROVAL ON
01-Dec-2008

APPROVAL OF:
Ethics Application
Consent Protocol

EXPIRY DATE
30-Nov-2009

Full Board Meeting ☐

Date of Full Board Meeting:

Delegated Review ☒

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS

In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: http://www.usask.ca/research/ethics_review/

Please send all correspondence to:

Ethics Office
University of Saskatchewan
Room 302 Kirk Hall, 117 Science Place
Saskatoon SK S7N 5C8
Telephone: (306) 966-2975 Fax: (306) 966-2069

Appendix F: Email to Chronic Illness Organizations

Hello,

My name is Tara Labuik and I am a graduate student at the University of Saskatchewan (Saskatoon). I'm conducting research on creativity and chronic illness in males using an online survey. I have been looking on the internet for online support groups, discussion boards, and chat rooms for males with chronic illness. I'm currently contacting the leaders of these groups, rooms, and discussion boards to see if they would be willing to send my survey out to their members or to post my survey if they have a website or online discussion group. I wondered if I would be able to send the survey to you to send out to your members. I can send more details for you at a later time, but I am just looking into whether you would be willing to help me out first. If you can let me know, please send me a note to this email address. Thanks!

Sincerely,

Tara Labuik

Department of Educational Psychology and Special Education
University of Saskatchewan

Appendix G: Letter to the Participants

Hello,

I am a graduate student at the University of Saskatchewan, in the School and Counselling Psychology program. I am searching for men 18 years of age or older, who have been diagnosed with a chronic illness at least two years ago, and who are interested in volunteering to participate in a study about creative behaviour and chronic illness. This project is a part of my thesis research to obtain a Masters of Education.

The purpose of the study is to explore the relationship between creative behaviour and stress. If you agree to participate in this study, you will be asked to complete an online survey containing questions about your background, your personal attitudes, your feelings towards various situations, and your involvement in creative activities. Depending on how many creative activities you participate in, it will take approximately 15-30 minutes to complete the survey.

The survey will be available online at
<https://survey.usask.ca/survey.php?sid=15430>

If you wish to learn more about this study or have any questions or comments about this study, please feel free to contact me at 966-5263 or tajesto@yahoo.ca, or my faculty advisor, Dr. Jennifer Nicol at 306 966-5261 or jaj.nicol@usask.ca. We would be happy to provide more details about this study.

If you wish to participate, you may paste the following link into your web browser:

<https://survey.usask.ca/survey.php?sid=15430>

Thank you very much for your help.

Sincerely,
Tara Labuik
Department of Educational Psychology and Special Education
University of Saskatchewan.

This research has been reviewed by the Ethics Review Board at the University of Saskatchewan to ensure that it conforms to ethical standards set for research with human subjects. If you have any questions for the Ethics Review Board, please contact the Research Ethics Office at (306) 966-2084.

Appendix H: Poster for Participants



Are you a male with a chronic illness?

Would you like to share your experiences of living with the illness?

A graduate student at the University of Saskatchewan in counselling is conducting a study on creative behavior, stress and chronic illness.

To participate, you must be:

- Male
- 18 years or older
- Diagnosed with a chronic illness at least two years ago

Participation only requires 15-30 minutes of your time to complete an online survey and will help me obtain my masters degree.

If you are interested in participating, please write down this link and type it into an internet browser. This link will take you directly to the beginning of the survey.

<https://survey.usask.ca/survey.php?sid=15430>

If you have difficulty accessing the link, wish to learn more about this study or have any questions, please feel free to contact me at 966-5263 or tajesto@yahoo.ca, or my faculty advisor, Dr. Jennifer Nicol at 306 966-5261 or ja.j.nicol@usask.ca. We would be happy to provide more details about this study.

Thank you very much for your help!

Sincerely,
Tara Labuik
Department of Educational Psychology and Special Education
University of Saskatchewan

Appendix I: Snowball Request Email

To Whom it May Concern:

I need your help reaching men with chronic illness who would be appropriate participants for my research survey. My name is Tara Labuik and I am a graduate student at the University of Saskatchewan. My research goal is to learn more about the relationship between creative behaviour and stress in men with chronic illness. My research has been approved by the Research Ethics Board at the University of Saskatchewan and is in the data collection stage.

I am hoping you would be willing and able to complete the survey if you are a male who is 18 years or older and was diagnosed with a chronic illness at least 2 years ago. If you do not fit this description, I am hoping you will pass this on to any men for whom this might be relevant. There are no known risks associated with participation in this study, and each participant's responses will be kept confidential and anonymous. Participation is totally voluntary. Please let me know if you can grant my request.

Below is a blurb explaining my research, which I would like you to post:

A graduate student at the University of Saskatchewan requests your participation in a survey regarding the relationship between creative behaviour and stress in men with chronic illness. A relationship between creative behaviour and stress in women with chronic illness has been discovered. I am interested in determining whether there is a connection between creative behaviour and stress in men with chronic illness as well. If you are willing to participate in this research, please click on the following link (or cut-and-paste it into your web browser):

<https://survey.usask.ca/survey.php?sid=15430>

Completion time for the survey will vary depending on your experiences, but will take approximately 15-30 minutes to complete. I urge you to take the survey, even if you have not been involved in very many creative activities.

Your time and effort are greatly appreciated. I would be happy to answer any questions you have about this study. Please feel free to contact me at 966-5263 or tajesto@yahoo.ca, or my faculty advisor, Dr. Jennifer Nicol at 306 966-5261 or jaj.nicol@usask.ca. We would be happy to provide more details about this study.

Thank you in advance for any consideration of my request.

Sincerely,
Tara Labuik

Department of Educational Psychology and Special Education
University of Saskatchewan

Appendix J: Consent Form

Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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1. [Required] Consent Form

This study is about creative behaviour and stress. We are hoping to find out about your background, your personal attitudes, your feelings towards various situations, and your involvement in creative activities. Depending on how many creative activities you participate in, it will take approximately 15-30 minutes to complete the survey. There are no risks or discomforts associated with this study.

The study's purpose is to increase our understanding about how creative behaviour influences the lives of men with chronic illness. Creativity has typically been studied in terms of exceptional achievements, but there is a new interest in something called "everyday creativity". This study includes questions ranging from everyday activities considered to be creative to higher-end achievements.

All your responses will be kept confidential and anonymous. Only researchers can access survey results and answers cannot be traced back to the individual participants. Results will be used for a thesis for a Masters of Education degree. The final thesis will be available on-line in the University of Saskatchewan Library. Results may also be published in reports, academic publications, and conference papers. However, the data will be reported all together so that it will not be possible to identify individuals.

Your participation is voluntary, and you may answer only those questions that you are comfortable with. You may withdraw from the research at anytime by pressing the "Quit Survey - Do not save answers" button. Once you click the "Finish" button, your responses cannot be withdrawn because of the anonymous nature of the study.

This research project has been approved by the University of Saskatchewan Behavioural Research Ethics Board. Questions concerning this study can be answered by contacting the Research Ethics Office at (306) 966-2084, or Tara Labuik, B.A. Hon., M.Ed Candidate at (306) 966-5263. This research is being conducted under the direction of Dr. Jennifer A. J. Nicol, Ph.D., R.D.Psych., M.T.A., Department of Educational Psychology and Special Education, University of Saskatchewan. If you would like further information about the study, you can contact her at (306) 966-5261.

If after reading this consent form you would like to participate in this study, please click below. Thank you.

☐ I have read and understood the information about this study. With knowledge of this information I agree to participate in this study.

Next Page >>

Quit - Do not save answers

Next Page >>

Appendix K: Socio-Demographic Questions

Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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Thank you for agreeing to complete the survey. Here is some tips to help you fill out the survey.

- 1) Please answer the survey questions that appear on each page. Sometimes, the survey will jump pages based on your responses to previous questions. For example, do not worry if you notice that you jumped from page 5 to 10!
- 2) Use the "Next Page" and "Previous Page" buttons to move through the survey because the "Back" or "Refresh/Reload" buttons in your browser will not work while you are completing the survey.
- 3) The last page of the survey has a "Finish" button. Please select that to save your survey results.
- 4) You can use the "Quit Survey - Do not save answers" button at any time to exit the survey if you change your mind about participating.

If you are ready to start, please select the "Next Page" button below to continue.

Next Page >>

Quit - Do not save answers

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Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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Page 3 focuses on your demographic information. Page 4 focuses on information about your chronic illness.

2. Age:

 (255 chars max)

3. Gender:

☐ Female ☐ Male

4. Race:

- ☐
-
- Aboriginal (Inuit Metis North American Indian)
-
- ☐
- Arab/West Asian (e.g. Armenian Egyptian Iranian Lebanese Moroccan)
-
- ☐
- Black (e.g. African Haitian Jamaican Somali)
-
- ☐
- Chinese
-
- ☐
- Filipino

- ☐ Japanese
- ☐ Korean
- ☐ Latin American
- ☐ South Asian
- ☐ Southeast Asian
- ☐ White (Caucasian)
- ☐ Other

5. If you selected "other" for race, please specify:

(255 chars max)

6. Is English your first language?

- ☐ Yes ☐ No

7. Education completed (Select one):

8. Current Employment:

9. Current relationship status (Select one):

- ☐ Single ☐ Co-habiting/Married ☐ Divorced/Separated ☐ Widowed

10. Do you live alone?

- ☐ Yes ☐ No

11. If no, who lives with you?

- ☐ Spouse/Partner ☐ Family member(s) ☐ Friend(s) ☐ Roommate(s) ☐ Other

12. Total household income:

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Quit - Do not save answers

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Appendix L: Illness Related Questions

Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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13. Diagnosed Medical Condition:

 (255 chars max)

14. Time since diagnosed with illness:

- ☐ 1 year or less
 ☐ 2 - 3 years
 ☐ 4 - 5 years
 ☐ 6 - 10 years
 ☐ 11 - 19 years
 ☐ 20 years +

15. Current health status. Compared to one year ago, your health is:

16. Symptoms you experience as a result of your illness (Select all that apply):

- ☐ Activity restrictions/limited mobility
- ☐ Fatigue
 - ☐ Depression
 - ☐ Shortness of breath
 - ☐ Pain
 - ☐ Less contact with friends
 - ☐ Poor concentration
 - ☐ Sleep disruptions
 - ☐ Abdominal pain
 - ☐ Loss of appetite
 - ☐ Headache
 - ☐ Difficulty falling asleep at night or wakefulness during the night
 - ☐ Nausea or vomiting
 - ☐ Dizziness
 - ☐ Tremor of hands
 - ☐ Diarrhea or irregular bowel function
 - ☐ Excessive perspiration without physical effort
 - ☐ Heartburn stomach cramps pain or other stomach acid problems
 - ☐ Breathlessness

- ☐ Palpitations
- ☐ Lack of bladder control
- ☐ Stuttering or difficulty speaking
- ☐ Muscle spasms or burning muscles
- ☐ Cognitive problems
- ☐ Vision problems or light sensitivity
- ☐ Memory loss
- ☐ Dry mouth
- ☐ Numbness
- ☐ Hot flashes
- ☐ Nasal problems
- ☐ Hair loss
- ☐ Swollen feet
- ☐ Taste changes
- ☐ Wounds
- ☐ Anxiety
- ☐ Impotence
- ☐ Other

17. If you selected other, please specify:

(255 chars max)

18. How much do your symptoms impact your daily life?

- ☐ No impact ☐ Very little impact ☐ Some impact ☐ Quite a bit of impact ☐ Significant impact

Next Page >>

Quit - Do not save answers

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Appendix M: Social Desirability Scale

Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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Listed below are a number of statements concerning personal attitudes and traits. Please read each item and decide whether the statement is *true* or *false* as it pertains to you personally.

19. I'm always willing to admit it when I make a mistake.

☐ True ☐ False

20. I always try to practice what I preach.

☐ True ☐ False

21. I never resent being asked to return a favour.

☐ True ☐ False

22. I have never been irked when people expressed ideas very different from my own.

☐ True ☐ False

23. I have never deliberately said something that hurt someone's feelings.

☐ True ☐ False

24. I like to gossip at times.

☐ True ☐ False

25. There have been occasions when I took advantage of someone.

☐ True ☐ False

26. I sometimes try to get even rather than forgive and forget.

☐ True ☐ False

27. At times I have really insisted on having things my own way.

☐ True ☐ False

28. There have been occasions when I felt like smashing things.

☐ True ☐ False

Appendix N: Perceived Stress Scale

Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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The questions below ask you about your feelings and thoughts during the last month. In each case, please select how often you felt or thought a certain way.

29. In the last month, how often have you been upset because of something that happened unexpectedly?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

30. In the last month, how often have you felt that you were unable to control the important things in your life?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

31. In the last month, how often have you felt nervous and "stressed"?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

32. In the last month, how often have you felt confident about your ability to handle your personal problems?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

33. In the last month, how often have you felt that things were going your way?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

34. In the last month, how often have you found that you could not cope with all the things that you had to do?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

35. In the last month, how often have you been able to control irritations in your life?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

36. In the last month, how often have you felt that you were on top of things?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

37. In the last month, how often have you been angered because of things that were outside of your control?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

38. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

- ☐ Never ☐ Almost Never ☐ Sometimes ☐ Fairly Often ☐ Very Often

Appendix O: Creative Achievement Questionnaire

Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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39. Click beside the areas in which you feel you have more talent, ability, or training than the average person (e.g., you've taken lessons, been published or won an award in these areas)

- ☐ **visual arts** (i.e. painting/sculptures etc.)
- ☐ **music** (i.e. played instruments; composed and recorded music)
- ☐ **dance** (i.e. performance choreography etc.)
- ☐ **architectural design** (i.e. design construction etc.)
- ☐ **creative writing** (i.e. poems short stories plays etc.)
- ☐ **humor** (i.e. writing/performing jokes etc.)
- ☐ **invention** (i.e. found novel use for objects; sketch/build inventions etc.)
- ☐ **scientific inquiry** (i.e. doing research publishing etc.)
- ☐ **theater and film** (i.e. performance directing etc.)
- ☐ **culinary arts** (i.e. experimenting with/preparing recipes etc.)
- ☐ **individual sports** (i.e. tennis; golf)
- ☐ **team sports** (i.e. football rugby)
- ☐ **entrepreneurial ventures** (i.e. started your own business)

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Quit - Do not save answers

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Visual Arts

40. Click beside sentences that apply to you.

- ☐ I have taken lessons in this area.
- ☐ People have commented on my talent in this area.
- ☐ I have won a prize or prizes at a juried art show.
- ☐ I have had a showing of my work in a gallery.
- ☐ I have sold a piece of my work.
- ☐ My work has been critiqued in local publications.

- ☐ My work has been critiqued in national publications.*

41. *For the sentence with an asterisk (*), type the number of times this sentence applies to you.*

(255 chars max)

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Quit - Do not save answers

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Music

42. *Click beside sentences that apply to you.*

- ☐ I play one or more musical instruments proficiently.
- ☐ I have played with a recognized orchestra or band.
- ☐ I have composed an original piece of music.
- ☐ My musical talent has been critiqued in a local publication.
- ☐ My composition has been recorded.
- ☐ Recordings of my composition have been sold publicly.
- ☐ My compositions have been critiqued in a national publication.*

43. *For the sentence with an asterisk (*), type the number of times this sentence applies to you.*

(255 chars max)

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Quit - Do not save answers

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Dance

44. *Click beside sentences that apply to you.*

- ☐ I have danced with a recognized dance company.
- ☐ I have choreographed an original dance number.
- ☐ My choreography has been performed publicly.
- ☐ My dance abilities have been critiqued in a local publication.
- ☐ I have choreographed dance professionally.
- ☐ My choreography has been recognized by a local publication.
- ☐ My choreography has been recognized by a national publication.*

45. For the sentence with an asterisk (*), type the number of times this sentence applies to you.

(255 chars max)

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Quit - Do not save answers

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Architectural Design

46. Click beside sentences that apply to you.

- ☐ I have designed an original structure.
- ☐ A structure designed by me has been constructed.
- ☐ I have sold an original architectural design.
- ☐ A structure that I have designed and sold has been built professionally.
- ☐ My architectural design has won an award or awards.
- ☐ My architectural design has been recognized in a local publication.
- ☐ My architectural design has been recognized in a national publication.*

47. For the sentence with an asterisk (*), type the number of times this sentence applies to you.

(255 chars max)

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Quit - Do not save answers

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Creative Writing

48. Click beside sentences that apply to you.

- ☐ I have written an original short work (poem or short story).
- ☐ My work has won an award or prize.
- ☐ I have written an original long work (epic novel or play).
- ☐ I have sold my work to a publisher.
- ☐ My work has been printed and sold publicly.
- ☐ My work has been reviewed in local publications.
- ☐ My work has been reviewed in national publications.*

49. For the sentence with an asterisk (*), type the number of times this sentence applies to you.

(255 chars max)

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Quit - Do not save answers

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Humor

50. Click beside sentences that apply to you.

- ☐ People have often commented on my original sense of humor.
- ☐ I have created jokes that are now regularly repeated by others.
- ☐ I have written jokes for other people.
- ☐ I have written a joke or cartoon that has been published.
- ☐ I have worked as a professional comedian.
- ☐ I have worked as a professional comedy writer.
- ☐ My humor has been recognized in a national publication.

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Quit - Do not save answers

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Inventions

51. Click beside the sentences that apply to you.

- ☐ I regularly find novel uses for household objects.
- ☐ I have sketched out an invention and worked on its design flaws.
- ☐ I have created original software for a computer.
- ☐ I have built a prototype of one of my designed inventions.
- ☐ I have sold one of my inventions to people I know.
- ☐ I have received a patent for one of my inventions.*
- ☐ I have sold one of my inventions to a manufacturing firm.*

52. For the first sentence with an asterisk (*) (receive patent), type the number of times this sentence applies to you.

(255 chars max)

53. For the second sentence with an asterisk (*) (sold invention), type the number of times this sentence applies to you.

(255 chars max)

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Quit - Do not save answers

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Scientific Discovery

54. Click beside the sentences that apply to you.

- ☐ I often think about ways that scientific problems could be solved.
- ☐ I have won a prize at a science fair or other local competition.
- ☐ I have received a scholarship based on my work in science or medicine.
- ☐ I have been author or coauthor of a study published in a scientific journal.
- ☐ I have won a national prize in the field of science or medicine.*
- ☐ I have received a grant to pursue my work in science or medicine.*
- ☐ My work has been cited by other scientists in national publications.

55. For the first sentence with an asterisk (*) (won national prize), type the number of times this sentence applies to you.

(255 chars max)

56. For the second sentence with an asterisk (*) (received grant), type the number of times this sentence applies to you.

(255 chars max)

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Theater and Film

57. Click beside the sentences that apply to you.

- ☐ I have performed in theater or film.
- ☐ My acting abilities have been recognized in a local publication.
- ☐ I have directed or produced a theater or film production.
- ☐ I have won an award or prize for acting in theater or film.
- ☐ I have been paid to act in theater or film.

- ☐ I have been paid to direct a theater or film production.
- ☐ My theatrical work has been recognized in a national publication.*

58. *For the sentence with an asterisk (*), type the number of times this sentence applies to you.*

(255 chars max)

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Culinary Arts

59. *Click beside sentences that apply to you.*

- ☐ I often experiment with recipes.
- ☐ My recipes have been published in a local cookbook.
- ☐ My recipes have been used in restaurants or other public venues.
- ☐ I have been asked to prepare food for celebrities or dignitaries.
- ☐ My recipes have won a prize or award.
- ☐ I have received a degree in culinary arts.
- ☐ My recipes have been published nationally.*

60. *For the sentence with an asterisk (*), type the number of times this sentence applies to you.*

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61. *Please list other creative achievements not mentioned in the previous pages.*

(255 chars max)

62. *Place a check mark beside sentences that apply to you.*

- ☐ One of the first things people mention about me when introducing me to others is my creative ability in the above areas.
- ☐ People regularly accuse me of having an "artistic" temperament.
- ☐ People regularly accuse me of being an "absent-minded professor" type.

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Appendix P: Flow Questionnaire

Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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The following quotations are from 2 different people who are describing an experience they have had during an activity. Please read the following quotations carefully.

A - "I am so involved in what I am doing. I don't see myself as separate from what I am doing."

B - "My mind isn't wandering. I am not thinking of something else. I am totally involved in what I am doing...I don't seem to hear anything...I am less aware of myself and my problems."

63. Can you recall a similar experience of your own?

☐ No ☐ Yes

64. If yes, could you give examples of the kinds of activities you do that give you this kind of experience?

(4000 chars max)

65. Approximately how many times did you have a similar experience in the last month?

- ☐ 0 - 10 times per month (never or up to once or twice a week)
- ☐ 10 - 20 times per month (3 - 5x per week)
- ☐ 20 - 30 times per month (daily)
- ☐ 40 - 60 times per month (twice a day)
- ☐ 60 times + (more than twice a day)

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Appendix Q: Everyday Creativity Questionnaire

Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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66. Which of the following things in this list do you do?

- ☒ **cultural activities** (attended museums; concerts; performances; etc)
- ☒ **TV movies and music** (watched movies; read magazines etc)
- ☒ **reading/news** (read books/news; discussed politics etc)
- ☒ **arts and crafts** (made crafts [collage/scrapbook/photos; discussed art etc])
- ☒ **relationships** (help other people [surprise party/make items for them etc])

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CULTURAL ACTIVITIES*How often have you been to the following in the last year?*

	Never	Rarely	Sometimes	Often	Very often
67. Art museums	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
68. Special art exhibitions (e.g., a collection of a particular artist)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
69. Museums other than art (e.g., science, natural history etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
70. Visited an art web site (e.g., home page of an artist or a museum)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
71. Operas or ballets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
72. Live Rock Concerts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
73. Local Band Gigs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
74. Plays	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
75. Lectures or discussions (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

76. Recitals or poetry readings

☐ ☐ ☐ ☐ ☐

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MOVIES, TV, and MUSIC:*How often have you done the following?*

Never Rarely Sometimes Often Very often

77. gone to movies (at a theatre) in the last month?
☐ ☐ ☐ ☐ ☐
78. seen foreign (subtitled or dubbed) movies ever?
☐ ☐ ☐ ☐ ☐
79. read entertainment magazines in the last month?
☐ ☐ ☐ ☐ ☐
80. read music-related magazines in the last month?
☐ ☐ ☐ ☐ ☐
81. watched educational programs in the last week (e.g., The Learning Channel, Animal Channel, etc.)?
☐ ☐ ☐ ☐ ☐

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READING/NEWS:*How often have you done the following?*

Never Rarely Sometimes Often Very often

82. read novels in the last 6 months?
☐ ☐ ☐ ☐ ☐
83. read nonfiction books in the last 6 months?
☐ ☐ ☐ ☐ ☐
84. read any kind of book in the last 6 months (excluding school or university course work)?
☐ ☐ ☐ ☐ ☐
85. read for pleasure (excluding school or university course work) in the last week?
☐ ☐ ☐ ☐ ☐
86. read a national or international newspaper in the last week (e.g., The Globe and Mail, New York Times, Boston Globe, etc.)?
☐ ☐ ☐ ☐ ☐
87. read a local newspaper in the last week?
☐ ☐ ☐ ☐ ☐

88. checked the news online in the last week? ☐ ☐ ☐ ☐ ☐

89. had a conversation about politics in the last two weeks ☐ ☐ ☐ ☐ ☐

90. had a conversation about philosophy in the last two weeks ☐ ☐ ☐ ☐ ☐

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ARTS AND CRAFTS ACTIVITIES

How often have you done the following in the last year?

	Never	Rarely	Sometimes	Often	Very often
91. Collages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
92. Stenciling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
93. Macrame, needlepoint, quilting, sewing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
94. Took pictures (photography)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
95. Scrapbooking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
96. Made ornaments (e.g., room or party decorations)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
97. Made posters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
98. Made picture frames	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
99. Made stationary/envelopes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
100. Made decorative boxes/wrapping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
101. Made picture collages or bulletin boards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
102. Had a conversation about art or an artist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
103. Worked in a specialized arts and crafts area (e.g., band teacher, art teacher etc.)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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EVERYDAY ACTIVITY*How often have you done the following in the last two weeks?*

	Never	Rarely	Sometimes	Often	Very often
104. Conversed with a stranger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
105. Told a joke and made someone laugh	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
106. Made yourself the center of attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
107. Laughed out loud by yourself about something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
108. Altered or painted a piece of clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
109. Helped a friend with an art project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
110. Helped a friend with fashion advice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
111. Cooked something new/invented a new recipe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
112. Posted a quote of the day or a picture of the day at home or in a public place	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
113. Written in a personal journal or diary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
114. Used/collected quotes or poetry in a journal or diary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
115. Gone to a place by yourself to relax	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
116. Sang or danced by yourself in your room	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
117. Rearranged furniture or decorations in your room	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
118. Made up dances with your friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
119. Animated a party (e.g., was the first one to get up and dance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

120. Wrote a poem or made a drawing on a napkin at a party/in a restaurant

☐ ☐ ☐ ☐ ☐

121. Thrown a surprise party for someone

☐ ☐ ☐ ☐ ☐

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RELATIONSHIPS:

How often have you done the following in the last year?

Never Rarely Sometimes Often Very often

101. Made a scrapbook of memories from your friendship/relationship for someone

☐ ☐ ☐ ☐ ☐

102. Given a poem you wrote to a friend/significant other

☐ ☐ ☐ ☐ ☐

103. Written a letter of love or appreciation to someone

☐ ☐ ☐ ☐ ☐

104. Surprised a friend or a significant other with a gift or a gesture

☐ ☐ ☐ ☐ ☐

105. Sent a 'blank inside' card to someone

☐ ☐ ☐ ☐ ☐

106. Made a card for someone

☐ ☐ ☐ ☐ ☐

107. Compiled a mixed CD or a videotape for someone

☐ ☐ ☐ ☐ ☐

108. Gone on a spontaneous trip with a friend/significant other

☐ ☐ ☐ ☐ ☐

109. Made a picture frame and put your picture for someone you love

☐ ☐ ☐ ☐ ☐

110. Designed a hairdo for a friend

☐ ☐ ☐ ☐ ☐

111. Designed a tattoo for a friend/significant other

☐ ☐ ☐ ☐ ☐

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Appendix R: Creative Behavior Inventory

Creative Behaviour, Male Chronic Illness, and Perceived Stress: An Exploratory Study

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133. For each item below, please click the activities in which you have participated/performed, designed/published, or won an award during your adolescent and adult life.

- ☒ **literature** (i.e. editor; wrote literature [poem/song/ story/jokes story/jokes])
- ☒ **music** (i.e. gave recital; wrote/record music; cut record; play instrument)
- ☒ **crafts** (i.e. made crafts; cooked; gardening; knitted)
- ☒ **art** (i.e. painted/sketched/drawn)
- ☒ **math and science** (i.e. constructed object; designed experiment/solved problem)
- ☒ **performing arts** (i.e. acted/sung/danced/directed/managed/choreographed)

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For each item, click the answer that best describes the frequency of the behavior in your adolescent and adult life. Be sure to answer every question, and don't worry about duplicate or similar items.

	never	once or twice	3 - 5 times	more than 5 times
134. Entered a speech context	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
135. Wrote a play	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
136. Planned and presented an original speech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
137. Took and developed your own photographs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
138. Designed a game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
139. Directed or organized a political group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
140. Performed on television	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
141. Made or helped make a film or videotape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
142. Made a musical instrument	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
143. Helped design a float	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| 144. Planned and directed a school or community event | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 145. Won an award for speech and debate | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 146. Wrote a play which was given in a public performance | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 147. Made up magic tricks | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 148. Had artwork or craftwork publicly exhibited | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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LITERATURE

For each item, click the answer that best describes the frequency of the behavior in your adolescent and adult life. Be sure to answer every question, and don't worry about duplicate or similar items.

- | | never | once or twice | 3 - 5 times | more than 5 times |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 149. Worked as an editor for a newspaper or similar organization | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 150. Worked as an editor for a school or university literary publication | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 151. Founded a literary magazine or similar publication | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 152. Had a piece of literature (e.g., poem, short stories, etc.) published in a school or university publication | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 153. Wrote poems (excluding school or university course work) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 154. Wrote the lyrics to a song (excluding school or university course work) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 155. Had a piece of literature (e.g., poem, short story, etc.) published (not in a school or university-related publication) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 156. Wrote clever or humorous letters | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 157. Started but did not finish a novel (excluding school or university course work) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 158. Wrote and completed a novel (excluding school or university course work) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 159. Won an award for some achievement in literature | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

160. Wrote a short story (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
161. Wrote something humorous such as jokes, limericks, satire, etc. (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	never	one or two organizations	3 - 5 organizations	more than 5 organizations
162. Participated in a writers' workshop, club or similar organization (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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MUSIC

For each item, click the answer that best describes the frequency of the behavior in your adolescent and adult life. Be sure to answer every question, and don't worry about duplicate or similar items.

	never	once or twice	3 - 5 times	more than 5 times
163. Gave a recital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
164. Wrote music for one instrument (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
165. Wrote music for several instruments (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
166. Cut a record	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
167. Won an award for musical accomplishments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
168. Was a participating member of a symphony orchestra	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
169. Entered a contest as a musician	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
170. Had original music published or publicly performed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	never	one or two years	3 - 5 years	over 5 years
171. Played an instrument (percussion, including piano) with a reasonable degree of proficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
172. Played an instrument (brass) with a reasonable degree of	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

proficiency

173. Played an instrument (string) with a reasonable degree of proficiency

☐☐☐☐

174. Played an instrument (wind) with a reasonable degree of proficiency

☐☐☐☐

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CRAFTS

For each item, click the answer that best describes the frequency of the behavior in your adolescent and adult life. Be sure to answer every question, and don't worry about duplicate or similar items.

	never	once or twice	3 - 5 times	more than 5 times
175. Made a craft out of metal (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
176. Made candles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
177. Designed and made your own greeting cards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
178. Built a hanging mobile (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
179. Put on a puppet show	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
180. Received an award for making a craft	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
181. Made a craft out of plastic, plexiglass, stained glass or a similar material (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
182. Made a leather craft (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
183. Made a ceramic craft (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
184. Designed and made a piece of clothing (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
185. Cooked an original dish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
186. Prepared an original floral arrangement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

187. Make jewelry (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
188. Planned and kept a garden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
189. Designed and constructed a craft out of wood (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
190. Designed and made a costume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
191. Made your own holiday decorations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
192. Knitted or crocheted something (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	never	one or two organizations	3 - 5 organizations	more than 5 organizations
193. Participated in a craft workshop, club or similar organization (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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ART

For each item, click the answer that best describes the frequency of the behavior in your adolescent and adult life. Be sure to answer every question, and don't worry about duplicate or similar items.

	never	once or twice	3 - 5 times	more than 5 times
194. Painted an original picture (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
195. Made a sculpture (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
196. Received an award for an artistic accomplishment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
197. Made cartoons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
198. Drew a picture for aesthetic reasons (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
199. Had artwork published in a school or university publication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
200. Had artwork published (not in a school or university-related publication)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

201. Kept a sketch book (excluding school or university course work)

☐☐☐☐
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MATH AND SCIENCE

For each item, click the answer that best describes the frequency of the behavior in your adolescent and adult life. Be sure to answer every question, and don't worry about duplicate or similar items.

never once or twice 3 - 5 times more than 5 times

202. Constructed something that required scientific knowledge such as a radio, telescope, scientific apparatus, etc. (excluding school or university course work)

☐☐☐☐

203. Presented an original mathematics paper to a professional or special interest group

☐☐☐☐

204. Had a mathematics paper published

☐☐☐☐

205. Developed an experimental design (excluding school or university course work)

☐☐☐☐

206. Entered a project or a paper into a science contest

☐☐☐☐

207. Applied math in an original way to solve a practical problem (excluding school or university course work)

☐☐☐☐

208. Wrote an original computer program (excluding school or university course work)

☐☐☐☐

209. Won an award for a scientific project or paper

☐☐☐☐

210. Entered a mathematical paper or project into a contest

☐☐☐☐

211. Had a scientific paper published

☐☐☐☐
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PERFORMING ARTS

For each item, click the answer that best describes the frequency of the behavior in your adolescent and adult life. Be sure to answer every question, and don't worry about duplicate or similar items.

never once or 3 - 5 more than 5

		twice	times	times
212. Received an award for acting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
213. Received an award for performance in modern dance or ballet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
214. Received an award for performance in popular dance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
215. Choreographed a dance (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
216. Put on a radio show	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
217. Performed ballet or modern dance in a show or contest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
218. Assisted in the design of a set for a musical or dramatic production (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
219. Had a role in a dramatic production (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
220. Entered a contest as a singer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
221. Directed or managed a dramatic production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	never	one or two organizations	3 - 5 organizations	more than 5 organizations
222. Participated in a drama workshop, club or similar organization (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
223. Participated in a dance workshop, club or similar organization (excluding school or university course work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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224. How did you hear about this study?

- ☐ From family members/friends/aquaintances
- ☐ From chronic illness organization
- ☐ On the internet
- ☐ Advertised through email
- ☐ Advertised through newsletter

☐ Other

225. If you selected other, please state how you heard about this study:

(255 chars max)