

Vicarious control and quality of life benefits in cancer patients

**By: Nadia Wesso-Rule
393156**

Supervisor: Dr. Esther Price

A research project submitted in partial fulfillment of the requirements for the degree of MA by coursework and Research Report in the field of Clinical Psychology in the Faculty of Humanities

University of the Witwatersrand, Johannesburg, December 2009.

Declaration

I declare that this thesis, entitled 'Vicarious control and quality of life benefits in cancer patients ' is my own unaided work. It is submitted for the degree of Master of Arts Clinical Psychology, at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination at any other university.

Nadia Wesso-Rule

Date: 02/12/09

Word Count : 19 573

Abstract

Cancer patients often experience psychological distress during and after treatment. Studies have indicated that heightened distress in cancer patients and how they perceive this distress is associated with a number of negative outcomes that include poorer adherence to treatment and poorer quality of life (Skärstein, Aass & Fossa, 2000). Furthermore, studies have suggested that the type of health locus of control orientation individuals have may be linked to managing depression, anxiety and stress (Helgeson, 1992). This study, therefore, aimed to investigate whether a vicarious health locus of control predicted higher mental health quality of life and lower depression, anxiety and stress. In addition, previous studies indicated that health locus of control has a complex relationship with coping. Therefore, a further aim of this study was to determine whether coping moderated the relationship between vicarious control and each of mental health quality of life, depression, anxiety and stress. Participants were invited through internet social networking sites as well as independent cancer support groups to participate in the study, which required them to fill out five questionnaires. Multivariate analyses were conducted and results indicated that an increased vicarious locus of control was associated with increased mental health quality of life and lower depression. In addition, emotion-focused coping was suggested to be a significant moderator between a vicarious locus of control orientation and anxiety and stress.

Table of Contents

Declaration.....	i
Abstract.....	ii
Chapter 1.....	1
1. Introduction	1
Chapter 2.....	4
2. Literature Review	4
2.1 Global impact of cancer	4
2.2 Quality of life.....	5
2.3 Depression	7
2.4 Anxiety.....	10
2.5 Stress	13
2.6 Control beliefs	15
2.7 Coping	18
Chapter 3.....	25
3. Methodology	25
3.1 Research Design	25
3.2 Sampling.....	25
3.3 Participants	26
3.4 Procedure.....	26
3.5 Measures.....	27
3.6 Data Analysis.....	30
Chapter 4.....	32
4. Results.....	32
4.1 Descriptive statistics	32
4.2 Correlations- Pearson's product – (r)	34
4.3 Preliminary analysis.....	36
4.4 Main analysis	39
Chapter 5.....	47
5. Discussion	47
Chapter 6.....	56
6. Conclusion.....	56
References.....	59
Appendices.....	70
Appendix A:	
Information Sheet	70

Appendix B:	
Participant Information Sheet.....	71
Appendix C:	
Questionnaire 1: Brief-COPE.....	72
Appendix D	
Questionnaire 2: Depression, Anxiety and Stress Scale	74
Appendix E:	
Questionnaire 3: Control Strategy Scale.....	75
Appendix F	
Questionnaire 4: Mental Health Locus of Control Scale	76
Appendix G	
Questionnaire 5: Rand SF-36 Scale.....	78
Appendix H	
Ethics Clearance	82
List of Tables	
Table 1: Type of cancer	33
Table 2: Type of treatment	34
Table 3: Correlation co-efficients	37
Table 4: Multivariate normality	38
Table 5: High and low vicarious control	41
List of Figures	
Figure 1. Interaction effect for anxiety.....	45
Figure 2: Interaction effect for stress	45

Chapter 1

1. Introduction

The aim of this study was to investigate whether or not an orientation towards a vicarious health locus of control is beneficial to cancer patients in terms of quality of life. Specifically, does feeling vicariously in control of one's illness outcomes or course health relate to increased perceived quality of life? It was hypothesised that cancer patients with a higher vicarious health locus of control orientation would use more adaptive coping strategies, and as a result, would report lower levels of depression and anxiety and better mental health quality of life when compared to cancer patients who do not feel vicariously in control.

While cancer diagnosis has become more prevalent, it is no longer considered to be a death sentence, but rather a disease that patients must manage and live with.

Numerous studies have shown that depression, anxiety, stress and poor quality of life are often psychological consequences of living with cancer, and cancer patients face the double challenge of learning to manage the physical as well as psychological effects of cancer. Moreover, previous studies suggest that depression and poor quality of life have been associated with 5 year survival rates as well as increased mortality due to cancer (Montazeri, 2008). As such, it becomes important to explore factors that can lower rates of stress, anxiety and depression in the hopes of improving overall mental health quality of life.

Research has suggested that depression, anxiety, and stress may be associated with health control beliefs (de Valck & Vinck, 1996) such as whether or not a person has

an internal or external locus of control. However, these findings have been mixed. It seems that vicarious locus of control has emerged as another form of locus of control. This has largely been conceptualized as the belief that trusted powerful others, such as doctors, medical treatments and religious/ spiritual beings such as a God, are in control of the outcome of their illness. As such, a vicarious locus of control allows a person to feel vicariously in control of their illness. It, therefore, becomes important to explore whether or not a vicarious locus of health control is associated with levels of depression, anxiety, stress and quality of life. The implication of finding that vicarious control predicts lower levels of depression, stress and anxiety would be that perhaps more focus should be placed on enhancing the doctor-patient relationship, and enhancing communication so as to enhance patient trust on the health system. This could have the effect of fostering a sense of vicarious control, which could potentially be beneficial to the patient in the medium to long run in terms of overall mental health quality of life, including lower levels of depression, anxiety and stress.

In addition, it seems that health locus of control beliefs have a complex relationship with coping. It has been suggested that individuals with an internal locus of control typically engage in proactive and adaptive behaviours (Rothbaum, Weisz & Snyder, 1982), while individuals with an external locus of control believe that consequences are a result of fate, luck or powerful others and tend to be reactive and avoid distressing situations (Gomez, 1998). Essentially, individuals' locus of control would impact on how they perceive and interact within their surroundings. It would, therefore, be important to determine whether certain control beliefs are moderated by certain ways of coping.

While quality of life research has proliferated worldwide and the World Health Organisation now considers it as the desired end point in cancer clinical trials, research on South African cancer populations has been limited. This study is important as it contributes to the literature on quality of life in the South African cancer population, while concurrently contributing to the broader cancer literature by way of exploring the effects of vicarious control beliefs on mental health outcomes. As such, the present study investigates whether vicarious control is associated with better quality of life and lower reported levels of depression, anxiety and stress in a sample of South African cancer patients.

Chapter 2

2. Literature Review

In this chapter the literature on quality of life with a special focus on mental health quality of life, depression, anxiety and stress and their relation to cancer, will be reviewed as well as how various types of health control beliefs and coping strategies affect mental health outcomes in cancer populations.

2.1 Global impact of cancer

The global burden of cancer has more than doubled over the past 30 years. It was further estimated that in 2008 there were more than 12 million new cases of cancer diagnosed, 7 million deaths from cancer and 25 million people living with cancer (Thun, DeLancey, Center, Jemal & Ward, 2010). While cancer diagnosis has become more prevalent, it is no longer a death sentence but rather a disease that patients must manage and live with. In 1965, cancer was largely considered to be a disease that occurs in westernised, high resource, industrialised countries. Today that global distribution of cancer has changed, with the majority of global cancer burden now found in low and medium resource countries (Thun, DeLancey, Center, Jemal & Ward, 2010). In South Africa approximately 62 000 new cancer cases are diagnosed annually and it has been estimated that there were 155 000 cancer survivors during 1997 and that 5 year survival rates have generally increased by up to 21% over the past 30 years (WHO, 1998).

Recent advances in understanding cancer treatment and diagnosis has led to a significant increase in cancer survival rates. However, in pursuing increased survival rates, factors that influence quality of life are often overlooked

With a diagnosis of cancer, most patients experience distress to varying degrees. In specific reference to cancer, distress is defined as “an unpleasant emotional experience of a psychological (cognitive, behavioural, emotional) social and/or spiritual nature that interferes with the ability to cope effectively with cancer and its treatment” (Thomas, Mohan, Thomas, & Pandey, 2002, p. 56). This distress can range from feeling vulnerable, sad and fearful to problems that have a significant negative effect on quality of life such as depression and anxiety. Cancer patients often experience psychological distress during and after treatment (Montazeri, 2008). Evidence suggests that heightened distress in cancer patients is associated with a number of negative outcomes that include poorer adherence to treatment recommendations, worse satisfaction with care and poorer quality of life (Skärstein, Aass, Fossa, Skovlund, & Dahl, 2000). It, therefore, becomes important to look at how poorer quality of life affects individuals living with cancer.

2.2 Quality of life

Populations facing chronic illness have been reported to have poorer quality of life when compared to people without chronic illness. Quality of life has been recognised as difficult to define (Yang, Brothers, & Anderson, 2008). Numerous attempts have been made to operationalize quality of life, the most widely used and comprehensively derived definition is that proposed by the World Health Organization (WHO, 1995), that is,

an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept, incorporating a complex way individuals' physical health, psychological state, level of independence, social relationships, personal beliefs and their relationships to salient features of the environment.

(The World Health Organization, 1995, p. 1405).

This definition highlights the view that quality of life is subjective and is multi-dimensional. Lehman (1996) provides another simple definition. He suggests that quality of life is a “patient’s perspective on what they have, how they are doing and how they feel about their life circumstances” (Lehman, 1996, p. 78). At a minimum quality of life covers a persons’ sense of well-being. While there does not seem to be a consensual definition of quality of life, most researchers agree that quality of life is an internal experience and is subjective to the patients’ earlier experiences and their mental state.

Quality of life in cancer patients is an important outcome and is now considered a significant end point in cancer clinical trials, as proposed by the WHO (Montazeri, 2008). It has been suggested that determining quality of life in cancer patients could contribute to improved treatment and could be as prognostic as medical factors (Montazeri, 2008). A study by Kenne-Sarenmalm, Öhlén, Jonsson and Gaston-Johansson (2009) put forward that patients with lower coping capacity reported a higher prevalence of cancer symptoms, experienced higher levels of distress and experienced worse perceived health, which in turn decreased the quality of their life. It is evident that decreased quality of life has a negative effect not only on physiological symptoms but also the psychological functioning of the individual (Hamer, Chida & Molloy, 2009; Montazeri, 2008). Quality of life is often further conceptualized as mental health quality of life and physical quality of life. While physical quality of life includes aspects of physical functioning due to physical pain and impairment due to the disease, mental health quality of life includes limitations on role function and social interaction due to emotional difficulties patients may encounter as well as taking different mood states, such as depression and anxiety into

account (Jordan-Marsh, 2002). The need to study mental health related quality of life is important when considering understanding the lives of cancer patients. While medical science has been able to enhance the quantity of life, for many with a cancer diagnosis, the mental health quality of life may suffer.

Various factors have been found to impede optimal quality of life. Social factors such as lack of money, poor social relationships and personal safety (Yang, Brothers & Anderson, 2008) which are of particular significance in the South African context as well as psychological factors, such as depression, anxiety and stress, may have a negative effect on quality of life. For the purposes of this study depression, anxiety and stress will be focused on and conceptualized as determinants of mental health quality of life (Brown & Paraskevas, 1982; Nordin, Berglund, Glimelius & Sjöden, 2001; Stark, Kiely, Smith, Velikova, House & Selby, 2002).

2.3 Depression

Depression is a highly disabling disorder that is highly prevalent in cancer patients (Spiegel & Giese-Davis, 2003). To date, health systems in South Africa have taken a largely biomedical approach and tend to focus more attention on physical symptoms while paying less attention to the effect of the individual's emotions when managing cancer (Pillay, 2001). The concept of depression is often loosely used to describe what may be a brief negative mood, feeling sad or low. It may also refer to a severe, incapacitating melancholy or mood disturbance, described by an interrelated set of symptoms, or mood disorder (Gottlieb, 1997). Cancer related depression is a pathological affective response to loss of normality and one's personal world as a result of cancer diagnosis, treatment or future complications (Pandey et al., 2006).

To understand the nature of depression in cancer patients, it is important to understand certain aspects of depression. An important issue is that depressive disorders includes a variety of mood disturbances and clinical presentations. Depressive disorders in cancer patients are commonly associated with negative mood, low energy, poor concentration, loss of interest in previously enjoyed activities, memory disturbances, low self-esteem, sleep and appetite disturbances and hopelessness (Brown & Paraskevas, 1982). These symptoms are very similar to symptoms experienced due to the nature of cancer as well as the side-effects of cancer treatments (McDaniel, Musselman, Potter, Reed & Nemeroff, 1995). It is for this reason that depressive disorders in cancer patients are often under diagnosed (Ibid.).

Depressive symptoms not only have a negative effect on quality of life in cancer patients but it has been suggested to be an independent risk factor for increased mortality (Brown & Paraskevas, 1982). Research focused on the issue of depression in cancer patients suggests that cancer patients are particularly vulnerable to experiencing depressive symptoms because, due to innovative treatments, many types of cancer are no longer a death sentence, but are quickly becoming chronic conditions (Pasquini & Biondi, 2007). As such, individuals are not always prepared or equipped to deal with such prolonged stressors. The behavioural alterations that develop during illness are often as a result of a decreased ability to react to the external world and engage in physical and social activities (Pasquini & Biondi, 2007). This may put the individual at risk for developing depression. Furthermore, cancer patients experience several stressors and emotional upheavals such as fear of death, interruption of life plans, changes in body image and self-esteem as well as changes in social role and

lifestyle, all of which must be traversed and dealt with (Pandey, Sarita, Devi, Thomas, Hussain, & Krishnan, 2006).

A large body of research has demonstrated the co-existence of depression and cancer. Various studies have reported a prevalence rate of about 40% or more for depression in cancer patients (e.g. Bukberg & Holland, 1980; Bukberg, Penman & Holland, 1984; Rodin, Graven, & Littlefield, 1991). Other studies found that 58 % (Spiegel & Giese-Davis, 2003) and 47% (Aass, Fossa, Dahl, & Moe, 1997) of cancer patients experience at least one major depressive episode. One group also reported that the lifetime prevalence of this disorder in cancer patients was 24.2 % (Bukberg & Holland, 1984). Although the prevalence rates vary, these studies support the contention that depression is very common in patients with cancer. The prevalence of depression amongst cancer patients increases with disease severity and symptoms such as pain and fatigue (Spiegel & Giese-Davis, 2003).

Depression is particularly significant in the care of cancer patients as it is often associated with a desire for death and has been reported that increased depressive symptoms are inversely related to survival (Spijker, Trijsburg, & Duivenvoorden, 1997). Badger, Braden, Mishel and Longman (2004) found that depression burden had a negative effect on psychological adjustment and overall quality of life.

Similarly, Kissane, Clarke, Ikin, Bloch, Smith, Vietta and McKenzie (1998) found that the quality of life of cancer patients who were diagnosed with depression was substantially affected. Spiegel & Giese-Davis (2003) suggested that decreased depressive symptomatology results in change in health-maintenance behaviour, health-care utilization and endocrine and immune function. Interestingly, Spiegel & Giese-Davis

(2003) suggest that there is not merely a co-existence of depression and cancer but that depression can affect the medical course of cancer. Depression might affect behaviour and adherence to medical treatment such as adherence to procedures such as radiation therapy. The severity of depression and related repressive coping may have a largely negative effect on immuno-competence in cancer patients (Ibid). Studies suggest a directional relationship between depressive symptoms and aspects of poorer immune system functions (Spijker, Trijsburg, & Duivenvoorden, 1997). Studies of psychotherapeutic interventions that reduce depression have indicated that with lowering levels of depression, the disease progression slows down and quality of life increases (Nordin, Berglund, Glimelius, & Sjöden, 2001). It is, therefore, important to explore which coping mechanisms and cognitive factors such as control beliefs South African patients use that may contribute to better mental health quality of life. Research has found that depression and anxiety are commonly comorbid in cancer as well as in the general population (Nordin, Berglund, Glimelius, & Sjöden, 2001). Studies have shown that while psychological distress due to difficult adjustment decreases over time, patients continue to experience elevated levels of depression and anxiety throughout the course of their disease (Ibid.). For these reasons, it becomes important to look at the effects of anxiety on cancer patients.

2.4 Anxiety

Anxiety is another commonly reported reaction to cancer. Some researchers conceptualise anxiety as a normal reaction to a cancer diagnosis. In one study 77% of cancer patients recalled experiencing anxiety (Ashbury, Findlay, & Reynolds, 1998). Anxiety refers to the “emotional distress and uneasiness caused by feelings of vulnerability, apprehension or fear of a known or unknown threat” (Pillay, 2001,

p.41). Anxiety disorders appear to be more common in persons with cancer than controls or other chronic illnesses in the general population as reported in a study conducted by Wells, Golding and Burnam (1988). Maguire, Lee and Bevington (1978) found moderate to severe anxiety in 27% of a sample of breast cancer patients as compared to 14% in a control sample. Similarly to depression, anxiety-related symptomatology has been associated with a higher risk of incident cancer and higher suicide risk. (Hamer, Chida, & Molloy, 2008) A study conducted by Hamer, Chida and Molloy (2008) found that psychological distress that included anxiety-related symptoms was associated with increased mortality in cancer patients. Specifically, cancer patients diagnosed with high anxiety as well as a prior cancer diagnosis were more likely to have increased mortality rates. Anxiety occurs to varying degrees in patients with cancer and may heighten as the disease progresses or as treatment becomes more aggressive. For most patients, receiving a cancer diagnosis evokes in them a fear of the “known and unknown”. Cancer being a widely publicized disease, most patients have some idea of its effects, in addition, however, South African cancer patients often receive very little information from their doctors in explaining the disease (Pillay & Wassenaar, 1996). These factors create great anxiety in patients (Ibid.). Some studies have suggested that increased anxiety was associated with patients’ distorted views of their illness, negative attitudes toward hospitalization and lack of confidence in their physicians (Schwab, Marder, Clemmans, & McGinnis, 1966). This interferes with a patients’ quality of life and the ability to follow through with cancer treatments. Anxiety appears to increase as illness progresses, therefore, more extensive disease is associated with higher prevalence of anxiety (Noyes, Holt, & Mossie, 1998). Anxiety has been found to negatively affect quality of life and interfere with a cancer patient’s ability to function socially and emotionally while

severe anxiety can cause impairment in the patient's everyday life and is detrimental to quality of life (Aass, Fossa, Dahl, & Moe, 1997). An association between anxiety and self-reported decrease in quality of life, particularly impaired social functioning, fatigue and physical impairment, has been demonstrated in cancer care (Ibid.).

Anxiety has also been linked to disease outcomes in cancer patients and has been examined as a factor contributing to other co-morbid physical conditions (Friedman & Booth-Kewley, 1987). It has further been shown to be associated with a functional deficit in cancer-specific quality of life while insomnia due to anxiety has been noted as an important and disruptive problem as it affects not only the psychological well-being of the patient but also the physical well-being (Stark, et al., 2002).

The literature clearly indicates that anxiety can have serious negative psychological and physiological effects on cancer patients. An understanding of mechanisms that may contribute to decreased anxiety levels is important because increased anxiety is disruptive. Our limited understanding of anxiety and anxiety alleviation in cancer care is illustrated by the wide range of prevalence estimates of abnormal anxiety in cancer patient population (Stark, et al., 2002). Anxiety is understood as a response to a threat, in the case of cancer, the disease is a threat not only to quality of life but also survival (Ibid.). It has been suggested that how an individual appraises this threat and how they cope with it has a significant effect on their anxiety levels (Nordin, et al., 2001). It becomes important then to look at cognitive factors such as health control beliefs that may contribute to an understanding of how to assist cancer patients to decrease anxiety. It has been suggested that increased stress contributes to anxiety in cancer

patients. It is, therefore, important to understand how cancer patients experience their psychological distress and stress.

2.5 Stress

Stress is difficult to define and operationalize but it is generally accepted that stress is an “aversive state in which the well-being of the organism is in jeopardy and demands outstrip or threaten to outstrip resources to cope” (Greeno & Wing, 1994, p. 444).

Stress is quite difficult to operationalize in the field as stressors are not generalisable to all individuals. Stressors are defined as “specific internal and/or external demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). It has been found that stressors and attempts to cope with these experiences have a direct and observable impact on psychological, behavioural and physiological systems (Chapman & Mullis, 1999; Frydenberg & Lewis, 1996).

An important aspect of stress is that a distinction needs to be made between psychologically based and physiologically based stress (Lo Castro, 2003). In the case of cancer both types of stress are relevant. The cancer disease in itself causes physical stress reactions where pain, for example, may become a constant problem.

Furthermore, cancer treatments also cause physiological stress, that is, excessive demand that is placed on the body through invasive, taxing and painful cancer treatments. For the purposes of the proposed study, however, psychological stress will be the focus. Psychological stress seems to be caused by living with the knowledge of having a life threatening disease and the potential consequences thereof. Cancer patients’ experience of cancer-related stress (intrusive thoughts, avoidant thoughts and behaviours, strong negative emotions regarding cancer diagnosis and treatments) has

been reported to be associated with poorer quality of life (Yang, Brothers, & Anderson, 2008) and there is solid evidence that the course of cancer is affected by emotional stress (Ibid.). Similarly, many studies have shown that a reduction in stress results in an improved quality of life (Spiegel, 1997; Varker, Terrell, Welt, Suleiman, Thornton, Andersen, & Carson, 2006; Yang, Brothers, & Anderson, 2008.).

Stress levels in South Africa are particularly high and result in numerous stress-related disorders such as lifestyle diseases, health-risk behaviours, suicidal behaviours and difficulty coping with change (Lo Castro, 2003; Schlebusch, 2004). Together with this, the diagnosis of cancer is an extremely stressful life event and is clearly associated with an increase in psychological distress (Spiegel, 1997). A large body of literature suggests that psychological stress associated with cancer diagnosis and treatment contributes to impaired immunity (Spiegel, 1997, Varker, et al., 2006). The relationship between stress and breast cancer has been suggested in studies (Spiegel, 1997) that patients diagnosed with cancer suffer a variety of stressors such as fear of dying, fear of undertaking demanding treatments, loss of energy, additional expenses and social isolation. Lo Castro & Schlebusch (2006) found that cancer patients experience elevated levels of unhealthy stress.

While it seems that literature on the effects of depression, anxiety and stress on cancer populations is quite extensive, literature on cognitive strategies that are used to reduce depression, anxiety and stress when dealing with a cancer diagnosis is relatively scarce, particularly within the South African context which remains largely focused on the physiological aspects of living with cancer. The current study aims to extend

previous studies by looking at the effects that control beliefs and coping strategies may have on these psychological outcomes.

2.6 Control beliefs

There has been considerable interest in understanding how locus of control beliefs relate to a various health attitudes, behaviours, and situations. Health Locus of Control was first popularized by Wallston (1978) who examined the degree to which individuals perceive that their health is controlled by internal or external factors. External beliefs are understood as perceiving that one's health outcome is under the control of others or is controlled by fate, luck, or chance, while internal beliefs characterize one's health condition as being the direct result of one's own actions.

While it has not always been possible to correlate health locus of control to positive health beliefs and outcomes, it is generally agreed upon that health locus of control is significantly associated with various health behaviours and outcomes. A large body of research has suggested that there is an association between an internal health locus of control and positive health beliefs and behaviours (Grootenhuis & Last, 1997; Lewis, Morisky, & Flynn, 1978; de Valck & Vinck, 1996). Internal locus of health control has been associated with knowledge about disease and adherence to medical regimes (Lewis, Morisky, & Flynn, 1978).

Much of the literature asserts that individuals with an external locus of control experience higher levels of stress as they depend on external factors to alleviate their feelings of anxiety or stress (Valck & Vinck 1996). Some research, however, has suggested that a particular type of external locus of control, that is, vicarious control

may potentially be beneficial to cancer patients (Naus, Price, & Peter, 2005). Those with a high vicarious control believe that together with powerful others such as doctors, medical treatments and religion, they are in control of illness outcomes. Through adhering to treatment and listening to their doctors they are able to have some mastery over their disease. Related to this belief, is a belief that if they religiously follow their doctor's orders, adhere to treatment regimens, or keep praying for healing, then they too are in control over their illness. Patients with cancer have few possibilities to change the situation and will therefore be highly dependent on the use of secondary control strategies (Grootenhuis & Last, 1997). The use of the four secondary control beliefs as outlined by Rothbaum et al. (1982), were measured and described in Grootenhuis et al. (1996). The control belief focused on in this study is that of vicarious control. A sense of control may also be manifested as a perception that others, such as the medical caregivers, can exert control and through this, they too have control over their situation. It has been suggested that individuals who rely on more vicarious control emerged with a sense of optimism rather than anticipating disappointment (Grootenhuis et al., 1996). Helgeson (1992) suggested that perceptions of vicarious control were related to better adjustment for patients undergoing physician based treatment while, Taylor, Lichtman & Wood (1989) reported that vicarious control and adjustment were associated positively amongst breast cancer patients. Taylor (1983) suggested that having an internal locus of control for uncontrollable events could be maladaptive. Naus, Price, & Peter (2005) suggested that it may be more adaptive for breast cancer patients to believe that their illness outcomes are in the control of doctors or powerful others (vicarious control). Burish, Cory, Wallston, Stein, Jamison, & Lyles (1984) found that cancer patients with a high external locus of control orientation reported less negative effects than patients with

an internal locus of control. In addition, Bremer, Moore, Bourbon, Hess, & Bremer (1997) suggested that the perception of lack of control, particularly related to powerful others, is strongly associated with poorer psychological adaptation to the illness. These findings suggest that in medical situations in which little personal control is possible a vicarious health locus of control may be advantageous. Unlike patients with an internal locus of control who may come to feel frustrated and helpless because of their inability to change their health status, vicariously orientated individuals may be more receptive to the expertise and advice of health professionals as they do not attempt to control their environment and in so doing engage in more vicarious control strategies through their doctors as well as adhere to treatment more closely.

Reed (1989), however, found a negative relationship between vicarious control and adjustment for AIDS patients. It is possible that vicarious control for AIDS patients may be less adaptive given the nature of the response to the treatment of HIV/AIDS. It has been suggested that circumstances such as type of illness, prognosis and gender may be involved in the process of vicarious control (Everly & Lating, 2002).

It appears that health locus of control, has shed some light into some of the control beliefs that have been linked to better outcomes in cancer patients. Although findings appear to be inconsistent, vicarious control offers another type of control belief, which may be beneficial to cancer patients. Researchers have hypothesized that vicarious control related health benefits might depend upon the type of coping styles used by the individual (Grootenhuis & Last, 1997). Thus the present study will investigate whether vicarious control has quality of life benefits, and whether any such benefits

are moderated by the type of coping a cancer patient uses. These findings could shed some light into cognitive aspects that perhaps can be fostered in cancer patients, as interventions to prevent the development of depression, and anxiety and to help patients reduce stress in their environments. Such interventions could ultimately improve mental health quality of life, and indeed overall quality of life in cancer patients. Before this aim can be achieved, it is important to review the literature on coping as it related to cancer.

2.7 Coping

Interest in adaptational processes date back to the 19th century when Freud (1964) popularised the concept of defense as a ‘set of psychological mechanisms by which individuals distort reality to manage distressing feelings’ (Somerfield & McCrae, 2000, p. 620). It was believed that each form of psychopathology was associated with a particular defense mechanism (Freud, 1965). For example, hysterical neuroses were linked to repression and obsessive-compulsive disorders were the result of intellectualisation. However, since defensive processes are by nature unconscious, they proved difficult to assess reliably and validly. In the 1950’s and 1960’s the concepts of defense mechanisms and the unconscious became less popular and psychological researchers turned to the objective study of stress in the interest of enhancing the scientific credibility of psychology (Somerfield & McCrae, 2000). However, with the emergence of cognitive psychology came the realisation that “intrapsychic processes can intervene between stimuli and responses” (Somerfield & McCrae, 2000, p. 621) and a focus on deliberate and observable adaptational efforts evolved. That is, individuals’ responses to stressors are a result of various experiences throughout life. Piaget (1969) in particular asserted that various cognitive processes

occur before an individual responds to stimuli. Researchers initially saw coping as a hierarchical style where some defences were seen to be healthier than others (Lazarus, 1993). Haan (1969) proposed a tripartite hierarchy with coping being the healthiest process, defense being a neurotic process and ego-failure as the most psychotic adaptive process.

In the late 1970's the hierarchical view of coping was abandoned in favour of a view which treated coping as a process. From this perspective coping changes over time and is dependent on the environmental context in which it occurs (Lazarus, 1993). Lazarus asserts that the individual and the environment are in a constant state of action and reaction in which the individual impacts on the environment, which in turn impacts on the individual. Lazarus further emphasises the central role that cognitions play in coping. He argues that when individuals' experience stressful situations, it is the meaning that they give to the situation and whether they appraise the situation as harmful that may have an impact on the coping reaction. This is currently the predominant approach to coping. It is in this time that research on stress and coping gained popularity and was greatly stimulated by the appearance of the Ways of Coping Checklist (Folkman & Lazarus, 1980). Most definitions of coping stem from the definition used by Lazarus and Folkman (1984) 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" (p. 141).

Lazarus (1993) further proposed that coping is an intentional response geared towards resolving the cause of the stress (problem-focused coping) or towards diffusing negative emotions that are caused by the stressor (emotion-focused coping). He

proceeded to distinguish between these two general types of coping. The first, problem-focused coping, aims to problem solve or do something to change the cause and origin of the stress. The second type of coping, namely emotion-focused coping aims to manage or reduce the emotional distress. Research has shown that people use either problem-focused or emotion-focused coping mechanisms depending on their appraisal (the process in which individuals evaluate the significance of what is happening for their personal well-being) of the situation. (Carver et al., 1989; Chapman & Mullis, 1999; Lazarus, 1993; Rothbaum, Weisz, & Snyder 1982).

Adding to this theory of coping, Rothbaum, Weisz and Snyder (1982) hypothesized that strategies designed to assist individuals to accommodate threatening or difficult circumstances follow efforts to influence the source of the threat. The theoretical distinction between problem-focused and emotion-focused coping is useful in talking about various kinds of coping in broad terms and it is used throughout coping literature. Other theories and conceptualizations of coping often fit into these categories, with problem-focused and emotion-focused coping being overarching dimensions of coping. Although most stressors demand both categories of coping, studies have indicated that there is evidence to support that in more controllable situations problem-focused coping strategies (efforts to act on or change the stressor) are used more frequently and in relatively uncontrollable situations emotion-focused strategies (efforts to palliate one's negative emotions) are employed more often (Lazarus, 1993; Lazarus & Folkman, 1984) and respectively result in adaptive outcomes.

Researchers have identified variations within problem-focused and emotion-focused coping (Carver, Scheier, & Weintraub, 1989). Certain of these factors differ quite sharply from each other to the extent of being “inversely correlated” (Carver, et al., 1989, p. 268). It was argued that the distinction between problem-focused and emotion-focused coping was too simple. Studies found that responses to the Ways of Coping scale formed several factors rather than just two (Aldwin & Revenson, 1987, Scheier, Weintraub, & Carver, 1986). While remaining within the conceptual model of stress and coping put forth by Lazarus (1993), Carver et al. (1989) developed the Brief-COPE scale. It was argued that within emotion-focused coping some responses involve denial, others involve positive reinterpretation and growth and still others involve seeking social support. Since these responses are quite different from each other they could each produce different results in the individual’s success in coping. Problem-focused coping too has various responses within its broad scope. Activities that are involved in problem-focused are planning, taking direct action, seeking assistance, suppressing competing activities and restraint coping. In addition to this, dysfunctional coping was said to involve strategies including behavioural disengagement, mental disengagement and focusing on and venting of emotions (Carver et al., 1989). Coping with cancer is a topic of considerable importance due to the high prevalence of the disease and the well-documented adverse psychological effects associated with diagnosis and treatment (Osowiecki & Compas, 1998). Cognitive strategies have been shown to have various effects on cancer patients (Yarbra, Frogge, & Goodman, 2005) such as thinking positive thoughts, believing in nurses, believing in treatment, engaging in spiritual activities and distractions. Studies have provided varying results on the effects that certain cognitive strategies have on quality of life in cancer patients. Osowiecki and Compas (1999) has suggested that

increased use of problem-focused coping strategies were related to lower anxiety and lower depressive symptoms, while dysfunctional coping strategies were related to increased depression and anxiety symptoms. In addition, Reynolds, Hurley, Torres, Jackson, Boyd and Chen (2000) found that increased survival with cancer and improved quality of life was associated with using emotion-focused coping strategies, particularly emotional social support.

Studies on how individual coping strategies affects psychological outcomes seem to be varying and inconsistent. A possible reason for this may be that it does not take into account various control beliefs that a patient may hold. Studies have suggested that perceptions of control interacts with ways of coping and can be viewed as a moderator of a stressful life situation and adaptational outcomes (Grootenhuis, et al., 1997). Various studies have also suggested that certain coping strategies are more effective with stressors that are appraised as controllable as opposed to uncontrollable (e.g., Compas, Banez, Malcarne, & Worsham, 1991; Helgeson, 1992; Thompson, Sobole, Shubin, Galbraith, Schwankovsky, & Cruzan, 1993) .

It has further been suggested that the interaction of perceived control over a situation and the use of problem-focused coping has been found to predict less psychological distress in several studies whereas more emotional distress is seen when problem focused efforts are used and perceived control is low (e.g., Compas, Malcarne, & Fondacaro, 1988; Conway & Terry, 1992; Forsythe & Compas, 1987; Vitaliano, De-Wolfe, Maiuro, Russo, & Katon, 1990). Both appraisals of control and coping efforts have been shown to be important predictors of psychological adjustment to breast cancer (Osowiecki & Compas, 1999). For example, Taylor, Lichtman and Wood

(1984) found a main effect for personal control beliefs in predicting psychological adjustment to cancer. The belief that one could control one's cancer and the belief that other people could control the cancer were significantly associated with better psychological adjustment. Thompson, Sobolew-Shubin, Galbraith, Schwankovsky, and Cruzen (1993) found that cancer patients with greater perceptions of control reported fewer symptoms of depression, with the stronger effects for patients' beliefs that they could control their daily emotional reactions and physical symptoms than for perceived control over the course of the disease. In addition, a study by Weisz, McCabe and Dennig (1994) found evidence for lower distress and the use of emotion-focused coping with vicarious control with cancer being perceived as an uncontrollable stressor. These findings suggest that problem-focused coping and emotion-focused coping may act as moderators of the association between perceived control and emotional distress.

Much of research on vicarious control, coping, depression, anxiety and stress in relation to mental health quality of life in cancer patients has been conducted abroad while very little is known about how South African cancer patients cope with the disease. The present study thus aims to add to the literature in this regard. To determine what the effects of vicarious control and coping strategies have on psychological outcomes such as mental health quality of life, depression, anxiety and stress in a South African population. In order to achieve the above aims, the following research questions will be investigated.

1. Does a vicarious health locus of control (HLOC) predict mental health quality of life, depression, anxiety, and stress? Specifically, the following hypotheses will be tested to answer this question.
 - i. H1: A high vicarious HLOC will predict lower depression, lower anxiety and lower reported stress.
 - ii. H2: A high vicarious HLOC will predict higher reported mental health quality of life.
2. Does coping moderate the relation between vicarious control and each of depression, anxiety, stress and mental health quality of life?

Chapter 3

3. Methodology

3.1 Research Design

Convenience sampling was used to collect data for this quantitative, correlational, cross-sectional study. A correlational research design is used to describe the statistical association between two or more variables, and a cross-sectional design is used where all data are collected at the same time (Rosenthal & Rosnow, 1991). The predictor variables in this study were vicarious control and coping while the criterion variables were mental health quality of life, depression, anxiety, and stress. Self-report type survey questionnaires were utilised to collect the data. Advantages of using this method are that it allows for the anonymity required for this particular type of research, and it was convenient for distribution purposes. Furthermore, self-report questionnaires are more economical, and they can be administered to a large group of people (Rosenthal & Rosnow, 1991).

3.2 Sampling

Elements of both purposive and convenience sampling procedures were used. In order to select cancer patients (specialised population), purposive sampling was used. All subjects who agreed to participate in the study did so voluntarily and were largely accessed through convenient resources such as support groups and it can therefore be termed convenience sampling. It should be noted that this method is open to volunteer bias (Terre Blanche & Durrheim, 1995) as most participants were approached through support groups and may have had more of a tendency to seek social support and may

have been more aware of their psychological state than parts of the cancer population who do not attend support groups.

3.3 Participants

Participants were invited from various cancer support groups within the Johannesburg area. Volunteers to take part in the research were approached through cancer support groups and internet social networking groups. For the purposes of this study adult cancer patients aged 18 years and older were recruited. The subject sample consisted of a group of South African cancer patients ($n = 56$) ranging in ages from 25 to 75 years. Both male ($n = 21$) and female ($n = 35$) participants were recruited with various types of cancer including breast cancer ($n = 25$), prostate cancer ($n = 13$), cervical cancer ($n = 7$), colon cancer ($n = 2$), lung cancer ($n = 2$), ovarian cancer ($n = 4$), throat cancer ($n = 2$) and anal cancer ($n = 1$).

3.4 Procedure

Through various support groups within the Johannesburg area and internet social networking groups cancer patients were approached to fill out questionnaires (See Appendices B-G). Once ethical clearance was granted (See appendix H), the researcher attended support group meetings, and introduced herself as a psychology masters student who is interested in understanding how cancer patients cope.

Participants were assured that filling out questionnaires was voluntary and confidential and were then invited to take part in the study. In addition, the study was advertised on internet social networking sites. A message was posted on discussion boards of groups orientated around cancer, the message included an introduction of the research and the present study. Participants were assured of the voluntary nature

of the study as well as issues around confidentiality. An invitation was then extended to contact the researcher via email or the board discussion and questionnaires were sent via email to interested parties.

An information letter was attached to the questionnaire packed and it was made clear that completed returned questionnaires were treated as informed consent (Appendix A). The following questionnaires were completed by participants; the Brief- COPE, Depression, Anxiety and Stress Scale (DASS), the Cognitive Control Strategy Scale (CCSS), the Multidimensional Health Locus of Control and the Rand SF36.

Completed questionnaires were either placed in a box at support groups or returned via email. If participants experienced any form of psychological distress, support groups through cancer organisations were available, they were also provided with the phone number for Life Line and were provided with contact information for the Emthonjeni Center at The University of the Witwatersrand (for counselling services).

3.5 Measures

3.5.1 Demographic Schedule

A demographic schedule (Appendix B) comprising four items was administered. This section asked participants' age, sex, type of cancer and treatment. The questions asked were open-ended.

3.5.2 Brief- COPE (B-COPE)

Coping responses to HIV infection were assessed using the abridged version of the COPE, called the Brief COPE (Carver, 1997). The Brief COPE (Appendix C) is a 28-item scale comprising items on active coping, planning, positive reframing,

acceptance, humour, turning to religion, venting of emotions, mental disengagement, denial, substance use, behavioural disengagement, and emotional support. For each item, participants were asked to respond on a four-point Likert scale (where 1 = I did not do this at all and 4 = I did this a lot) regarding strategies used in the past 3 months. It was found that internal consistencies were good for emotion-focused, problem-focused, and dysfunctional subscales ($\alpha = 0.72, 0.84, 0.75$) (Cooper, Katana, & Livingston, 2008). Test-retest reliability over a year was demonstrated for emotion-focused, problem-focused, and dysfunctional subscales did not change significantly ($r = 0.58, r = 0.72, r = 0.68; p < 0.001$). Regression analyses indicated convergent and concurrent validity (Cooper, Katana, & Livingston, 2008). The B-COPE was scored into problem focused coping, emotion focused coping and dysfunctional coping as per recommendation by Carver (1997). The Brief Cope has been used successfully on South African populations (Jordaan, Spangenberg, Watson & Fouche, 2007; Olley, Seedat & Nei, 2004).

3.5.3 Depression, Anxiety and Stress Scale (DASS)

The DASS (Appendix D) consists of 21 negative emotional symptoms (Lovibond & Lovibond, 1995). Participants rate the extent to which they have experience each symptom over the past week, on a 4-point, Likert scale. Scores for the Depression, Anxiety and Stress scales are determined by summing the scores for the relevant 21 items. Internal consistency of the DASS subscales has been shown to be high, with Cronbach's alphas of 0.94, 0.88, and 0.93 for depression, anxiety, and stress respectively (Nieuwenhuijsen, de Boer, Verbeek, Blonk & van Dijk, 2003). Factor analysis found a three factor solution in the DASS, which corresponds well with the three subscales, namely depression, anxiety and stress (Nieuwenhuijsen, de Boer,

Verbeek, Blonk, & van Dijk, 2003). Construct validity is supported by moderately high correlations of the DASS with indices of convergent validity (0.65 and 0.75), and lower correlations of the DASS with indices of divergent validity (range -0.22 to 0.07). Criterion validity is supported by a finding of statistically significant difference in DASS scores between two diagnostic groups (Nieuwenhuijsen, de Boer, Verbeek, Blonk, & van Dijk, 2003). The DASS has successfully been used in South African research (Pillay et al., 2002).

3.5.4 Cognitive Control Strategy Scale (CCSS)

The Cognitive Control Strategy Scale (Appendix E) has 38 items and was developed by Grootenhuis et. al. (1996) to assess the control strategies, according to the model of Rothbaum et al. (1982). Individuals are asked to indicate whether they agreed with a given statement on a 4-point scale (totally agree; agree; disagree; totally disagree).

The statements describe mostly behaviors about changing oneself to adjust to the situation, and only a few items about changing the situation. For the purposes of this study the measure for vicarious control will be the focus. To measure vicarious control, 11 items were developed to cover several aspects of the medical setting. The items described positive aspects of the doctor, the hospital or people in general, the treatment and attempts to manipulate the doctor. Only these 11 items were pulled out of the CCSS scale and were used in the present study to assess vicarious control,

3.5.6 Rand SF-36

The Rand Medical Outcomes Study-Short Form (Rand SF-36) (Appendix G) assesses health-related quality of life (Brazier, Harper, Jones, O'Cathain, Thomas, & Usherwood, 1992). Eight subscales are incorporated into two factors: Physical Health

which measures physical functioning, physical role functioning, bodily pain and general health perceptions and Mental Health which measures vitality, social functioning, emotional role functioning, and overall mental health. For the purposes of this study only the Mental Health scale will be considered. Scores range from 0 to 100, with higher scores reflecting better quality of life. Internal consistency ranged from .75 to .88 (Failde & Ramos, 2000). The Rand SF-36 is considered to be a valid, reliable, concise generic measure of state of health that is potentially useful for application to groups of patients. The validity of the construct has been analyzed by means of the association of the Rand SF-36 with sociodemographic and clinical variables, and with diagnostic groups (Brazier, Harper, Jones, O'Cathain, Thomas, & Usherwood, 1992). Internal consistency was measured by Cronbach's α and the item-internal consistency and item-discriminant validity. In addition, the reliability results were also acceptable (Failde & Ramos, 2000). The Rand SF-36 has been successfully been used on South African populations (e.g. McInerney, Ncama, Wantland, Bhengu, McGibbon, Davis, Corless, & Nicholas, 2008).

3.6 Data Analysis

Descriptive statistics were computed to describe the sample of participants. Means, standard deviation and correlation were calculated, in order to explore whether or not mean differences as a function of demographic variables such as gender and ethnicity or type of cancer. If no differences existed on key response variables, it would be assumed that all participants were drawn from the same population. However, if any significant differences were found, those particular variables would be used as covariates and a MANCOVA procedure would be conducted in the main analyses.

In the next step, the assumptions of MANOVA were tested. Specifically, the data was tested for independence of cases, normality, linearity and homoscedasticity (Rosenthal & Rosnow, 1991). Following this the main analysis was conducted.

Once the above preliminary analyses were conducted the main analysis was conducted using SAS. Specifically multivariate two way analyses of variance were conducted to test whether the vicarious control scale predicted depression, anxiety, stress and mental health quality of life. Coping was used as a moderator as it was hypothesised that coping would moderate the relation between vicarious control and the four psychological outcomes.

Chapter 4

4. Results

The following chapter presents the results of statistical tests that were undertaken to obtain some indication of the relationship between vicarious control and mental health quality of life, depression, anxiety and stress. The descriptive statistics will be presented first followed by the test of assumptions of multivariate analysis (MANOVA) and the main analysis. A MANOVA was used and yielded a data set that consists of the dependent variables: mental quality of life (MHQOL, as scored on the Rand SF-36 scale to measure features of physical and mental health quality of life), depression, anxiety and stress (as scored on the DASS scale) and demographic variables (including gender, age, type of cancer and type of treatment) and an independent variable of vicarious control (as scored on the CCSS scale). These measures were scored and will be used in this chapter to address the research questions set out in the previous chapter.

4.1 Descriptive statistics

The sample consisted of 56 cancer patients largely recruited from various support groups in the Johannesburg area. The demographic description is presented in the table below. The participants consisted of 21 males (37.5%) and 35 females (62.5%). The age range was 25-75 with a mean of 47.29 years. The sample consisted of 35 female (62.5%) and 21 male (37.5%) participants.

Individuals with various types of cancer took part in the study (Table 1) with the majority having breast cancer (44.64%) followed by prostate cancer (23.21%),

cervical cancer (12.50%), colon cancer (3.57%), lung cancer (3.57%), ovarian cancer (7.14%), throat cancer (3.57%) and anal cancer (1.79%).

Table 1: Type of cancer

	<i>n=</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumalitive Frequency</i>
Breast cancer	25	25	44.64	25
Prostate cancer	13	13	23.21	38
Cervical cancer	7	7	12.50	45
Colon cancer	2	2	3.57	47
Lung cancer	2	2	3.57	49
Ovarian cancer	4	4	7.14	53
Throat cancer	2	2	3.57	55
Anal cancer	1	1	1.79	56

The sample included patients with varying types of cancer treatment (Table 2) with the majority having had surgery (33.93%) followed by radiation therapy (21.43%), chemotherapy (10.71%), surgery and radiation therapy (14.29%), surgery and chemotherapy (10.71%), radiation and chemotherapy (5.36%) and surgery, radiation and chemotherapy (3.57%).

No mean differences for demographic factors were found.

Table 2: Type of treatment

	<i>n=</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumalitive Frequency</i>
Surgery	19	19	33.93	19
Radiation therapy	12	12	21.43	31
Chemotherapy	6	6	10.71	37
Surgery and radiation	8	8	14.29	45
Surgery and chemotherapy	6	6	10.71	51
Radiation and chemotherapy	3	3	5.36	54
Surgery,Radiation and Chemotherapy	2	2	3.57	56

4.2 Correlations- Pearson's product – (*r*)

Correlation research is based on testing a null hypotheses, the actual measuring of the degree of association between two sets of scores (Howell, 1997). Correlations therefore allow the researcher to assess whether there is a relationship between the variables as well as how strong the relationship is. The correlation coefficient is a number that reflects the degree of the relationship between two variables. Correlations between variables can be linear or not, and they can be positive, negative or non-existent (Stevens, 2002). A linear relationship is described as where a fixed change in one variable is always associated with a fixed change in another variable (Rosenthal & Rosnow, 1991). Therefore correlations suggest association rather than causality. Pearson's product moment correlation coefficient (Pearson's *r*) was conducted as the data that was yielded was interval in nature and thus could be examined using a

parametric test, if other parametric assumptions are also upheld in the data (Howell, 1997).

A correlation coefficient matrix is depicted in Table 3. Results show that emotion-focused coping is significantly positively correlated with, problem focused coping ($r_{(56)} = 0.70, p = <0.0001$) and vicarious control ($r_{(56)} = 0.46, p = 0.0003$). This suggests that increased engagement in emotion-focused coping is associated with increased problem-focused coping and increased vicarious control. In addition, it was found that emotion focused coping is significantly negatively associated with dysfunctional coping ($r_{(56)} = -0.41, p = .002$), depression ($r_{(56)} = -0.50, p = .0001$), anxiety ($r_{(56)} = -0.26, p = 0.05$) and stress ($r_{(56)} = -0.34, p = -0.009$) suggesting that increased emotion-focused coping is strongly associated with lower dysfunctional coping and lower reported levels of depression, anxiety and stress.

Results indicate a significant correlation between problem-focused coping and vicarious control ($r_{(56)} = 0.36, p = 0.006$) and mental health quality of life ($r_{(56)} = 0.319, p = 0.017$). This suggests that increased problem-focused coping is associated with increased vicarious control as well as increased mental health quality of life. Furthermore, results indicate that problem focused coping was significantly negatively correlated with depression ($r_{(56)} = 0.47, p = 0.0003$), anxiety ($r_{(56)} = 0.342, p = 0.01$) and stress ($r_{(56)} = -0.28, p = 0.037$) indicating that increased problem-focused coping was associated with lower depression, anxiety and stress.

Results suggest that dysfunctional coping to be significantly associated to depression ($r_{(56)} =, 0.461, p = 0.0003$), anxiety ($r_{(56)} = 0.308, p = 0.021$) and stress ($r_{(56)} = 0.48, p$

= 0.0002), suggesting that individuals who engage in dysfunctional coping may experience elevated levels of depression, anxiety and stress. In addition, it was found to have significant negative associations to mental health quality of life ($r_{(56)} = -0.35$, $p = 0.007$) suggesting that increased dysfunctional coping may lead to lower mental health quality of life.

Results indicated that vicarious control had a highly significant negative associations with anxiety ($r_{(56)} = -0.36$, $p = 0.007$) and stress ($r_{(56)} = -0.42$, $p = 0.001$), indicating that increased vicarious control is associated with lower anxiety and stress.

Results suggest that depression had a significant positive association with anxiety ($r_{(56)} = 0.29$, $p = 0.03$) and stress ($r_{(56)} = 0.75$, $p = <0.0001$) and negatively associated with mental health quality of life ($r_{(56)} = -0.56$, $p = <0.0001$), suggesting that increased depression is associated with increased anxiety and stress while being associated with lower mental health quality of life. Results indicate that increased anxiety is associated with increased stress ($r_{(56)} = 0.47$, $p = 0.002$) and that increased stress is associated with lower mental health quality of life ($r_{(1)} = -0.40$, $p = 0.002$).

4.3 Preliminary analysis

4.3.1 Assumptions of MANOVA

The following parametric assumptions of MANOVA were tested and met before proceeding with the main analysis.

Table 3: Correlation co-efficients

	<i>Emotion Focused coping</i>	<i>Problem Focused coping</i>	<i>Dysfunctional coping</i>	<i>Vicarious control</i>	<i>Depression</i>	<i>Anxiety</i>	<i>Stress</i>	<i>MHQOL</i>
Emotion Focused coping	1.000	0.704 **	-0.406**	0.463**	-0.495**	-0.262*	-0.348**	0.229
Problem Focused coping		1.000	-0.118	0.361**	-0.468**	-0.342**	-0.280*	0.319*
Dysfunctional Coping			1.000	-0.234	0.4611**	0.308*	0.479**	-0.354**
Vicarious Control				1.000	-0.212	-0.355**	-0.417**	-0.218
Depression					1.000	0.290*	0.752**	-0.566**
Anxiety						1.000	0.473**	-0.135
Stress							1.000	-0.402**
Mental health Quality of life								1.000

* = $p < 0.05$ * * = $p < 0.01$

4.3.1.1 Independence of observations

This is the most critical of assumptions as it is not robust to violations. This assumption assumes that tests were administered individually. If interaction among participants was involved observations may influence each other (Stevens, 2002). A small amount of dependence amongst observations can cause the actual α to be several times greater than the level of significance (Stevens, 2002). While this sample was a sample of convenience there was independence of observations and therefore this assumption was met.

4.3.1.2 Multivariate normality

Multivariate normality assumes that the means of the various dependent variables in each cell and all linear combinations of them are normally distributed (Krzanowski, 2007). All variables were found to be univariate normal except for anxiety (Table 4) which was not normal as would be expected in a cancer population (Nordin, Berglund, Glimelius, & Sjoden, 2001). No outliers were found. Outliers were assessed using the 'r option' in SAS which analyses residuals. Most residuals concentrated around 0 suggesting consistent variance, hence the assumption was met.

4.3.1.3 Linearity

MANOVA assumes linear relationships between all dependent variables, all covariates and all dependent variable/covariate pairs. Deviations from linearity reduce the power of the test because the linear combination of dependent variables does not maximize the difference between the groups and the covariates do not maximally adjust the error (Krzanowski, 2007). Scatter plots suggests that dependent variables are linearly related.

Table 4: Multivariate normality

<i>Variable</i>	<i>Shapiro-Wilks W</i>	<i>P value</i>
MHQOL	0.958	0.05
Depression	0.97	0.17
Anxiety	0.90	0.0002
Stress	0.97	0.19
Vicarious control	0.97	0.23
Emotional coping	0.96	0.08
Problem coping	0.97	0.12
Dysfunctional coping	0.96	0.06

4.3.1.4 Homoscedacity

Homoscedacity assumes that the variances in different groups of designs are identical as well as that their covariances are homogenous across the cells of design (Krzanowski, 2007). This assumption was assessed using SAS insight to produce a plot of residuals versus predicted values. In addition a Levene's test was used to determine whether or not the variance between groups was equal. Most of the residuals were concentrated around zero suggesting consistent variance. Hence the assumption was met.

Given that the above assumptions were met, the main analysis was conducted.

4.4 Main analysis

To answer the question of whether vicarious control predicts mental health quality of life, depression and stress, a MANOVA was used with mental health quality of life,

depression, anxiety and stress as the dependent variables and vicarious control as the independent variable. A Wilks' Lambda test, which is a test statistic used in MANOVA to test whether there are differences between the means of identified groups of subjects on a combination of dependent variables was used to determine whether vicarious control differs overall in terms of the various dependent variables (Stevens, 2002). For the present study Wilks' Lambda was chosen to report all multivariate results as it is the most robust and is the most common, traditional test where there are more than two groups formed by the independent variables. (Stevens, 2002).

4.4.1 Does vicarious control predict mental health quality of life, depression, anxiety and stress?

Vicarious control scores were derived from the Cognitive Control Strategy scale. Multivariate analysis was conducted through SAS to determine correlation effects between vicarious control and each of mental health quality of life, depression, anxiety and stress. Following this univariate analyses was conducted for each of the dependent variables to determine the individual effects of vicarious control. Scores for depression, anxiety and stress were obtained from the Depression, Anxiety and Stress scale while scores for mental health quality of life were obtained from the Rand SF-36 scale.

The Wilks' Lambda test for overall differences among groups was found to be statistically different, suggesting that there was an overall group effect (Wilks' Lambda = 0.76, $F_{(4,51)} = 4.11$, $p = 0.006$). Given the significance of the overall test, the univariate main effects were examined. Results suggest that vicarious control is significantly negatively related to anxiety ($F_{(4,51)} = 7.79$, $p = 0.007$) and stress ($F_{(4,51)} =$

11.37, $p = 0.0014$) but is not significantly related to depression ($F_{(4,51)} = 2.54$, $p = 0.117$) or mental health quality of life ($F_{(4,51)} = 2.69$, $p = 0.107$), suggesting that a lower vicarious control orientation predicts increased levels of anxiety and stress but is not significantly associated with mental health quality of life and depression.

Further analyses were conducted where a median split (median = 2.85) was created to divide the sample into high vicarious control and low vicarious control. While using a median split is not ideal (Stevens, 2002) as a main form of analysis as it may reduce power, however, in the present study they were used to further analyse the effect of variables as MANOVA was used as the main analysis. These were then compared with mental health quality of life, depression, anxiety and stress and are presented in Table 6 below. It was found that participants with high vicarious control reported higher mental health quality of life and lower depression, stress and anxiety.

Table 5: High and low vicarious control

	High Vicarious M (SD)	Low Vicarious M (SD)
MHQOL	53.70 (18.85)	51.10 (16.96)
Depression	8.68 (4.80)	10.25 (4.94)
Anxiety	9.96 (3.40)	13.18 (4.27)
Stress	4.25 (4.16)	7.96 (5.97)

4.4.2 Does coping predict mental health quality of life, depression, anxiety and stress?

Results were obtained from scoring the B-COPE. Multivariate analysis was conducted to determine the overall effects of coping on mental health quality of life, depression, anxiety and stress. Following this, individual effects of the three subtypes of coping

on mental health quality of life, depression, anxiety and stress were established. Coping was divided up as follows according to Carver et al. (1989). Emotion-focused coping which comprises; seeking emotional support, positive reinterpretation, acceptance, denial and turning to religion, problem-focused coping which comprises active coping, planning, suppression of competing activities and seeking instrumental support and dysfunctional coping which included focus on and venting of emotions, behavioural disengagement and mental disengagement.

4.4.2.1 Mental health quality of life

Results suggest that overall coping does predict mental health quality of life ($F_{(3,52)} = 5.13, p = 0.035$). On further analyses, dysfunctional coping was found to be significantly negatively related to mental health quality of life ($F_{(1,54)} = 8.52, p = 0.0052$) suggesting that increased dysfunctional coping predicts decreased mental health quality of life. Emotion focused coping was found to be almost significantly related to mental health of life ($F_{(1,54)} = 3.52, p = 0.0661$) suggesting that increased emotion focused coping may predict increased mental health quality of life. It is possible that the small sample size may have resulted in insufficient power to detect such differences in this sample.

4.4.2.2 Depression

Overall it was found that coping had a highly significant relationship with depression ($F_{(3,52)} = 11.04, p = <0.0001$). Problem focused coping was found to have a significantly negative relationship to depression ($F_{(1,54)} = 5.33, p = 0.025$) suggesting that increased problem focused coping predicts lower depression. Dysfunctional coping was also found to be significantly related to depression ($F_{(1,54)} = 9.82, p = 0.003$) suggesting that as dysfunctional coping increases so does depression.

4.4.2.3 Anxiety

Results indicated that coping had a significant relationship to anxiety ($F_{(3,52)} = 4.33, p = 0.008$). Further analyses suggested that emotion focused coping had a negative significant relationship to anxiety ($F_{(1,54)} = 4.47, p = 0.039$) suggesting that increased emotion focused coping was related to lower anxiety. Furthermore, dysfunctional coping was shown to have a significant positive relationship to anxiety ($F_{(1,54)} = 5.35, p = 0.025$) suggesting that increased dysfunctional coping was a predictor of increased anxiety.

4.4.2.4 Stress

Overall, it was found that coping had a significant relationship to stress ($F_{(3,52)} = 8.75, p = 0.006$). Further analyses showed that emotion focused coping had a significant negative relationship to stress ($F_{(1,54)} = 8.75, p = 0.005$) suggesting that as emotion focused coping decreases, stress increases. In addition, it was found that dysfunctional coping had a significant positive relationship to stress ($F_{(1,54)} = 11.36, p = 0.001$), suggesting that as dysfunctional coping increases so does stress increase.

4.4.3 Does coping moderate the relationship between vicarious control and each of mental health quality of life, depression, anxiety and stress?

4.4.3.1 Problem focused coping

Overall it was found that problem focused coping did not significantly interact with vicarious control to predict mental health quality of life ($F_{(1,54)} = 0.29, p = 0.5907$), anxiety ($F_{(1,54)} = 1.38, p = 0.246$) and stress ($F_{(1,54)} = 1.38, p = 0.246$). However, results show that the interaction term for vicarious control and problem focused

coping in predicting depression is almost significant ($F_{(1,54)} = 3.51, p = 0.067$), significance may have been affected by the lack of power in the sample.

4.4.3.2 Emotion-focused coping

Emotion-focused coping was not found to be a significant moderator between vicarious control and two of the dependant variables, specifically, mental health quality of life ($F_{(1,54)} = 1.18, p = 0.283$) and depression ($F_{(1,54)} = 2.81, p = 0.099$). It was, however, found to be a significant moderator between vicarious control and anxiety ($F_{(1,54)} = 6.39, p = 0.015$) (Figure. 1) as well as between vicarious control and stress ($F_{(1,54)} = 3.86, p = 0.053$) (Figure. 2). The interaction was further examined by splitting the dataset by high vicarious control and low vicarious control at the median (median = 28.5). These findings suggest that individuals who engage in emotion focused coping as well as have high vicarious control experience lower anxiety ($M = 4.06$) and stress ($M = 10.06$) while individuals with a low vicarious control orientation and who concurrently are low in emotion focused coping reported higher levels of anxiety ($M = 9.00$) and higher levels of stress ($M = 13.53$). However, results suggest that when engaging in emotion focused coping it is more adaptive to also have a high vicarious control orientation to reduce anxiety ($M = 4.60$) and stress ($M = 9.80$). When individuals have low vicarious control with high emotion focused coping, levels of anxiety ($M = 6.77$) and stress ($M = 13.53$) increase.

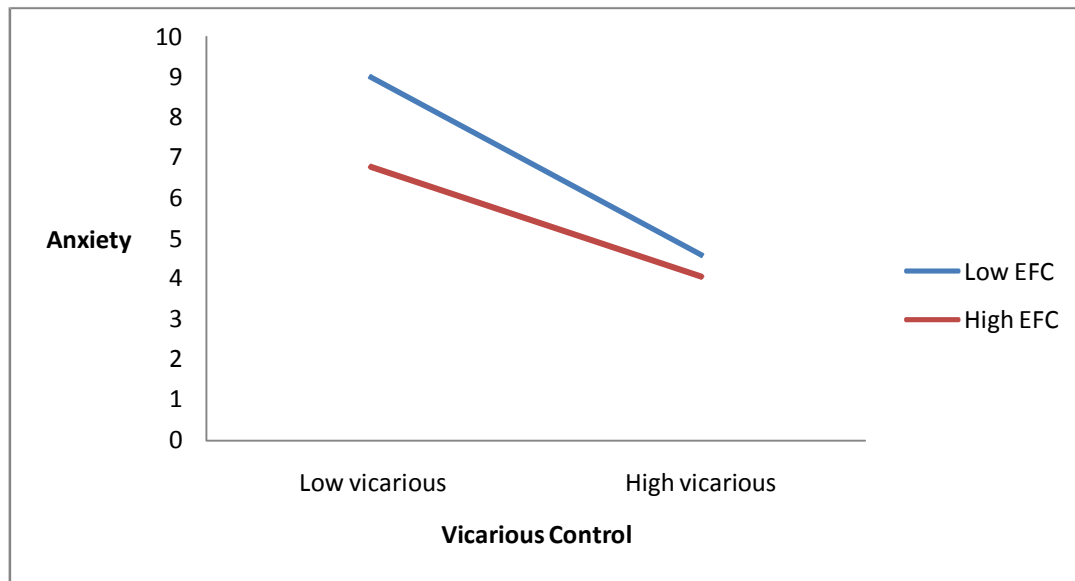


Figure 1. Interaction effect for anxiety

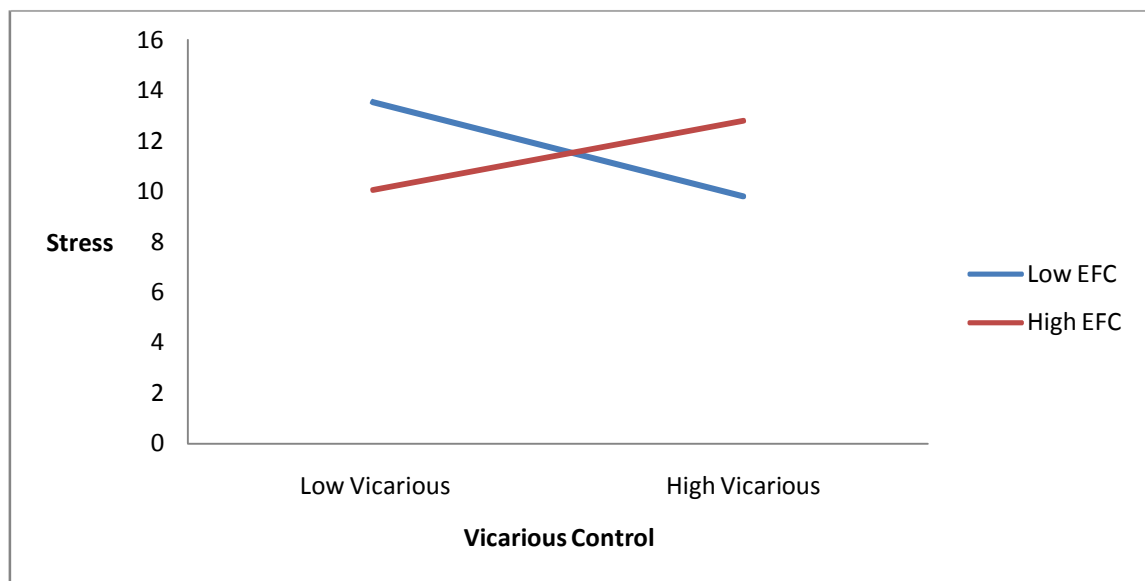


Figure 2: Interaction effect for stress

4.4.3.3 Dysfunctional coping

Dysfunctional coping was found not to be a significant moderating variable between vicarious control and each of dependent variables, mental health quality of life ($F_{(1,54)} = 0.00$, $p = 0.965$), depression ($F_{(1,54)} = 0.03$, $p = 0.858$), anxiety ($F_{(1,54)} = 3.22$, $p =$

0.076 or stress ($F_{(1,54)} = 0.32, p = 0.572$). This is likely due to the earlier finding that dysfunctional coping is significantly associated with poor outcomes in and of itself.

Chapter 5

5. Discussion

The present study aimed to explore whether there was a relation between vicarious control and mental health quality of life, depression, anxiety and stress and whether this relation is moderated by coping (emotion-focused coping, problem focused coping and dysfunctional coping). The study hypothesized that a high vicarious locus of control would predict lower depression, lower anxiety, lower reported stress and higher reported mental health quality of life. In addition, it was hypothesized that coping would moderate this relation between vicarious control and each of depression, anxiety stress and mental health quality of life. In the following chapter, the findings of the results will be discussed. The aims of this discussion chapter are to systematically discuss each hypothesis in sequence and discuss the findings in relation to past research and identify the implications for practice and future research. The results will be discussed in three sections (1) vicarious control and its relationship to mental health quality of life, depression, anxiety and stress (2) coping and its relationship to mental health quality of life, depression, anxiety and stress and (3) coping as a moderator between vicarious control and mental health quality of life, depression, anxiety and stress.

As hypothesized, it was found that in general vicarious control does predict improved mental health quality of life. Previous studies have shown that secondary control, of which vicarious control is argued to be a subtype, is an adaptive means of coping in chronically ill populations (Zaleski, 1999). This study has indicated that vicarious control beliefs are associated with a reduction in mental health symptoms such as prominent feelings of depression and anxiety, and is congruent with studies that have

shown vicarious control to be positively associated with improved quality of life (Zaleski, 1999). It is possible that this may be so as there is a sense of uncontrollability of the disease and individuals often feel that they have few possibilities to change the situation or solve the problem and, therefore, become highly dependent on powerful others such as doctors and medical staff, thereby engaging in vicarious control strategies. (Grootenhuis & Last, 1997; Stam, Grootenhuis, Cavan, & Last, 2006). Vicarious control strategies are then used by patients to attribute 'special powers' to doctors on whom all hope is focused as it is felt that they cannot alter the course of the disease themselves. A control belief in powerful others is then found to be adaptive.

On further analysis it was found that vicarious control is particularly significantly related to stress and anxiety, suggesting that individuals who have engaged in vicarious locus of control report lower levels of anxiety and stress. It is possible that placing one's sense of control in 'powerful others' may decrease levels of anxiety and stress as one no longer feels directly in charge of the course of the disease and is able to perceive a shared responsibility with someone deemed more able to have an impact on the course of disease. This is supported by research that suggests that patients are not interested in making medical choices and find them stressful and anxiety provoking but rather prefer that these decisions be made exclusively by their physicians (Reed, Taylor, & Kemeny, 1993). Furthermore, this interaction can be understood in looking at the nature of anxiety. Anxiety in cancer populations is fuelled by the fear of lack of control around their disease (Nordin, et al., 2001). Engaging in vicarious control, however, allows patients to place control of the disease onto medical professionals and perhaps higher spiritual beings, thereby decreasing their anxiety.

Further analyses were conducted to determine the effects of a high and low vicarious locus of control orientation on mental health quality of life, depression, anxiety and stress. It was found that participants with a higher reported vicarious control orientation also reported significantly better mental health quality of life and lower levels of depression, anxiety and stress. These findings seem to be congruent with previous studies that suggest that patients who engage in vicarious control have lower levels of depression, anxiety and stress, increased quality of life and generally experience better adjustment to cancer (Thompson, Newcomb, Collins, & Hunt, 1996). These findings are consistent with Taylor's (1984) findings that beliefs in control by others over the course of illness is positively associated with adjustment in cancer patients and that the belief that others could control the course of the disease was associated with positive mood (Reed et al., 1993).

In addition to the effects of feeling in control and having a sense of mastery over their disease it seems that coping strategies that patients utilise also affect their psychological state when living with cancer. Coping was comprised of three subtypes of coping, namely emotion-focused coping, problem-focused coping and dysfunctional coping. While overall coping was found to predict mental health quality of life, depression, anxiety and stress, further analyses were done to determine the individual effects of each type of coping on mental health quality of life, depression, anxiety and stress.

It was found that dysfunctional coping was associated with reports of lower mental health quality of life, higher depression and higher levels of anxiety and stress. This finding is consistent with research that has shown that engaging in dysfunctional coping mechanisms such as focusing on and venting of emotions, behavioural

disengagement and mental disengagement is associated with poorer outcomes such as poor mood, increased anxiety and especially lower social functioning (Vosvick, Koopman, Gore-Felton, Thoresen, Krumboltz, & Spiegel, 2003). This form of coping has been consistently shown to negatively influence social integration and help seeking behaviours. This finding is important in light of earlier findings on the beneficial effects of social support on the health status and survival of patients with cancer (Vosvick et al., 2003, Thompson, et al., 1996). Conditions that limit the ability to actively engage in interaction with family and friends, such as dysfunctional coping, may significantly decrease the buffering effects that may be provided by social support. In addition, dysfunctional coping may be positively associated with stress, anxiety and depression as it fails to sufficiently distract the individual from their disease (Holahan et al., 2005; Sherbourne et al., 1995). After a period of time stressors may become bigger, leading individuals to experience an enduring pattern of stress, anxiety and depression and consequently greater psychological distress (Holahan et al., 2005).

Increased emotion-focused coping was found to be associated with reports of lower levels of anxiety and stress. This finding is compatible with recent research in the broader field of emotion-focused coping. (Penland et al., 2000 & Sherbourne et al., 1995). It has been suggested that social support in particular, is associated with less psychological distress (Penland et al., 2000). Researchers have explored the relationship between emotion-focused coping and psychological distress and found that individuals who use emotion-focused coping had lower levels of anxiety and depressive symptoms (Billings & Moos, 1984; Penland et al., 2000; Sherbourne et al., 1995). According to previous research emotion-focused coping appears to vary in its effectiveness as it incorporates a number of diverse coping styles such as seeking

emotional support, acceptance, denial and turning to religion (Sherbourne et al., 1995). Coping styles that regulate emotion have been found to be effective as they prevent people from dwelling on their negative emotions and ensure they take proactive steps to resolve their negative emotions (Carver et al., 1989). For example, seeking social support is effective as it encourages individuals to seek advice from others regarding suitable coping strategies in which to engage (Bouteyre et al., 2007). Another adaptive coping style, acceptance, appears to be effective as it requires individuals to take proactive steps to accept a distressing situation, rather than continue to experience negative emotions (Carver et al., 1989).

However, it is possible that a non-significant relationship between emotion-focused coping and general mental health quality of life may be a result of subtypes of emotion-focused coping having varying effects. It has been reported that some emotion-focused strategies may seem to allow patients to ignore distressing feelings or refocus them and thereby not directly processing these feelings. (Billings & Moos, 1984). Martz and Livneh (2007) found that emotion-focused disengagement coping, which includes denial and turning to religion predicted higher anxiety and significantly more psychological distress. Lastly, it is possible that some of the participants did not believe they have the resources to adequately cope with their disease themselves, thus they engage in more passive coping styles. Due to discrepancies within research on the effects of emotion-focused coping, it may be useful for future studies to determine which types of emotion-focused coping assist in ameliorating mental health quality of life and lowering reports of depression, anxiety and stress as it is possible that different factors within emotion-focused coping may have varying effects.

In the present study, as expected, increased problem focused coping was associated with lower reported rates of depression. This is consistent with past research that has found that individuals who use problem-focused coping strategies often report lower levels of depression (Billings & Moos, 1984; Penland et al., 2000; Sherbourne et al., 1995). Problem-focused coping appears to be associated with reduced depressive symptoms as this coping style actively removes or resolves stressors (Carver et al., 1989). As these stressors are removed before they develop into functionally inhibiting stressors, stress levels are reduced and prevent individuals from experiencing more severe psychological distress. Contrary to the second hypothesis of the present study, no associations were found between problem-focused coping and reported levels of stress and anxiety levels. This is surprising as the majority of studies in the literature suggests that problem-focused coping is negatively associated with stress and anxiety in cancer patients (Nordin et al., 2001, Roussi, Krikeli, Hatzidimitriou, & Koutri, 2007). Research has also shown that problem-focused coping is adaptive in uncontrollable situations as it provides individuals with a sense of mastery and gain (Folkman, 1997). For example, an ill individual may feel an increased sense of mastery and reduced stress as a consequence of exploring different treatment options. However, it is also possible that patients' perceive cancer as a problem that they cannot solve or gain mastery over on their own and may then rather engage in emotion-focused coping strategies as a way to manage the emotional effects of living with a cancer diagnosis. It is possible that due to the small sample size these associations were not detected.

Emotion-focused coping was found to be a significant moderator for the relation between vicarious control and both anxiety and stress. The present study's findings suggest that having a high vicarious locus of control and high emotion-focused coping

may provide the most protection against anxiety and stress and that having a low vicarious locus of control in conjunction with low emotion-focused coping provided the least protection against anxiety and stress. Interestingly to note is that people with a high vicarious control orientation in tandem with emotion-focused coping abilities, tended to report lower levels of anxiety and stress. However, participants with lower vicarious locus of control orientation used in conjunction with high emotion-focused coping strategies tended to report significantly elevated levels of anxiety. While emotion-focused coping may be able to assist with gaining social support, vicarious control seems to provide a further collaborative type of social support in that patients may feel that through the support provided by their 'powerful others' and their trust and hope in them that they are able to have some control over their disease.

Furthermore, a vicarious locus of control may open an individual more to the effects of emotion-focused coping in feeling that together with the doctor or 'powerful others' they are able to have control over the disease. Without a sense of vicarious control and only engaging in emotion-focused coping, patients may find social support and acceptance but may not have a sense of mastery of the disease which has been found to be necessary in adaptive adjustment to cancer (Thompson, Newcomb, Collings, & Hunt, 1996). Vicarious control, then, provides them with some sense of mastery as they put their belief in the abilities of medical professionals and through this experience, they feel more vicariously in control and as such report lower levels of anxiety and stress regarding their disease.

Limitations

An obvious limitation in the present study is the small size of 56 respondents. Even though many efforts were made to increase the participant pool, it was not possible to get more than the 56 respondents who took part in this study. Sample size has a lot to

do with whether or not an 'acceptable' level of statistical significance is achieved and whether or not the sample is sufficient to evoke the central limit theorem (Rosenthal & Rosnow, 1991). This is related to the generalizability of the findings of the research. As such, the small sample size may have reduced the power of the statistical procedures and failed to detect differences, where there were differences in some instances. The results should therefore be interpreted accordingly. Future research should endeavour to look at the effects of vicarious control in larger samples of cancer survivors.

Studies have found that compared to mainstream western culture, South Africans from traditional African backgrounds, as some of the participants may have been, are significantly more 'power deferent' (more respectful of status and position) (Cooper & Mullins, 2001). This too may have affected the way participants answered questionnaires, especially questions concerning vicarious control. It is also possible that perceptions of expressing feelings of anxiety, stress and depression may have skewed results. Studies on Zulu South Africans (Cooper & Mullins, 2001) and their expression of physiological and psychological pain revealed that stoicism and lack of expressiveness was a highly salient value. Despite having been assured confidentiality and a sense of anonymity that completing questionnaires provides, these beliefs and values may have impacted on how questions were answered.

These findings expand on the growing literature on the process of coping with cancer. Few prior studies have examined the interaction of coping and vicarious control as was done in the present study. The current findings suggest that emotion-focused coping and problem-focused coping may be associated with lower distress for those patients, while emotion-focused coping is particularly more effective when patients

believe that they have the opportunity to exert some influence over their cancer albeit through powerful others. These findings and further studies in this area could impact on psychological interventions used with cancer patients as well as have an impact on fostering better doctor-patient relationships. Future studies could investigate more closely the effect of doctor-patient relations on control beliefs and quality of life.

Chapter 6

6. Conclusion

While quality of life and cancer research has flourished worldwide, research on South African cancer populations has been limited. This study, therefore, contributes to the literature on quality of life in the South African cancer population, while simultaneously contributing to the broader cancer literature by way of exploring the effects of vicarious control and coping on mental health outcomes. The aim of this study was to determine whether or not a vicarious health locus of control orientation predicts better mental health locus of control and lower depression, anxiety and stress. In addition, it was hypothesised that coping would moderate this relationship between vicarious control and mental health quality of life, depression, anxiety and stress. This was investigated with the use of the CSS, DASS, B-COPE and the Rand SF-36 questionnaires.

Results suggest that vicarious control does predict improved mental health quality of life and a reduction in depression and particularly anxiety and stress levels. Furthermore, it seems that individuals with a high vicarious locus of control experience less anxiety and stress symptoms as compared to those with a lower vicarious locus of control orientation. It was suggested that having a sense of mastery over the disease through having a belief in powerful others aided improved adjustment and mental health quality of life as well decrease depression, anxiety and stress levels.

Furthermore, results suggest that coping strategies in addition to the effects of feeling in control affect patients' psychological state when living with cancer. Dysfunctional coping strategies were found to be associated with reports of lower mental health quality of life and increased levels of depression, anxiety and stress. While emotion-focused coping was associated with lower levels of depression, anxiety and stress and problem-focused coping strategies were significantly associated with lower reported levels of depression. In addition to this, results suggested that increased emotion-focused together with an increased sense of vicarious control offered the most protection against anxiety and stress, in addition having low emotion-focused coping while having a high vicarious locus of control orientation was still enough to buffer against levels of anxiety and stress, while a low vicarious locus of control orientation with either high or low emotion-focused coping provided the least protection against anxiety and stress. It was put forward that while emotion-focused coping strategies may be able to assist with gaining social support, vicarious control seems to provide a further collaborative type of social support for patients that assists them with feeling in control of their disease through powerful others.

It is felt that this study contributes to an expanding field of study on the quality of life of cancer patients and further understanding of the cognitive factors that are involved when adjusting to living with a cancer diagnosis and determining the quality of life of these patients. Furthermore, this study has suggested that having a vicarious locus of control is important in improving mental health quality of life and lowering levels of depression, anxiety and stress in the South African cancer population and may provide support in improving doctor-patient relationships. Future studies on coping and quality of life of South African cancer populations may do well to further investigate aspects of emotion-focused coping strategies and problem-focused coping

strategies to determine adaptive and maladaptive sub-types and how these have an effect on quality of life. It is possible that due to the small sample size, further associations were not detected, it would therefore be advantageous for future studies to take a larger sample into account.

References

- Aass, N., Fossa, S. D., Dahl, A. A. & Moe, T. J. (1997). Prevalence of anxiety and depression in cancer patients seen at the Norwegian Radium Hospital. *European Journal of cancer*, 33, 1597 – 1604.
- Aldwin, C., & Revenson, T.A. (1987). Does coping help? A re-examination of the relation between coping and mental health. *Journal of Personality and Social Psychology*, 55, 337-348.
- Ashbury, F. D., Cameron, C., Mercer, S. L., Fitch, M., & Nielsen, E. (1998). One-on-one peer support and quality of life for breast cancer patients. *Patient Educational Counseling*, 35, 89 – 100.
- Badger, T.A., Braden, C.J., Mischel, M.H., & Longman, A. (2004). Depression burden, psychological adjustment, and quality of life in women with breast cancer: patterns over time. *Research in Nursing & Health*, 27(1), 19-28.
- Beck, S. L., & Falkson, G. (2001). Prevalence and management of cancer pain in South Africa. *Pain*, 94(1), 75-84.
- Bouteyre, E. Maurel, M., & Bernaude, J-L. (2007). Daily hassles and depressive symptoms among first year psychology students in France: The role of coping and social support. *Stress & Health: Journal of the International Society for the Investigation of Stress*, 23(2), 93-99.
- Brazier, J. E., Harper, R., Jones, N. M., O'Cathain, A., Thomas, K. J., Usherwood, T., & Westlake L. (1992). Validating the SF-36 health survey questionnaire: new outcome measure for primary care. *British Medical Journal*, 305, 160-164.
- Bremer, B.A., Moore, C.T., Bourbon, B.M., Hess, D.R., & Bremer, K.L. (1997). Perceptions of control, physical exercise and psychological adjustment to

breast cancer in South African women. *Annals of Behavioral Medicine*, 19(1), 51-60.

Arve, S., Lehtonen, A., & Tilvis, R.S. (1998). Prognosis of depression with and without dementia in old age. *Archives of Gerontology and Geriatrics*, 27(2), 141-146.

Bukberg, J. Penman, D., & Holland, J. (1984). Depression in hospitalized cancer patients. *Psychosomatic Medicine*, 4(3), 199-212.

Bukberg, J., & Holland, J. (1980). Depression in hospitalized cancer patients. *Psychosomatic Medicine*, 46(3), 199-212.

Burish, T.J., Cory, M.P., Wallston, K.A., Stein, M.J., Jamison, R.N., & Lyles, J.N. (1984). Health locus of control and chronic disease: an external orientation may be advantageous. *Journal of Social and Clinical Psychology*, 2(4), 326-332.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: consider the brief COPE. *International Journal of Behavioral Medicine*, 4, 92-100.

Chapman, P. I., & Mullis, R. L. (1999). Adolescent coping strategies and self-esteem. *Child Study Journal*, 29 (1), 69-78.

Compas, B. E., Malcarne, V. L., & Fondacaro, K. M. (1988). Coping with stressful events in older children and young adolescents. *Journal of Consulting and Clinical Psychology*, 56, 405-411.

Compas, B., Banez, G., Malcarne, V., & Worsham, N. (1991). Perceived control and coping with stress: A developmental perspective. *Journal of Social Issues*, 47(4), 23-34.

- Conway, V. J., & Terry, D. J. (1992) . Appraised controllability as a moderator of the effectiveness of different coping strategies: A test of the goodness of fit hypotheses. *Australian Journal of Psychology*, 44, 1-7.
- Cooper, C., Katona, C., & Livingston, G. (2008). Validity and reliability of the brief COPE. *Journal of Nervous and Mental Disease*, 196(1), 838-843.
- Dasgupta, P., & Weale, M. (1992). On measure the quality of life. *World Development*, 20 (1), 119-131.
- De Valck, C., & Vinck, J. (1996). Health locus of control and quality of life in lung *cancer patients*. *Patient Education and Counseling*, 28, 179- 186.
- Everly, G.S., & Lating, J.M. (2002). *A clinical guide to the treatment of the human stress response*. Kluwer Academic: New York.
- Failde, I., & Ramos, I. (2000) Validity and reliability of the SF-36 Health Survey Questionnaire in patients with coronary artery disease. *Journal of Clinical Epidemiology*, 53, 359 –365
- Folkman, S., & Lazarus, R.S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behaviour*, 21, 219-239.
- Freud, S. (1965). *Psychopathology of everyday life*. New York: W.W. Norton.
- Friedman, H.S., & Booth-Kewley, S. (1987). Personality, Type A behaviour and coronary heart disease: The role of emotional expression. *Journal of Personality and Social Psychology*, 53(4), 783-792.
- Frydenberg, E., & Lewis, R. (1996). Social issues: what concerns young people and how they cope? *Peace and Conflict: Journal of Peace Psychology*, 2(3), 271 –283.

- Gomez, R. (1998). Locus of control and avoidant coping. Direct interactional and mediational effects in maladjustment in adolescents. *Personality and Individual Differences*, 24, 325-334.
- Gottlieb, B.H. (1997). *Coping with chronic stress*. Springer. New York.
- Greeno, C. G., & Wing, R.R. (1994). Stress-induced eating. *Psychological Bulletin*, 115, 444-464.
- Grootenhuis, M. A., Last, B. F., Van Der Wel, M., & De Graaf-Nijkerk, J. H. (1998). Parents' attribution of positive characteristics to their children with cancer. Manuscript submitted for publication to *Psychology and Health*, 13, 67-81.
- Grootenhuis, M.A., & Last, B.f. (1997). Predictors of parental emotional adjustment to childhood cancer. *Psycho-oncology*, 6, 115-128.
- Haan, N. (1969). A tripartite model of ego functioning: values and clinical research applications. *Journal of Nervous and Mental Disorders*, 148, 14-30.
- Hamer, M., Chida, Y., & Molloy, G. (2009) Psychological distress and cancer mortality. *Journal of Psychosomatic Research*, 66(3), 255-258.
- Helgeson, V. S. (1992). Moderators of the relation between perceived control and adjustment to chronic illness. *Journal of Personality and Social Psychology*, 63, 656-666.
- Holahan, C.J., Moos, R.H., Brennan, P.I., & Schutte, K.K. (2005). Stress generation, avoidance coping and depressive symptoms: A ten year model. *Journal of Consulting and Clinical Psychology*, 73(4), 658-666.
- Howell, D.C. (1997). *Fundamental statistics for the behavioural sciences*. Duxbury Press: London.

- Jordaan, P., Spangenberg, I., Watson, J., & Fouche, M. (2007). Burnout and its correlates in South African clinical and counselling psychologists. *South African Journal of Psychology*, 39(1), 176-201
- Jordan-Marsh, M. (2002). The SF-36 Quality-of-Life Instrument: Updates and Strategies for Critical Care research. *Critical Care Nursing*, 23, 35-43.
- Kenne Sarenmalm E, Thorén-Jönsson AL, Gaston-Johansson F, Ohlén J. (2009). Making Sense of Living Under the Shadow of Death: Adjusting to a Recurrent Breast Cancer Illness. *Qualitative Health Research*, 19(8), 1116-1130.
- Kenne-Sarenmalm, E., Öhlén, J., Jonsson, T. & Gaston-Johansson F. (2007). Coping with Recurrent Breast Cancer: Predictors of Distressing Symptoms and Health-Related Quality of Life. *Journal of Pain and Symptom Management*, 34 (1), 24-39.
- Kissane, D. W., Clarke, D. M., Ikin, J., Bloch, S., Smith, G., & Vietta, C. (1998). Australian women with early stage breast cancer: a cross-sectional survey. *Medical Journal Australia*, 169, 192 – 196.
- Krzanowski, W.J. (2007). *Statistical principles and techniques in scientific and social investigating*. Oxford University Press: London.
- Lauver, D., & Youngman, T. (1995). Optimism and coping with breast cancer symptoms. *Journal of applied psychology*, 44(4), 156-164.
- Lazarus, R.S. (1993). From psychological stress to the emotions: a history of changing outlooks. *Annual Review of Psychology*, 44, 1-21.
- Lazarus. R.S., & Folkman, S. (1984). *Stress, Appraisal & Coping*. New York: Springer.
- Lehmen, A.F. (1996). Measures of quality of life among persons with severe and persistent mental disorders. *Social psychiatry and psychiatric epidemiology*, 3(2), 78-88.

- Lewis, F.M., Morisky, D.E., & Flynn, B.S. (1978). A test of the construct validity: effects on self-reported compliance for hypertensive clients. *Health Education & Behavior*, 6(1), 138-148.
- Lovibond, S.H., & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales*. (2nd. Ed.) Sydney: Psychology Foundation.
- Maguire, G. P., Lee, E., Bevington, D., Kücheman, C., Crabtree, R., & Cornell, C. (1978). Psychiatric problems in the first year after mastectomy. *British Medical Journal*, 1, 963 – 965.
- Martz, E., & Livneh, H. (2007). *Coping with chronic illness & disability: theoretical, empirical & clinical aspects*. Springer: New York.
- McDaniel, J. S., Musselman, D. L., Porter, M. R., Reed, D. A., & Nemeroff, C. B. (1995). Depression in patients with cancer. Diagnosis, biology, and treatment. *Archives of General Psychiatry*, 52. 89 - 99.
- McInerney, P., Ncama, B. Wantland, D., Bhengu, R., McGibbon, C., Davis, S., Corless, I., & Nicholas, P. (2008). Quality of life and physical functioning in HIV infected individuals receiving ARV therapy in Kwa-Zulu Natal, South Africa. *Nursing and Health Sciences*, 10(4), 266-272.
- Montazeri, A. (2008) Health related quality of life in breast cancer patients: A bibliographic review of the literature from 1974 to 2007. *Journal of Experimental and Clinical Cancer Research*, 27(1), 32-36.
- Naus, M.J., Price, E., & Peter, M.P. (2005). The moderating effects of anxiety and breast cancer locus of control on depression. *Journal of Health Psychology*, 10(5), 687-694.
- Nieuwenhuijsen, K. A., de Boer, G. E. M., Verbeek, J., Blonk, R., & van Dijk, F. (2003). The Depression Anxiety Stress Scales (DASS): Detecting anxiety disorder and depression in employees absent from work because of mental health problems *Occupational and Environmental Medicine*, 60(1), 156-165.

- Nordin, K., Berglund, G., Glimelius, B., & Sjoden, P. (2001). Predicting anxiety and depression among cancer patients: A clinical model. *European Journal Cancer*, 37, 376-384.
- Olley, B.O., Seedat, S., & Nei, D. G. (2004). Predictors of major depression in recently diagnosed patients with HIV/AIDS in South Africa. *Aids Patient Care & STD's*, 18(8), 481-487.
- Osowiecki, D.M., & Compas, B.E. (1998). A prospective study of coping, perceived control and psychological adaptation to breast cancer. *Cognitive therapy & research*, 23(2), 169-180.
- Pandey, M., Sarita, G. P., Devi, N., Thomas, B. C., Hussain, B. M., & Krishnan, R. (2006). Distress, anxiety, and depression in cancer patients undergoing chemotherapy. *World Journal of Surgical Oncology*, 4, 68 – 72.
- Parkin, D.M., Whelan, S.L., Ferlay, J., Teppo, L., & Thomas, D.B. (2009). *Cancer incidence in five countries*. WHO press.
- Pasquini, M., & Biondi, M. (2007). Depression in cancer patients: A critical review. *Clinical Practice and Epidemiology in Mental Health*, 32, 73-87.
- Peltzer, K. (2001). Tobacco use among black South African university students: attitudes, risk awareness and health locus of control. *Curationis*, 24(2), 4-8.
- Penland, E., Masten, W., Zelhart, P., Fournet, G., & Callahan, T. (2000). Possible selves, depression, and coping skills in university students. *Journal of Personality and Individual Differences*, 29, 963-969.
- Pillay, A. L., & Wassenaar, D. R. (1996). Hopelessness and psychiatric symptomatology in hospitalized physically ill adolescents. *South African Journal of Psychology*, 26(1), 47-51.

- Pillay, A.L. (2001). Psychological symptoms in recently diagnosed cancer patients. *South African Journal of Psychology*, 31(1), 14-15.
- Reed, G. M. (1989). Perceived Control and Psychological Adjustment in Gay Men With AIDS. *Journal of Applied Social Psychology*, 23(10), 791 – 824.
- Reed, G.M., Taylor, S. E., & Kemeny, M.E. (1993). Perceived control and psychological adjustment in gay men with AIDS. *Journal of applied social psychology*, 23(10), 791-824.
- Reynolds P., Hurley, S., Torres, M., Jackson, J., Boyd, G., & Chen, V., (2000). Use of Coping Strategies and Breast Cancer Survival: Results from the Black/White Cancer Survival Study. *American Journal of Epidemiology*, 152(10), 940-949.
- Rosenthal, R., & Rosnow, R. (1991). *Essentials of Behavioral Research: Methods and Data Analysis. (2nd ed.)*. New York: McGraw-Hill, Inc.
- Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: a two process model of perceived control. *Journal of Social and Personality Psychology*, 42, 5-37.
- Schlebusch, L. (2005). Schlebusch Review: Depression and suicide behaviour. *South African Family Practice*, 47(5), 256-267.
- Schwab, J. J., Marder, L., Clemmons, R. S., & McGinnis, N. H. (1966). Anxiety, severity of illness and other medical variables. *Journal of Psychosomatic Research*, 10, 297 – 303.
- Sherbourne, C., Hays, R.D., & Wells, K.B. (1995). Personal and psychosocial risk factors for physical and mental health outcomes and course of depression among depressed patients. *Journal of Consulting & Clinical psychology*, 63(3), 345-355.

- Skärstein, J., Aass, N., Fossa, S. D., Skovlund, E., & Dahl, A.A. (2000). Anxiety and depression in cancer patients: Relation between the Hospital Anxiety and Depression Scale and the European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire. *Journal of Psychosomatic Research*, 49, 27 – 34.
- Somerfield, M. R., & McCrae, R. R. (2000). Stress and Coping Research: Methodological Challenges, Theoretical Advances and Clinical Applications. *American Psychologist*, 55 (6), 620-625.
- Spiegel, D., & Giese-Davis, J., (2003). Depression and Cancer: Mechanisms and Disease Progression. *Biological Psychiatry*, 54, 269 – 282.
- Spijker, A., Trijsburg, R., & Duivenvoorden, H. (1997). Psychological sequelae of cancer diagnosis: a meta-analytical review of 58 studies after 1980. *Psychosomatic Medicine*, 59(3), 280-293.
- Stam, H. Grootenhuis, M.A. Caron, H.N. & Last, B.F., (2007). Surviving childhood cancer: Quality of life, course of life and coping. *Psycho-oncology*, 15, 31-43.
- Stark, D., Kiely, M., Smith, A., Velikova, G., House, A., & Selby, P. (2002). Anxiety Disorders in Cancer Patients: Their Nature, Associations, and Relation to Quality of Life. *Journal of Clinical Oncology*, 20 (14), 3137 – 3148.
- Stevens, J. (2002). *Applied multivariate statistics for the social sciences*. Routledge: Boston.
- Taylor, S. (1983). Adjustment to threatening events: A theory of cognitive adaptation. *American Psychologist*, 38, 1161-1173.

- Taylor, S., Lichtman, R., & Wood, J. (1984). Attributions, beliefs about control, and adjustment to breast cancer. *Journal of Personality and Social Psychology*, 46, 489-502.
- Terre Blanche, M., & Durrheim, K. (Eds.). *Research in Practice*. University of Cape Town Press (Pty) Ltd: Cape Town
- Thomas, B., Mohan, V.N., Thomas I., & Pandey, M. (2002). Development of a distress inventory for cancer: preliminary results. *Journal of Postgraduate Medicine*, 38(1), 16-20.
- Thompson, S. C., Sobolew-Shubin, A., Galbraith, M. E., Schwankovsky, L., & Cruzen, D. (1993). Maintaining perceptions of control: Finding perceived control in low-control circumstances. *Journal of Personality and Social Psychology*, 64, 293-304.
- Thun, M.J., DeLancey, J.O., Center, M.M., Jemal, A. & Ward, E.M. (2010). The global burden of cancer: priorities for prevention. *Carcinogenesis*, 31 (1), 100-110.
- Varker, K., Terrell, C., Welt, M. S., Suleiman, L. Thornton, B. Andersen, W., & Carson, L. (2007). Impaired Natural Killer Cell Lysis in Breast Cancer Patients with High Levels of Psychological Stress is Associated with Altered Expression of Killer Immunoglobulin-Like Receptors. *Journal of Surgical Research*, 139(1), 36-44.
- Vitaliano, P. P., DeWolfe, D. J., Maiuro, R. D., Russo, J., & Katon, W. (1990). Appraised changeability of a stressor as a modifier of the relationship between coping and depression: A test of the hypothesis of fit. *Journal of Personality and Social Psychology*, 59, 582-592.
- Vosvick, M., Koopman, C. Gore-Felton, C., Thoresen, C., Krumboltz, J. & Spiegel, D. (2003). Relationship of functional quality of life to strategies for coping with the stress of living with HIV/AIDS. *Psychosomatics*, 44, 51-58.
- Wallston, K.A., & Wallston, B.S. (1976). Development and validation of the health

- locus of control (HLC) scale. *Journal of Consulting Clinical Psychology*, 44(4), 580-585.
- Wallston, K.A., & Wallston, B.S. (1978). Development of the multidimensional health locus of control (MHLC) scales. *Health Education & Behavior*, 6(1), 160-170.
- Wallston, K.A. (2005). The validity of the Multidimensional Health Locus of Control Scales. *Journal of Health Psychology*, 10, 623-631.
- Wallston, K.A., Wallston, B.S., & DeVellis, R. (1978). Development of the Multidimensional Health Locus of Control (MHLC) Scales. *Health Education and Behavior*, 6(1), 160-170
- Weiner, I. B., Freedheim, D. K., Schinka, J. A., & Velicer, W. F. (2003). *Handbook of Psychology*. John Wiley and Sons. New York.
- Wells, K.B., Golding, J.M., & Burnam, M.A. (1988). Psychiatric disorder in a sample of the general population with and without chronic medical conditions. *American Journal of Psychiatry*, 145, 976-981.
- World Health Organization (1993). *WHOQoL Study Protocol*. WHO Press. Geneva.
- Yang, K., Brothers, A., & Anderson, J. (2008). Stress and Quality of Life in Breast Cancer Recurrence: Moderation or Mediation of Coping? *Annals of Behavioral Medicine*, 35(2), 188-197.
- Yarbro, C. Frogge, M., & Goodman, M. (2005). *Cancer nursing: principles and practice*. Jones & Bartlett Publishers: New York.
- Zaleski, E.H. (1999). Individual changes in depression, perceived control and immune functioning in persons living with AIDS. *Unpublished Dissertation*. Fordham University.

APPENDICES

Appendix A:

Information Sheet

School of Human and Community Development

Private Bag 3, Wits 2050, Johannesburg, South Africa

Tel: 0737873714

Email: nadiawesso@gmail.com



Dear Patient

My name is Nadia Wesso-Rule, and I am conducting research for the purposes of obtaining a Masters at the University of the Witwatersrand. My research focus is that of how patients cope with cancer. With a diagnosis of cancer, most patients experience distress to varying degrees and are able to manage this distress in different ways. I am particularly interested in how cancer patients manage this distress. I would like to invite you to participate in this study.

Participation in this research will entail completing the attached questionnaires. The questionnaire will take approximately 40 minutes to complete. Participation is voluntary, and no one will be advantaged or disadvantaged in any way for choosing to complete or not complete the questionnaire. All the information you provide will be kept strictly confidential and will only be looked at by myself and the research supervisor. Your completed questionnaire will not be seen by any person in this organisation or any one else at any time. Your responses will only be looked at in relation to all other responses. This means that information gathered from the questionnaires will be interpreted and written up in the form of group responses and not individual perceptions.

If you choose to participate in the study please complete the attached questionnaire as carefully and honestly as possible. Once you have answered the questions, place the questionnaire in the envelope provided and deposit it in the sealed box provided. I will collect the questionnaires from the box at regular intervals. This will ensure that no one will have access to the completed questionnaires, and will ensure your confidentiality. Alternatively, if I have sent the questionnaires to you via email please return them via email. If you do return your questionnaire, this will be considered consent to participate in the study. If you experience any emotional distress as a result of the questionnaires support groups at CANSA are available to you (011 648-2340) or alternatively you can contact Life Line at 011 422 4242 or the Emthonjeni Center at the University of the Witwatersrand 0117574153. Your participation in this study would be greatly appreciated as this research will contribute to a larger body of knowledge on how patients cope with cancer.

Kind Regards

Nadia Wesso-Rule

Appendix B:
Participant Information Sheet

School of Human and Community Development

Private Bag 3, Wits 2050, Johannesburg, South Africa

Tel: 0737873714

Email: nadiawesso@gmail.com



PARTICIPANT INFORMATION SHEET

SEX: _____

AGE: _____

TYPE OF CANCER: _____

TYPE OF TREATMENT: _____

Appendix C:

Questionnaire 1: Brief-COPE

This questionnaire asks you to indicate ways that you are coping with your cancer experience. When answering these questions think about how you have dealt with your cancer over the past few weeks including today. There are lots of ways to deal with stress. There are no right or wrong answers. Think of your experience in a broad sense; how it affects your life on any level (i.e. personal, family, job, and so forth).

Way(s) you are coping with your cancer over the past few weeks including today:
(Circle the appropriate number.)

	<i>I haven't been doing this at all</i>	<i>I've been doing this a little bit</i>	<i>I've been doing this a medium amount</i>	<i>I've been doing this a lot</i>
1. I've been turning to work or other activities to take my mind off things.	1	2	3	4
2. I've been concentrating my efforts on doing something about the situation I'm in.	1	2	3	4
3. I've been saying to myself "this isn't real."	1	2	3	4
4. I've been using alcohol or other drugs to make myself feel better.	1	2	3	4
5. I've been getting emotional support from others.	1	2	3	4
6. I've been giving up trying to deal with it.	1	2	3	4
7. I've been taking action to try to make the situation better.	1	2	3	4
8. I've been refusing to believe that it has happened.	1	2	3	4
9. I've been saying things to let my unpleasant feelings escape.	1	2	3	4
10. I've been getting help and advice from other people.	1	2	3	4
11. I've been using alcohol or other drugs to help me get through it.	1	2	3	4
12. I've been trying to see it in a different light, to make it seem more positive.	1	2	3	4

	<i>I haven't been doing this at all</i>	<i>I've been doing this a little bit</i>	<i>I've been doing this a medium amount</i>	<i>I've been doing this a lot</i>
13. I've been criticizing myself.	1	2	3	4
14. I've been trying to come up with a strategy about what to do.	1	2	3	4
15. I've been getting comfort and understanding from someone.	1	2	3	4
16. I've been giving up the attempt to cope.	1	2	3	4
17. I've been looking for something good in what is happening.	1	2	3	4
18. I've been making jokes about it.	1	2	3	4
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1	2	3	4
20. I've been accepting the reality of the fact that it has happened.	1	2	3	4
21. I've been expressing my negative feelings.	1	2	3	4
22. I've been trying to find comfort in my religion or spiritual beliefs.	1	2	3	4
23. I've been trying to get advice or help from other people about what to do.	1	2	3	4
24. I've been learning to live with it.	1	2	3	4
25. I've been thinking hard about what steps to take.	1	2	3	4
26. I've been blaming myself for things that happened.	1	2	3	4
27. I've been praying or meditating.	1	2	3	4
28. I've been making fun of the situation.	1	2	3	4

Appendix D

Questionnaire 2: Depression, Anxiety and Stress Scale

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree, or a good part of time
- 3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Appendix E:
Questionnaire 3: Control Strategy Scale

Each item below is a belief statement about your cancer diagnosis with which you may agree or disagree. Beside each statement is a scale which ranges from Totally agree (1) to totally disagree (4). For each item we would like you to circle the number that represents the extent to which you agree or disagree with that statement.					
		Totally Agree	Agree	Disagree	Totally Disagree
1.	The best physicians you can have are working at the hospital	1	2	3	4
2.	The physicians are so smart they develop new treatments all the time	1	2	3	4
3.	I think we should rely upon the physician's opinion concerning everything about the disease.	1	2	3	4
4.	I know my treatment is the best there is	1	2	3	4
5.	I think I should do as I am told by the physician	1	2	3	4
6.	I think this is the best hospital in South Africa	1	2	3	4
7.	I assume the people at the hospital know what to do if anything goes wrong	1	2	3	4
8.	I trust my physician to do everything in his power to cure me.	1	2	3	4
9.	Only a physician can cure me	1	2	3	4
10.	My health lies in the hands of <i>God</i>	1	2	3	4

Appendix F

Questionnaire 4: Mental Health Locus of Control Scale

Each item below is a belief statement about your cancer diagnosis with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item we would like you to circle the number that represents the extent to which you agree or disagree with that statement.

		<i>Strongly disagree</i>	<i>Moderately disagree</i>	<i>Slightly disagree</i>	<i>Slightly agree</i>	<i>Moderately agree</i>	<i>Strongly agree</i>
1.	If my condition worsens, it is my own behavior that determines how soon I will feel better again.	1	2	3	4	5	6
2.	As to my condition, what will be will be.	1	2	3	4	5	6
3.	If I see my doctor regularly, I am less likely to have problems related to my condition.	1	2	3	4	5	6
4.	If my health worsens, it is up to God to determine whether I will feel better again.	1	2	3	4	5	6
5.	Most things that affect my condition happen to me by chance.	1	2	3	4	5	6
6.	Whenever my condition worsens, I should consult a medically trained professional.	1	2	3	4	5	6
7.	I am directly responsible for my condition getting better or worse.	1	2	3	4	5	6
8.	Most things that affect my health happen because of God.	1	2	3	4	5	6
9.	Other people play a big role in whether my condition improves, stays the same, or gets worse.	1	2	3	4	5	6
10.	Whatever goes wrong with my condition is my own fault.	1	2	3	4	5	6
11.	Luck plays a big part in determining how my condition improves.	1	2	3	4	5	6
12.	God is directly responsible for my health getting better or worse.	1	2	3	4	5	6

		<i>Strongly disagree</i>	<i>Moderately disagree</i>	<i>Slightly disagree</i>	<i>Slightly agree</i>	<i>Moderately agree</i>	<i>Strongly agree</i>
13.	In order for my condition to improve, it is up to other people to see that the right things happen.	1	2	3	4	5	6
14.	Whatever improvement occurs with my condition is largely a matter of good fortune.	1	2	3	4	5	6
15.	The main thing, which affects my condition, is what I myself do.	1	2	3	4	5	6
16.	Whatever happens to my health is God's will.	1	2	3	4	5	6
17.	I deserve the credit when my condition improves and the blame when it gets worse.	1	2	3	4	5	6
18.	Following doctor's orders to the letter is the best way to keep my condition from getting any worse.	1	2	3	4	5	6
19.	If my condition worsens, it is a matter of fate.	1	2	3	4	5	6
20.	Whether or not my health improves is up to God.	1	2	3	4	5	6
21.	If I am lucky, my condition will get better.	1	2	3	4	5	6
22.	If my condition takes a turn for the worse, it is because I have not been taking proper care of myself.	1	2	3	4	5	6
23.	The type of help I receive from other people determines how soon my condition improves.	1	2	3	4	5	6
24.	God is in control of my health.	1	2	3	4	5	6

Appendix G

Questionnaire 5: Rand SF-36 Scale

INSTRUCTIONS: This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

Answer every question by marking the answer as indicated.
If you are unsure about how to answer a question, please give the best answer you can.

1. In general, would you say your health is: (circle one)

Excellent	1
Very Good	2
Good	3
Fair	4
Poor	5

2. Compared to one year ago, how would you rate your health in general now?
(circle one)

Much better now than one year ago	1
Somewhat better now than one year ago	2
About the same as one year ago	3
Somewhat worse now than one year ago	4
Much worse now than one year ago	5

3. The following items are about activities you might do during a typical day.
Does your health now limit you in these activities? If so, how much?
(circle one number on each line)

<u>ACTIVITIES</u>	Yes, Limited a Lot	Yes, Limited a Little	No, Not Limited at All
a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports.	1	2	3
b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf.	1	2	3
c. Lifting or carrying groceries	1	2	3
d. Climbing several flights of stairs	1	2	3
e. Climbing one flight of stairs	1	2	3
f. Bending, kneeling, or stooping	1	2	3
g. Walking more than a mile	1	2	3

h. Walking several blocks	1	2	3
i. Walking one block	1	2	3
j. Bathing or dressing yourself	1	2	3

4. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

(circle one number in each line)

	YES	NO
a. Cut down on the amount of time you spent on work or other activities	1	2
b. Accomplished less than you would like	1	2
c. Were limited in the kind of work or other activities	1	2
d. Had difficulty performing the work or other activities (for example, it took extra effort)	1	2

5. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

(circle one number on each line)

	YES	NO
a. Cut down the amount of time you spent on work or other activities	1	2
b. Accomplished less than you would like	1	2
c. Didn't do work or other activities as carefully as usual	1	2

6. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

(circle one)

Not at all 1
Slightly 2

Moderately 3
 Quite a bit 4
 Extremely 5

7. How much bodily pain have you had during the past 4 weeks?

(circle one)

None 1
 Very mild 2
 Mild 3
 Moderate 4
 Severe 5
 Very Severe 6

8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

(circle one)

Not at all 1
 A little bit 2
 Moderately 3
 Quite a bit 4
 Extremely 5

9. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks -

(circle one number on each line)

	All of the Time	Most of the Time	A Good Bit of the Time	Some of the Time	A Little of the Time	None of the Time
a. Did you feel full of pep?	1	2	3	4	5	6
b. Have you been a very nervous person?	1	2	3	4	5	6
c. Have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5	6
d. Have you felt calm and peaceful?	1	2	3	4	5	6
e. Did you have a lot of energy?	1	2	3	4	5	6
f. Have you felt downhearted and blue?	1	2	3	4	5	6
	1	2	3	4	5	6

g. Did you feel worn out?						
h. Have you been a happy person?	1	2	3	4	5	6
i. Did you feel tired?	1	2	3	4	5	6

10. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relative, etc.)?

(circle one)

- All of the time 1
Most of the time 2
Some of the time 3
A little of the time 4
None of the time 5

11. How TRUE or FALSE is each of the following statements for you?

(circle one number on each line)

	Definitely True	Mostly True	Don't Know	Mostly False	Definitely False
a. I seem to get sick a little easier than other people	1	2	3	4	5
b. I am as healthy as anybody I know	1	2	3	4	5
c. I expect my health to get worse	1	2	3	4	5
d. My health is excellent	1	2	3	4	5

Appendix H

Ethics Clearance

Ethical clearance was applied for and obtained from the University of the Witwatersrand Human Research Ethics Committee (Non-medical).

Ethical clearance number: MCLIN/09/007IH
