EMOTIONAL INTELLIGENCE AND LOCUS OF CONTROL OF ADULT BREAST CANCER PATIENTS RECEIVING TREATMENT

ESTI SWARTZ

Submitted in partial fulfilment of the requirements for the degree of

MAGISTER ARTIUM IN COUNSELLING PSYCHOLOGY

in the

Department of Psychology
In the
Faculty of Health Sciences
at the Nelson Mandela Metropolitan University

Supervisor:  Ms. Ottilia Brown

December 2010
ACKNOWLEDGEMENTS

The completion of this study was a culmination of the support, encouragement, effort and enthusiasm of many individuals. I would like to express my sincere appreciation and thanks to each of the following:

- My supervisor, Ms. Ottilia Brown, for her invaluable advice, support and expertise throughout this study.
- The hospital staff. I would like to express my sincere thanks and gratitude to going the extra mile in helping me identify breast cancer patients to participate in this study, as well as administering the questionnaires.
- Mr Danie Venter, at the Nelson Mandela Metropolitan University, for assisting me with the statistical analysis of the results of this study.
- The research participants. Thank you for your participation in the study.
- My family and friends for all the support and encouragement.
- Most importantly, I want to thank the Lord for being my source of strength and providing me with the wisdom, determination and perseverance to complete this research.
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>ii</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>viii</td>
</tr>
<tr>
<td>Abstract</td>
<td>ix</td>
</tr>
<tr>
<td><strong>Chapter One: Introduction and Motivation for the Study</strong></td>
<td></td>
</tr>
<tr>
<td>1.1 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Background and Motivation for the Study</td>
<td>1</td>
</tr>
<tr>
<td>1.3 Research Aims</td>
<td>3</td>
</tr>
<tr>
<td>1.4 Chapter Outline</td>
<td>4</td>
</tr>
<tr>
<td>1.5 Conclusion</td>
<td>4</td>
</tr>
<tr>
<td><strong>Chapter Two: Theoretical Overview: Emotional Intelligence and Locus of Control</strong></td>
<td></td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>5</td>
</tr>
<tr>
<td>2.2 The Concept of Emotional Intelligence</td>
<td>5</td>
</tr>
<tr>
<td>2.2.1 The Emergence of Emotional Intelligence</td>
<td>6</td>
</tr>
<tr>
<td>2.2.2 Emotions</td>
<td>8</td>
</tr>
<tr>
<td>2.2.2.1 Theories of Emotion</td>
<td>9</td>
</tr>
<tr>
<td>2.2.2.1.1 James-Lange, Cannon-Bard and Stanley Schachter</td>
<td>9</td>
</tr>
<tr>
<td>2.2.2.1.2 Component-Process-Model of Emotion</td>
<td>10</td>
</tr>
<tr>
<td>2.2.2.1.3 Goleman’s Theory of Emotion</td>
<td>11</td>
</tr>
<tr>
<td>2.2.3 Intelligence</td>
<td>12</td>
</tr>
<tr>
<td>2.2.4 Emotional Intelligence</td>
<td>13</td>
</tr>
<tr>
<td>2.2.4.1 Mixed Models of Emotional Intelligence</td>
<td>13</td>
</tr>
<tr>
<td>2.2.4.1.1 Bar-On’s Emotional-Social Intelligence Model</td>
<td>13</td>
</tr>
<tr>
<td>2.2.4.1.2 Goleman’s Emotional Competencies Model</td>
<td>14</td>
</tr>
<tr>
<td>2.2.4.2 Ability Model of Emotional Intelligence</td>
<td>15</td>
</tr>
<tr>
<td>2.2.4.2.1 Mayer and Salovey’s Emotional Intelligence Model</td>
<td>15</td>
</tr>
<tr>
<td>2.2.4.3 A Comparison of the Three Models</td>
<td>16</td>
</tr>
<tr>
<td>2.3 The Concept of Locus of Control</td>
<td>18</td>
</tr>
<tr>
<td>2.3.1 Control in Health Behaviour Theories</td>
<td>20</td>
</tr>
</tbody>
</table>
2.3.1.1 Two-Process Model of Perceived Control
2.3.1.2 Theory of Planned Behaviour
2.3.1.3 Social Cognitive Theory
2.3.1.4 Protection Motivation Theory
2.3.1.5 Self-Control Theory
2.3.2 Perceived Control
2.3.3 Locus of Control (LOC)
2.4 Emotional Intelligence and Locus of Control
2.5 Conclusion

Chapter Three: Breast Cancer: Diagnosis and Treatment

3.1 Introduction
3.2 Diagnosis
  3.2.1 Anatomy of the Breast
  3.2.2 Forms of Breast Cancers
  3.2.3 Histologic Grade of Breast Cancer
  3.2.4 Staging
3.3 Treatment
  3.3.1 Local Control
  3.3.2 Radiation Therapy
  3.3.3 Chemotherapy
  3.3.4 Hormone Therapy
  3.3.5 Local-Regional Recurrence and Treatment
    3.3.5.1 In-breast Recurrence after Breast-conserving Surgery
    3.3.5.2 Local Recurrence after Mastectomy
    3.3.5.3 Axillary Recurrence
3.4 Treatment Effects
  3.4.1 Physical Functioning
  3.4.2 Body Image
  3.4.3 Psychosocial Problems
  3.4.4 Relationships
  3.4.5 Working Roles
  3.4.6 Existential Concerns
3.5 Conclusion
Chapter Four: Research Design and Methodology

4.1 Introduction 48
4.2 Research Aims 48
4.3 Research Design 48
4.4 Participants and Sampling 50
4.5 Measuring Instruments 50
   4.5.1 Biographical Questionnaire 50
   4.5.2 The Schutte Emotional Intelligence Scale (SEIS) 51
      4.5.2.1 Reliability and Validity of the SEIS 51
   4.5.3 The Rotter Internal-External Locus of Control Scale (I-E) 53
      4.5.3.1 Reliability and Validity of the I-E 53
4.6 Research Procedure 54
4.7 Data Analysis 55
4.8 Ethical Considerations 55
4.9 Conclusion 56

Chapter Five: Results and Discussion

5.1 Introduction 57
5.2 Biographical Data 57
   5.2.1 Age Distribution of the Sample 57
   5.2.2 Marital Status Distribution of the Sample 58
   5.2.3 Race Distribution of the Sample 58
   5.2.4 Home Language Distribution of the Sample 59
   5.2.5 Distribution of Respondents by Time Since Diagnosis 59
   5.2.6 Distribution of Respondents by Duration of Treatment 60
   5.2.7 Distribution of Respondents by Recurrence 60
   5.2.8 Distribution of Respondents by Time Between Diagnoses 61
5.3 Univariate Presentation of Variables 61
   5.3.1 Emotional Intelligence 61
      5.3.1.1 Schutte Emotional Intelligence Subscales 63
   5.3.2 Locus of Control 64
5.4 The Relationship between Emotional Intelligence and Locus of Control 66
   5.4.1 Correlation between Emotional Intelligence and Locus of Control 68
5.4.2 Correlations between Subscales of Emotional Intelligence and Locus of Control 70
5.4.3 Correlations between Higher and Lower groups of Emotional Intelligence and Locus of Control 71

5.5 Cluster Analysis 75
5.5.1 Analysis of Variance (ANOVA) 75
5.5.2 Descriptive Statistics by Cluster 76
5.5.3 Significance of Between-Cluster Differences 77

5.6 Summary of the Results 78
5.7 Conclusion 79

Chapter Six: Conclusions, Limitations and Recommendations

6.1 Introduction 80
6.2 Conclusions 80
6.2.1 Emotional Intelligence 80
6.2.2 Locus of Control 81
6.2.3 Emotional Intelligence and Locus of Control 82

6.3 Limitations 83
6.3.1 Sample 83
6.3.2 Measuring Instruments 83

6.4 Recommendations 83
6.5 Value of the Research 84
6.6 Conclusion 85

References

Appendices
Appendix A: Covering Letter to Research Participants
Appendix B: Consent Form
Appendix C: Biographical Questionnaire
| Figure 2.1: | An overview of personality and its major subsystems with three models of emotional intelligence embedded within it | 17 |
| Figure 3.1: | Clinical pathways for treatment of local-regional recurrence: Axillary lymph node dissection (ALND), radiation therapy (RT) | 39 |
| Figure 5.1: | Scatter Plot: Emotional intelligence and Locus of Control | 68 |
| Figure 5.2: | Scatter Plot: Managing Own Emotions (EQ2) and Locus of Control | 71 |
LIST OF TABLES

Table 5.1: Descriptive Statistics: Age (N = 67) 57
Table 5.2: Frequency Distribution: Age (N = 67) 57
Table 5.3: Frequency Distribution: Marital status (N = 67) 58
Table 5.4: Frequency Distribution: Race (N = 67) 58
Table 5.5: Frequency Distribution: Home language (N = 67) 59
Table 5.6: Frequency Distribution: Time since diagnosis (N = 67) 59
Table 5.7: Frequency Distribution: Duration of treatment (N = 67) 60
Table 5.8: Frequency Distribution: Recurrence (N = 67) 60
Table 5.9: Frequency Distribution: Time between diagnoses 61
Table 5.10: Descriptive Statistics for Emotional Intelligence (N = 67) 61
Table 5.11: Descriptive Statistics for Locus of Control (N = 67) 64
Table 5.12: Correlations between Emotional Intelligence, the Subscales and Locus of Control 67
Table 5.13: Contingency Table: Emotional Intelligence and Locus of Control (N = 67) 72
Table 5.14: Contingency Table: Perception of Emotion (EQ1) and Locus of Control (N = 67) 73
Table 5.15: Contingency Table: Managing Own Emotions (EQ2) and Locus of Control (N = 67) 73
Table 5.16: Contingency Table: Managing Others’ Emotions (EQ3) and Locus of Control (N = 67) 74
Table 5.17: ANOVA: Between-Cluster Differences 75
Table 5.18: Descriptive Statistics by Cluster 76
Table 5.19: Significance of Between-Cluster Differences 77
ABSTRACT

Breast cancer is the most prevalent cancer of women in South Africa, with one in twenty-seven women diagnosed with breast cancer in their lifetime. By building on human strengths, ways can be found to cope effectively with adversity. This will contribute to psychological well-being and result in living constructive and meaningful lives. Emotional intelligence and locus of control are two constructs which, according to previous research, may be associated with psychological well-being. Limited research has been conducted on these constructs in populations facing adversity.

Adaptation to breast cancer treatment is considered to be an extremely difficult process. The research aimed to explore and describe emotional intelligence and locus of control within an adult breast cancer population. A sample of 67 breast cancer patients receiving treatment was approached to complete a biographical questionnaire and two pencil-and-paper questionnaires. Descriptive and inferential statistics were be used to analyze the data.

The results of the quantitative analysis indicated a significant negative correlation between emotional intelligence and locus of control which shows that patients with higher levels of emotional intelligence possess more internal locus of control orientations, while patients with lower emotional intelligence possess more external locus of control orientations. The population presented with above average emotional intelligence and an internal locus of control orientation.

The study can be regarded as the first step in opening a field of research which could contribute to more effective coping and the overall psychological well-being of individuals facing adversity in South Africa. Furthermore, the findings of the study contributed to understanding the role of emotional intelligence and locus of control in these populations and encouraged further research and the development and implementation of programmes that promote skills development in these areas.

Key words: breast cancer, emotional intelligence, locus of control, psychological well-being, adversity
APPENDIX A:

COVERING LETTER TO RESEARCH PARTICIPANTS
Dear Sir/Madam,

RE: PARTICIPATION IN RESEARCH TREATISE - EMOTIONAL INTELLIGENCE AND LOCUS OF CONTROL OF ADULT BREAST CANCER PATIENTS RECEIVING TREATMENT

In line with the requirements for a Master’s degree in Counselling Psychology, it is necessary to complete a research treatise as part of my course work. The title of my research is, “Emotional Intelligence and Locus of Control of Adult Breast Cancer Patients receiving Treatment”. The aim of the research is to explore and describe Emotional Intelligence and Locus of Control of an adult breast cancer population receiving treatment and whether a relationship exists between these two constructs.

Information for this study will be gathered in the form of three questionnaires. It will take you approximately half an hour to complete the three questionnaires. The first questionnaire gathers biographical information. The Schutte Emotional Intelligence Scale (SEI) assesses the extent to which the individual accurately perceives, understands, regulates and harnesses emotions. The Rotter Internal-External Locus of Control Scale (I-E) is used to measure the degree to which individuals perceive their ability to influence the world that surrounds them. All three questionnaires will only be administered in English.

Your responses will remain confidential, and participation in this study is completely voluntary. You are not obliged to participate. Your identity will not be disclosed under any circumstances, and you are not required to write your name on any of the questionnaires that you complete. You are thus kindly requested to answer all questions as honestly as possible.

You will be asked to give your written informed consent to participate by signing and dating a form and putting your initials against each section to indicate that you understand and agree to the
conditions of this research study. Please note that no feedback will be given regarding individual results. If requested, the researcher will give feedback to the group on the results of the sample group as a whole.

If the need arises to speak to a professional about any experiences which resulted from this assessment, the researcher will provide you with contact details.

Should you require any further information regarding the research project, please do not hesitate to contact me at Student Counselling, 2nd Avenue Campus on (041) 504 3854.

I would like to stress that the success of this project depends entirely on your voluntary cooperation and I thank you in advance for your interest.

Yours sincerely,

Ms Esti Swartz
Researcher

Ms Ottilia Brown
Supervisor

Prof Louise Stroud
Head of Department
APPENDIX B:

CONSENT FORM
**Title of the research project**: Emotional Intelligence and Locus of Control of Adult Breast Cancer Patients receiving Treatment

**Reference number**: 209004117

**Principal investigator**: Esti Swartz

<table>
<thead>
<tr>
<th>Address</th>
<th>Postal Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>P O Box 77000 Nelson Mandela Metropolitan University Port Elizabeth 6031</td>
<td></td>
</tr>
</tbody>
</table>

**Contact telephone number**: 041 504 3854

---

### A. DECLARATION BY OR ON BEHALF OF PARTICIPANT

(Person legally competent to give consent on behalf of the participant)

<table>
<thead>
<tr>
<th>I, the participant and the undersigned I.D. number</th>
<th>(full names)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR I, in my capacity as</td>
<td></td>
</tr>
<tr>
<td>of the participant I.D. number</td>
<td></td>
</tr>
<tr>
<td>Address (of participant)</td>
<td></td>
</tr>
</tbody>
</table>

### A.1 I HEREBY CONFIRM AS FOLLOWS:

1. I, the participant, was invited to participate in the above-mentioned research project that is being undertaken by Esti Swartz of the Department of Psychology in the Faculty of Health Sciences of the Nelson Mandela Metropolitan University.

2. The following aspects have been explained to me, the participant:

   2.1 **Aim**: The investigators are studying Emotional Intelligence and Locus of Control of Adult Breast Cancer Patients receiving Treatment. The information will be used in:

   The partial fulfilment of the requirements for the degree MA (Counselling Psychology) in the Faculty of Health Sciences at the Nelson Mandela Metropolitan University.
2.2 **Procedures:** I understand that
I will be required to complete the provided Biographical Questionnaire, the Schutte Emotional Intelligence Scale (SEI) and the Rotter Internal-External Locus of Control Scale (I-E).

2.3 **Risks:** There are no potential risks of harm to any participant.

2.4 **Possible benefits:** As a result of my participation in this study I will be exposed to the concepts of emotional intelligence and locus of control.

2.5 **Confidentiality:** My identity will not be revealed in any discussion, description or scientific publications by the investigators.

2.6 **Access to findings:** Any new information/or benefit that develops during the course of the study will be shared as follows:
1. A written report of the study will be available at the Nelson Mandela Metropolitan University Library.
2. An article of the study will be published in a relevant scientific journal.

2.7 **Voluntary participation/refusal/discontinuation:**
My participation is voluntary

My decision whether or not to participate will in no way affect my present or future care/employment/lifestyle

2.8 **Confidentiality:** My identity will not be revealed in any discussion, description or scientific publications by the investigators.

3. The information above was explained to me/the participant by

Esti Swartz (Researcher) or Hospital Staff

in

**Afrikaans** | **English** | **Xhosa** | **Other**

and I am in command of this language.
I was given the opportunity to ask questions and all these questions were answered satisfactorily.

4. No pressure was exerted on me to consent to participation and I understand that I may withdraw at any stage without penalisation.

5. Participation in this study will not result in any additional cost to myself.

A.2 **I HEREBY VOLUNTARILY CONSENT TO PARTICIPATE IN THE ABOVE-MENTIONED PROJECT**

Signed/confirmed at __________________________ on ____________/20

Signature or right thumb print of participant

Full name of witness

Signature of witness
D. IMPORTANT MESSAGE TO PATIENT/REPRESENTATIVE OF PARTICIPANT

Dear participant

Thank you for your participation in this study. Should, at any time during the study:

- an emergency arise as a result of the research, or
- you require any further information with regard to the study

Kindly contact

Esti Swartz

at telephone number

+27 (0) 41 504 3854

(it must be a number where help will be available on a 24 hour basis, if the research project warrants it)
APPENDIX C:

BIOGRAPHICAL QUESTIONNAIRE
BIOGRAPHICAL INFORMATION

All information in this questionnaire will be treated as strictly confidential and your information will be processed anonymously. Please cross the box most appropriate to you, or complete the statement in the space provided.

1. Age

2. Gender
   Male    Female

3. Marital Status
   Single   Married   Divorce

4. Home Language
   English   Afrikaans   Xhosa   Other (specify)

5. Race
   Black African   White   Coloured   Indian   Other (specify)

6. For how long have you been diagnosed with breast cancer?
   0 – 3 Months
   3 – 6 Months
   6 – 12 Months
   1 Year
   More than 1 Year (specify)
7. For how long have you been receiving treatment?

<table>
<thead>
<tr>
<th>Time Frame</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 3 Months</td>
<td></td>
</tr>
<tr>
<td>3 – 6 Months</td>
<td></td>
</tr>
<tr>
<td>6 – 12 Months</td>
<td></td>
</tr>
<tr>
<td>1 Year</td>
<td></td>
</tr>
<tr>
<td>More than 1 Year (specify)</td>
<td></td>
</tr>
</tbody>
</table>

8. Did you have a recurrence?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

9. If yes, indicate time between diagnoses

<table>
<thead>
<tr>
<th>Time Frame</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 Year</td>
<td></td>
</tr>
<tr>
<td>1 – 5 Years</td>
<td></td>
</tr>
<tr>
<td>5 – 10 Years</td>
<td></td>
</tr>
<tr>
<td>More than 10 Years</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION AND MOTIVATION FOR THE STUDY

1.1 Introduction
Over the last decade there has been a shift in psychology from being preoccupied with identifying and explaining dysfunction, to building human strengths and qualities (Gable & Haidt, 2005). This movement in psychology, referred to as positive psychology, has grasped the interest of many researchers (Gable & Haidt, 2005). Positive psychology can be defined as “the scientific study of ordinary, positive, subjective human strengths, virtues, experience and functioning” (Sheldon & King, 2001, p. 216). An understanding of human strengths could reduce damage caused by disease, disorder or stress (Gable & Haidt, 2005). Constructs grounded within the theory of positive psychology, such as optimism and sense of personal control, have been proven to be protective factors for psychological and physical health (Taylor, Kemeny, Reed, Bower, & Gruenwald, 2000). These findings suggest that a better understanding of personal strengths can act as a buffer against illness (Keyes & Lopez, 2002).

1.2 Background and Motivation for the Study
During the last 30 years the number of new cases of cancer diagnosed globally has more than doubled. In 2008 alone, an estimated 12 million new cases, 7 million deaths and 25 million people still living with cancer, were reported (Cancer Association of South Africa (CANSA), 2008). According to the National Cancer Registry, one in four South Africans will be affected by cancer in his or her lifetime (CANSA, 2008). With statistics like these it should be priority to explore possible human strength constructs such as emotional intelligence and locus of control in order to help people cope more effectively. CANSA (2008) recently introduced a programme called the Cancer Coping Kit to help cancer patients cope on this challenging journey of recovery. The kit is multi-lingual and is available in English, Afrikaans, isiZulu and seSotho. Topics that are discussed are: (1) What is cancer, its treatment and side-effects, (2) The emotional impact of cancer and the importance of communication, (3) Guidelines on nutrition and cancer treatment, and (4) Celebrating life – living positively with cancer.

Although research on the relationship between psychosocial variables, like stress and coping, and the progression of disease are still controversial, evidence suggests that psychological processes have an effect on immune function (Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002). With cancer being primarily an immune-related disease (Kiecolt-Glaser et al., 2002), it is of great importance to limit possible negative effects by finding ways to cope that would promote psychological health. Although it seems as though adaptation to living with a life-threatening
disease like cancer is easier today than a few years ago, there are still challenges in empowering patients to be able to deal with crises like these in a manner that would contribute to their psychological well-being and allow them to live meaningful lives (Jarrett, Ramirez, Richards, & Weinman, 1992). Possible reasons for easier adaptation today could be because of all the information on cancer available to the public, the accentuation of the importance of women’s rights to be active participants in treatment decisions, the general support from different organisations, the increased number of social workers at hospitals, and the fact that caregivers in treatment centres give much attention to psychosocial factors (Jarrett et al., 1992). The mentioned reasons indicate that progression in helping cancer patients cope has taken place over the last few years and these changes already have positively impacted on the mental health functioning of many patients (Jarrett et al., 1992).

Breast cancer is the most prevalent cancer for women in South Africa, with one in twenty-seven South African women diagnosed with breast cancer in their lifetime (CANSA, 2008). In the developing world today the occurrence of breast cancer is increasing. Research shows that environmental and social factors play significant roles in most cases, with genetic factors contributing to less than 5% of cases (CANSA, 2008).

According to Hewitt, Herdman and Holland (2004), one of the phases of highest distress experienced by patients is during and on completion of treatment. Further research indicates treatment of breast cancer to be a stressful experience linked to psychiatric and psychosocial morbidity during the first year after diagnosis (Maguire, Lee, Bevington, Kuchemann, Crabtree, & Cornwell, 1978). Changing physical as well as emotional demands are placed on women with breast cancer (Fallowfield & Clark, 1991). According to Fallowfield and Clark (1991), responses of individuals can vary between happiness and despair, or optimism and extreme pessimism about the outcome of treatment. At different times during treatment feelings of anger, guilt, depression, uncertainty and confusion can be experienced (Fallowfield & Clark, 1991).

Different stages of breast cancer can be identified at diagnosis and will determine the treatment procedures to be followed (Hewitt et al., 2004; Pasqualini, 2008). Adaptation to breast cancer treatment has been considered to be exceptionally difficult (Arora et al., 2001; Maguire et al., 1978). Breast cancer treatments include surgery, radiation therapy, chemotherapy and hormonal therapy (Hewitt et al., 2004; Pasqualini, 2008). In many cases surgery will heal the patient, but additional treatment such as radiation therapy, chemotherapy and hormonal therapy can be recommended to prevent recurrence or the spread of cancer to other areas (Hewitt et al., 2004). Women may experience intense emotions during different phases of treatment. Just after surgery they may experience feelings of anxiety and uncertainty about their choice of treatment and may need support and reassurance from others (Hewitt et al., 2004). Intense feelings of anxiety may
also be experienced by women undergoing radiation or chemotherapy (Hewitt et al., 2004). The feeling of being alone in the treatment room may trigger these emotions. In addition, seeing patients receiving treatment for advanced breast cancer can be upsetting and the patient may feel overwhelmed by feelings of anxiety and fear of developing advanced breast cancer (Hewitt et al., 2004).

During breast cancer treatment women may experience damage to their self-image. Following a mastectomy or surgery, women can experience increased awareness of their body-image (Dunn & Steginga, 2000; Fallowfield & Clark, 1991). Other factors that can affect self-image and self-esteem are hair loss as a result of chemotherapy (Fallowfield & Clark, 1991) and weight gain resulting from hormonal therapy (Hewitt et al., 2004).

To conclude, successful adaptation to these changing and challenging circumstances requires the appropriate expression of negative emotions and also finding ways to deal with the loss of control (Fallowfield & Clark, 1991; Kfir & Slevin, 1991; Ten Have-de Labije & Balner, 1998). These aspects form integral parts of two constructs known as emotional intelligence and locus of control. Holland (2003) identified three factors that could help with the psychological adaptation of a patient to cancer. These factors include the disease itself, the person, and the culture and society in which the individual functions. The individual is made up of aspects such as personality characteristics, coping skills and level of emotional maturity (Holland, 2003). Constructs such as emotional intelligence and locus of control would be included in this factor and are also underlying dimensions of positive psychology (Hall, 2007; Taylor, Kemeny, Reed, Bower, & Gruenwald, 2000). Therefore, in an attempt to eventually improve chronically ill patients’ psychological well-being and to reduce physical vulnerability to disease before and during treatment, these constructs are explored in this research study. This study investigates emotional intelligence and locus of control in an adult breast cancer population receiving treatment. An outline of the primary aims for the study is provided in the next section.

### 1.3 Research Aims

The primary aims for this research study are:

1. To explore and describe the emotional intelligence of adult breast cancer patients receiving treatment.

2. To explore and describe the locus of control of adult breast cancer patients receiving treatment.

3. To ascertain whether a relationship exists between emotional intelligence and locus of control in adult breast cancer patients receiving treatment.
1.4 **Chapter Outline**

The following sequence of chapters can be expected: Chapter 1 provides the reader with an introduction and motivation for the study. Then Chapter 2 attempts to present a theoretical overview of the two constructs that are explored, followed by Chapter 3 which portrays important aspects of a diagnosis of breast cancer, the different treatment options available, and the effects of treatment. Then, in Chapter 4, the research design and methodology is discussed, followed by the reporting and interpretation of the results presented in Chapter 5. The research is concluded with Chapter 6 which provides overall conclusions, limitations and recommendations for future research.

1.5 **Conclusion**

As breast cancer affects such a large proportion of South African women, research on human strength constructs which can contribute to their psychological and physical well-being is priority. In this chapter an introduction to the study was provided which was followed by the background and motivation for the study. The primary aims for the study were presented. The chapter is concluded with a chapter outline. Chapter 2 provides a theoretical overview of the constructs that were measured in this study.
CHAPTER 2
THEORETICAL OVERVIEW: EMOTIONAL INTELLIGENCE AND LOCUS OF CONTROL

2.1 Introduction
This chapter attempts to provide a theoretical overview of the emotional intelligence and locus of control constructs. Firstly, components of emotional intelligence are discussed followed by different models of this construct. Then an overview of the role of personal control in health behaviour theories is provided and linked with theory on the locus of control construct. The chapter is concluded with a discussion on the relation between the two constructs followed by the chapter conclusion.

2.2 The Concept of Emotional Intelligence
“A man who is master of himself can end a sorrow as easily as he can invent a pleasure. I don’t want to be at mercy of my emotions. I want to use them, to enjoy them, and to dominate them.”

Oscar Wilde

The theory of emotional intelligence suggests that human beings have the ability to perceive, express, understand and manage emotions (Bar-On, 1997; Goleman, 1995; Mayer & Salovey, 1997; Salovey & Mayer, 1990). According to Jordan and Troth (2002), emotional intelligence has been related to healthy coping strategies. Ciarrochi, Chan, Caputi and Roberts (2001) and Taylor (2001) hypothesised that individuals high in emotional intelligence tend to cope well in stressful situations while individuals low in emotional intelligence tend to respond with depression, hopelessness and other negative behaviours. Furthermore, emotional competencies such as self-monitoring, self-regulation and self-control, which deal with the detection and regulation of emotions, were shown to correlate with psychological health in adults (Lennox & Wolfe, 1984; Rohde, Lewinsohn, Tilson, & Seeley, 1990).

Emotions play a significant role in dealing with a diagnosis of cancer. According to Pillay (2001), the most common psychological reactions in cancer patients include depression, anxiety and feelings of hopelessness and doubt. This author described cancer as one of the diagnoses that evokes the most intense emotions in patients (Pillay, 2001). Individual differences in the management and regulation of emotions are emphasised in the theory of emotional intelligence. Mayer and Salovey (1997) explain that one must have the ability to understand one’s emotions in order to accurately process this emotional information and then also have the skill to gain insight
into how to use and manage these emotions. Nelson (2007) also emphasised the negative mental and physical effects of trapped emotions in his book *The Emotion Code*. According to this author, trapped emotions result in inappropriate emotional responses to stimuli that are relatively harmless. Consequently, this leads to failure when it comes to dealing with emotional challenges. Trapped emotions can also ‘irritate’ tissue which could cause cells to revert back to primitive cells. This could have fatal consequences for the progression of diseases (Nelson, 2007).

Elizabeth Kubler Ross (1970) identified five stages of emotional reactions in dealing with grief or tragedy. Similarly, being diagnosed with a terminal illness like cancer can also result in these stages of emotional reactions. These stages include denial and isolation, anger, bargaining, depression, and acceptance. In the context of a cancer diagnosis, progression through all the stages does not happen often as the disease is so unpredictable in nature (Murray Parkes, 1978). In an article by Riba (2009), it is explained how different phases in the treatment of cancer could trigger different emotional reactions. The importance of understanding these phases and what happens in each phase are stressed as this will enable us to have a better understanding of the emotions experienced. Common stages for emotional reactions include the time of diagnosis, receiving treatment and the stage after treatment has been completed (Riba, 2009). During the time of diagnosis the patient could experience intense feelings of shock and fear which could also be related to the phases identified by Kubler Ross (1970). When the diagnosis and a treatment plan have been discussed the patient usually feels more confident and optimistic, but she may still experience depressive symptoms, hopelessness and sadness (Riba, 2009). This emotional rollercoaster usually continues in the treatment phase as patients experience highs and lows. Then, after treatment, cancer patients could again experience intense emotions. While an individual is expected to ‘re-enter’ life and engage in normal daily activities, he or she also has to return to the oncologist for check-ups in order to screen for recurrence of the cancer. Emotions experienced in this stage can include anxiety and fear, and when cancer recurs, feelings of anger, regret, loss and grief may take over (Riba, 2009). Cancer patients are known to suppress negative emotions and therefore their psychic energy is turned inside against their own bodily defenses (Schein, Bernard, Spitz, & Muskin, 2003). The ability to identify, understand and regulate these emotions is crucial in living a psychologically healthy life (Ten Have-de Labije & Balner, 1991).

### 2.2.1 The Emergence of Emotional Intelligence

The conceptualisation of emotional intelligence has emerged over five time periods in history, starting as early as the 1900s (Mayer, 2001). According to Mayer (2001), the first era can be defined as ranging from 1900 to 1969. The origin of the concept can be traced back to the 1920s when Thorndike (1920) reconsidered the perception of the influence of the Intelligence Quotient
(IQ) and started to build on a theory of social intelligence to clarify certain aspects of success which could not be explained by intellectual ability. However, until the 1970s, the concepts of intelligence and emotion were regarded as separate areas. During the second era, between 1970 and 1989, these two concepts were combined and a new field of interest emerged where researchers focused on the interaction between emotions and thought (Dyer, 1983; Mayer, 1986). Emotional intelligence as a construct was used occasionally during this era, but was never defined in any explicit way. Although Gardner’s (1983) explanation of the construct at that time was in line with current definitions of emotional intelligence, he failed to directly refer to it as a definition of emotional intelligence. According to Mayer (2001), intensive research was needed by the late 1980s before the concept of emotional intelligence became known. Researchers had to integrate findings of previous research to identify this unnoticed human capacity. Additionally, they had to define the concept of emotional intelligence clearly and link this to previous research conducted. Lastly, significant empirical evidence was needed to support the existence of the concept. The third era defined by Mayer (2001) ranged from 1990 to 1993 and could be considered as the turning point for the beginning of a new field of study of emotional intelligence (Goleman, 1995; Sternberg, 1997). An official theory was developed by Salovey and Mayer (1990) and the first line of reasoning for the existence of the concept as a definite intelligence was published (Mayer & Salovey, 1993). During the fourth era, between 1994 and 1997, the field of emotional intelligence expanded and admired literature by Goleman (1995) followed. Further support for the concept was evident through various personality scales that were published under the name of this construct (Bar-On & Parker, 2000; Goleman 1995). According to Matthews, Zeidner and Roberts (2002), publications on emotional intelligence have increased significantly during this era, which started in 1998. Furthermore, there has been theoretical improvement and progress in research, as well as development of various new measures of emotional intelligence (Mayer, 2001). It can be concluded that the emergence of the concept of emotional intelligence over the last decades has already impacted and will continue to influence many aspects of human functioning.

Many people were introduced to the emotional intelligence construct by Daniel Goleman’s (1995) book *Emotional Intelligence: Why it can matter more than IQ*. The debate on the conflict between a person’s thoughts and feelings has been going on for decades (Goleman, 1995). Intellect was seen as the aspect that distinguishes humans from animals. Early thinkers expelled emotions from everyday life, limiting the power of emotions in human functioning (Goleman, 1995). Emotions were seen as unimportant and too subjective. It was only in the 1960s that the first mood scales were presented (Mayer, 2002). During the 1970s and 1980s, the importance of emotions in understanding humans, were emphasized. Growing knowledge of the interaction of cognition and emotion emerged in 1990 when Mayer and Salovey published the first formal
Emotional intelligence is a term that might be used to describe various things. Before the concept can be taken seriously there must be some agreement on the meaning of the different terms the concept consists of as well as on the combination of these. It might have been easier if only one definition of emotion and intelligence existed but as with most of the concepts in research, researchers use different definitions. However, some areas of agreement can be found and are discussed in the following sections when the meaning of the concepts of emotions, intelligence and the combination of the two are explored.

2.2.2 Emotions

Emotions play a fundamental role in human functioning. The survival fight or flight reaction is enabled when an automatic and endocrine response is aroused through the experience of emotions (Rolls, 1999). Furthermore, emotions facilitate flexibility in behavioural responses to external stimuli, for example, by avoiding punishment or receiving a reward. This form of flexibility also enables emotions to operate as a motivational function in individuals by allowing them to respond in specific ways to situations in order to achieve certain results (Rolls, 1999).

Many researchers emphasize the adaptive nature of emotions and the importance of expressing them. It is suggested that emotions allow for relevant goals and concerns to enter the mind which can lead to not only goal-directed action but also promote communication (Campos, Mumme, Kermoian, & Campos, 1994; Frijda, 1994; Thompson, 1981). In line with this reasoning, Stanton, Danoff-Burg and Huggins (2002) found in their study that for women, elevated emotional coping scales were associated with hope. According to them, this finding is indicative of goal-directed determination and includes the capacity to create plans to achieve goals. In other words, emotional processing and expression can be used by women as a medium to elucidate and pursue their goals.

Emotions also play a significant role in the cognitive evaluation of different events and memories by assisting in storing information about these events in the memory (Rolls, 1999). This enables the individual to behave in appropriate ways when situations present themselves again. The emotional state also determines which memories are brought to mind and when they are recalled (Rolls, 1999).

Emotions are defined in various ways. According to Frijda (2000, p. 63), an emotion is “a progressive activity of the organism in response to a perceived predicament, that involves a (usually) integrated combination of psycho-physiological reactions, subjective feelings, and related cognitive activities”. Wade and Tavris (2006, p. 386) defined an emotion as “a state of arousal involving facial and bodily changes, brain activation, cognitive appraisals, subjective feelings, and
tendencies toward action, all shaped by cultural rules”. Salovey and Mayer (1990, p.186) view emotions as “organized responses, crossing the boundaries of many psychological subsystems, including the physiological, cognitive, motivational and experiential systems”. According to these authors, emotions are usually evoked in response to an internal or external experience that is positively or negatively valued by the individual. Their perception that responses to emotions are organised and adaptive can change personal and social interaction into uplifting experiences.

Emotions are recognised in human beings as one of four essential categories of mental processes (Salovey, Brackett, & Mayer, 2004). These categories include motivation, emotion, cognition and consciousness. Salovey, Brackett and Mayer (2004) emphasise the first three categories of mental operations. According to them, motivations are accountable for guiding the individual to perform actions in order to satisfy basic survival and reproductive needs. Therefore, motivations have a fairly determined time course. Emotions, the second category of this triad, are viewed as more flexible than motivations and as having no specific time course. Emotions react to changes in relationships between the organism and its environment. Furthermore, emotions prepare and manage behavioural responses to the changing relationship. As stated earlier, these authors believe emotions to be more flexible than motivations, but not as flexible as cognition. Cognition forms the third category of the triad and allows for learning and problem solving. More often than not, this is in assisting to satisfy certain motives and maintaining positive emotions. Cognition is an ongoing process involving learning, memory and problem solving. The process includes information processing that is based on learning and memory and which is flexible and planned (Mayer & Salovey, 1997). Additionally, Salovey, Brackett and Mayer (2004) explain the interactions between motivation and emotions as well as between emotions and cognition. The interaction between motives and emotion can be explained through, for example, frustrating needs that result in anger and aggression. Emotions and cognition interact when, for example, pleasant moods result in a person thinking positively. Therefore, these authors assume that the interaction between emotion and cognition leads to emotional intelligence.

2.2.2.1 Theories of Emotion

A number of theories of emotion have been developed which have formed the basis of the current understanding of the concept. An overview of these theories is provided in the next section.

2.2.2.1.1 James-Lange, Cannon-Bard and Stanley Schachter

The James-Lange, Cannon-Bard and Stanley Schachter’s theory of emotions are well known to many researchers (Banich, 1997; Le Doux, 1989; Rolls, 1999). The James-Lange theory of
emotion laid the foundation for the development of the concept of emotion. According to this theory, physical bodily changes result in the experience of emotions (Banich, 1997). The Cannon-Bard theory suggests that emotions are the product of both physiological changes and processes in the mind (Banich, 1997). In addition to this view, Stanley Schachter’s two factor theory of emotion emphasizes the cognitive component rather than the physiological explanation (Banich, 1997). Criticism of these three theories is that they describe an individual’s response to a symptom and not the reason for the symptom (Le Doux, 1989). They argue that the experience of feelings when responding to physiological reactions is part of reacting to a system which has already been alerted.

### 2.2.2.1.2 Component-Process-Model of Emotion

Recently, the psychology of emotion has been explained by appraisal theories. Scherer’s (2001) component-process-model of emotion is one of the well-known appraisal theories. This researcher suggests that in order to deal with the nature of emotion one must understand that emotion is a process rather than a fixed state. Furthermore, this researcher defines emotion as “an episode of interrelated, synchronized changes in the states of all or most of the five organismic subsystems in response to the evaluation of an external or internal stimulus event as relevant to major concerns of the organism” (Scherer, 2001, p. 93). Scherer (2001) identifies three key aspects of this process: firstly, the significance of the environmental stimuli or events for the individual’s requirements or preferences, in particular circumstances, are valued; secondly, decisions are made on how to act appropriately, physiologically as well as psychologically, in coping with these stimuli; and lastly, interaction between responses, states and goals by the individual to the social environment takes place. In the component-process-model of emotion Scherer (2001) describes five subsystems of emotion. These include cognitive appraisal, physiological arousal, the motoric system, subjective feeling, and the motivational system (Fox, 2008; Manstead, Frijda, & Fischer, 2004; Scherer, 2001). Each of these subsystems has a certain function in the process of experiencing an emotion.

The function of the cognitive appraisal subsystem involves the evaluation of objects and events through external and internal stimuli (Fox, 2008; Manstead, Frijda, & Fischer, 2004, Scherer, 2001). Each situation is evaluated according to relevance, implications, coping potential and normative significance. The physiological arousal subsystem is in charge of the functional systems of the body (Fox, 2008; Manstead, Frijda, & Fischer, 2004; Scherer, 2001). The main function of this component is to supply energy and resources for future actions. The motoric component of emotion is responsible for communicating and expressing the response and the meaning of the intended behaviour (Fox, 2008; Manstead, Frijda, & Fischer, 2004; Scherer, 2001). This reaction can be seen in the form of facial expressions or changes in gestures. The function of
the motivational component involves organising and processing the actual actions. The monitoring subsystem is characterized by subjective experience (Fox, 2008; Manstead, Frijda, & Fischer, 2004; Scherer, 2001). All changes that take place in the different subsystems are portrayed here. Thus, the subjective emotional experiences of an individual are reflected in this subsystem (Scherer, 2001).

To conclude, the component-process-model of emotion suggests that an emotional episode consists of interactions between different subsystems which are mainly driven by the cognitive appraisal component (Scherer, 2001). Events are evaluated sequentially through various checks in order to react in specific ways to the stimulus. The outcome of the evaluation checks alters the state of each subsystem with the intention of adjusting to the event (Scherer, 2001).

**2.2.2.1.3 Goleman’s Theory of Emotion**

Goleman (1996) distinguished between emotional and rational thought. According to this theorist, emotional thought can be linked to the amygdala and neo-cortical system in the brain, while rational thought is associated with the cortex, particularly the frontal lobes. Human beings are constantly striving to find the perfect balance between “thinking and feeling” (Goleman, 1996, p. 27). Processes in the cortex are responsible for evaluating reactions to external stimuli before the actual action is implemented. These processes form part of what Goleman (1996) refers to as rational thought. The amygdala plays an important role in emotional memory, which is based on life experience (Goleman, 1996). According to this author, the cortex is also responsible for the integration of processes involved in the evaluation of the emotional memory, situated in the amygdala, and rational thought.

It can be concluded that both Goleman (1996) and Scherer (2001) emphasise that emotional experience and rational thought (cognitive component) are constructs that should not be considered in isolation. This link between cognitions and emotions are frequently discussed in the literature and it is argued that cognitions should not be considered as cold and flat constructs as they have been described before. The importance of recognising the role of emotion is also stressed by Salovey and Mayer (1990, p. 186) in their statement that “the full expression of emotions seems to be a primary human motive, and it may therefore be worthwhile to consider it from a functionalist perspective”.

The construct of emotional intelligence does not only involve emotions, but also intelligence. The following section provides an overview of the concept of intelligence.
2.2.3 Intelligence

Various researchers have defined intelligence differently (Gardner, 1999; Salovey & Mayer, 1990). The controversy about the meaning of intelligence has always been present in the field of research but this should not be discouraging to researchers. Spearman’s (1927, p. 24) comment illustrates the complexity of the real meaning of intelligence:

The most enthusiastic advocates of intelligence become doubtful of it themselves. From having naively assumed that its nature is straightway conveyed in its name, they now set out to discover what this nature really is. In the last act, the truth stands revealed, that the name really has no definite meaning at all; it shows itself to be nothing more than a hypostatized word, applied indiscriminately to all sorts of things.

Mayer, Salovey and Curuso (2000) recognize the existence of different meanings of the concept, but they do admit that intelligence has a central meaning in the sciences. According to them, although in different contexts, intelligence always entails mental capacity in relation to cognitive processes. Intelligence involves the collection of information, learning from the information and analysing it.

Terman (1921, p. 128) made the following statement: “An individual is intelligent in proportion as he is able to carry out abstract thinking”. Sternberg (1997) supported this view in stating that over several decades it has repeatedly been confirmed that intelligence could be characterized by an advanced mental ability, namely, abstract reasoning. Although intelligence has been used in the prediction of various types of success, predominantly academic success, a significant amount of inconsistency in research still exists and remains unexplained (Mayer, Salovey, & Curuso, 2000). Wechsler (1940, p. 444) shared this view and stated that “individuals with identical IQs may differ very markedly in regard to their effective ability to cope with the environment”. In addition, Mayer, Salovey and Curuso (2000) proposed four alternatives in dealing with the limitations associated with the power of IQ in predicting ability. The first option is to believe that human life is a complex pattern of interactions with unpredictable events that occur by chance. Secondly, they suggest improved methods to assess intelligence. Another way to consider this limitation is to explain the difference in relation to a variety of factors, for example, non-intellective personality traits. A fourth approach recommended by these authors is to reconsider the definition of intelligence by defining the term as a combination of mental ability and non-intellective personality traits, namely, affective and motivational abilities (Wechsler, 1940).

Other forms of intelligence, such as the non-academic (Sternberg, 1997) or non-cognitive (Hedlund & Sternberg, 2000) types have been of interest to many researchers since the 1920s. These forms of intelligence include emotional, social and practical intelligence (Hedlund & Sternberg, 2000). The construct of social intelligence, particularly, was explored by several
researchers (Epstein & Feist, 1988; Hedlund & Sternberg, 2000; Sternberg, Conway, Kerton & Berstein, 1981; Thorndike, 1920; Walker & Foley, 1973). Salovey and Mayer (1990) even went as far as to define emotional intelligence as a branch of social intelligence. Thorndike and Stein (1937, p. 275) initially defined social intelligence as “the ability to understand men and women, boys and girls – to act wisely in human relations”. More recently the construct is described as primarily the ability to deal with other individuals, gathering interpersonal information, and having the capacity to socialize affectively and with empathy (Hedlund & Sternberg, 2000).

From the literature it is obvious that intelligence is a difficult construct to define and explain. Intelligence cannot be seen as a system that functions independently, but rather it should be considered as being influenced by a variety of other factors, particularly the non-intellective, as explained above.

2.2.4 Emotional Intelligence

Mayer (2001) distinguished between two broad fields of definitions of emotional intelligence. Originally, the construct was defined as an intelligence (mental ability) associated with emotion. The other approach identified by Mayer (2001) is the mixed models approach that combines emotional intelligence with other skills and traits. The ability model emphasises emotions and their interactions with thought (Mayer & Salovey, 1997; Salovey & Mayer, 1990). The mixed models combine mental abilities and various other features, for example, motivation, consciousness and social activity into one construct (Bar-On, 1997; Goleman, 1995).

Research has been guided by three theoretical approaches of emotional intelligence: Bar-On’s Emotional-Social Intelligence model (Bar-On, 1997; 2000); the Emotional Competencies model focusing on the workplace (Goleman, 1998; 2001); and the Emotional Intelligence model by Mayer and Salovey (1997).

2.2.4.1 Mixed Models of Emotional Intelligence

The mixed models of emotional intelligence include Bar-On’s Emotional-Social Intelligence model and Goleman’s Emotional Competencies model. These are discussed in the following section.

2.2.4.1.1 Bar-On’s Emotional-Social Intelligence Model

Bar-On (1997, p. 3) defined emotional-social intelligence as “an array of personal, emotional, and social competencies and skills that influence one’s ability to succeed in coping with environmental demands and pressures”. This model of Emotional Social-Intelligence evolved during the development of the EQi (Bar-On, 1997). His work on this instrument started in the
1980s when he was challenged to identify facets of social and emotional functioning that can be linked with psychological well-being (Bar-On, 2000). According to this model, emotional intelligence involves interrelated emotional and social competencies and skills, which facilitate understanding, helps us to express ourselves, assists us in relating to others and eventually enables us to cope with environmental demands. Emotional and social intelligence consists of five factors which are then subdivided into fifteen subfactors. The five factors include intrapersonal skills, interpersonal skills, adaptability, stress management and general mood. Intrapersonal skills refer to the ability to understand emotions and feelings within the self, while interpersonal skills refer to the ability to understand emotions and feelings of others. Adaptability involves the ability to be flexible in changing feelings depending on the situation. Stress management refers to the ability to cope with stress and emotions related to that and lastly, general mood includes being optimistic and expressing positive emotions. Each of the five components consists of similar functions that are grouped together. The intrapersonal component includes self-regard, emotional self-awareness, assertiveness, independence and self-actualization. The interpersonal component consists of empathy, social responsibility and interpersonal relationships. Problem solving, reality testing and flexibility together allow individuals to adapt to their environment. The stress management component includes stress tolerance and impulse control, while the general mood factor consists of optimism and happiness (Bar-On, 2000).

It can be concluded that the Bar-On model is not just a model of emotional intelligence but also has a strong social intelligence component to it. Therefore, Bar-On’s broad conceptualisation of emotional intelligence as a combination of social, emotional and personal skills correlates with various personality theories (Bar-On, 1997; 2000).

2.2.4.1.2 Goleman’s Emotional Competencies Model

Goleman’s model of emotional intelligence was originally published in his two bestselling books on this popular subject (Goleman, 1995; 1998). His emotional competencies model was operationalised later when the Emotional Competency Inventory (ECI) was developed (Boyatzis, Goleman, & Rhee, 2000). The model is based on performance in organisations and was created to predict effectiveness and personal outcomes in the workplace. According to this model, emotional intelligence consists of competencies and skills necessary for leadership performance. The model explains emotional intelligence in terms of four dimensions: self-awareness, self-management, social awareness and relationship management. Self-awareness skills involve emotional self-awareness, accurate self-assessment and self-confidence. Competencies necessary for self-management include self-control, trustworthiness, conscientiousness, adaptability, achievement orientation and initiative. Social-awareness skills include empathy, organisational awareness and
having a service orientation. Competencies essential for relationship management include developing others, leadership, influence, communication, change catalyst, conflict management, building bonds and teamwork. Research conducted on experienced partners of a consulting firm proves that partners that scored high on the different components of the ECI contributed more to the profits of the company (Boyatzis et al., 2000).

2.2.4.2 Ability Model of Emotional Intelligence

Mayer and Salovey’s Emotional Intelligence Model is also referred to as the ability model of emotional intelligence. An overview of the model is provided in the next section.

2.2.4.2.1 Mayer and Salovey’s Emotional Intelligence Model

Mayer and Salovey (1997, p.10) viewed emotional intelligence as a mental ability and defined the construct as: “The ability to perceive accurately, appraise, and express emotion, the ability to access and/or generate feelings when they facilitate thought; the ability to regulate emotions to promote emotional and intellectual growth”.

The model consists of four abilities: perception, assimilation, understanding, and regulation of emotions. These four branches are organized in a hierarchy with perception of emotion being at the most basic level and the regulation of emotions being at the highest level of competency. The perception of emotion involves the ability to identify emotions in the self and others, which could include objects and other stimuli (Mayer, Salovey, & Caruso, 2000). The assimilation of emotions includes the ability to generate and feel emotions in order to communicate feelings or to use them in other cognitive processes. Emotional understanding is the ability to analyze emotions, understand their outcomes and to appreciate emotional meanings. The fourth branch reflects the most complex task which involves the rest of the personality. Managing of emotions includes the ability to stay open to feelings and to regulate others and one’s own emotions to enhance understanding and personal growth.

For the purpose of this study, Mayer and Salovey’s (1997) model was used as a theoretical foundation to conceptualise emotional intelligence. This approach produced the most research published in journals (Geher, 2004; Matthews, Zeidner, & Roberts, 2002;). This could be explained in terms of a number of reasons, the first being that the model has a justified theoretical base. The measure is also unique compared to other methods and thirdly, the evaluation and support from empirical data obtained from applied and basic fields are organised (Fernandez-Berrocal & Extremera, 2006).
2.2.4.3 A Comparison of the Three Models

Figure 2.1 illustrates how these three models of emotional intelligence differ in relation to personality components (Mayer, Salovey, & Caruso, 2000). The components of personality are divided into three levels. The lower level functions include processing, such as, motivation, emotion and cognition. Operations on the mid-level involve interactions between functions on the lower level. Lastly, upper-level functions consist of models of interpersonal and intrapersonal qualities. Goleman’s emotional competencies model is divided between upper-level functions, interpersonal and intrapersonal qualities as well as functions on the middle level which include interactions between emotions and cognition. Essential interpersonal and intrapersonal qualities described by Goleman (1995) involve the motivation of the self and handling relationships. With regard to the interactions between emotions and cognition, a competency necessary in Goleman’s model, is the ability to recognise emotions in others. Bar-On’s (1997) model is also divided between all three levels of personality functioning. Areas involved are intrapersonal qualities, interactions between motivation and emotion, and emotional qualities as well as cognitive abilities. Mayer and Salovey’s (1997) ability model is positioned in the mid-level functions which include interactions specifically between emotions and cognition. The diagram again emphasizes the main difference between these models which is that the ability model defines emotional intelligence as the interactions between emotions and cognition while mixed models suggest a variety of components to be part of the construct of emotional intelligence (Mayer, Salovey, & Caruso, 2000).
Figure 2.1 An overview of personality and its major subsystems with three models of emotional intelligence embedded within it (Mayer, Salovey, & Caruso, 2000, p. 91)

Research on the role of emotional intelligence in a population facing adversity is limited in comparison to research conducted within the organisational and educational fields. According to Saklofske, Austin, Galloway and Davidson (2007), further research is needed to explore the construct of emotional intelligence as a positive coping resource within the health and other contexts. A possible link between emotional intelligence and vulnerability to disease was identified in a study by Bradburry and Greaves (2003). Furthermore, research showed that emotional intelligence skills might help the brain to cope more effectively with emotional distress, which in turn has a positive effect on the immune system (Bradburry & Greaves, 2003). It was also suggested that emotional intelligence can have a positive effect on the body’s recovery from disease (Bradburry & Greaves, 2003).

Other studies have found that emotional intelligence was negatively associated with psychological distress and depression (Austin, Saklofske, & Egan, 2005). According to Mines and Mines (2006), health problems can be associated with emotional distress. Also, high emotional intelligence was linked to the creation of support networks which had a positive impact on the emotional wellbeing of the individual. In a study conducted on advanced breast cancer patients, it was reported that those that attended support groups on a weekly basis lived twice as long as those trying to cope on their own (Mines & Mines, 2006). Results of another study conducted by Schmidt and Andrykowski (2004) confirmed the view that emotional intelligence may play a
significant role in the psychological adaptation of patients to breast cancer. According to Ben-Ze’ev (2001), an effective way of regulating emotions is broadening and changing one’s perspective by comparing oneself favourably to others that are worse off. Further research on breast cancer patients shows that the expression of emotions as a way of coping can be linked to reduced distress levels and a decrease in the amount of medical appointments for depressive symptoms that were related to the experience and treatment of cancer (Stanton, Kirk, Cameron, & Danoff-Burg, 2000). In addition, Affleck and Tennen (1996) suggest that repeated emotional expression may decrease negative emotion and physical arousal. However, Morrow and Nolen-Hoeksema (1990) argue that the active engagement in constantly trying to understand one’s emotion may also result in what is referred to as cognitive rumination which can have a negative impact on the patient.

In conclusion, the literature does not only suggest a possible relationship between emotional intelligence and psychological well-being, but also a link between emotional intelligence and physiological processes. Therefore, the further exploration of this construct is needed in order to understand its function and to implement strategies to develop this human strength in chronically ill populations, such as breast cancer patients.

2.3 The Concept of Locus of Control

“Whether you prevail or fail, endure or die, depends more on what you do to yourself than on what the world does to you.”

Jim Collins

Personal control refers to the belief that one has the ability, resources, or opportunities to get positive outcomes or avoid negative effects through one’s own actions (Henselmans, 2009). Thus, it is the perception that life is not ruled by fate, but that one has the ability to personally influence important events and situations. Previous research consistently showed this belief to be associated with a variety of positive outcomes, which include a reduced risk of disease (Bosma et al., 2005), successful adjustment to illness (Helgeson, Snyder, & Seltman, 2004) and even survival (Surtees, Wainwright, Luben, Khaw, & Day, 2006). While a sense of control is largely accounted for by personality, exposure to adversity may challenge control perceptions. However, it is particularly in the face of these overwhelming and challenging negative life events that a sense of control might act as a stress-buffering resource.

A strong sense of personal control is associated with psychological well-being and protects individuals against distress in challenging and stressful circumstances (Compas, 1987; Folkman, 1984; Lefcourt & Davidson-Katz, 1991; Skinner, 1995). Cancer is characterised as a disease with
substantial levels of uncertainty and uncontrollability. Even when confronted with a life threatening disease like this, previous research has proven that a stronger sense of personal control over life is associated with more positive outcomes (Bremer, Moore, Bourbon, Hess, & Bremer, 1997; Ell, Mantell, Hamovitch, & Nishimoto, 1989; Helgeson et al., 2004; Henselmans, 2009; Penninx et al., 1996). Although not much research has been conducted on the mediators when it comes to the relation between control and psychological well-being under stress, some researchers have proposed a number of cognitive and behavioural mechanisms. Theory on coping with stress suggests that the experience of stress consists of two distinct but related cognitive appraisal processes (Lazarus & Folkman, 1984). These include the individual’s perception of what is at stake (primary appraisal) and of the accessible resources (secondary appraisal). It is believed that these appraisal processes are affected by not only external aspects (Paterson & Neufeld, 1987), such as the impartial judgment of the controllability of a situation, but also by internal factors, such as personal beliefs and responsibilities which constitutes a general sense of control over life (Folkman, 1984). Research showed that people with a strong sense of control over life are less likely to appraise situations as intimidating or negative and tend to recognise more coping opportunities (Jerusalem, 1993; Taylor & Amor, 1996). This implies that a strong sense of control could limit the experience of disorder and chaos when confronted with challenging circumstances, and could allow for all cognitive resources to remain available (Skinner, 1995). Several studies previously conducted confirmed the relation between both primary and secondary appraisals and the successful adjustment in cancer patients (Hamama-Raz, Soloman, Schachter, & Azizi, 2007; Manne et al., 2006; Merluzzi, Nairn, Hegde, Martinez-Sanchez, & Dunn, 2001). In a recent study by Hamama-Raz (2007), low threat appraisal and high appraisal of coping ability were associated with improved psychological well-being and reduced distress. Furthermore, it was found that these appraisal processes were more important than objective medical facts such as the stage of the illness.

Literature also suggests that in addition to the cognitive appraisal processes, the differences in behaviour of individuals might also rationalise the positive effect of personal control. Researchers have argued that a strong sense of control promotes more approach-oriented and pro-active coping. Also, it has been associated with more active problem solving, perseverance, and maintenance of action in stressful circumstances (Anderson, 1977; Aspinwall & Taylor, 1997; Folkman, 1984; Lefcourt & Davidson-Katz, 1991; Skinner, 1995). Previous research confirmed that these active, approach-oriented coping strategies are more adaptive than the passive and avoidant strategies (Hack & Degner, 2004; Taylor & Stanton, 2007). Thus, feelings of helplessness, negative effects of the stressor and secondary stress on other areas of life could be limited by engaging in active behaviour strategies.
A recent study on a breast cancer population revealed that a sense of personal control was linked to lower levels of distress (Henselmans, 2009). In addition, the researcher highlighted the possible effect of the type of treatment as well as the phase the patient finds herself in, on perceived personal control. The Henselmans (2009) study also investigated the effects of two types of active behaviour in women diagnosed with breast cancer. Firstly, it was suggested that personal control could increase active participation in medical discussions. Active participation, which may involve asking questions and engaging in the decision making process, has been linked to reduced anxiety in patients, the promotion of patient satisfaction and an increase in the motivation of doctors offering more support and information (Kaplan, Greenfield, & Ware, 1989; Street, Gordon, Ward, Krupat, & Kravitz, 2005; Stewart, 1995). However, results did not show a relation between personal control and active participation. Secondly, Henselmans (2009) identified the patient’s active participation in social life as another active behaviour. This behaviour refers to the patient’s contact and involvement with friends and acquaintances outside of the immediate family. Although cancer could have an enormous impact on an individual’s social life, particularly in the treatment phase, a strong sense of control over life could limit the individual from becoming socially disconnected. Research has shown the link between psychological well-being and active participation in social life. Cancer survivors usually stress the importance of engaging in normal daily activities (Luoma & Hakamies-Blomqvist, 2004). Social activities might move attention away from a diagnosis of cancer and might generate more positive thoughts and feelings. Furthermore, engaging in social life might recompense for losses in other domains in life, such as work or physical activity. Lastly, maintaining contact with friends outside the close family expands the social support network, which might reduce anxiety (Hipkins, Whitworth, Tarrier, & Jayson, 2004). Results confirmed that active participation in social life promoted recovery in anxiety after diagnosis (Henselmans, 2009). Furthermore, women with a stronger sense of personal control over life at the time of diagnosis remained more active in their social life. In conclusion, literature suggests that a strong sense of control over life encourages positive cognitive appraisal and active participation in the face of a challenging and life threatening event such as a cancer diagnosis.

2.3.1 Control in Health Behaviour Theories

Personal control seems to be emphasised in several health behaviour theories. Although the personal control component is explained differently in some of the theories, an underlying theme is evident: personal control promotes health behaviour performance. The role of control in the most common health behaviour theories is briefly explained in the next section.
2.3.1.1 Two-Process Model of Perceived Control

In this model a distinction is made between primary control and secondary control. Primary control refers to taking action in order to get desired outcomes while secondary control involves making changes to oneself to adjust to the environment (Kail & Cavanaugh, 2008; Rothbaum, Weisz, & Snyder, 1982; Smart, 2005). An important contribution of this approach with regard to the concept of control is that it suggests that both actions toward the environment as well as actions taken to adjust to the environment are sources of personal control (Smart, 2005). This approach also emphasizes control strategies, which refer to how individuals go about achieving the desired outcomes or deal with stressful circumstances. Thus, these control strategies might have important implications for health protection in the sense that those individuals that engage in primary control strategies in changing their environment might be more likely to react in this way in order to protect themselves. Furthermore, the theory recognises a source of enhancing personal control, for example, by using secondary control strategies one could come to terms with the situation and try to change the self. Engaging in these strategies would strengthen personal control necessary for health behaviour change (Lachman, 2001).

2.3.1.2 Theory of Planned Behavior

In this theory the assumption is made that perceived behaviour control is a proxy indicator of actual behavioural control (Glanz, Rimer, & Viswanath, 2008). Research conducted based on this assumption confirm the theory to be accurate in predicting intentions to engage in health behaviours (Godin & Kok, 1996). Furthermore, it was found in studies comparing the theory of planned behaviour with the theory of reasoned action that the inclusion of the perceived behavioural control construct in the theory of planned behaviour increased the predictive ability (Terry & O’Leary, 1995). However, many researchers still operationalise the construct of perceived control as self-efficacy, and by utilising measures of perceived control the predictive power of the model could be further increased (Godin & Kok, 1996; Terry & O’Leary, 1995).

2.3.1.3 Social Cognitive Theory

Social cognitive theory can be viewed as an extension of social learning theory (Bandura, 1986). According to the latter, people learn behaviours through the observation of similar others receiving reinforcement or punishment for similar behaviours. Social cognitive theory argues that behavioural decisions are guided by self-regulatory systems or internal controls (Glanz, Rimer, & Viswanath, 2008). In this model, the ability to self-regulate depends on two efficacy perceptions: self-efficacy and response efficacy (Glanz, Rimer, & Viswanath, 2008). The construct of self-efficacy is emphasized in this model and refers to the belief in one’s abilities to organise and
perform the actions required to manage future situations. In other words, self-efficacy is the belief that one is capable of performing a behaviour, while response efficacy refers to beliefs that a specific behaviour will reach a desired outcome (Edelman & Mandle, 2005). In conclusion, the model suggests that the higher both efficacy perceptions, the higher likelihood that the behaviour will be performed (Edelman & Mandle, 2005).

2.3.1.4 Protection Motivation Theory

Protection motivation theory suggests that motivations to protect oneself lead to decisions to engage in healthy behaviours (Gochman, 1997; Maddux & Rogers, 1983; Steptoe, 2010). Protection of the self is based on four factors: the perceived severity of a threatening event, the perceived probability of the occurrence, the efficacy of the preventive behaviour (response efficacy) and the perceived self-efficacy (Steptoe, 2010). These factors determine the extent to which one can cope with a health threat. Again, response efficacy and self-efficacy are emphasised and the higher these efficacy perceptions, the higher likelihood of engaging in health behaviour (Ayers, Baum, & McManus, 2007).

2.3.1.5 Self-Control Theory

According to Rosenbaum (1983), coping successfully in stressful situations involves self-regulation. Two self-regulatory processes that are under the individual’s cognitive and voluntary control have been identified (Dewe, Leiter, & Cox, 2000; Fitzpatrick & Wilke, 2001). Redressive self-control is intended for the recommencement of normal functions that have been disrupted while reformative self-control is directed at breaking habits in order to take on new and more beneficial behaviours. Coping with severe stress involves redressive self-control whereas the implementation of new behaviours such as health related behaviours involves reformative self-control (Fitzpatrick & Wilke, 2001). Learned resourcefulness is defined as “basic behavioral repertoire for the self-regulation of internal events” (Rosenbaum, 1983, p. 66). This involves both redressive and reformative self-control and consists of mainly cognitive strategies that allow an individual to manage emotions, pain, and cognitions in order to prevent interference with goal-directed behaviour. In summary, this behavioural repertoire comprises the self-regulation of emotional and cognitive reactions in stressful situations by utilising problem-solving skills and delaying immediate gratification in order to gain more meaningful rewards in future. Research findings demonstrated that highly resourceful people cope more effectively under stressful circumstances and tend to be more capable of implementing health related behaviours (Dewe, Leiter, & Cox, 2000; Fitzpatrick & Wilke, 2001; Rosenbaum, 1989).
2.3.2 **Perceived Control**

The concept of control has been one of the most studied ideas in psychological research and theory. Several theories hypothesise the importance of control constructs in human behaviour. Some of these control constructs include concepts such as effectance motivation (White, 1959), personal causation (DeCharms, 1968), learned helplessness (Seligman, 1975), self-efficacy (Bandura, 1977), and perceived control (Thompson, 1981). Since personal control seems to be a fundamental concept in numerous theories of human behaviour and has produced extensive research, researchers have investigated a substantial number of different types of control constructs. Across a variety of contexts, from the workplace to medical centres, and in different age groups, children and adults, it is generally adaptive to have a sense of control. One of these constructs found to have adaptive effects in a health related context is perceived control. Previous research has proven the construct of perceived control to be linked with emotional well-being, reduced physiological impact of stressors, enhanced ability to cope with stress and a greater likelihood of engaging in health behaviours (Thompson & Spacapan, 1991). Furthermore, the construct is understood to be a vital resource associated with mental health (Shapiro & Astin, 1998) and specifically with resilience (Luthar & Zigler, 1991) and successful coping (Kobasa, 1979).

Contingency and competence have been argued to be key components of the construct of perceived control (Thompson & Spacapan, 1991; Weisz, Southam-Gerow, & McCarty, 2001). Contingency is also referred to as locus of control orientation which involves the belief in the extent to which an outcome depends on factors external to the individual rather than on the individual’s own behaviour (Rotter, 1966). Competency is also referred to as self-efficacy, which is rather different from contingency as it involves the belief by the person that he or she has the ability to perform the behaviour that would result in the desired outcome (Bandura, 1997). In brief, individuals have a sense of perceived control when they believe that their own behaviour influences outcomes (internal locus of control) and that they have the ability to carry out the behavioural actions to attain the desired outcome (self-efficacy). Individuals’ reaction to health concerns has been explained by theories of locus of control and self-efficacy (Peyrot & Rubin, 1995).

2.3.3 **Locus of Control (LOC)**

The locus of control (LOC) construct stemmed from Rotter’s Social Learning Theory and was developed to explain the function of reinforcement in behaviour (Rotter, 1954; 1966). This theory suggests that the role of reinforcement is vital in the attainment and execution of both knowledge and skills (Carducci, 2009; Hollyforde & Whiddett, 2002). According to this theory, the value of
the goal towards which an individual is striving together with the expectancy that a specific
behaviour will result in a desired outcome determines behaviour (Coit, 2006; Hollyforde &
Whiddett, 2002). For example, think about a student that is preparing for an examination. This
theory suggests that he would study for the exam because it is required for graduation (desired
outcome) and also because he believes that preparation will lead to passing the grade (expectation
that the behaviour will result in the desired outcome). If the student did not believe that
preparation will result in passing the grade, the likelihood of him studying for the exam would
lessen even if it was required for graduation. Yet again, if he prepared and passed the grade on his
examination the likelihood of preparing for future examinations will increase if he believed that the
preparation was the reason for him obtaining a passing grade (Coit, 2006).

LOC involves the way the individual views the relation between his or her behaviour and the
experience of reward or punishment (Phares, 1973). Briefly, internal control refers to the belief
that the reinforcement for the behaviour is directly related to the individual’s own behaviour or
qualities. External control involves the belief that the reinforcement for a behaviour is not entirely
dependent on the individual’s own behavior or is perceived to be the result of luck, chance or fate.

Rotter (1966, p.1) defined locus of control as follows:

When a reinforcement is perceived by the subject as….not being entirely contingent
upon his action, then, in our culture, it is typically perceived as the result of luck,
chance, fate, as under the control of powerful others, or as unpredictable because of
the great complexity of the forces surrounding him. When the event is interpreted in
this way by an individual, we have labelled this a belief in external control. If the
person perceives that the event is contingent upon his own behaviour or his own
relatively permanent characteristics, we have termed this a belief in internal control.

As these beliefs are explained to fall on a continuum, an individual is never entirely
internal or external. However, research on LOC refers to internals and externals in order to
describe those beliefs individually in terms of the different ends of the continuum. Rotter’s
construct of LOC is discussed more comprehensively in the next section.

The concept of LOC first received attention after Rotter (1966) published his assessment scale
which provides an indication of the individual’s generalised expectancies for internal versus
external control of reinforcement (Schaap, Buys, & Olckers, 2003). As already mentioned,
Rotter’s instrument was developed with the social-learning theory as foundation (Anastasi, 1990;
Schepers, 1995). In this theory personality represents the interaction between an individual and his
or her environment (Rotter, 1954). Rotter described four components in his social learning model
which predicts behaviour. Those are behaviour potential, expectancy, reinforcement value and the
psychological situation (Rotter, 1966; 1990). Behaviour potential is a function of the expectancy
and reinforcement value, which means that if the values of expectancy and reinforcement are both high, the behaviour potential value would be high and vice versa. Reinforcement refers to the outcomes of behaviour. Behaviour that would want to be avoided would have a low reinforcement value which means that the person would probably not engage in that behaviour. With the psychological situation, Rotter (1966) explained that it is important to remember that each person has a subjective interpretation of his or her environment, which determines how they behave.

For the purpose of this study it is important to distinguish between general locus of control (LOC) and health locus of control (HLOC). General locus of control refers to the perceived control an individual has in general about different life situations (Rotter, 1966). Having an internal rather than external locus of control is considered as the foundation for a characteristic attitude towards the world (Hampson, 1988), which Rotter (1966) referred to as a generalised expectancy. Theory on LOC suggests that a person’s internal or external orientation generalises to other life domains. For example, it would be expected that an individual identified as internal would have internal control beliefs about both his situation at work and family life. Therefore, LOC is regarded as a generalised expectancy as it impacts on behaviours in several life areas. HLOC is the perceived control an individual has over his or her health (Braman & Gomez, 2004; Laffrey & Isenberg, 2003). Briefly, this involves a more specific assessment directed towards the individual’s beliefs regarding health matters. In this context, an individual is referred to as internal if he believes that he is mainly in control of his health. External individuals believe their health is controlled by powerful others, for example, doctors or other health professionals (powerful others health locus of control), or they believe that their health depends on chance or fate (chance health locus of control). This study aims to investigate general LOC as these beliefs are considered as being more stable than HLOC beliefs. General LOC beliefs seem to be more reflective of personality as they are regarded as less modifiable by significant health related experiences than HLOC beliefs (Phares, 1973). Research by Wallston and Wallston (1981) supported this argument as they found that chronically ill populations were the least internal group when health locus of control was measured. However, reference to previous research conducted on health locus of control is also included in this discussion in order to emphasize possible links between personal control and psychological health.

Although more research has been conducted on LOC within the field of organisations and education, a number of studies linked internal LOC with improved physical health, mental health and quality of life in people with HIV, migraines, diabetes, epilepsy and kidney disease (Maltby, Day, & Macaskill, 2007). LOC is one of three major factors that researchers have found to contribute to coping strategies (Leana & Feldman, 1992). An internal LOC is associated with problem-focused coping patterns, while a person with an external LOC tends to rely more on
symptom-focused coping strategies (Roberts, 1995). Research shows that symptom-focused strategies are negatively correlated with positive psychological wellbeing and problem-focused coping patterns are positively associated with life satisfaction and psychological health (Roberts, 1995).

According to Kfir and Slevin (1991), being diagnosed with cancer represents chaos, which is the lack of control, the lack of direction, goals and organisation. The challenge of a life-threatening disease like cancer is the constant change and unpredictability of the disease, which complicates the process of gaining control (Kfir & Slevin, 1991). With the recurrence of cancer, hope is lost again and faith in the previous treatment is suddenly proven to be false (Kfir & Slevin, 1991). Literature shows that LOC can play an important role in regaining hope in these uncertain times.

According to a study by Smith (1970), crisis patients that were overwhelmed by external forces in their lives tended to be more externally oriented. However, after a six-week crisis resolution programme was followed, there was a significant change towards the internal end. This does not only show that an internal orientation can be linked to psychological wellbeing, but also that LOC is not a fixed personality trait, but can change over time. A more recent study by Steptoe and Wardle (2001) showed that internal HLOC was positively correlated with positive health behaviour and negatively associated with chance HLOC. This suggests that feeling in control of one’s health contributes to engaging in positive health behaviours which would be beneficial when facing a crisis like cancer. Further research shows that well-being in breast cancer patients were promoted through therapeutic interventions that concentrated on improving the sense of personal control (Barez, Blasco, Fernandez-Castro, & Viladrich, 2007). In a South African study by Burke (2008), evidence has shown that HLOC orientation can have an influence on the body’s acceptance of a kidney. According to this study, the group that accepted the transplanted kidney had a more internal HLOC. This finding again highlights the possibility that psychosocial variables may have an influence on physiological processes.

Research has revealed that both LOC and HLOC influence health related behaviours (Coit, 2006). Individuals labelled as internals tend to engage more in screening behaviours like, for example, self-breast examinations (Bundek, Marks, & Richardson, 1993). Individuals with an internal orientation are also more likely to be nonsmokers than those with an external orientation (James, Woodruff, & Werner, 1965). Furthermore, from the individuals who were already part of the smoking population, those who have an internal orientation tend to reduce smoking more than those with an external orientation (Steffy, Meichenbaum, & Best, 1970). In a study on a tuberculosis population in a hospital setting it was found that internals gained more information on their condition, inquired more about their condition from medical staff and were in general more cooperative (Seeman & Evans, 1962). Also, it was shown in a study by Lundy (1972) that from a
sexually active female college population internals were more likely to use contraceptives than externals. As LOC and HLOC influence several health behaviours, they may also impact on individuals’ reaction to a breast cancer diagnosis.

Finally, although general LOC is considered as a personality trait, the probability does exist for it to change over time or under specific situations (Kielbauch, 1967; Knoop, 1989; Phares, 1973). It was found in a study on a youth population that their locus of control became more internalised as they became older (Penk, 1969). It should be noted that it was not only age that added to the change to more internal beliefs, but also independence, knowledge, enriched life experience, and ability to impact on their surroundings (Penk, 1969). Cairns, McWhirter, Duffy and Barry (1990) also confirmed this personality trait to be somewhat malleable. Therefore, it can be concluded that an individual’s general LOC orientation can be influenced by, for example, intervention programmes which could result in more effective coping when faced with challenging life events (Larsen & Lubkin, 2001).

2.4 Emotional Intelligence and Locus of Control

Internationally, a limited number of studies on the relationship between emotional intelligence and locus of control have been conducted. From definitions and literature on these constructs, the existence of a common theme could be identified – the view that humans are conscious entities that have the freedom to make their own choices from all the available alternatives offered (Jordaan & Jordaan, 1992). Having the freedom to choose how to deal with challenging situations in terms of emotions and perceived control could lead to optimal functioning.

Nagar (2006) found in his study on the relationship between emotional intelligence, locus of control and role efficacy of social workers that emotional intelligence correlated positively with internal locus of control and were negatively associated with external locus of control. From the literature review it could be gathered that a need for research to explore the link between these two constructs within a population facing adversity does exist. In a study by Saklofske et al. (2007) on health-related behaviours, results showed a positive correlation between emotional intelligence and internal health locus of control, a negative correlation with chance health locus of control and no relation to powerful others health locus of control.

In South Africa, emotional intelligence and locus of control are commonly explored in relation to performance in the workplace and job satisfaction. One of these studies by Gropp, Geldenhuys and Visser (2007) explored different relationships between constructs that were hypothesised to contribute to psychological wellbeing in organizations. Results showed that correlations exist between locus of control, emotional intelligence and sense of coherence.
Within the health domain most of the research conducted in South Africa measured health locus of control of individuals. Field and Kruger (2008) reported in their study on the effect of art psychotherapy intervention on levels of depression and locus of control orientation in a HIV population, that within two weeks after therapy started, participants’ health locus orientation was more internal. According to these researchers, literature suggests a positive relationship between positive mood and an internal health locus of control which therefore would contribute to overall psychological well-being.

With only a few studies conducted on the relationship between emotional intelligence and locus of control, it is clear that these constructs need to be explored in South Africa. By understanding the role of these constructs when facing adversity, further research could focus on the development and implementation of programmes to build on these human strengths.

2.5 Conclusion

A theoretical overview of emotional intelligence and locus of control was provided in this chapter. Firstly, the concepts of emotion and intelligence were discussed separately, followed by a presentation of the different emotional intelligence models. Then, the locus of control construct was discussed in relation to the role of personal control in health related theories as well as in relation to the function of perceived control in a health related context. The chapter concluded with a discussion of the relationship between the constructs with an overview of previous studies conducted. The following chapter introduces different aspects of a breast cancer diagnosis and its treatment.
3.1 Introduction

A diagnosis of breast cancer and the resulting treatment can have a significant influence on a woman’s physical, psychological, social and spiritual well being (Reddick, Nanda, Campbell, Ryman, & Gaston-Johansson, 2005). For some women, feelings of shock, anxiety, disbelief and distress experienced through diagnosis and treatment are overcome, and followed by physical and psychological recovery. However, for a number of women a diagnosis of breast cancer and its treatment result in distress that is disabling and can have profound effects on treatment outcomes (Hewitt et al., 2004). Distress caused by physical and psychological problems may have a significant influence on different aspects of the diagnosis and treatment phases such as quality of life, comfort, the ability to make informed decisions regarding treatment options, and remaining in treatment (Hewitt et al., 2004).

General physical symptoms associated with breast cancer treatment include pain, nausea and fatigue. Other common reactions to diagnosis and treatment involve anxiety, depression, anger and fear of recurrence (Reddick et al., 2005). Treatment can also be linked to several localised physical conditions including arm edema, complications with shoulder mobility, impaired neurologic functions, and upper body functioning difficulties (Ganz & Horning, 2007).

Furthermore, breast cancer patients experience various psychosocial concerns after diagnosis and during treatment (Hewitt et al., 2004). These include symptoms such as fatigue, decrease in sleeping, pain, body image disruption, sexual dysfunction, anxiety related to treatment, disturbing thoughts about illness, communication problems with the partner, feelings of helplessness, fear of recurrence and existential issues concerning mortality. As already mentioned, differences exist in the degree to which women acknowledge these concerns, deal with them, and adjust to the change of living with uncertainty and doubt about the future (Hewitt et al., 2004). Some women are overwhelmed by constant thoughts about the illness and their incapacity to control the course of the disease and need intervention to help with the adaptation to the illness. Although most researchers emphasise psychosocial concerns just after diagnosis and during the treatment phase, evidence does exist that the phase after treatment may be more challenging for patients (De Silva & Dos Santos, 2010).

In order to facilitate successful coping with the effects of breast cancer treatment, different strategies, approaches and abilities are required. According to Ganz and Horning (2007, p. 15), “finding meaning in the situation, reorganizing priorities and continuing to plan for the future provides areas of personal control that help survivors get through treatment”. Therefore, human
strength constructs such as emotional intelligence and locus of control might assist in the physical and psychological recovery of breast cancer patients.

In this chapter, aspects involving a diagnosis of breast cancer, the different treatment options available, and the effects of treatment are discussed in more detail. The following themes are explored on a diagnosis of breast cancer: Anatomy of the Breast; Forms of Breast Cancers; Histologic Grades of Breast Cancer; and Staging. Then treatment procedures are explained and these involve Local Control, Radiation Therapy, Chemotherapy, Hormone Therapy, Local-Regional Recurrence, In-breast Recurrence after Breast-Conserving Surgery, Local Recurrence after Mastectomy and Axillary Recurrence. Finally, themes that are included in the effects of treatment section include: Physical Functioning; Body Image; Psychosocial Problems; Relationships; Working Roles; and Existential Concerns.

3.2 Diagnosis

No one is immune to cancer. It spares no community, age group, or family. And when a personal cancer diagnosis comes, it is a shock and a clear threat to all those things we hold dearest – health, time, and life itself. (Brown, Freeman, & Platt, 2006, p. 7)

Just about every woman diagnosed with breast cancer experiences the first few moments after the news is conveyed as heart-stopping and as one of their worst experiences. Although these days cancer is not necessarily fatal anymore, human beings tend to think of the condition as fatal (Brown, Freeman, & Platt, 2006). Kaelin and Coltrera (2005) explain that a diagnosis of cancer is complicated enough to understand without the experience of intense emotions. It is usually these intense emotions that result in disorganised thinking. These authors emphasise the importance of understanding the diagnosis in order to start accepting and processing it. Furthermore, it is vitally important to start with treatment soon after the diagnosis and this could be challenging for the patient as he or she might still be in shock of the diagnosis (Brown, Freeman, & Platt, 2006).

According to Johanson (2008), not all lumps in the breast are indicative of cancer. When a lump is physically detected in the breast the physician has the options to either to do a biopsy, extract fluid from the cyst or to excise the lump for further examination.

Radiographic examination techniques were developed to reveal clinical changes of the breast that are not obvious in the early stages of the development of cancer cells (Feinberg, 2005). These techniques include low dose x-rays of the breast (mammogram) and breast ultrasound (sonar). Abnormalities in breast tissue, as well as calcium sediment, also referred to as microcalcifications, can be detected by the mammogram. Breast ultrasound is used to examine non-malignant conditions of the breast, such as fibrocystic disease, in order to clear possible confusion. More
recent techniques of breast examination include computed tomography (CT), magnetic resonance imaging (MRI) and positron emission tomography (PET).

3.2.1 Anatomy of a Breast

Over the years, the breast has been perceived as not only symbolising nurturance but also beauty (Kaelin & Coltrera, 2005). Thus, a breast cancer diagnosis might be experienced as losing one's femininity. Breast cancer and its spread can be better understood through basic knowledge of breast anatomy.

The breast consists of fat intertwined with glandular tissue that produces milk (DeFelice, 2002; Kaelin & Coltrera, 2005). A milk gland can be visualised as a stalk of broccoli and ends in what is described as a lobule, which produces the milk. The function of the stalk, referred to as a duct, includes carrying milk from the lobule to the nipple so that breastfeeding can take place. The rest of the breast consists of rich networks of nerves, arteries, veins and lymphatic vessels. The lymphatic vessels are responsible for carrying lymph liquid to the lymph nodes. These lymph nodes are situated in the outer breast in the axilla, also known as the underarm, in the vicinity of the collarbone, and in the chest. The lymphatic channels and lymph nodes form part of the immune system of the body and are responsible for clearing the system of germs and unfamiliar substances. The lymph nodes also produce infection-fighting white blood cells. Most of the time, breast cancer starts in the milk glands and with time infiltrate to the lymph channels or blood vessels to other parts of the body. For the effective management of cancer, it is of vital importance to detect cancer before spreading or prior to metastases (Cooper, 1993; Feinberg, 2005).

3.2.2 Forms of Breast Cancers

The literature distinguishes between three common forms of breast cancer (Balch, 2006; Greenberger & Wider, 2006; Kaelin & Coltrera, 2005). These include Ductal Carcinoma in Situ (DCIS), Invasive Ductal Carcinoma (ID), and Invasive Lobular Carcinoma (IL).

Cancer is described by the term “in situ” when it is limited to one or more ducts and has not spread to other areas. This specific condition can be described as cancer cells multiplying but still contained inside the duct. Usually, on a mammogram, this can be identified as a group of white dots, also referred to as a calcification. If ignored, ductal carcinoma may spread to the surrounding breast tissue (Harding, 2007).

Invasive ductal carcinoma refers to cancer advancing through the duct walls into the surrounding tissue. This indicates the possibility that it might spread to the rest of the body through the lymph channels or blood vessels. Invasive lobular carcinoma refers to cancer cells
having broken through the lobule walls and therefore being active in the surrounding breast tissue, which could also result in spreading through other parts of the body.

After a biopsy, the pathologist composes a report consisting of general classifications to describe the cancer. The classification of cancer can be divided into two categories: stage and histologic grade (Brown, Freeman, & Platt, 2006). The stage of cancer can be described as the verification of the progression of the cancer. The histologic grade refers to the aggressiveness of the cancer, in other words, the tempo against which the cancer progresses from one stage to another. The explanation of the different forms of breast cancer link well with the following section on the different grades and staging of breast cancer which is described in more detail.

### 3.2.3 Histologic Grade of Breast Cancer

In the classification of cancers, grading is the less complicated process. The histologic grade of a lump describes the position of the cells in relation to one another as well as certain aspects of each separate cell (Brown, Freeman, & Platt, 2006; Della Rovere, Warren, & Benson, 2006; Singletary, Robb, & Hortobagyi, 2004). The classification of cancers according to this grading system involves levels 1 to 3. Grade 1 lumps or tumours can be described as consisting of cancer cells that are slow in growth and very similar to normal cells. These cells are referred to as ‘well-differentiated’ cells. Grade 2 and grade 3 cancer cells are referred to as ‘moderately differentiated’ and ‘poor differentiated’ respectively and can be described as cells that are unevenly distributed, abnormal in shape and appears to be more aggressive than cancer cells described by the grade 1 category. The grade 3 classification of cancer cells are the most aggressive and abnormal in appearance (Singletary, Robb, & Hortobagyi, 2004).

The grade and the stage of cancer are not linked, but combining these two categories in the evaluation of the cancer are indicative of how aggressively the cancer should be treated (Brown, Freeman, & Platt, 2006). The stage, rather than the grade of cancer, determines the treatment plan (Lawrence, Bell, & Dayton, 2006). For example, the prognosis of a grade 3 cancer that is detected at a very early stage is better than a grade 1 cancer that is only discovered at a later stage.

### 3.2.4 Staging

The stage of cancer is established through the evaluation of three categories: the type and size of the tumour or lump; whether the cancer cells have spread to the lymph nodes, and if metastasis is involved (Brown, Freeman, & Platt, 2006; Fowble, 1991; Pederson & Trigg, 1995). After each category has been examined according to the tumour-node-metastasis classification system, the stage of the cancer is identified.
Stage 0 is classified as an early stage of cancer and points to findings of what is referred to as Ductal Carcinoma in Situ (DCIS), Lobular Carcinoma in Situ (LCIS) or Paget’s disease (Carvalho & Stewart, 2009). No signs of a tumour are present and the cancer cells have not broken through to the breast tissue or spread to the lymph nodes. Stage I is also considered as an early stage of cancer (Carvalho & Stewart, 2009). This stage is indicative of no cancer cells present in the lymph nodes, but that the tumour is 2cm or less in width. Although Stage II is regarded as an early stage of cancer, spreading of the cancer cells to the lymph nodes are present (Carvalho & Stewart, 2009). Cancer at this stage has reached the underarm lymph nodes and/or the tumour is 2 to 5cm in width. Furthermore, this stage is divided into two categories: Stage IIA and Stage IIB. Stage IIA involves cancer where no tumour or a tumour of the size described in Stage I is present, but the cancer cells have spread to the lymph nodes. Cancers where the tumour is 2 to 5cm, but no cancer is present in the lymph nodes are also included in this stage. Stage IIB includes cancers where the tumour is 2cm or more and indicates that the cancer cells have spread to the lymph nodes, but not to the chest or skin. Stage III is considered as an advanced stage of cancer and is also referred to as locally advanced cancer (Harding, 2007). In this stage the size of the tumour is larger than 5cm in width, the cancer cells are widely spread to the underarm lymph nodes, or to other lymph node regions or breast tissue. Two categories exist in Stage III cancer: Stage IIIA and Stage IIIB. Stage IIIA consists of tumours as described above, where as with Stage IIIB cancers have reached the chest wall or skin and manifest as open sores, edema or uneven skin. Lastly, Stage IV is classified as metastatic cancer and can be distinguished from the other stages as having spread to other vital parts of the body (Harding, 2007). Thus, tumour size and the involvement of the lymph nodes are of secondary importance in this stage. The presence of metastases decreases the probability of cure (Feinberg, 2005).

3.3 Treatment

The first adjustment task to be accomplished after a diagnosis of breast cancer is deciding on appropriate treatment. However, each type of treatment holds its own fears and uncertainties (Ganz & Horning, 2007). The breast cancer patient is challenged to accept and integrate this experience into their lives by facing reality through the effective regulation of their emotions (Ganz & Horning, 2007).

Breast cancer treatment is very much individualized and reliant on the accurate diagnosis of the type, grade and extent of the tumour (Haas, 2004). Other important factors to consider when deciding on treatment are the patient’s medical history as well as his or her personal needs (Varricchio, Ades, Hinds, & Pierce, 2004). The team of specialists usually involved in the
treatment process consists of the medical oncologist, the radiation oncologist and the surgeon (Chan, 2006).

Gordon, Shaw, and Kroll (2010) differentiate between three types of cancer therapies: curative, palliative and comfort care. Patients can either be exposed to all three therapies, moving from the one to the next, or just receive one type through the course of treatment (Gordon et al., 2010). The most familiar type of cancer therapy is curative which refers to a treatment where the goal of the therapy is mainly to ensure that the patient is free of cancer and stays free. This treatment is recommended for patients with stage I, II, and III cancer (Doherty & Way, 2006). Palliative treatment is advised for patients with clinical stage IV disease and patients already treated who display signs of metastases (Doherty & Way, 2006). This type of treatment involves reducing symptoms and maintaining function. The treatment that includes the minimization of symptoms in order to prepare the patient for death is referred to as comfort care.

The multifaceted approach to breast cancer treatment distinguishes it from the treatment of other cancers (Varricchio et al., 2004). Treatment procedures include a combination of surgery, radiation therapy, chemotherapy and hormone therapy.

### 3.3.1 Local Control

Local control involves the containment of the disease in the breast (Varricchio et al., 2004). This can be achieved through breast-conserving surgery followed by radiation therapy or by removing the entire breast surgically (mastectomy). In the case of successfully removing the lump, radiation therapy follows. Should a mastectomy be opted, no radiation therapy is required, except when the size of the tumour has reached stage III or when three or more lymph nodes are involved. It is advised to consider a mastectomy when the patient is pregnant, already received mantle radiation therapy or is at risk and cannot be exposed to radiation therapy. Most of the treatment procedures start with surgery, however, in some cases patients receive radiation therapy or chemotherapy prior to surgery in an attempt to reduce the size of the tumour (Donegan & Spratt, 2002). This could result in saving some of the surrounding breast tissue.

Another procedure that forms part of the local control of the disease is the surgical assessment of the axillary nodes (Varricchio et al., 2004). This involves the analysis of the lymph nodes, lymphatic mapping, sentinel lymph node mapping and biopsy.

After surgery, the pain that patients experience is controlled by narcotic or non-narcotic medication. Furthermore, complications, such as infection of the wound, as well as gastrointestinal conditions, such as nausea or constipation, may occur (Chang, 2006). Sufficient time should be given for the healing of the wound before radiation therapy or chemotherapy can be considered. Surgery can be curative, however, the possibility to be free from cancer cells can be
increased by receiving chemotherapy or radiation therapy after surgery (Donegan & Spratt, 2002). In a situation like this, therapy is referred to as adjuvant.

3.3.2 Radiation Therapy

Radiation therapy is in most cases the final unsettling treatment required for breast cancer. The DNA of cancer cells are destroyed by radiation in such a way that cell renewal within twenty-four hours is impossible, and this leads to the disintegration of the cells (Brown, Freeman, & Platt, 2006; Carvalho & Stewart, 2009; Knox & Grant, 2004; Meyer, 2001). Malignant cells can be described as cells that are dividing and therefore multiplying. Particularly, these cells are attacked by radiation. The possibility of normal cells being damaged does exist, yet they have a better chance of repairing themselves than cancer cells do. Therefore, radiation destroys cancer cells while normal cells revive (Miller, 2008).

Typically, radiation therapy involves the correct positioning of the patient in order to target the area of treatment (Knox & Grant, 2004). The specific area is indicated on the skin and this mark is kept in place throughout the treatment. The duration of the radiation process is only a few moments and takes place at the same time on a daily basis. Radiation commences about four weeks after chemotherapy or surgery (Sabel, 2009).

Radiation therapy is an individual and subjective experience for each patient. The effects of the treatment vary in degree for every patient (Leonard, 1993). The breast and chest wall sometimes become sensitive and irritated, often taking on a red, sunburned appearance. Usually, the whole breast and adjacent lymph nodes are radiated. However, a higher dose of radiation (boost) is administered to the lumpectomy area as this area, in particular, is at risk for recurrence. This technique has proven to be very effective in destroying cancer cells to prevent recurrence (Knox & Grant, 2004).

Five weeks of radiation of the whole breast, and an additional one and a half weeks of the boost area, is recommended for lumpectomy patients. A more recent radiation method involves the insertion of radioactive beads inside the boost area (Brown, Freeman, & Platt, 2006; Knox & Grant, 2004). These beads are radioactively loaded and are positioned to radiate for two to three days. Replacing external radiation treatment with radioactive implants is still an active field of research (Feinberg, 2005; Knox & Grant, 2004). Another radiation method referred to as high dose radiation, is also being explored (Dow, 2004). This technique implies administering radiation via catheters and balloons placed in the lumpectomy region.

Mastectomy patients often require radiation in addition to chemotherapy (Knox & Grant, 2004; Meyer, 2001). Radiation to the chest wall is advised for bulky or dispersed tumours, for tumours adjoining the breast muscle or when various lymph nodes are involved. Cancer cells could also be
present in the skin, therefore, this area is also targeted by radiation. In most mastectomy cases, radiation therapy follows after chemotherapy has been completed. A major concern of breast cancer patients is whether breast radiation could result in new cancers outside the treated area. Fortunately, research shows no increased risk of new malignant cells in the chest cavity or in the opposite breast (Knox & Grant, 2004).

### 3.3.3 Chemotherapy

Chemotherapy involves chemical agents or medication taken orally or intravenously to treat cancer (Brown, Freeman, & Platt, 2006; Dollinger, Rosenbaum, & Tempero, 2002). Mostly, these drugs are administered intravenously by means of an infusion port or catheter which is kept in position for a certain period of time (Stern & Sekeres, 2003). This procedure limits blood draws and therefore unnecessary discomfort. However, possible complications, such as infections and blood clots, may occur. Chemotherapy can be given on a daily basis or with intervals depending on the chemical agent, type of cancer and other medical conditions of the patient (Stern & Sekeres, 2003).

With the purpose of fighting any resistance from the cancer cells, chemotherapy for early-stage breast cancer (Stage I, II, III) typically consists of a combination of drugs rather than a drug on its own (Dollinger et al., 2002). Adjuvant chemotherapy refers to treatment used to eradicate minor, undetectable metastases after surgery and radiation therapy. Whereas surgery and radiation therapy target specific areas, chemotherapy systematically treats the entire body. Cancer cells that have moved away from tumours and reached other parts of the body through the lymph nodes or blood vessels, are targeted and ‘killed’ by chemotherapy.

Over the years chemotherapy was mainly applied to cancers in premenopausal women, while hormone therapy was used for cancers in postmenopausal women. However, recent research suggests that both forms of treatment have proven to be successful despite their menopausal status (Ko, Dollinger, & Rosenbaum, 2008).

According to Ko, Dollinger and Rosenbaum (2008), chemotherapy is only provided between two to eight weeks after surgery in order for wounds to recover. Blood tests are performed before chemotherapy sessions to verify blood count levels. Advanced breast cancer is treated by various chemotherapeutic drugs. It is still unclear whether a combination or single drugs at a time is more effective in treating this condition (Chang, 2006).

As stated earlier, chemotherapy treats the whole body and therefore may damage normal cells in the process, which could result in numerous side effects. Cells that are most at risk are those that divide fast under normal circumstances in the body, such as blood cells and the inside layer of the gastrointestinal channel. Latest chemical agents have the ability to target only cancer cells and
therefore limit side effects. Furthermore, specific medication is obtainable for the relief of side effects from the chemotherapy.

Side effects may be experienced instantly or only after a period of time (Stoppard, 2001). Typically, immediate side effects include anaemia, exhaustion, infections as a result of low white blood cell count, nausea, mouth ulcers, diarrhoea, and hair loss. Side effects that occur over time include heart, lung and neurological conditions.

3.3.4 Hormone Therapy

Adjuvant hormone treatment can be considered in the management of early-stage breast cancer (Varricchio et al., 2004). Hormone treatment are usually given orally, but can also be injected (Greenberg, 2002).

Some tumours have receptors which are sensitive to estrogen. In a case like this, the growth of the tumour is reliant on the availability of estrogen. Therefore, in order to prevent the tumour from growing, the accessibility to estrogen is blocked. This is achieved by either preventing estrogen from connecting to the cells or by stopping the production of estrogen. A selective estrogen receptor modulator known as Tamoxifen, blocks estrogen from the cell receptors, therefore, restricting the growth of the tumour. This treatment is applied to both pre- and postmenopausal women and men with breast cancer (Varricchio et al., 2004).

Hormone manipulation has various side effects resulting from the positive effects of estrogen that are also suppressed in the body. Side effects from this treatment may include hot flashes, nausea, fluid retention, gaining weight, changes in cognitive functioning, vision changes and mood disorders. More serious side effects can be linked to the use of Tamoxifen. These include the risk of developing endometrial cancer after long-term usage, as well as the occurrence of blood clots in the body (Varrichio et al., 2004).

3.3.5 Local-Regional Recurrence and Treatment

A number of patients with breast cancer are challenged with local-regional recurrence after receiving treatment that initially resulted in successful recovery (Torosian, 2002). Regular follow-up sessions ensure early tracing and treatment of local recurrence of breast cancer.

Types of treatment used most commonly to control the local-regional recurrence of breast cancer are surgery and radiation therapy. Still, prevention of the disease is central to successful treatment. Patients that are at higher risk for local-regional recurrence can be identified and should be monitored.

The chance of recurrence is dependent on the initial clinical stage of the disease as well as previous treatment received (Torosian, 2002). Research shows a 5% recurrence rate in the breast
of a patient with stage I cancer that received a lumpectomy followed by radiation therapy. However, for patients who were treated for stage IIIB disease, where surgery was not possible initially, the recurrence rate on the breast wall is believed to be about 25% or more. This estimated recurrence rate includes patients who were successfully treated with adjuvant chemotherapy, a mastectomy or radiation after surgery.

In local-regional recurrence three areas should be considered: the region of the lumpectomy; the chest wall adjacent to the mastectomy and the axillary area (Hunt, Robb, & Strom, 2007). The high occurrence rate of stage I cancer usually results in breast-conserving surgery, which leads to the increase in recurrence rates in that area. An increased risk of recurrence also occurs when a mastectomy is followed directly by reconstruction of the breast. Recurrence in the axillary area is less common, but the rates could increase if fewer patients decide on axillary dissection (Torosian, 2002).

3.3.5.1 In-breast Recurrence after Breast-conserving Surgery

Typical treatment for recurrence after breast-conserving surgery include restaging, a mastectomy and systemic treatment (Elkhuizen 2000; Torosian, 2002). Certain aspects are regarded as important when treating in-breast recurrence following breast-conservation. A mastectomy is recommended when severe tissue damage occurred as a result of previous radiation of the breast. Pregnant women should also consider a mastectomy, as radiation can be harmful to the fetus. Repeated breast-saving surgery is only appropriate in exceptional cases.

3.3.5.2 Local Recurrence after Mastectomy

A mastectomy cannot guarantee the breast area or the rest of the body to be free of cancer. Various reasons have been raised for an unsuccessful mastectomy (Torosian, 2002). A possibility always exists that breast tissue could remain on the breast skin which could result in new cancer. More often cancer cells in circulation through the body tend to attach to the mastectomy as there is a concentration of growth factors in the latter. Therefore, the local recurrence after mastectomy could be indicative of cancer cells in the system (Doherty, 2010). This form of recurrence is more disturbing than recurrence after breast-conservation surgery and usually the cancer free period is briefer. More or less 90% of patients experiencing recurrence after mastectomy show signs of systemic cancer. Rates of systemic disease in patients with recurrence after lumpectomy are much lower (Doherty, 2010; Torosian, 2002). Usually, recurrence appears in the form of one or more small nodes near the mastectomy wound. Treatment for this condition consists of mainly the removal of the nodule without performing extensive surgery, followed by radiation (Doherty,
Radiation therapy is applied to the chest wall region as well as the supraclavicular fossa (an indentation immediately above the collar bone).

**3.3.5.3 Axillary Recurrence**

The most common treatment of axillary recurrence cancer is the complete removal of axillary nodes (Della Rovere, Warren, & Benson, 2006; Torosian, 2002). This seems to be the most effective way to manage this condition on a long term basis. An alternative to consider is radiation of the axilla area, but this does not prove to be as successful as the former option (Donegan & Spratt, 2002). In the case of appropriate removal of the axillary nodes, it is recommended that radiation is not applied to this area (Dixon, 2006). When a patient initially received breast-conserving treatment and the axillary recurrence is localised to the axilla, a mastectomy is not necessary (Torosian, 2002). Researchers still question the benefits of the application of systemic therapy after the complete ‘clean out’ of the axillary. Figure 3.1 summarises the different treatment options for local-regional recurrence described above.

![Figure 3.1 Clinical pathways for treatment of local-regional recurrence: Axillary lymph node dissection (ALND), radiation therapy (RT) (Torosian, 2002, p.252)](image)

**3.4 Treatment Effects**

Ganz and Horning (2007, p.15) capture so well what the challenges are for patients during and after the treatment process. According to them, “….the adaptive task is to the physical or psychological loss of health, and where possible replace or compensate for the lost body parts or functions. Maximizing other physical or psychological potential helps one maintain a sense of self-esteem and intactness”.
Although breast cancer treatment increases the chances of survival and reduces recurrence, the patient is usually left with damage to the body and high levels of psychological distress (Hewitt, Rowland, & Yancik, 2003). Research shows positive correlations between the need for treatment, the likelihood of damage to the body, self-esteem problems, and distress (Pearson, Heffner, & Follette, 2010). Additionally, findings from another study confirmed that people that were treated for cancer had poor health, had impairments in physical functioning, experienced psychological problems and did not have the capacity to work because of health conditions (Hewitt, Rowland, & Yancik, 2003).

3.4.1 Physical Functioning

The loss of energy is one of the first effects of treatment the patient is challenged with. According to previous research conducted on breast cancer patients, 82% of patients suffered from fatigue after their first cycle of chemotherapy and 77% after the second (Greene, Nail, Fieler, Dudgeon, & Jones, 1994). Other studies showed that 53% of cancer patients reported fatigue on a daily basis while 80% experienced this monthly (Curt et al., 2000). Fatigue can be experienced for months or even years after treatment (DeLuca, 2005).

Causal explanations for the occurrence of fatigue have been an active field of research for some time. It was found that fatigue in breast cancer survivors positively correlated with high levels of serum which was linked to pro-inflammatory cytokine activity. Furthermore, survivors experiencing fatigue had more T lymphocytes in the body which might be linked to “a chronic inflammatory process involving the T cell compartment” (Ganz & Horning, 2007, p. 16).

Exercise and physical activity proved to be reducing fatigue experienced by cancer patients (Courneya et al., 2005; Segal et al., 2001). In other studies conducted exercise was also associated with a decrease in weight as well as lower levels of psychological distress (Dimeo et al., 2003; Schwartz, 1998). Newly diagnosed breast cancer patients showed improved physical health after engaging in physical activity (Kendall, Mahue-Giangreco, Carpenter, Ganz, & Bernstein, 2005). All these findings suggest that physical activity can lessen fatigue as well as increase quality of life of breast cancer patients that were treated.

3.4.2 Body Image

According to Moorey (2007, p. 72), “breast cancer is probably the most extensively investigated type of cancer, and illustrates well the ways in which the disease interacts with core aspects of femininity…”. In comparison to men, women are much more preoccupied with their bodies. Stereotypes that emphasise the importance of physical appearance and attractiveness place a
significant amount of pressure on women to have perfect bodies in order to be accepted (Moorey, 2007).

Fredrikson and Roberts’ (1997) self objectification theory explains that women grow up being concerned about how men see their bodies. This can be explained by the fact that society objectifies women’s bodies. This results in women linking their value and worth as human beings to their physical appearance. Therefore, negative change in physical appearance affects women to a larger extent than men.

Breast cancer treatment can have immense effects on the body. The most extreme form of treatment which can change the individual’s physical appearance involves surgery (Moorey, 2007). This can include a mastectomy, which is the removal of the breast, or when a great amount of skin is taken away when a lump is removed. Other effects treatment can have on the body involve hair loss, the loss of weight and menopausal problems. Hair and weight loss are usually associated with chemotherapy, while menopausal effects can be the result of endocrine treatment (Moorey, 2007).

Body image is a construct that has been studied by psychologists for years. The majority of them view the construct as multidimensional. According to Cash (2002), body image can be divided into two dimensions: self perceptions and attitudes to physical appearance. Self perceptions include an individual’s own judgement about size, shape and weight in comparison to his or her actual body proportions. Attitudes to physical appearance involve cognitive and behavioural aspects such as dissatisfaction, affective distress and appearance investment (Cash, 2002). This can also be split into two components: evaluation and investment. The evaluative element consists of the approval of or dissatisfaction with one’s body. It is possible, though, for a person to be discontented with his or her physical appearance, but not concerned or distressed about it. Appearance investment refers to the psychological value added to your appearance and this influences the level of distressed experienced. Results from a study by Tiggeman (2004) shows that women between the ages of 20 and 80 experience the same level of dissatisfaction about their bodies, but that the value they add to appearance reduces with age.

Previous research conducted on influences on body image in breast cancer patients indicated more problems with body image experienced by women that had more drastic surgery (Harcourt et al., 2003). Results showed that 63% of women who have had a mastectomy feel content when wearing clothes. However, only 21% feel at ease when undressed (Harcourt et al., 2003). In another study by Arora et al. (2001), results showed that women presented with a poorer body image directly after a mastectomy, while women who received a lumpectomy showed less problems with body image. According to Figueiredo, Cullen, Hwang, Rowland, and Mandelblatt (2004), body image disturbances are not limited to younger women. This researcher found that the choice of treatment of 31% of a sample that consisted of women that are over 67 years old was
influenced by worries about physical appearance. Furthermore, results showed a link between body image and psychological wellness two years after surgery.

However, a lumpectomy should not be considered a gentle procedure. In a study conducted by Hartl et al. (2003), it was evident that although women who had received a mastectomy presented as having a poorer body image, a large number of women who had a lumpectomy also showed a poor body image. In women with a bulky tumour in a small breast, surgery can lead to a major change in the shape of the breast.

In general, breast conservation surgery is associated with a more positive body image in comparison to women who received a mastectomy (Ganz, Desmon, Belin, Meyerowitz, & Rowland, 1999). On the other hand, recurrence becomes a greater concern for this group of women than those who had a mastectomy. Women may realise that the probability for local recurrence is lower in the case of a mastectomy, but are also emotionally at ease, in a way, because of the amount of breast tissue that has been removed (Ganz et al., 1999).

Body image can also be linked to sexual health in breast cancer patients (Ganz et al., 1999). Marital satisfaction and sexual adjustment are dependent on how women understand their significant other’s response to their diagnosis and decided treatment (Wimberley, Carver, Laurenceau, Harris, & Antoni, 2005). According to Wimberley et al. (2005), an unfavourable response to the scar, failure from the partner to initiate sex and dissatisfaction with the first sexual experience after surgery correlated with marital adjustment problems and higher levels of emotional distress. Yet, 42% of couples explained that the experience of cancer brought them closer to one another (Dorval et al., 2005).

In a study by Yurek, Farrar and Andersen (2000), results showed that more problems with sexuality were experienced by women that received a mastectomy as well as reconstruction. Women who received only a mastectomy or breast conservation treatment reported fewer concerns with sexuality. Women who had reconstruction experienced a decline in sexual activity and sexual openness. In this study results showed a link between negative sexual self-concept and sexual problems. According to Wilmoth (2001), the sexual self-concept can be influenced not only by the loss of a breast, but also by the loss of the sense of being a woman, the loss of sexual feelings and arousal, and the loss of menstruation which can be a result of treatment where menopausal symptoms are induced. Symptoms like these influence body image and can lead to weight gain, loss of breast tissue, changes to one’s figure, and aridness of the vagina. This, in turn, can result in high levels of psychological distress. The fact that women are not fertile anymore and have to deal with these changes of the body after treatment can also be experienced as the loss of womanhood.

Hair loss is one of the effects of chemotherapy and can have a significant influence on a woman’s body image. For a large number of woman hair loss is more difficult to deal with than
the loss of a breast (Moorey, 2007). Hair loss can be linked to depression as well as low self-esteem. In a sample of breast cancer patients, 56% of the women reported hair loss to be their main concern, while 8% were at risk for rejecting chemotherapy as a treatment option. After treatment, 47% of the women still reported it to be the most distressing side effect of chemotherapy. In a study by McGarvey, Baum, Pinkerton and Rogers (2001), five typical reactions of women to hair loss were identified. These include feeling unprepared, distressed, self-conscious and embarrassed, and experiencing the loss of sense of self. Previous research also shows that chemotherapy can be linked to problems with sexual functions (Arora et al., 2001).

It can be concluded that body image is a key aspect to how women define themselves which, in turn, influences their self-esteem. Breast cancer does not only challenge women on a survival level, but also on a level where adjustment to body image changes are of great importance in order to live a psychologically healthy life.

3.4.3 Psychosocial Problems

Mages and Mendelsohn (1979) explained the importance of keeping a sense of self in coping with cancer treatment and its effects. Although this statement was made years ago, it is still applicable and relevant today. These authors stated that “mourning the loss of cancer treatment, compensating for lost function, and maximizing other potentials is the adaptive task for maintaining a self-esteem and intactness” (Ganz & Horning, 2007, p.17). In order to deal with these tasks patients sometimes need professional help and a social support network.

Cancer treatment can lead to patients experiencing problems with cognitive functions. It was found that patients reported ‘forgetfulness’ in their follow-up appointments (Ganz & Horning, 2007). According to Meyers (2000), cognitive difficulties are not always reported by patients and therefore remain untreated most of the time. Approximately 17 to 20% of patients experience cognitive problems after a normal dose of chemotherapy and these rates are believed to be even higher (Meyers, 2000). Research shows that in a sample of cancer patients, 44% of those who received chemotherapy or radiation experienced cognitive difficulties after treatment, while 65% who received both chemotherapy and radiation had cognitive problems.

Recent research focused on specific areas of cognitive functioning which seem to be affected by cancer treatment. Castellon, Ganz and Bower (2004) found that breast cancer patients who received chemotherapy experienced more cognitive problems than those who only had surgery. These included difficulties with verbal learning, visual spatial functioning as well as visual memory. In another study by Rausch, Park, Pegram, Northfelt and Pertras (2004), breast cancer patients who had chemotherapy experienced more cognitive difficulties than those patients that received hormone therapy.
Present treatment interventions for patients who experience cognitive problems involve behavioural approaches, medication, changes in lifestyle, formal rehabilitation, and psychotherapy (Meyers, 2000). Medication such as stimulants are usually considered and may help with difficulties in concentration, exhaustion, slow psychomotor responses, as well as mood regulation (Meyers, 2000). Other interventions that have been proven to be helpful include cognitive therapy, support groups and education. Through interventions like these the main goal is to normalise their experiences and to establish means of coping with them.

Maintaining a level of emotional stability is another challenge for patients receiving treatment. Common reactions include high levels of distress, depression and mood swings. Research shows that more than a third of patients experience psychological distress particularly during earlier stages of treatment (Carlson, Angen, & Cullum, 2004; Castellon et al., 2004). It has been proven that support groups have a positive impact on cancer patients’ psychological health (Fawzy, Fawzy, & Hyun, 1993; Ko, Dollinger, & Rosenbaum, 2008). Results of a study on breast cancer patients that participated in a support group showed lower levels of anxiety and depression, more effective coping as well as experiencing less pain than those who did not join a support group (Spiegel, Bloom, & Yalom, 1981). Furthermore, depressive symptoms were reduced when patients were assisted in expressing negative emotions and when they felt that others in the group recognised their experiences (Fobair, 1997).

Recently, a variety of what is referred to as complementary and alternative therapy programmes have been developed and gave cancer patients a sense of inner control. Programmes may include physical activity, medication, vitamins, spiritually activity, humour, support groups, self-help books and relaxation activities (Hann, Baker, Denniston, & Entrekin, 2005).

### 3.4.4 Relationships

Interpersonal relationships play a significant role in the recovery process after receiving treatment. After a diagnosis of cancer, relationships may change and become more vulnerable (Ganz & Horning, 2007). During this emotional time, communication and expression of emotions to others are of great importance. It is not only the cancer patient that is challenged with changes and adjustments, but also family and friends.

In a study by Mages, Castro and Fobair (1981), it was found that patients were changed by the experience of cancer and through the process of acceptance also changed their views on certain aspects of life. Their outlook on aspects such as time, death, work, interpersonal relationships and how they prioritize changed.

“The adaptive task is to understand and communicate one’s changed attitudes, needs, and limitations in a way that permits formation of a new balance with the environment” (Ganz &
Horning, 2007, p. 18). When a person is diagnosed with cancer, he or she might feel isolated and lonely. While the partner or family member continues to be caring and supportive, the individual may experience this as them not understanding what is really happening. In other cases partners withdraw from the patient which can also result in problems in the relationship.

According to De Boer et al. (1995), problems with communication in relationships can be linked to the severity and obviousness of the disability from cancer. Difficulties in communication that couples experience can be better explained when it is taken into the account that partners also experience changes in mood after a diagnosis of cancer. It was found that correlations exist between many aspects in the adjustment process experienced by women with breast cancer and their partners (Northouse, Templin, & Mood, 2001).

As earlier stated, the patients as well as their partners and family members might become overwhelmed by a diagnosis of cancer. In a study by Cliff and MacDonagh (2000) it was found that 47% of cancer patients experienced some form of distress while 76% of their partners experienced the same level of distress. Serious emotional distress was experienced by 11% of the patients and 30% of their spouses. Couples dealing with a breast cancer diagnosis reported more problems in their marriage as well as within their families, and experienced more difficulties overall in the adjustment process (Northouse, Templin, Mood, & Oberst, 1998). In some cases couples became closer during the adjustment to the disease and its treatment. Couples reported that they got closer in their relationship in situations where the partner perceived the patient as secure and positive, went with her to surgery and showed more support, love and affection in the first three months after diagnosis (Dorval et al., 2005). It was also found that partners influenced each other’s adjustment to the disease at the different stages (Northouse et al., 2001). Bultz, Speca, Brasher, Greggie and Page (2000) found in a study on 36 couples, who were part of a psycho-educational support group, that there was a significant improvement in their mood. Furthermore, research shows a correlation between the levels of trust and confidence the patient has in her husband and the partner’s ability to engage in sexual intimacy (Johnson & Talitman, 1997).

Interventions which include the facilitation and encouragement of emotional self disclosure and trust in interpersonal relationships have been proven to be effective for cancer patients after receiving treatment (Ganz & Horning, 2007).

3.4.5 Working Roles

Having a career and being able to work are central to an adult life in the western culture. Patients receiving treatment for cancer have difficulty in maintaining their roles at work. Gruber, Fegg, Buchmann, Kolb and Hiddemann (2003) found that 30% to 90% of patients return to work after treatment. Individuals returning to full-time work were those that had a positive body image,
were driven and had higher levels of energy (Fobair, Bloom, Vargnese, Cox, & Spiegel, 1989). However, some patients experience more fatigue and do not have the ability to cope with exhausting activities (Bloom et al., 1990). Additionally, problems may arise because of the inconsistent performance and attendance at work. This could result in receiving fewer promotions or the patient might experience discomfort in communicating his or her situation to the employer (Fobair et al., 1989).

Previous research conducted shows that 31% of patients were unable to return to work while a number of patients returned to find that the situation at work had changed (Demin, 1989; Edman, Larsen, Hagglund, & Gardulf, 2001). In a study by Weis, Koch and Geldsetzer (1992) it was found that 33% of the cancer patients returned to work but either their working hours were cut down or they changed their job. Employment problems in general were associated more with individuals that were in a more advanced stage at diagnosis, experienced more fatigue and emotional distress, had a poor perception of body image and did not engage in physical activity (Ganz & Horning, 2007).

3.4.6 Existential Concerns

Reconsidering the choices that were made in life as well as the re-evaluation of the meaning of life are tasks that are central to cancer patients that survived treatment. This process may include re-examining personal values and priorities, and making changes in order to reduce emotional distress (Fobair, 1998). However, some individuals are content with and feel satisfied with their lives as they are. A large number of cancer survivors also find reassurance and relief in spirituality.

According to Degner, Hack, O’Neil and Kristjanson (2003), finding positive meaning in life is associated with improved mental health. Correlations were found between meaning in life and positive mood as well as lower levels of distress. Furthermore, research shows that a negative meaning in disease is associated with depression and poor quality of life (Johnson, Duhamed, & Smith, 2001). Sarna et al. (2002) also found in a sample consisting of women with cancer that depression and negative meaning in life were linked to poorer physical, psychological and social aspects of quality of life.

Individuals confronted with serious physical challenges might engage in a journey of personal growth. In a study conducted by Bloom, Stewart, Johnston, Banks and Fobair (2001) comparing a healthy group of individuals with cancer patients, results showed that although the healthy control group was physically stronger, the survivor group was psychologically and on a personal growth level more advanced. Dow, Ferell, Habermann and Eaton (1999) identified nine issues while studying a group of cancer survivors. These include dependence versus independence; balance;
wholeness; purpose in life; reclaiming life; coping with multiple losses; gaining control; altered meaning of health; and surviving cancer from a family perspective.

Coward and Kahn (2004) explain the concept of “spiritual disequilibrium” as being “overwhelmed by the fear of dying and a sense of isolation from the struggle to maintain one’s self-identity after cancer” (Ganz & Horning, 2007, p.19). In a study conducted by these authors, it was found that by “restoring a sense of connection to self, others and/or a higher power” the spiritual disequilibrium of an individual can be resolved (Ganz & Horning, 2007, p.19).

3.5 Conclusion

This chapter provided information on a breast cancer diagnosis, the different treatment options and the possible effects of treatment. It can be concluded that a diagnosis of breast cancer and its treatment can have significant effects on the physical and psychological functioning of individuals. Major improvements in breast cancer treatment over the years have increased women’s survival rates in such a way that a large number of survivors live cancer free after treatment. However, the effects of treatment have a long term impact on the patient’s health as well as quality of life. “As survivors, we may not be able to avoid a cancer diagnosis, but we do have the ability to learn about treatment and its consequences, and benefit by making choices to minimize our losses” (Ganz & Horning, 2007, p. 23). The following chapter involves a discussion of the research design and methodology employed in the study.
CHAPTER 4
RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This chapter involves the delineation of the empirical method employed in this study. Firstly the research aims are presented, followed by a discussion of the research design. An overview of the study’s population and sample is then given, followed by descriptions of the measuring instruments and data gathering and processing procedures. The chapter is concluded with ethical considerations with regard to the procedures followed in the implementation of the study.

4.2 Research Aims

The primary aims of the present research study are:

1. To explore and describe the emotional intelligence of adult breast cancer patients receiving treatment.
2. To explore and describe the locus of control of adult breast cancer patients receiving treatment.
3. To ascertain whether a relationship exists between emotional intelligence and locus of control in adult breast cancer patients receiving treatment.

4.3 Research Design

A quantitative, exploratory-descriptive design was adopted for this study. Observations about human behaviour are quantified or reflected with numbers in quantitative research. Relationships between variables are described mathematically and some form of numerical analysis is applied to social relations being examined by the quantitative researcher (Babbie & Mouton, 2001). Some advantages of conducting quantitative research include that it provides a basis for comparing results, it involves mathematical procedures that are used to manipulate the numbers, which means that large quantities of data could be dealt with, and the statistical techniques allows for hypotheses to be tested thoroughly (Louw & Edwards, 1997). The disadvantage attached to quantitative research is that the true nature of psychological data could be lost because of the fact that data are converted into numbers (Louw & Edwards, 1997).

An exploratory design intends to gain familiarity with a phenomenon (De Vos, 2000). Exploratory studies usually initiate insight and understanding rather than the gathering of fixed, detailed and accurate data (Stebbins, 2001). The main limitation of exploratory studies is that they rarely provide pleasing answers to research questions (Babbie & Mouton, 2001). A descriptive method gives a summary and description of a relatively large collection of data (Babbie & Mouton,
Different kinds of descriptive methods include systematic observation, field observation, survey research, archival research and case studies (Babbie & Mouton, 2001). In the present study self-report measurement techniques were used which indicate that the survey type of descriptive design was employed (Gall, Gall, & Borg, 1999). One of the reasons for the attractiveness of survey type research can be linked to the advances in computer technology, which makes the analysis of large collections of data possible (Babbie & Mouton, 2001; McBride, 2010). The main goal of survey research is to gain knowledge about a defined population’s ideas, opinions, attitudes and self-reported behaviour (Graziano & Raulin, 2000; McBride, 2010). Advantages of the survey type design include that there are savings in terms of time and expenses, and the amount of information captured is economical (McBride, 2010). The fact that the participants are completing identically worded self-report measures reduces interviewer bias (Salkind, 2003). A number of disadvantages for this design also exist (Babbie & Mouton, 2001; Muijs, 2004). These include the possibility of faking, lack of control over the environment, response bias, biased sampling, lack of spontaneous responses, unanswered questions and lack of non-verbal data. Another disadvantage could be that the information gathered may not provide in-depth perceptions, as survey methods are seen to be best adapted to extensive rather than intensive research (Muijs, 2004). However, some of these were managed and limited during the data collection process. For example, a relatively reliable adult population was chosen who had more than enough time on hands to complete the questionnaires as they were receiving treatment for hours in the hospital. Also, hospital staff were eager to help with the administration and to check for questions that had not been answered. These aspects limited the possibility of faking and having some unanswered questions. Furthermore, the type of information gathered captured what was needed from the sample in order to measure the constructs and achieve the research aims, which implies that there was no need for more in-depth information.

A correlational approach within this exploratory-descriptive framework was used. Correlational research involves detecting a relationship between variables which allows for an estimation of the type and the strength of the non-causal relationship (Babbie & Mouton, 2001; Goodwin, 2008). When the correlation between variables is determined, the degree and direction of the relationship can be explored and analysed (Bordens & Abbott, 2005). Therefore, by knowing the relationship between variables researchers can predict values for one variable when familiar with values of related variables (Bordens & Abbott, 2005). However, if correlations are found a causal relationship cannot be inferred (Bordens & Horowitz, 2002). Correlational research indicates whether a relation exists between changes in variables, but it does not indicate why the changes are related. Cause and effect can only be determined by experiments (Bordens & Horowitz, 2002).
In correlational research, researchers are concerned with quantifying the relationship between two or more variables and therefore accurate and reliable procedures to measure each variable are needed (Graziano & Raulin, 2000). In this study, the instruments utilised to measure the two constructs were researched thoroughly in order to ensure reliability and validity.

4.4 Participants and Sampling

Finding a sufficient sample is one of the most important aspects in conducting a research study. For the purposes of this study, a non-probability purposive sampling technique was used. In non-probability sampling, the researcher does not know the size of the population and therefore the probability of a person being chosen is unknown (Gravetter & Forenzo, 2003). In purposive sampling the sample is composed of elements that contain the most “characteristic, representative or typical attributes of the population” (De Vos, 2000, p. 207). In this study the sample was selected based on the purpose of the study and the judgement of the researcher.

Non-probability sampling is advantageous as costs are low and the process is not as time consuming as with probability sampling (Struwig & Stead, 2001). The disadvantages of non-probability sampling are that generalisation to wider populations are limited and the possibility for researcher bias is high because of the active role that the researcher plays in the selection of the sample (Terre Blanche & Durrheim, 1999).

Inclusion criteria were that breast cancer patients must have been between the ages of 30 and 80 years old and that they should be receiving treatment. Every individual’s participation was voluntary and proficiency in English was essential to ensure that that they were able to complete the questionnaires and understood what was required of them. This language requirement assisted in maintaining the validity of the results. The sample consisted of 67 breast cancer patients receiving treatment.

4.5 Measuring Instruments

Two measuring instruments were applied as a means to address the aims of the research study. The measures included the Schutte Emotional Intelligence Scale (SEIS) and the Rotter Internal-External Locus of Control Scale (I-E). In addition to these two measures, a biographical questionnaire was constructed to obtain personal information to describe the population sample. The measures were only available in English.

4.5.1 Biographical Questionnaire

The researcher constructed a biographical questionnaire (Appendix C) for the collection of additional identification data about the participants. Information obtained from the participants
included their age, gender, marital status, home language, race, time since diagnosis, duration of treatment, whether the patient has had a recurrence, and time between the diagnoses. Information gathered from the biographical questionnaire was of great importance for meaningful interpretation of the research results.

4.5.2 The Schutte Emotional Intelligence Scale (SEIS)

The Schutte Emotional Intelligence Scale (SEIS) is a 33-item self-report measure of ability to perceive, express, regulate and harness emotions in the self and others. The instrument is based on Salovey and Mayer’s (1990) original model of emotional intelligence (Stough, Saklofske, & Parker, 2007). According to this model, emotional intelligence includes the accurate assessment and regulation of emotions in oneself and others, the expression of emotions and the incorporation of these emotions in solving problems (Stough et al., 2007). Salovey and Mayer (1990) described emotional intelligence as a set of abilities and traits and based on this, the SEIS attempts to measure characteristic or trait emotional intelligence.

The SEIS was developed from 62 items that were generated from Salovey and Mayer’s (1990) model of emotional intelligence. Items which reflected an adaptive tendency towards emotional intelligence, within the framework of the model, were chosen for the pool. A principal factor analysis and a varimax rotation were conducted on the 62 items and four components were identified, but only one strong factor was retained. The 33 scale items which had the highest loading on the first factor were selected. According to the authors, these items are representative of all four dimensions of Salovey and Mayer’s (1990) model (Schutte & Malouff, 1999).

Respondents are instructed to respond to each of 33 items which are presented in the format of a 5-point Likert-type scale. On the 5-point scale a ‘1’ represents ‘strongly disagree’, while a ‘5’ represents ‘strongly agree’. This score indicates the extent to which each item describes the respondent. An example of an item from the scale would be: “I am aware of my emotions as I experience them”. The total score is calculated by reverse scoring items 5, 28 and 33 and then adding all items. Scores can range from 33 to 165, with higher scores implying more characteristic emotional intelligence. Such an individual will have greater ability to perceive, express, regulate and harness emotions in the self and others (Schutte & Malouff, 1998).

4.5.2.1 Reliability and Validity of the SEIS

Although extensive research has not yet been conducted to confirm the reliability and validity of the SEIS, some promising evidence exists that shows great potential. The SEIS has already been used in a number of studies on emotional intelligence and is becoming known to researchers.
About 200 articles are listed on the PsycINFO database referring to the first article that introduced the SEIS.

In a study by Schutte et al. (1998) on the development and validation of the SEIS, the scale’s internal consistency reliability was tested and resulted in a Cronbach alpha of 0.90 and two-week test-retest reliability of 0.78. Numerous other studies also demonstrated high internal consistency for the SEIS (Austin, Saklofske, Huang, & McKenney, 2004; Ciarrochi et al., 2001; Petrides & Furnham, 2000; Schutte et al., 2001). Research conducted by Palmer (2003) on an Australian community sample showed a Cronbach alpha of 0.92 on the full scale, with a mean of 129.16 and a standard deviation of 15.82. The SEIS has also been found to be reliable for both adolescents and adults (Ciarrochi et al., 2001; Matthews et al., 2002; Palmer, 2003).

The construct validity of the instrument was investigated in a study by Schutte et al. (1998) and it was found that higher scores on the 33-item SEIS were associated with less alexithymia (flat emotional affect), greater attention to feelings, greater clarity of feelings, greater optimism, and less depression. Furthermore, the scale’s validity has been proven since the scale scores were related to eight of nine measures that are associated with emotional intelligence. It was found that the scale was not significantly associated with four of the big five personality factors (Schutte et al, 1998) and predictive and discriminant validity are evident (Ciarrochi, Deane, & Anderson, 2002).

Previous studies with the SEIS on South African populations have also shown good reliability scores. A Cronbach alpha of 0.91 with a mean score of 127 was obtained amongst employees from a South African Information Technology company (Stone, 2004). In addition, Murphy (2006) revealed a Cronbach alpha coefficient of 0.90 with an average score of 128.22 amongst a sample of South African university students. The SEIS has also been used with success on Nigerian populations (Aremu, 2005; Salami, 2007). A Cronbach alpha of 0.79 on the SEIS was obtained in the current study. Cronbach alpha coefficients obtained for the Managing Own Emotions and Managing Others’ Emotions subscales were 0.66 and 0.72 respectively. The Perception of Emotion subscale’s Cronbach alpha coefficient of 0.49 was on the verge of being too low, but was used in the data analysis. However, the Cronbach alpha of 0.32 for the Utilisation of Emotion subscale was too low and therefore was not analysed or discussed separately in the data analysis section. This finding is in line with a study by Ciarrochi, Deanne and Anderson (2002) who also found the internal consistency for the Utilisation scale to be too low. Although it is worth mentioning that the SEIS was developed by Schutte to be interpreted by only using the full scale score, the low internal consistency on two of the subscales indicates that more research on this instrument is needed in the South African context to improve these subscales.

To conclude, the SEIS is a compact test which covers the four branches of emotional intelligence. It has been used in a variety of countries (Stough et al., 2007) and also in studies in
South Africa (Bricker, 2005; Stone, 2004). According to Schutte et al. (1998), the SEIS was invented because of the need for a concise, validated measure grounded on a solid and complete model of emotional intelligence. Schutte et al. (1998) described both the Salovey and Mayer (1990) model and the revised model by Mayer and Salovey (1997) on emotional intelligence as theoretically sound and complete. This instrument has been proven to be a useful and reliable self-report measure. This was also confirmed by the Cronbach alpha obtained on the full scale score from the current sample.

4.5.3 The Rotter Internal-External Locus of Control Scale (I-E)

The Rotter Internal-External Locus of Control Scale (I-E) consists of 29 pairs of questions of which 23 items are measuring locus of control and the remaining six are fillers unrelated to locus of control. The purpose of the scale is to find out “the way in which certain important events in society affect different people” (Lefcourt, 1976, p.177).

Each item consists of two options, a or b. The participant must choose one statement that he or she more strongly believes. In some cases the participant may feel that he or she believes in both statements or not in one of them. In such a situation the person should still select the one that he or she more strongly believes in (Lefcourt, 1976). A typical item from the scale is: I believe more strongly that: (a) Whether I make a success of my life is entirely up to me; (b) Success is a matter of being lucky enough to be in the right place at the right time (Lefcourt, 1976). Each item indicates internal and external locus of control.

The questionnaire is scored in the external direction, which means the higher the score the more externally oriented the individual (Lefcourt, 1976). All the items that were answered in such a way that indicates an external locus of control orientation are added. Individuals with a high internal locus of control believe in their own behaviour and actions as having an influence on events in their lives (Rotter, 1966). Participants with an external locus of control believe fate, powerful others or chance determine the outcome of events in their lives (Rotter, 1966).

4.5.3.1 Reliability and Validity of the I-E

Reliability on the I-E scale was reported in numerous studies. Ferguson (1993) and Andrisani and Nestel (1976) reported reliability coefficients of 0.50 to 0.83, while Kossuth (1998) reported a coefficient of 0.65. Also, Baydogan (2008) reported a Cronbach alpha of 0.71 and a test-retest reliability of 0.83. Furthermore, Cherlin and Bourque (1974) revealed reliability of the scale ranging from 0.69 to 0.73 using the split-half Spearman-Brown and Kuder-Richardson formulas. Test-retest reliability ranged from 0.49 to 0.83 in a number of samples with 1- and 2-month
intervals (Domino & Domino, 2006). A Cronbach alpha of 0.66 was obtained in the current study which is indicative of sufficient internal consistency.

Rotter (1966, p. 25) explained that “most significant evidence of the construct validity of the I-E scale comes from predicted differences in behaviour for individuals above and below the median of the scale or from correlations with behavioural criteria”. The construct validity of the scale was confirmed in a study by Lindbloom and Faw (1982). In addition, Baydogan (2008) reported criterion-related validity to be 0.69.

To conclude, internationally, the above-mentioned studies suggest the I-E scale to be reliable and valid. According to Esterhuysen and Stanz (2004), the I-E scale has been used in different African countries. Several South African studies have been conducted using the I-E scale (Chetty, 2008; Gwandure, 2008; Nasser & Abouchedid, 2006), however, studies focusing specifically on testing the reliability and validity of the I-E scale in the South African context, are lacking. The current study’s Cronbach alpha also has proven reliability for the I-E scale on a South African population.

4.6 Research Procedure

The research was submitted to the FRTI and the Ethics Committee (Human) at the Nelson Mandela Metropolitan University and changes were made, as suggested by them, to ensure that the research was conducted in an ethical manner. Following this, permission to conduct the study was obtained from the oncology department of a private hospital in Port Elizabeth.

The researcher, with the help of hospital staff, identified breast cancer patients to approach for participation in the study. The researcher also approached breast cancer support groups from Port Elizabeth, East London and King Williams Town. The majority of the questionnaires were hand delivered. In cases where distance played a role, the questionnaires were sent via e-mail and completed by the respondent. A covering letter (Appendix A) describing the study and a consent form (Appendix B) were given to each participant. The nature, procedure and outcome of the research were explained to the respondents, as well as their rights. The respondents were informed that participation in this study was voluntary and that they could withdraw themselves from the research process at any time. Participation was anonymous and confidentiality was assured. The consent form (Appendix B) that was used has been prepared in compliance with the latest guidelines specified by the Nelson Mandela Metropolitan University. By signing and dating the consent form and putting their initials at each section as an indication that they do understand the process, the respondent gave informed consent.

Thereafter respondents were asked to complete the biographical questionnaire (Appendix C), the Schutte Emotional Intelligence Scale (SEI) and the Rotter Internal-External Locus of Control
Scale (I-E). The majority of the respondents were approached by hospital staff who administered the questionnaires individually. Those who attended support groups were approached by a group member who had already completed the questionnaires. These group members were approached by myself and the procedure was explained to them. Respondents had access to me at all times if they had any questions or were uncertain about the procedure. Following data collection, the data were prepared for analysis.

4.7 Data analysis

Descriptive statistics were used to analyse the data according to the three aims of the study. Information gathered from the biographical questionnaire as well as data obtained from the completed measures were analysed in terms of descriptive statistics. Descriptive statistics are used to describe the data in the form of one or two numbers which simplifies the process of comparing two groups. These statistics also supply the basis for further analysis with the use of inferential statistics. Descriptive statistics included measures of central tendency (e.g. mean, median), dispersion (e.g. standard deviation, frequency distribution) and association (e.g. Pearson’s product moment correlation, contingency table) (Struwig & Stead, 2001)

Inferential statistics were also used to analyse the data. While the descriptive statistic procedures described data from this study, the inferential statistics were designed to help interpret the data (Babbie & Mouton, 2001). Statistical significance was determined using t-tests and Analysis of Variance (ANOVA) for hypothesis tests relating to population mean scores and Chi-square tests for those relating to frequencies. For the t-tests and ANOVA, practical significance was determined using Cohen’s d statistics, while Cramér’s V was used for the Chi-square tests. Cluster analysis was used to categorise the sample into homogenous clusters according to their emotional intelligence and locus of control profiles.

4.8 Ethical Considerations

Psychological research with human participants is seldom physically invasive and the risks to participants are lower than with biomedical research. However, certain concerns regarding deception, invasion of privacy, and the right of the participant to be informed in such a way that a free choice can be made regarding the research, still forms an integral part of the research process (Graziano & Raulin, 2004). Invasions of privacy can occur when researchers obtain personal and sensitive information such as private thoughts or certain behaviours from the participants. Deception refers to the intentional misleading of participants. Exact procedures and the true nature of the research should be explained to participants to avoid confusion. Participants have the right
to make free choices regarding the research, but in order to do this they need to be provided with correct and relevant information on which they can base their decisions.

Ethical considerations in this study included the following: Informed consent was obtained from all participants before data collection took place. A covering letter (Appendix A) explaining the study and reasons for the study accompanied the consent form (Appendix B). The purpose of the study was emphasised and the participant was left to make an informed decision on participation in the research study. Furthermore, it was explained that participation is voluntary and that participants could withdraw at any point. Confidentiality with regard to data collection was maintained at all times. The participants were informed that they had the right to participate anonymously. Lastly, it was also highlighted that should any participant develop the need to speak to a psychologist or counsellor as a result of being exposed to this research project, this would be arranged. The psychological well-being of the participants was considered to be of great importance at all times.

4.9 Conclusion

This chapter commenced with an outline of the research aims followed by a discussion of the research design that was adopted for this study. Then a description of the participants and the sampling technique employed were presented, followed by the measuring instruments used. The data collection and data analysis processes were discussed and the chapter concluded with ethical considerations for the study.

To conclude, a correlational, quantitative, exploratory-descriptive design was adopted for this study. The survey type of descriptive design was employed with self-report measurement techniques. Furthermore, a non-probability purposive sampling technique was used and the sample consisted of 67 breast cancer patients currently receiving treatment. They were recruited mainly from a private hospital in Port Elizabeth, but breast cancer support groups from Port Elizabeth, East London and King Williams Town were also approached. The measuring instruments were found to be reliable and valid to use in this study and the data gathered with these were analysed using descriptive as well as inferential statistics. Lastly, important ethical aspects regarding the study were considered and employed successfully. In the following chapter the results are reported and interpreted.
CHAPTER 5
RESULTS AND DISCUSSION

5.1 Introduction

The aim of this chapter is to report and interpret the results of the statistical analysis. These results side with the research methodology discussion of the previous chapter. Descriptive and inferential statistics were used in the analysis of the results. First, the biographical composition of the sample is presented, followed by a univariate description of the study’s variables. Then the results describing the relationship between the variables are discussed as well as results regarding the cluster analysis. A summary of the results is presented at the end of the chapter.

5.2 Biographical Data

The biographical data of the participants are presented for age, marital status, race, time since diagnosis, duration of the treatment, whether they had a recurrence, and time between diagnoses.

5.2.1 Age distribution of the sample

Figure 5.1 and 5.2 illustrate the descriptive statistics as well as the frequency distribution of the ages of the 67 respondents.

Table 5.1 Descriptive statistics: Age (N = 67)

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-39</td>
<td>51.66</td>
<td>11.31</td>
</tr>
<tr>
<td>40-49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60-69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70-79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>67</td>
</tr>
</tbody>
</table>

Table 5.2 Frequency distribution: Age (N = 67)

<table>
<thead>
<tr>
<th>Age</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-39</td>
<td>9 13% 9 13%</td>
</tr>
<tr>
<td>40-49</td>
<td>26 39% 35 52%</td>
</tr>
<tr>
<td>50-59</td>
<td>17 25% 52 78%</td>
</tr>
<tr>
<td>60-69</td>
<td>7 10% 59 88%</td>
</tr>
<tr>
<td>70-79</td>
<td>8 12% 67 100%</td>
</tr>
<tr>
<td>Total</td>
<td>67 100%</td>
</tr>
</tbody>
</table>

The ages of the respondents ranged from 35 to 77 years with a mean age of 51.66 years and a standard deviation of 11.31 years. The largest group of respondents (39%) is between 40 and 49
years of age. This distribution also indicates that the greatest portion of the sample (64%) is between the ages of 40 and 59 years of age. The remaining 36% is made up of breast cancer patients between the ages of 30 and 39 years, and between 60 and 79 years of age. The breakdown reflects the tendency for women from the middle age group to be at higher risk for developing breast cancer (Ashford, Lecroy, & Lortie, 2001; Leppert & Peipert, 2003; Price & Goldhirsch, 2005).

5.2.2 Marital status distribution of the sample

Table 5.3 shows the frequency distribution for the marital status of the sample.

Table 5.3 Frequency distribution: Marital status (N = 67)

<table>
<thead>
<tr>
<th>Single</th>
<th>16</th>
<th>24%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>42</td>
<td>63%</td>
</tr>
<tr>
<td>Divorce</td>
<td>9</td>
<td>13%</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>100%</td>
</tr>
</tbody>
</table>

The sample consisted of predominantly married females (63%). Twenty-four percent of the sample indicated a single status, and 13% of the sample indicated a divorced status.

5.2.3 Race distribution of the sample

Table 5.4 illustrates the frequency distribution by race.

Table 5.4 Frequency distribution: Race (N = 67)

<table>
<thead>
<tr>
<th>Black</th>
<th>10</th>
<th>15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>43</td>
<td>64%</td>
</tr>
<tr>
<td>Coloured</td>
<td>14</td>
<td>21%</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>100%</td>
</tr>
</tbody>
</table>

The majority of the respondents (64%) are white, while the second highest racial group in the sample represents coloured individuals (21%). Only 15% of the participants are black.
5.2.4 **Home language distribution of the sample**

Table 5.5 shows the frequency distribution by home language.

<table>
<thead>
<tr>
<th>Language</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afrikaans</td>
<td>37</td>
<td>55%</td>
</tr>
<tr>
<td>English</td>
<td>20</td>
<td>30%</td>
</tr>
<tr>
<td>Xhosa</td>
<td>10</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>67</td>
<td>100%</td>
</tr>
</tbody>
</table>

Afrikaans is the mother tongue of 55% of the sample, followed by English at 30%. Only 15% of the respondents indicated Xhosa as their home language.

5.2.5 **Distribution of respondents by time since diagnosis**

Table 5.6 illustrates the frequency distribution by time since the diagnosis of breast cancer.

<table>
<thead>
<tr>
<th>Time Since Diagnosis</th>
<th>N</th>
<th>Percentage</th>
<th>Cumulative</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3m</td>
<td>18</td>
<td>27%</td>
<td>18</td>
<td>27%</td>
</tr>
<tr>
<td>3-6m</td>
<td>12</td>
<td>18%</td>
<td>30</td>
<td>45%</td>
</tr>
<tr>
<td>6-12m</td>
<td>13</td>
<td>19%</td>
<td>43</td>
<td>64%</td>
</tr>
<tr>
<td>1 Year</td>
<td>6</td>
<td>9%</td>
<td>49</td>
<td>73%</td>
</tr>
<tr>
<td>Longer</td>
<td>18</td>
<td>27%</td>
<td>67</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table reveals that the sample consisted mostly of breast cancer patients (54%) who were diagnosed between 0 and 3 months ago (27%) or who have been diagnosed for longer than a year (27%). The other 46% consisted of patients diagnosed between more than 3 months and up until a year ago. Usually treatment is started as soon as possible to prevent further spread of the disease. When a patient has undergone surgery, at least three to four weeks should be given before radiation is started (Kaelin & Coltrera, 2005). The distribution reflects that most of the participants were either recently diagnosed and are in this first phase of treatment, or were diagnosed for longer than a year. The latter includes patients that had recurrences. Literature suggests that the stretch between the diagnosis and breast cancer and starting treatment is regarded as an extremely difficult time for the patient (Kaelin & Coltrera, 2005). However, it should be noted that about three-quarters of patients are still alive and well ten years after a breast cancer diagnosis (Pennery, Speechley, & Rosenfield, 2008).
5.2.6 *Distribution of respondents by duration of treatment*

Table 5.7 indicates the distribution of respondents by the duration of receiving treatment.

**Table 5.7 Frequency distribution: Duration of treatment (N = 67)**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Frequency</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3m</td>
<td>25</td>
<td>25 37%</td>
</tr>
<tr>
<td>3-6m</td>
<td>13</td>
<td>38 57%</td>
</tr>
<tr>
<td>6-12m</td>
<td>12</td>
<td>50 75%</td>
</tr>
<tr>
<td>1 Year</td>
<td>7</td>
<td>57 85%</td>
</tr>
<tr>
<td>Longer</td>
<td>10</td>
<td>67 100%</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>100%</td>
</tr>
</tbody>
</table>

The table illustrates that 75% of the sample has been receiving treatment for less than a year. The other 25% has been receiving treatment for a year or longer. The duration of treatment depends on the treatment plan as well as on how the patient responds to the treatment (Berman, 2000). Treatment can vary from one month to even longer than a year. This distribution indicates that most of the patients have been receiving treatment for less than a year, which implies that in most cases the cancer is responding to the treatment. In cases where the cancer is not responding to treatment the treatment plan is revisited and the patient’s comfort is considered (Berman, 2000).

5.2.7 *Distribution of respondents by recurrence*

Table 5.8 shows the frequency distribution by recurrence.

**Table 5.8 Frequency distribution: Recurrence (N = 67)**

<table>
<thead>
<tr>
<th>Recurrence</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15</td>
<td>22%</td>
</tr>
<tr>
<td>No</td>
<td>52</td>
<td>78%</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>100%</td>
</tr>
</tbody>
</table>

This table reveals that only 22% of the respondents experienced a recurrence. The other 78% has been diagnosed for the first time with breast cancer. The risk for breast cancer to recur in patients is between 20 and 50 percent (Hewitt, Herdman & Holland, 2004). However, with early detection through screening and by taking treatment after surgery, fewer recurrences are found, which is reflected in the small percentage of recurrences in this population.
5.2.8 Distribution of respondents by time between diagnoses

Table 5.9 illustrates the frequency distribution by the time between the diagnoses.

<table>
<thead>
<tr>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 Year</td>
</tr>
<tr>
<td>1-5 years</td>
</tr>
<tr>
<td>5-10 years</td>
</tr>
<tr>
<td>Not</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

The table shows that of the 22% of respondents that indicated a recurrence, 19% experienced it less than 5 years after the first diagnosis. The majority of this group (13%) had the recurrence less than a year after the first diagnosis. This indicates that in this sample recurrences occurred relatively soon after the first diagnosis, which is in line with research showing that the most frequent time of recurrence is during the first two years after treatment (Hewitt, Herdman, & Holland, 2004).

5.3 Univariate Presentation of Variables

The descriptive data for Emotional Intelligence and its subscales is displayed in Table 5.10. The results are discussed in the sections that follow.

Table 5.10 Descriptive statistics for Emotional Intelligence (N = 67)

<table>
<thead>
<tr>
<th>Emotional Intelligence</th>
<th>EQ1</th>
<th>EQ2</th>
<th>EQ3</th>
<th>EQ4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>138.18</td>
<td>38.84</td>
<td>38.94</td>
<td>34.88</td>
</tr>
<tr>
<td>S.D.</td>
<td>9.75</td>
<td>3.85</td>
<td>3.70</td>
<td>3.40</td>
</tr>
<tr>
<td>Min.</td>
<td>122.00</td>
<td>29.00</td>
<td>31.00</td>
<td>29.00</td>
</tr>
<tr>
<td>Quartile 1</td>
<td>130.00</td>
<td>36.50</td>
<td>36.00</td>
<td>32.00</td>
</tr>
<tr>
<td>Median</td>
<td>139.00</td>
<td>38.00</td>
<td>39.00</td>
<td>35.00</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>144.50</td>
<td>41.50</td>
<td>41.00</td>
<td>38.00</td>
</tr>
<tr>
<td>Max.</td>
<td>162.00</td>
<td>50.00</td>
<td>45.00</td>
<td>40.00</td>
</tr>
</tbody>
</table>

5.3.1 Emotional Intelligence

Based on the mean emotional intelligence score of 138.18, respondents in this study averaged a score of 4.18 on the measure’s scale of 1 to 5. This result suggests that, on average, the participants in this study presented with above average emotional intelligence. Scores on the full scale ranged between 122 and 162.

These higher levels of emotional intelligence in a medical population are in line with a few previous studies conducted on similar populations (Bradburry & Grieves, 2003; Carranque-Chaves et al., 2004; Schmidt & Andrykofkowski, 2004). However, Stough, Saklofske and Parker (2007)
emphasise the need for more research on emotional intelligence within this context as such studies are virtually non-existent. In most of these studies it is not known whether the higher emotional intelligence levels are characteristic of that particular population or whether they can be generalised to other populations living with that specific illness. This is also the case with the present study as the population sample only consisted of 67 breast cancer patients. Consequently, numerous reasons may exist for higher scores on emotional intelligence for this particular population.

The higher emotional intelligence levels in this population may reflect the positive impact that the healthcare professionals are having on the breast cancer patients. Research suggests that emotional self-management may influence the adjustment of patients with a chronic illness and this can be implemented by healthcare professionals using emotional intelligence techniques in their interaction with patients (Larsen & Lubkin, 2001). Another factor that might contribute to this result is the inheritance of certain abilities which allows for a higher emotional intelligence (Mayer & Salovey, 1997). Some individuals might naturally be more gifted than others when it comes to dealing with their emotions and those of others. Also, emotional intelligence is shown to improve with age and all the participants from this sample are 34 years or older which indicates the possibility for higher emotional intelligence levels (Serrat, 2009). Lastly, some of the participants could have been in working environments or be exposed to situations where they have learned or developed emotional intelligence skills which they are currently using in coping with their diagnosis. It is also worth noting that this above average level of emotional intelligence may be a reflection of the sampling technique (non-probability sampling), indicating that mostly those breast cancer patients with above average emotional intelligence agreed to participate in the study. The utilisation of probability sampling may have resulted in a different overall level of emotional intelligence.

Although limited studies have been conducted on the emotional intelligence of breast cancer patients, literature reflects research conducted on coping strategies of breast cancer patients. Research provides evidence that emotion-focused coping is positively linked to the psychological and physical adjustment of breast cancer patients receiving treatment (Stanton et al., 2000). Emotion-focused coping refers to the active processing and expression of emotions, which are components of emotional intelligence. In this study it was found that emotional expression during the treatment phase was associated with decreased distress, increased vigour, improved self-perceived health status and a decrease in medical appointments for morbidities related to cancer and the treatment thereof, over a period of three months. Expressive coping was also linked with improved quality of life of the breast cancer patients. Other research suggests that repeated emotional expression may decrease negative emotion and physiological arousal which, in turn, could result in the patient perceiving the situation not as threatening as previously conceived and
possibly finding some benefit from adversity (Affleck & Tennen, 1996). However, it is also proposed that the active engagement in trying to understand one’s emotions from the time of diagnosis to the phase after the termination of treatment may involve a cognitive rumination process which may increase distress (Morrow & Nolen-Hoeksema, 1990). Researchers suggest that further research is necessary to determine during which phases emotion-focused coping becomes counterproductive (Stanton et al., 2000). Yet, the emotional intelligence concept does not only involve the expression and processing of emotions, but also has a component which includes the regulation and utilisation of emotion. This component would limit the individual from engaging in cognitive rumination. It can therefore be concluded that the high level of emotional intelligence among this breast cancer population could predict positive psychological and physiological adjustment of the patients.

The scale lacks normative data from the South African context. All previous South African studies conducted with this scale were related to populations in organisations.

5.3.1.1 Schutte Emotional Intelligence Subscales

Scores on the Perception of Emotion subscale ranged from 29 to 50 with a mean score of 38.84 and a standard deviation of 3.85. On the Managing Own Emotions subscale scores ranged from 31 to 45 with a mean score of 38.94 and a standard deviation of 3.70. Finally, on the Managing Others Emotions subscale scores varied from 29 to 40 with a mean of 34.88 and standard deviation of 3.40. Based on these mean scores, respondents in the study scored 3.88, 4.32 and 4.36, respectively, on the measure’s scale of 1 to 5 for these subscales. These results indicate that the respondents display above average ability on all three subscales. Descriptive statistics for the Utilisation of Emotion subscale are not discussed as the reliability analysis did not prove internal consistency for this subscale.

Perception of emotions involves having the ability to recognise emotions in oneself and others, while the management of emotions refers to the ability to regulate emotions and handle feelings in appropriate ways (Mayer & Salovey, 1997). These abilities are vital for breast cancer patients as they have to deal with a life threatening disease which could result in major changes in their lives, physically and psychologically. Cancer patients are known to turn their psychic energy inside, against their own bodily defences (Schein, Bernard, Spitz, & Muskin, 2003). Research shows that breast cancer patients tend to suppress rather than vent negative emotions (Schein et al., 2003). It was found that these patients, in particular, displayed an inability to express anger and hostility, and suppressed these emotions. Brown, Freeman and Platt (2006) emphasise the importance for breast cancer patients to deal with emotions appropriately by not ignoring and bottling them up, but to get them out, whether writing in a journal or talking to one’s spouse, friend or family, or joining a
support group. This process involves recognising one’s own emotions and regulating them. A frequently used manner of regulating emotions is broadening and changing one’s perspective (Ben-Ze’ev, 2001). In a study on breast cancer patients, it was found that patients who had a lumpectomy compared themselves positively with mastectomy patients. Furthermore, older women who were diagnosed with cancer regarded themselves as more fortunate than younger women diagnosed with cancer as they had a healthy youth while the younger women were diagnosed earlier in their lives. Women with poorer prognoses comforted themselves with the fact that they were not experiencing pain and were not dying yet. It is suggested that patients that are dying often concentrate on aspects, such as, that they have grown spiritually and lived a full life. Comparing oneself favourably against those who are worse off can help to regulate emotions and improve coping ability (Ben-Ze’ev, 2001). The ability to manage others’ emotions is also of great importance for breast cancer patients as they are surrounded by family, friends and spouses who react differently to their diagnosis (Haber, 1994). Also, they are in the company of other breast cancer patients in the waiting room, or in the treatment room, who experiences different emotional reactions to diagnosis, treatment and recurrences (Donegan & Spratt, 2002). All of these scenarios could impact on the breast cancer patient and therefore she needs to be able to manage and regulate others’ emotions in appropriate ways. As the current breast cancer population presents with above average ability in these domains, the patients would be more likely to cope successfully with the treatment and challenges they still need to face.

Unfortunately, previous South African studies conducted using this measuring instrument only interpreted the full scale score. The normative data that is available on the subscales are based on an Australian adolescent population which would not be relevant for a South African adult population.

5.3.2 Locus of Control

The descriptive data for Locus of Control is displayed in Table 5.11. The results are discussed in the following section.

<table>
<thead>
<tr>
<th>Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
</tr>
<tr>
<td><strong>S.D.</strong></td>
</tr>
<tr>
<td><strong>Min.</strong></td>
</tr>
<tr>
<td><strong>Quartile 1</strong></td>
</tr>
<tr>
<td><strong>Median</strong></td>
</tr>
<tr>
<td><strong>Quartile 3</strong></td>
</tr>
<tr>
<td><strong>Max.</strong></td>
</tr>
</tbody>
</table>
Scores on the Rotter Internal-External Locus of Control Scale (I-E) ranged from 3 to 16 with a mean score of 9.31 and a standard deviation of 3.65. The average score for this sample is below 12. According to Rotter’s locus of control scale interpretation this indicates that, on average, the sample tends to have a more internal locus of control orientation. Respondents with locus of control scores of 0 to 11 were classified as having a more internal locus of control orientation, while locus of control scores of 12 to 23 are an indication of a more external locus of control orientation. Results show that 73% of the sample tend to have a more internal locus of control orientation, while 27% of the sample tend to have a more external locus of control, thus indicating that the majority of the sample has a more internal locus of control orientation.

It should be that in studies conducted during the standardisation process of the Multidimensional Health Locus of Control Scales it was found that chronically ill populations were the least internal group when measuring health locus of control (Wallston & Wallston, 1981). This was confirmed by different studies on chronically ill samples. In one of these studies a group of chemotherapy outpatients proved to be the least internal group, however, the groups’ mean score was still just above the theoretical neutral point (Saltzer, 1979). This could be an indication that health locus of control scales are too specific in measuring control beliefs with regard to illness and that they are not representative of general locus of control beliefs. In this study, the majority (73%) of the patients were found to possess a more internal locus of control.

While the literature suggests that general locus of control is an inherited personality trait which is fairly stable over time, research also shows the possibility for it to change (Knoop, 1989; Phares, 1973). Age, independence, knowledge and enriched life experiences may all influence general locus of control orientation over time (Penk, 1969). Individuals tend to develop a more internal locus of control as they become older (Penk, 1969). It is only when individuals become more dependent on others with age that their locus of control tend to become more externally orientated. This sample consists mainly of middle aged to older women which may explain the more internal locus of control orientation. Also, previous life experiences or knowledge and training in this field might have resulted in them developing a more internal locus of control orientation. Once again, this result may also be a factor of the non-probability sample, since individuals with an internal locus of control would be more likely to participate in a study such as this to learn more about themselves and contribute to the overall well-being of individuals facing adversity.

Although no studies were found investigating general locus of control of specifically breast cancer patients, research on perceived personal control, which includes aspects of general locus of control, of breast cancer patients exists (Henselmans, 2009). In a study by Henselmans (2009), personal control was related to lower levels of distress in a breast cancer population. Also, it was interesting to note that specifically patients who received chemotherapy reported lower levels of
personal control. Although some researchers argue that the clinical characteristics of cancer patients do not influence psychosocial outcomes (Bardwell et al., 2006), this study by Henselmans (2009) shows that those factors, such as type of treatment, do indeed have an effect. The current study did not distinguish between different treatments and locus of control profiles. This study also revealed that those that were not treated with chemotherapy showed high levels of personal control and lower levels of distress. This is in line with the current study’s findings of high internal locus of control levels among the breast cancer patients. Lastly, the study by Henselmans (2009) also found that it was not during the treatment phase that patients struggled with the maintenance of sense of control, but rather the period after the completion of treatment. Patients are not monitored anymore and they are expected to get back to life as usual. During this time patients finally have time to reflect on the whole experience and face the risk of recurrence (Stanton et al., 2005). This finding may explain the higher sense of control among this breast cancer population as they are still undergoing treatment.

A lack of normative data for this scale within the South African context prevents us from comparing the results with previous studies. Research conducted in South Africa using this scale only focused on organisations. Internationally, most of the studies conducted within the health context measured Health Locus of Control. However, an international study by Baydogan (2008) on hemodialysis patients, a chronically ill population, found the average score for female participants to be 10.91 with a standard deviation of 2.49. This result is slightly higher, but still shows the patients to be more internally orientated, which is in line with this study’s results. The relationship between emotional intelligence and locus of control is discussed in the following section.

### 5.4 The Relationship between Emotional Intelligence and Locus of Control

In an effort to obtain a high level of accuracy when it comes to establishing the direction and the degree of relationships, coefficients of correlations, also referred to as product-moment coefficients, can be determined. The calculation of these coefficients of correlations involves comparing sets of ordered pairs. In instances where pairs vary together, or covary (higher values with higher, lower values with lower, higher values with lower), a relation exists, which can either be positive or negative. In instances where pairs do not vary together, or covary, it can be concluded that no relation exists (Bordens & Abbott, 2005).

The relationship between emotional intelligence and locus of control was explored on two levels. Firstly, the Pearson product-moment coefficients for correlations between emotional intelligence, the subscales and locus of control were calculated. These results provided us with an overall idea of relationships between the variables. In order to explore these relationships further, the sample was
divided into groups of higher and lower scores for emotional intelligence and its subscales, as well as groups of higher and lower scores for locus of control. Chi-square analyses were performed to check for significant associations between these different groups.

Significance was determined at the 5% level with a probability value (p-value) of 0.05. Parameters used to determine practical and statistical significance for the Pearson product-moment correlations included values greater than 0.240 for statistical significance ($r > 0.240$) and values greater than 0.300 for practical significance ($r > 0.300$).

Table 5.12 provides a summary of the Pearson product-moment correlation coefficients for correlations between Emotional Intelligence, the subscales of Emotional Intelligence and Locus of Control. Significant correlations are indicated in bold.

<table>
<thead>
<tr>
<th></th>
<th>EQ1</th>
<th>EQ2</th>
<th>EQ3</th>
<th>EQ4</th>
<th>Emotional Intelligence</th>
<th>Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.227</td>
</tr>
<tr>
<td>EQ2</td>
<td>.377</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.469</td>
</tr>
<tr>
<td>EQ3</td>
<td>.377</td>
<td>.428</td>
<td></td>
<td></td>
<td></td>
<td>-.275</td>
</tr>
<tr>
<td>EQ4</td>
<td>.600</td>
<td>.428</td>
<td>.183</td>
<td></td>
<td></td>
<td>-.238</td>
</tr>
<tr>
<td>Emotional</td>
<td>.394</td>
<td>.181</td>
<td>.183</td>
<td></td>
<td></td>
<td>-.418</td>
</tr>
<tr>
<td>Intelligence</td>
<td>.838</td>
<td>.719</td>
<td>.790</td>
<td>.520</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locus of Control</td>
<td>-.227</td>
<td>-.469</td>
<td>-.275</td>
<td>-.238</td>
<td>-.418</td>
<td></td>
</tr>
</tbody>
</table>

Statistically significant if $|r| > 0.240$; practically significant if $|r| > 0.300$
5.4.1 Correlation between Emotional Intelligence and Locus of Control

Figure 5.1 shows the scatter plot for the correlation between Emotional Intelligence and Locus of Control.

![Figure 5.1 Scatter Plot: Emotional Intelligence and Locus of Control](image)

The results indicate a significant negative correlation between Emotional Intelligence and Locus of Control ($r = -0.418$, $p < 0.05$). This correlation is both statistically and practically significant. As a result of the design of the locus of control scale (low scores indicate internal tendencies, while higher scores indicate external tendencies) and emotional intelligence scale (low score indicates less characteristic emotional intelligence, while high score indicates more characteristic emotional intelligence), an inverse relationship was found. This result can be interpreted to indicate that individuals with higher emotional intelligence possess higher levels of internal locus of control than those individuals with lower levels of emotional intelligence.

The results are congruent with the literature and research indicating that higher emotional intelligence is associated with an internal locus of control (Broedling, 1975; Nagar, 2006; Saklofske et al., 2007). Although no studies were found which explored this relationship in chronically ill populations, studies on healthy populations determined links between higher levels of emotional intelligence and internal locus of control orientation (Nagar, 2006; Saklofske et al., 2007). As the relationship between these two constructs are more commonly explored in South Africa within the context of organisations, these results are similar to what was found in organisations (Gropp, Geldenhuys, & Visser, 2007; Stone, 2004). Theoretically, the results are also in line with the hypothesis that the belief that one can control what happens to you emotionally (initiated by the self...
or others) not only shows high levels of emotional intelligence, but also indicates an internal locus of control orientation. Those individuals who believe that their successful handling of emotional stimuli and stressors are due to luck, fate or powerful others not only tend to have lower levels of emotional intelligence, but are also more likely to possess a more external locus of control orientation. Therefore, individuals with an internal locus of control would feel in control of emotions that are affecting them, while externals would feel that emotional situations and their outcomes are beyond their own influence (Broedling, 1975). However, according to Stanton et al. (2000), expressive coping may direct breast cancer patients toward central concerns and this may involve having an external locus of control orientation about some aspects. For example, sometimes it is necessary for a patient to express a sense of loss of control in order to channel energy to more reachable goals. By distinguishing what one can control and what not after a diagnosis of breast cancer, one can focus on those aspects that are controllable and therefore feel more in control.

The current study is grounded in the theory of positive psychology and focuses on two human strength constructs. The findings are in line with resilience research emphasising and acknowledging client growth and improvement in psychological functioning when facing adversity, as well as with research suggesting relations between the psychological wellness constructs (Gropp, Geldenhuys, & Visser, 2007; Luthar & Cicchetti, 2000; Richardson, 2002; Stone, 2004). The current breast cancer population scored above average on emotional intelligence and revealed more internal locus of control orientations. Furthermore, a relationship that confirms the positive aspects of both constructs in the successful coping with adversity, was found. Research shows that 83 percent of breast cancer patients recognise at least one benefit following a diagnosis of breast cancer (Adler & Page, 2008). Such a realisation results in positive reappraisal of their current situation which leads to improved coping, mood and health status (Adler & Page, 2008). In this process of growth while facing adversity it could then be argued that they would probably be more open to interventions that could build on these human strengths. The relation revealed in the current study between high levels of emotional intelligence and internal locus of control implies that focusing on the development of the one strength could impact on the development of the other, which could lead to an increase in both abilities. This, in turn, could help breast cancer patients cope more successfully with their diagnosis and accompanying treatment and challenges.

Furthermore, as emphasised in the locus of control discussion in the previous section, the phase in which the breast cancer patient is functioning could influence the self-report of both constructs and the further development of them (Henselmans, 2009; Stanton et al., 2000). Literature suggests that although the treatment phase can be described as an ‘emotional rollercoaster’, the patient seems to be more motivated during this time as a treatment plan is in place and treatment is in progress.
It is the phase after the completion of treatment that seems to be more challenging for patients (Da Silva & Dos Santos, 2010; Riba, 2009). However, research reveals that the majority of psychosocial interventions in previous studies are focused on the early diagnostic and the treatment phase (Andersen, 2002). In addition, literature suggests that minimal interventions during the treatment phase incorporate long term follow-up, but evidence does exist that suggests improved psychological functioning during later stages of survivorship when such interventions were implemented (Stanton, 2006). Therefore, although the treatment phase seems to be the best time for intervention in developing these human strengths as patients are more motivated, it is also priority to continue with interventions and support programmes after the completion of treatment. The current study focused on breast cancer patients receiving treatment which could explain the high levels of emotional intelligence and more internal locus of control orientation of the population.

An essential difference between this study and previous studies is that general locus of control was measured rather than health locus of control within a health related context. General locus of control refers to the perceived control a person has in general about different situations in life, irrespective of whether the person is facing life-threatening challenges or not. Consequently, the positive relationship between these two relatively stable constructs over time is likely to be a more accurate representation of the breast cancer patients’ abilities across different domains in life.

Since no previous studies, internationally or in South Africa, could be traced using these two scales to explore the relationship between the two constructs, comparisons could not be made. However, it is for this reason that these results should be valued and used in future research studies in South Africa.

5.4.2 Correlations between the subscales of Emotional Intelligence and Locus of Control

The results indicate no significant correlation between the Perception of Emotion subscale and Locus of Control \( (r = -0.227) \). However, a significant negative correlation was found between the Managing Own Emotions subscale and Locus of Control \( (r = -0.469, p > 0.05) \). The correlation between the Managing Others Emotions subscale and Locus of Control only proved to be statistically significant but not practically significant \( (r = -0.275) \).

This result can be interpreted as follows: individuals that possess the ability to manage their own emotions also possess higher levels of internal locus of control. Since the Managing Own Emotions subscale is the only subscale that implies the direct influence of the individual on the self and considering the emphasis on the self in the definition of locus of control, the correlation with the belief that one can influence one’s own behaviour and emotions could have been expected. Often breast cancer patients feel overwhelmed, vulnerable and alone (Berman, 2000). They feel isolated
and as if they are going through this on their own, as their spouse, family and friends are not experiencing what they are (Berman, 2000). The journey after a breast cancer diagnosis involves a lot of internal emotional processes and by having the ability to manage one’s own emotions, the patient could cope more effectively. This finding then implies that having an internal locus of control, which refers to the belief that one can control outcomes, would enable a breast cancer patient to believe that they can control and manage their own emotions, which would allow the regulation of all these internal emotional processes.

No previous studies, internationally or within the South African context, was found exploring the relationship between this instrument’s subscales and locus of control. A South African study exploring the relationship between emotional intelligence and locus of control within an organisation was conducted using the SEIS, but only the full scale was interpreted (Stone, 2004).

Figure 5.2 shows the scatter plot for the correlation between the Managing Own Emotions subscale and Locus of Control.

![Figure 5.2 Scatter Plot: Managing Own Emotions (EQ2) and Locus of Control](image)

**5.4.3 Correlations between higher and lower groups of Emotional Intelligence and Locus of Control**

In order to further explore the relationship between emotional intelligence and locus of control the population was divided in two groups with higher and lower emotional intelligence scores and two groups scoring higher and lower on locus of control. Chi-square was first conducted in order to determine the significance of associations and this was followed by the calculation of Cramer’s V which indicates the strengths of the associations. Correlations were calculated for emotional
intelligence and locus of control, and then for each emotional intelligence subscale and locus of control. Parameters used for Cramer’s V in order to determine the strength of associations included values between 0.10 and 0.30 for small associations ($0.10 > V > 0.30$), between 0.30 and 0.50 for medium associations ($0.30 > V > 0.50$), and values greater than 0.50 could be regarded as large associations ($V > 0.50$) (Tufte, 1983).

Table 5.13 indicates the correlation between the full scale scores on the Emotional intelligence and Locus of Control scales.

<table>
<thead>
<tr>
<th>Table 5.13 Contingency table: Emotional Intelligence and Locus of Control (N = 67)</th>
</tr>
</thead>
</table>
| ![Table 5.13 Contingency table: Emotional Intelligence and Locus of Control (N = 67)](image)

Results show significant associations between the lower emotional intelligence group and the higher locus of control group and between the higher emotional intelligence group and lower locus of control group. According to the guidelines for the interpretation of intervals of Cramer’s V, the association between these groups for emotional intelligence and locus of control is of medium strength. These results can be interpreted as 70% of the individuals that possess lower levels of emotional intelligence tend to have a more external locus of control while 79% of the individuals that possess higher levels of emotional intelligence tend to have a more internal locus of control. These findings imply an even stronger argument in favour of previous results on the correlation between emotional intelligence and locus of control. Again, these findings are in line with literature suggesting that individuals with high emotional intelligence levels possess a more internal locus of control (Nagar, 2006; Saklofske et al., 2007).
Table 5.14 shows associations between the Perception of Emotion (EQ1) subscale and Locus of Control.

**Table 5.14 Contingency table: Perception of Emotion (EQ1) and Locus of Control (N = 67)**

<table>
<thead>
<tr>
<th>EQ1</th>
<th>Locus of Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[3-9]</td>
<td>[9-16]</td>
</tr>
<tr>
<td>[29-38]</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>[38-50]</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>30</td>
</tr>
</tbody>
</table>

Chi²(d.f. = 1, n = 67) = 5.51; p = .019; V = 0.29 Small

The results indicate a small significant association between groups with higher and lower scores on the Perception of Emotion (EQ1) subscale and Locus of control. The group with lower scores on Perception of Emotion scored higher on Locus of Control while the group that scored higher on Perception of Emotion scored lower on Locus of Control. This can be interpreted as 59% of the individuals that have a poorer ability to perceive emotions tend to have a more external locus of control, while 70% of the individuals that have greater ability to perceive emotions are more internally orientated. Perception of emotion does not necessarily imply action to be taken by the individual as it is more a function of identifying and being aware of emotions in oneself and in others. Therefore, it could be regarded as a function that should just happen, rather than one where the patient is actively behaving or responding in ways to enable it. This could be a reason for no correlation in the previous section and the small association between the groups in this section.

Table 5.15 illustrates associations between the Managing Own Emotions subscale and Locus of Control.

**Table 5.15 Contingency table: Managing Own Emotions (EQ2) and Locus of Control (N = 67)**

<table>
<thead>
<tr>
<th>EQ2</th>
<th>Locus of Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[3-9]</td>
<td>[9-16]</td>
</tr>
<tr>
<td>[31-39]</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>[39-45]</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>30</td>
</tr>
</tbody>
</table>

Chi²(d.f. = 1, n = 67) = 5.51; p = .019; V = 0.29 Small

Results indicate a small significant association between higher and lower score groups of Managing Own Emotions (EQ2) and Locus of Control. 59% of individuals that scored lower on the Managing Own Emotions (EQ2) scale scored higher on Locus of Control, while 70% of the individuals that scored higher on the Managing Own Emotions (EQ2) subscale scored lower on Locus of Control. This indicates that individuals with a poorer ability to manage their own
emotions tend to be more externally orientated, while those with greater ability to manage their own emotions tend to have a more internal locus of control. It was expected for this association to be stronger as the Pearson product-moment correlation coefficient proved to be significant for these two variables. As previously explained, the management of one’s own emotions implies an internal locus of control, that is, believing that oneself has an influence on the management of one’s emotions. Although the finding is in line with what was previously speculated in the Person product-moment correlation section, a stronger association was expected as this was the only subscale that correlated significantly with locus of control in the big group. A possible reason for the smaller association could be that more patients scored within the middle range which could have had an effect on the groups as they had to be split. Results show that from the patients that scored lower on the emotional intelligence scale, 41% scored lower on locus of control and 59% scored higher on locus of control which is relatively close to each other. Therefore, from the lower emotional intelligence group there was not a big difference between patients with an internal and external locus of control orientation which resulted in small associations.

Table 5.16 illustrates the association between the Managing Others Emotions (EQ3) subscale and Locus of Control.

Table 5.16 Contingency table: Managing Others Emotions (EQ3) and Locus of Control
(N = 67)

<table>
<thead>
<tr>
<th></th>
<th>[3-9]</th>
<th>(9-16]</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>[29-35]</td>
<td>14</td>
<td>21</td>
<td>35</td>
</tr>
<tr>
<td>(35-40]</td>
<td>23</td>
<td>9</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>30</td>
<td>67</td>
</tr>
</tbody>
</table>

(Chi²(d.f. = 1, n = 67) = 6.87; p = .009; V = 0.32 Medium)

The results reveal a significant association of medium strength between Managing Others Emotions (EQ3) and Locus of Control. 60% of individuals who scored lower on Managing Others Emotions (EQ3) scored higher on Locus of Control while 72% of individuals obtaining higher scores on Managing Others Emotions (EQ3) scored lower on Locus of Control. Again, this implies that individuals with poorer ability to manage others’ emotions tend to possess a more external locus of control, while individuals with greater ability to manage others’ emotions tend to be more internally orientated. It was not expected for this association to be of medium strength as the Pearson product-moment correlation coefficient only proved to be statistically significant and not practically significant. Therefore, this finding is not in line with what was found in the previous section on the Pearson product-moment correlation between the constructs. A possible reason for
this could be that more patients scored within the extreme ranges of the groups which made the correlation stronger as the division of the group would not have impacted on this. Results regarding cluster analysis are discussed in the next section.

5.5 Cluster analysis

Cluster analysis was used to categorise the sample into homogenous clusters according to their emotional intelligence and locus of control profiles. This function provides a quick overview of the data which enables us to present a brief description and summary of the sample in terms of different groups.

5.5.1 Analysis of Variance (ANOVA)

An analysis of variance (ANOVA) test was performed to determine whether the three clusters differ significantly with respect to their emotional intelligence and locus of control profiles. Table 5.17 presents an analysis-of-variance table, showing significant differences between the clusters for all scales and subscales.

Table 5.17 ANOVA: Between-Cluster Differences

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>D.F.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perception of Emotion (EQ1)</td>
<td>44.55</td>
<td>2; 64</td>
<td>.000</td>
</tr>
<tr>
<td>Managing Own Emotions (EQ2)</td>
<td>20.92</td>
<td>2; 65</td>
<td>.000</td>
</tr>
<tr>
<td>Managing Others Emotions (EQ3)</td>
<td>58.54</td>
<td>2; 66</td>
<td>.000</td>
</tr>
<tr>
<td>Utilisation of Emotion (EQ4)</td>
<td>15.88</td>
<td>2; 67</td>
<td>.000</td>
</tr>
<tr>
<td>Emotional Intelligence (SEIS)</td>
<td>223.91</td>
<td>2; 68</td>
<td>.000</td>
</tr>
<tr>
<td>Locus of Control (I-E)</td>
<td>12.53</td>
<td>2; 69</td>
<td>.000</td>
</tr>
</tbody>
</table>

Results show differences between the clusters to be significant for emotional intelligence, its subscales and locus of control ($p < .0005$).
5.5.2 Descriptive Statistics by cluster

Table 5.18 illustrates the means, standard deviations and mean differences for each cluster.

Table 5.18 Descriptive Statistics by cluster

<table>
<thead>
<tr>
<th>Cluster</th>
<th>N</th>
<th>EQ1</th>
<th>EQ2</th>
<th>EQ3</th>
<th>EQ4</th>
<th>Emotional Intelligence</th>
<th>Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21</td>
<td>35.19</td>
<td>35.86</td>
<td>31.10</td>
<td>24.43</td>
<td>126.57</td>
<td>12.14</td>
</tr>
<tr>
<td>2</td>
<td>31</td>
<td>39.19</td>
<td>39.52</td>
<td>35.84</td>
<td>25.13</td>
<td>139.68</td>
<td>8.19</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>43.20</td>
<td>42.07</td>
<td>38.20</td>
<td>27.87</td>
<td>151.33</td>
<td>7.67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cluster</th>
<th>N</th>
<th>EQ1</th>
<th>EQ2</th>
<th>EQ3</th>
<th>EQ4</th>
<th>Emotional Intelligence</th>
<th>Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21</td>
<td>2.18</td>
<td>3.62</td>
<td>0.83</td>
<td>1.50</td>
<td>2.96</td>
<td>3.61</td>
</tr>
<tr>
<td>2</td>
<td>31</td>
<td>2.70</td>
<td>2.62</td>
<td>2.61</td>
<td>2.17</td>
<td>3.51</td>
<td>2.96</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>2.60</td>
<td>2.34</td>
<td>1.93</td>
<td>1.68</td>
<td>4.15</td>
<td>2.79</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clusters</th>
<th>EQ1</th>
<th>EQ2</th>
<th>EQ3</th>
<th>EQ4</th>
<th>Emotional Intelligence</th>
<th>Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 – 1</td>
<td>4.00</td>
<td>3.66</td>
<td>4.74</td>
<td>0.70</td>
<td>13.11</td>
<td>-3.95</td>
</tr>
<tr>
<td>3 – 1</td>
<td>8.01</td>
<td>6.21</td>
<td>7.10</td>
<td>3.44</td>
<td>24.76</td>
<td>-4.48</td>
</tr>
<tr>
<td>3 – 2</td>
<td>4.01</td>
<td>2.55</td>
<td>2.36</td>
<td>2.74</td>
<td>11.66</td>
<td>-0.53</td>
</tr>
</tbody>
</table>

The sample was categorised into three clusters, the first cluster consisting of 21, the second of 31 and the third of 15 respondents. Individuals from the first cluster had a mean score of 126.57 with a standard deviation of 2.96 on emotional intelligence and a mean score of 12.14 with a standard deviation of 3.61 on locus of control. A mean of 139.68 with a standard deviation of 3.51 was scored by respondents from the second cluster on emotional intelligence and a mean of 8.19 with a standard deviation of 2.96 on locus of control. The third cluster’s respondents had a mean score of 151.33 with a standard deviation of 4.15 on emotional intelligence and a mean score of 7.67 with a standard deviation of 2.79 on locus of control. For cluster one respondents’ mean scores on the three subscales of emotional intelligence were 35.19, 35.86 and 31.10 with standard deviations of 2.18, 3.62 and 0.83, respectively. Cluster two respondents obtained mean scores of 39.19, 39.52 and 35.84 with standard deviations of 2.70, 2.62 and 2.61. Lastly, respondents from cluster 3 had mean scores of 43.20, 42.07 and 38.20 with standard deviations of 2.60, 2.34 and 1.93 respectively.

These results show that the first cluster consists of respondents who scored lower on emotional intelligence and higher on locus of control, while respondents from the third cluster scored higher on emotional intelligence and lower on locus of control. Respondents from the second cluster scored in-between for both emotional intelligence and locus of control.
5.5.3 Significance of between-cluster differences

T-tests were conducted in order to determine whether between-cluster differences were statistically significant. Cohen’s d statistics were used to determine the practical significance of the between-cluster differences. Parameters used for Cohen’s d included values between .20 and .50 for small effect size differences, between .50 and .80 for medium effect size differences and values greater than .80 indicated large effect size differences (Cohen, 1988). These results are presented in Table 5.19.

Table 5.19 Significance of between-cluster differences

<table>
<thead>
<tr>
<th>Clusters</th>
<th>d.f</th>
<th>EQ1</th>
<th>EQ2</th>
<th>EQ3</th>
<th>EQ4</th>
<th>Emotional Intelligence</th>
<th>Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 – 1</td>
<td>50</td>
<td>5.65</td>
<td>4.23</td>
<td>8.04</td>
<td>1.28</td>
<td>14.06</td>
<td>-4.32</td>
</tr>
<tr>
<td>3 – 1</td>
<td>34</td>
<td>10.03</td>
<td>5.81</td>
<td>15.06</td>
<td>6.44</td>
<td>20.93</td>
<td>-4.01</td>
</tr>
<tr>
<td>3 – 2</td>
<td>44</td>
<td>4.77</td>
<td>3.20</td>
<td>3.11</td>
<td>4.29</td>
<td>9.95</td>
<td>-0.58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clusters</th>
<th>EQ1</th>
<th>EQ2</th>
<th>EQ3</th>
<th>EQ4</th>
<th>Emotional Intelligence</th>
<th>Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 – 1</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.205</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>3 – 1</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>3 – 2</td>
<td>.000</td>
<td>.003</td>
<td>.003</td>
<td>.000</td>
<td>.000</td>
<td>.568</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clusters</th>
<th>EQ1</th>
<th>EQ2</th>
<th>EQ3</th>
<th>EQ4</th>
<th>Emotional Intelligence</th>
<th>Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 – 1</td>
<td>1.60</td>
<td>1.20</td>
<td>2.27</td>
<td>n.a.</td>
<td>3.97</td>
<td>-1.22</td>
</tr>
<tr>
<td>3 – 1</td>
<td>3.39</td>
<td>1.97</td>
<td>5.09</td>
<td>2.18</td>
<td>7.08</td>
<td>-1.36</td>
</tr>
<tr>
<td>3 – 2</td>
<td>1.50</td>
<td>1.01</td>
<td>0.98</td>
<td>1.35</td>
<td>3.13</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

*Interpretation intervals:
Small: 0.20 < |d| < 0.50
Moderate: 0.50 < |d| < 0.80
Large: |d| > 0.80

The results indicate statistically significant differences for Emotional Intelligence between clusters 1 and 2 (t = 14.06; p < .0005), clusters 1 and 3 (t = 20.93; p < .0005) and clusters 2 and 3 (t = 9.95; p < .0005). Statistically significant differences were also found for Locus of Control between clusters 1 and 2 (t = -4.32; p < .0005) and clusters 1 and 3 (t = -4.01; p < .0005). However, the difference for Locus of Control between clusters 2 and 3 (t = 0.58; p = .568) was not statistically significant. Statistically significant between-cluster differences were also found for the Perception of Emotion (EQ1), Managing Own Emotions (EQ2) and Managing Others Emotions (EQ3) subscales.

Cohen’s d statistics reveal practically significant between-cluster differences for Emotional Intelligence. In terms of practical significance guidelines by Cohen (1988), between-cluster differences on Emotional Intelligence display a large effect size. Differences between clusters 1
and 2 as well as clusters 1 and 3 for Locus of Control were also found to prove practical significance with differences also indicating a large effect size. Lastly, practically significant between-cluster differences of large effect size were also found for the Perception of Emotion (EQ1), Managing Own Emotions (EQ2) and Managing Others Emotions (EQ3) subscales.

To conclude, the cluster analysis reveals that although this breast cancer population has above average emotional intelligence and a more internal locus of control orientation, the population still consists of two groups that either possess lower levels of emotional intelligence and a more external locus of control or scored in between on both abilities. As literature predicts increased distress and poorer psychological adaptation for patients with low levels of emotional intelligence and an external locus of control, these findings suggest that interventions are needed to help these patients develop these strengths in order to predict more successful coping with their diagnosis (Smidt & Andrykowski, 2004; Steptoe & Wardle, 2001).

5.6 Summary of the Results

This chapter depicted the results of the study. Biographical data was presented indicating that the majority of respondents are married (64%), white (63%), Afrikaans speaking (55%) women, ranging between the ages of 35 to 77 years, with the greatest portion of respondents between the ages of 40 and 59 (64%). Most of the respondents (54%) were diagnosed either between 0 to 3 months ago (27%) or over a year ago (27%) and have been receiving treatment for less than a year (75%). Only 22% of the respondents indicated recurrences with 19% who experienced it less than 5 years after the previous diagnosis. Thirteen percent of the latter group experienced it less than a year after the previous diagnosis.

The Pearson’s product-moment correlation indicated the following:

- Respondents with higher levels of emotional intelligence are likely to display greater levels of internal locus of control.
- Respondents with greater ability to manage own emotions are more likely to possess internal locus of control orientations.

The Chi-square analyses that were performed to check for significant associations between higher and lower groups of emotional intelligence and locus of control revealed that respondents with lower levels of emotional intelligence also displayed greater levels of external locus of control, while respondents with higher levels of emotional intelligence showed more internal locus of control orientations. Furthermore, between-group associations for emotional intelligence subscales and locus of control showed that respondents with greater ability to perceive emotions tend to have a more internal locus of control, while respondents with poorer ability to perceive emotions tend to have a more external locus of control. Also, respondents with greater ability to manage their own
emotions were found to display more internal locus of control orientations, while poorer ability were associated with external locus of control orientations. Effect sizes for both associations found for groups with higher and lower scores for perception of emotion and management of own emotions were small. A medium effect size association was found for higher and lower group scores in the ability to manage others’ emotions and locus of control. Respondents with greater ability to manage others’ emotions tend to possess higher levels of internal locus of control while respondents with poorer ability tend to display more external locus of control orientations.

Lastly, the sample was divided into three homogenous clusters according to their emotional intelligence and locus of control profiles. The analysis of variance (ANOVA) test showed significant differences between the three clusters for emotional intelligence, all the subscales and locus of control. The first cluster was found to consist of respondents with typically low emotional intelligence and a more external locus of control, while the third cluster includes respondents with typically high emotional intelligence and a more internal locus of control. The second cluster represents respondents with emotional intelligence and locus of control scores falling in-between these two clusters. T-tests and Cohen’s d were used to determine practical and statistical significance of between-cluster (two clusters at a time) differences. Between-cluster differences for all variables were found to be statistically significant, except for locus of control scores between clusters 2 and 3. Practical significance was demonstrated by all between-cluster differences, except for locus of control scores between cluster 2 and 3 which was not applicable for Cohen’s d, because the difference did not prove to be statistically significant.

5.7 Conclusion

The study’s results were reported and interpreted in this chapter. Firstly, the biographical data was presented, followed by the descriptive statistics of the two constructs. Results on the nature of the relationship between the constructs were then discussed. Cluster analysis was conducted where the sample was divided into three clusters in terms of their emotional intelligence and locus of control profiles. Lastly, a summary of the results were presented. Herewith the empirical aim of the research study is accomplished.

Since both scales lacked normative data from the South African context, specifically within the health domain, the researcher was limited in providing detailed information on how findings compared with previous studies conducted. However, this should be regarded as the first step in exploring a new potential field for future research which can contribute to more effective coping and the overall psychological well-being of individuals facing adversity in South Africa. The following chapter provides the reader with the overall conclusions and limitations of the study, as well as recommendations for future research.
CHAPTER 6
CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

6.1 Introduction
The aim of this chapter is to provide overall conclusions and limitations of the research conducted, as well as recommendations for future research. Firstly, the conclusions are formulated, followed by a discussion of the limitations of the research. Then recommendations for future research are made. The chapter is concluded by a discussion on the value of the research.

6.2 Conclusions
The conclusions are formulated in line with the aims of the research.

6.2.1 Emotional Intelligence
The first aim, namely to explore and describe the emotional intelligence of adult breast cancer patients receiving treatment, was achieved. A number of conclusions can be drawn in this regard.

Firstly, the population presents with above average emotional intelligence. This finding is in line with previous studies conducted on similar populations (Bradburry & Greaves, 2003; Carranque-Chaves et al., 2004; Schmidt & Andrykowski, 2004), however, there is an enormous need for more research in South Africa on emotional intelligence within a health context.

Secondly, results on the reliability of the SEIS and three of its subscales proved internal consistency. However, the Cronbach alpha coefficient for the Utilisation of Emotion subscale was too low and therefore results from this subscale was not used in the data analysis section. From these results it can be concluded that more research is needed within the South African context in order to improve the scale.

Thirdly, in the limited studies conducted on health populations researchers are uncertain whether the higher emotional intelligence levels are characteristic of that particular population or whether they can be generalised to other similar populations. This is also the case with the current study as the sample was relatively small.

Fourthly, literature suggests that emotion-focused coping strategies are positively linked to the psychological and physical adjustment of breast cancer patients receiving treatment. Therefore, it can be concluded that the higher emotional intelligence level of this population could predict more effective coping during the treatment phase. However, research shows that emotion-focused coping can become counterproductive when it involves cognitive rumination. Researchers argue that this could be linked to different phases in the process of dealing with breast cancer. Emotional intelligence was measured in this population and this construct not only involves the expression and
processing of emotion (emotion-focused coping), but also the regulation and utilisation of emotion which would limit cognitive rumination.

Lastly, conclusions regarding the emotional intelligence profiles of different groups based on the information gathered from the biographical questionnaire could not be made. The reason for this is that the sample size was too small for t-tests to be conducted and therefore the researcher was prevented from further exploring patients’ emotional intelligence profiles, for example, whether those who had recurrences presented with higher emotional intelligence levels than those who did not.

6.2.2 Locus of Control

The second aim, namely to explore and describe the locus of control of adult breast cancer patients receiving treatment, was achieved. Conclusions with regard to the investigation of the locus of control construct are discussed next.

The population presents with an internal locus of control orientation. This is in line with a previous study on a similar population (Baydogan, 2008). However, these results contradict findings from previous studies on chronically ill patients measuring health locus of control where patients were the least internally orientated scoring just above the theoretical neutral point (Wallston & Wallston, 1981). This latter finding supports the argument to use general locus of control measures rather than health locus of control measures as the latter might be too specific in measuring control beliefs regarding illness. As studies measuring general locus of control in the South African context are virtually non-existent, the need for more research on this construct is emphasised.

Previous research on breast cancer patients shows that personal control is associated with lower levels of distress. Therefore, the internal locus of control orientation of this population could predict lower levels of distress and thus more effective coping. However, the same study found that clinical characteristics of patients, such as treatment type, had an effect on their perceptions of personal control. The current study did not distinguish between different types of treatment. It was also found that patients struggled to maintain their sense of control in the period after termination of treatment which could be a reason for the internal locus of control orientation of the current sample as they were still receiving treatment. It can be concluded that treatment type and the phase that the breast cancer patient is in are important factors to consider when the locus of control of breast cancer patients is investigated.

Once again, due to the small sample size, it is not known whether the internal locus of control orientation is characteristic of the particular population or whether this finding could be generalised to other breast cancer populations. It can therefore be concluded that the sample size and sampling
method prevented the researcher from generalising the locus of control profile found in this population to the general population.

Lastly, conclusions regarding the locus of control profiles of different groups based on the information gathered from the biographical questionnaire could not be made. Again, the small sample size prevented the researcher from conducting t-tests and therefore patients’ locus of control profiles could not be further explored.

6.2.3 Emotional Intelligence and Locus of Control

The third aim, namely to ascertain whether a relationship exists between emotional intelligence and locus of control in adult breast cancer patients receiving treatment, was achieved. Several conclusions can be drawn in this regard.

A significant negative correlation was found between emotional intelligence and locus of control ($r = -0.418, p = 0.05$). This was also confirmed by a significant association found between higher and lower emotional intelligence groups and internal and external locus of control groups. This can be interpreted to indicate that patients with higher levels of emotional intelligence possess more internal locus of control orientations, while patients with lower emotional intelligence possess more external locus of control orientations. The results are congruent with previous research, however, no studies were found exploring this relationship within a health related context. Therefore, it can be concluded that a need for more extensive research on the relationship between the constructs exists, specifically in a health context. Furthermore, regarding the correlations between emotional intelligence subscales and locus of control, the only significant correlation supported by both methods used to explore these relationships was between the managing own emotions subscale and locus of control.

The positive relationship between emotional intelligence and locus of control suggests that patients with an internal locus of control would feel in control of emotions affecting them, while externals would feel that emotional situations and their outcomes are beyond their own influence. The high emotional intelligence levels and internal locus of control orientation of this population could therefore predict a sense of control when it comes to emotions and this could result in more effective coping. Furthermore, the high emotional intelligence levels and the internal locus of control of the population, as well as the positive relationship that was found, are also in line with resilience research which does not only emphasise client growth and improved psychological functioning while facing adversity, but also suggest relations between the psychological wellness constructs.

Lastly, research suggests that most breast cancer patients find meaning after their diagnosis which usually results in improved coping and taking on a fighting spirit. Therefore patients might
be motivated during this time to participate in intervention programmes developing these strengths. There is a need, however, not to only focus on the treatment phase, but also continue with these programmes after the termination of treatment.

6.3 Limitations
The limitations regarding the empirical investigation are presented in the next section.

6.3.1 Sample
The majority of the sample was recruited from one hospital with only a few from support groups outside of the hospital and thus results cannot be generalised to the broader population of adult breast cancer patients in South Africa. In addition, purposive sampling was used (voluntary participants), which resulted in a reduced sample size and also further minimized the generalisability of the findings.

Another limitation encountered due to the small sample size was the fact that t-tests could not be conducted in order to explore the emotional intelligence and locus of control profiles of individuals in terms of their biographical information. This prevented the researcher from providing a more in-depth exploration of the two constructs as was stipulated in the first two aims of the research.

With regard to the biographical make-up of the sample, the majority of the respondents were white and Afrikaans speaking. This also impacted on the generalisability of the results to the broader, multi-cultural South African population.

6.3.2 Measuring Instruments
Although both the scales proved reliable and valid internationally, limited studies investigating the psychometric properties in the South African context, exist. In addition, very few studies were found using these scales in the health context, which prevented the researcher from comparing the results with previous studies. Lastly, results on the reliability analysis revealed that the Cronbach alpha coefficient for the Utilisation of Emotion subscale of the SEIS was too low and therefore the reliability of the subscale was questioned. This limited the researcher to report on results from this scale.

6.4 Recommendations
In an attempt to address the outlined limitations, recommendations for future research are now discussed. Firstly, it is recommended that a more in-depth study is conducted in which a probability sampling design is adopted to investigate these constructs and its relationship in a multi-cultural South-African context. In addition to this, it is also recommended that a number of hospitals and
support groups across the country be selected to participate in the study, in order to increase the
generalisability of the findings to the broader South-African population and to allow for stronger
correlations and associations within the population investigated. Furthermore, it will enable the
researcher to perform a more in-depth exploration of the constructs by comparing the profiles of
different groups from the biographical information gathered.

The second and the third recommendations are related to the previously limited use of the SEIS
and the I-E scale in the South-African context. It is recommended that more studies be conducted
on health populations, specifically with the SEIS, in order to demonstrate validity in the South
African context. This could involve using other emotional intelligence measures that proved valid
internationally and determine whether they correlate with each other. For the I-E scale, it is also
necessary to conduct more studies on South African populations to prove its reliability and validity.
If necessary, the scale can even be used as the foundation to develop a new general locus of control
scale which can be applied in the health context on South African populations.

Fourthly, it is recommended that further research be conducted to explore these constructs and
the relationship between them in breast cancer populations in South Africa, in order for results to be
compared. Furthermore, it became evident that on both constructs investigated, the phase after the
termination of therapy seems to be challenging for breast cancer patients and therefore possible
future research could focus on this phase when exploring emotional intelligence and locus of
control. Another factor to consider in future studies on breast cancer patients with regard to their
locus of control is the treatment type as this also seems to play a role in how patients perceive their
sense of control. Lastly, a recommendation is made which captures the long term goal and
motivation for this study, which is, that future research should eventually focus on exploring the
function of these constructs, psychologically as well as physically, in breast cancer populations, in
order to develop intervention programmes to build on these human strengths.

6.5 Value of the research

This study is grounded in the theory of positive psychology which views human strengths as
buffers not only against mental illness, but also against physical vulnerabilities. The focus on
strengths rather than mental illness opens the door to prevention and health promotion. In the
context of this study, it became evident that, internationally as well as in South Africa, there is an
enormous need for more extensive research on emotional intelligence and locus of control in breast
cancer populations. Although the findings of this study is in line with resilience research
emphasising improved psychological functioning when facing adversity, a portion of the group did
not possess these strengths or showed levels of abilities where room for improvement do exist. By
further exploring and understanding these constructs and their relation to human functioning,
intervention programmes could be developed and implemented during different phases of experience which could lead to optimal functioning and improved quality of life. Therefore, the current study can be regarded as the first step in opening up a field of research which could contribute to more effective coping and the overall psychological well-being of individuals facing adversity in South Africa.

6.6 Conclusion

In this chapter the overall conclusions as well as limitations that were encountered in the process, were discussed. The chapter concluded with recommendations for future research as well as a discussion on the value of the research.
REFERENCES


Elkhuizen, P.H.M. (2000). High local recurrence risk after breast-conserving therapy in node-negative premenopausal breast cancer patients is greatly reduced by one course of perioperative


