Emotional intelligence and locus of control of adult patients with breast cancer receiving treatment

Brown O, MA Clinical Psychology
Lecturer, Clinical Psychologist
Swartz E, MA Counselling Psychology
Department of Psychology, Nelson Mandela Metropolitan University, Port Elizabeth
Correspondence to: Ottilia Brown, e-mail: Ottilia.Brown@nmmu.ac.za
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Abstract

Background: This article investigates emotional intelligence and locus of control in an adult breast cancer population receiving treatment. Gaining insight into these constructs will contribute to improving breast cancer patients' psychological well-being and to reducing physical vulnerability to disease before and during treatment.

Method: The researcher used an exploratory, descriptive and correlational approach. Nonprobability purposive sampling was employed. Sixty-seven breast cancer patients receiving treatment participated in the research. A biographical questionnaire, the Schutte Emotional Intelligence Scale, and the Rotter Internal-External Locus of Control Scale were used to measure the constructs explored in this article. Descriptive and inferential statistics were used to analyse the data.

Results: The sample yielded above-average levels of emotional intelligence and an internal locus of control. The results indicate a statistically and practically significant negative correlation between emotional intelligence and locus of control. The significant association found between higher and lower emotional intelligence groups and internal and external locus of control groups also confirmed these results.

Conclusion: Having an understanding of the psychosocial variables that impact on individuals diagnosed with a chronic illness, in this case breast cancer, can assist interventionists working in the field of positive psychology. While the stressors and challenges that breast cancer patients face are well documented, this article highlights the strength factors emotional intelligence and locus of control as important mediators in the treatment and management of breast cancer.

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Introduction

Breast cancer is the most prevalent cancer of women in South Africa, with one in 29 women diagnosed with breast cancer every year.[1] Adaptation to breast cancer treatment is considered to be an extremely difficult process.[2] Women may experience intense emotions during different phases of treatment and different types of treatment, such as anxiety, depression and damage to their self-image. In addition, seeing other patients receiving treatment for advanced breast cancer can be upsetting, and the patient may feel overwhelmed by anxiety and fear of developing advanced breast cancer.[3] One of the phases of highest distress is during and on completion of treatment.[3]

Although research on the relationship between psychosocial variables such as stress and coping and the progression of disease is still controversial, evidence suggests that psychological processes have an effect on immune function.[4] Cancer is primarily an immune-related disease.[4] It is therefore essential that researchers investigate psychosocial variables and processes that can promote psychological health. This article addresses two of those psychosocial variables: emotional intelligence and locus of control. These variables were selected for study as research has shown that successful adaptation to the challenges of the diagnosis and treatment of breast cancer requires the appropriate expression of negative emotions and coping with the sense of loss of control often reported.[5] It is hoped that gaining insight into these constructs in a breast cancer population would contribute to eventually improving breast cancer patients' psychological well-being and to reducing physical vulnerability to disease before and during treatment. An essential difference between this research and previous studies is that general locus of control was measured rather than health locus of control within a health-related context. Consequently, the results obtained from measuring these

two relatively stable constructs over time are likely to be a more accurate representation of breast cancer patients' abilities across different domains in life.

This article explores and describes emotional intelligence and locus of control in an adult breast cancer sample receiving treatment. Each of these constructs are explored and described and the relationship between them is also investigated. The theoretical models that formed the basis of the study are briefly outlined.

Mayer and Salovey's emotional intelligence model

Mayer and Salovey[6] view emotional intelligence as a mental ability and define the construct as follows: "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." This model has been widely published,[7,8] has a justified theoretical base and the evaluation and support from empirical data obtained from applied and basic fields are organised.[9]

The model consists of four abilities: perception, assimilation, understanding and regulation of emotions.[10] These four branches are organised 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.[10] 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 refers to the ability to analyse emotions, to understand their outcomes and to appreciate emotional meanings. The fourth branch reflects the most complex task, which involves the rest of the personality. Managing emotions includes the ability to stay open to feelings and to regulate others' and one's own emotions in order to enhance understanding and personal growth.[10]

Locus of control

The locus of control construct stemmed from Rotter's social learning theory and was developed to explain the function of reinforcement in behaviour.[11,12] This theory suggests that the role of reinforcement is vital in the attainment and execution of both knowledge and skills.[13,14] 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.[14,15] Locus of control incorporates the manner in which the individual views the relation between his or her behaviour and the experience of reward or punishment.[16] 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 behaviour is not entirely dependent on the individual's own behaviour or is perceived to be the result of luck, chance or fate or as being under the control of powerful others.[12]

As these beliefs are viewed as falling on a continuum, an individual's locus of control is never entirely internal or external. However, research on locus of control refers to internals (individuals with an internal locus of control) and externals (individuals with an external locus of control) in order to describe the different ends of the continuum.

Method

A quantitative, exploratory-descriptive correlational design was adopted for this study. A nonprobability purposive sampling technique was used. Inclusion criteria were that breast cancer patients had to be between the ages of 30 and 80 years old and that they had to 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.

After obtaining permission from the Ethics Committee (Human) of the Nelson Mandela Metropolitan University, Eastern Cape, the researcher approached an oncology department at a private hospital in Port Elizabeth as well as breast cancer support groups in Port Elizabeth, East London and King Williams Town. Participants received a cover letter detailing the nature and purpose of the research as well as an informed consent form and the three questionnaires. Participants were ensured of their right to confidentiality and anonymity as well as their right to withdraw from the study at any time.

A biographical questionnaire was used to obtain demographic information pertaining to the participants' age, gender, marital status, home language, race, time since diagnosis, duration of treatment, whether the participant had had a recurrence and time between the diagnoses. The Schutte Emotional Intelligence Scale (SEIS), which was used to measure emotional intelligence in this research, is a 33-item self-report questionnaire based on Salovey and Mayer's[17] original model of emotional intelligence.[18] It measures participants' ability to perceive, express, regulate and harness emotions in the self and others. A Cronbach's alpha of 0.79 on the SEIS was obtained in the current study. Cronbach's alpha coefficients for the subscales were as follows: Managing own emotions (0.66), managing others' emotions (0.72), perception of emotion (0.49) and the

utilisation of emotion (0.32). The Cronbach's alpha for the Utilisation of Emotion subscale was very low and results pertaining to this subscale were therefore not interpreted and discussed.

The Rotter Internal-External Locus of Control Scale (I-E) was used to measure the second variable in this study, namely locus of control. The measure 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. A Cronbach's alpha of 0.66 on the I-E was obtained for this sample. Both measures had adequate reliability and validity indices in previous studies.[19-22]

Information gathered from the biographical questionnaire as well as data obtained from the completed measures were used to calculate descriptive statistics. Pearson product-moment correlation coefficients were calculated to measure the relationships between the emotional intelligence total score, its subscales and locus of control. Significance was determined at the 5% level and parameters used to determine practical and statistical significance for the Pearson product-moment correlations were $r > 0.240$ for statistical significance and $r > 0.300$ for practical significance.[23] Furthermore, the sample was divided into groups of higher and lower scores for the emotional intelligence total score 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, and Cramer's V was used as an indication of the strength of these associations. Parameters used for Cramer's V in order to determine the strength of associations included the following: values between 0.10 and 0.30 for small associations ($0.10 > V > 0.30$), values between 0.30 and 0.50 for medium associations ($0.30 > V > 0.50$) and values greater than 0.50 for large associations ($V > 0.50$).[23]

Results and discussion

Sample description

The sample consisted of 67 female breast cancer patients receiving treatment. The majority of participants were married (64%), white (63%) Afrikaans-speaking (55%) women, with ages ranging from 35 to 77 years, with the greatest percentage of participants falling between the ages of 40 and 59 (64%). Most of the participants (54%) were diagnosed either 0–3 months ago (27%) or over a year ago (27%) and had been receiving treatment for less than a year (75%). Only 22% of the participants indicated recurrences, with 19% experiencing the recurrence less than five years after the previous diagnosis. Thirteen per cent of the latter group experienced a recurrence less than a year after the previous diagnosis.

Table I: Descriptive statistics for the emotional intelligence total scale and subscales (n = 67)

	Emotional intelligence	[a]EQ1	EQ2	EQ3	EQ4
Mean	138.18	38.84	38.94	34.88	25.52
[b]SD	9.75	3.85	3.70	3.40	2.27
Minimum	122	29	31	29	21
Quartile 1	130	36.50	36	32	24
Median	139	38	39	35	26
Quartile 3	144.50	41.50	41	38	27
Maximum	162	50	45	40	30
% of range	72.1%	83.2%	84%	81.3%	79.7%

a = emotional intelligence; EQ1: perception of emotions, EQ2: managing own emotions, EQ3: managing others' emotions, EQ4: utilisation of emotions; b = standard deviation

Emotional intelligence

The descriptive results for the SEIS are presented in Table I.

The results suggest that, on average, the participants presented with high levels of emotional intelligence. This interpretation is based on the fact that the emotional intelligence total score and the subscale scores were all well above the midpoint of the relevant ranges. These higher levels of emotional intelligence in a medical population are in line with previous studies conducted on similar populations.[24-26] 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. Consequently, the higher emotional intelligence of this sample may be due to the inheritance of certain abilities, which allows for a higher emotional intelligence.[6] Higher levels of emotional intelligence may also be explained in terms of age[27] (participants were 34 years and older), past experiences and the nonprobability sampling technique used.

The literature suggests that emotion-focused coping strategies are positively linked to the psychological and physical adjustment of breast cancer patients receiving treatment.[28] 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 that may increase distress.[29] However, the construct of emotional intelligence involves not only the expression and processing of emotion (emotion-focused coping) but also the regulation and utilisation of emotion, which would limit cognitive rumination.

Locus of control

The descriptive statistics for the I-E are presented in Table II.

Table II: Descriptive statistics for locus of control (N = 67)

	Locus of control
Mean	9.31
[a]SD	3.65
Minimum	3
Quartile 1	6.50
Median	9
Quartile 3	12
Maximum	16
% of range	59.5%

a = standard deviation

On average, the sample tends to have a more internal locus of control orientation. This conclusion is based on the fact that the locus of control score is 10% above the range midpoint. While general locus of control is an inherited personality trait that is fairly stable over time, research also shows the possibility for it to change.[16,30] Increase in age, independence, knowledge and enriched life experiences may all influence general locus of control orientation over time.[31]

Previous research on breast cancer patients showed that personal control is associated with lower levels of distress.[32] Therefore, the internal locus of control orientation of this sample could predict lower levels of distress and thus more effective coping. However, Henselmans's study also found that the clinical characteristics of patients, such as treatment type, had an effect on their perceptions of personal control. Henselmans further 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 these patients 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.

The relationship between emotional intelligence and locus of control

Table III provides a summary of the Pearson product-moment correlation coefficients between the emotional intelligence total score, the subscales and locus of control. Significant correlations are indicated in bold.

Regarding the associations between higher and lower groups of emotional intelligence and locus of control, Tables IV, V, VI and VII indicate the associations between the full-scale SEIS scores and I-E scales as well as between the SEIS subscales (EQ1, EQ2 and EQ3) and the I-E.

The results indicate a statistically and practically significant negative correlation between emotional intelligence and

Table III: Correlations between the emotional intelligence total score, the subscales and locus of control (statistically significant if $|r| > 0.240$; practically significant if $|r| > 0.300$)

	[a]EQ1	EQ2	EQ3	EQ4	Emotional intelligence	Locus of control
EQ1		.377	.600	.394	.838	-.227
EQ2	.377		.428	.181	.719	-.469
EQ3	.600	.428		.183	.790	-.275
EQ4	.394	.181	.183		.520	-.238
Emotional intelligence	.838	.719	.790	.520		-.418
Locus of control	-.227	-.469	-.275	-.238	-.418	

a = emotional intelligence; for the definition of subscales, see Table I

Table IV: Contingency table: emotional intelligence and locus of control (n = 67)

	Locus of control					
Emotional intelligence	**[3–9]**		**(9–16]**		**Total**	
[122–139)	10	30%	23	70%	33	100%
[139–162]	27	79%	7	21%	34	100%
Total	37	55%	30	45%	67	100%

χ^2 (df = 1, n = 67) = 16.33; p < .0005; V = 0.49 medium

Table V: Contingency table: perception of emotion (EQ1) and locus of control (n = 67)

	Locus of control					
Emotional intelligence	**[3–9]**		**(9–16]**		**Total**	
[29–38]	14	41%	20	59%	34	100%
(38–50]	23	70%	10	30%	33	100%
Total	37	55%	30	45%	67	100%

χ^2 (df = 1, n = 67) = 5.51; p = .019; V = 0.29 small

Table VI: Contingency table: managing own emotions (EQ2) and locus of control (n = 67)

	Locus of control					
Emotional intelligence	**[3–9]**		**(9–16]**		**Total**	
[31–39]	14	41%	20	59%	34	100%
(39–45]	23	70%	10	30%	33	100%
Total	37	55%	30	45%	67	100%

χ^2 (df = 1, n = 67) = 5.51; p = .019; V = 0.29 small

Table VII: Contingency table: managing others' emotions (EQ3) and locus of control (n = 67)

	Locus of control					
Emotional intelligence	**[3–9]**		**(9–16]**		**Total**	
[29–35]	14	40%	21	60%	35	100%
(35–40]	23	72%	9	28%	32	100%
Total	37	55%	30	45%	67	100%

χ^2 (df = 1, n = 67) = 6.87; p = .009; V = 0.32 medium

locus of control ($r = -.418$, $P < 0.05$). This was also confirmed by the significant association found between higher and lower emotional intelligence groups and internal and external locus of control groups. Consequently, 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 the literature and research indicating that higher emotional intelligence is associated with an internal locus of control.[33,34] The results are also in line with resilience research that does not only emphasise client growth and improved psychological functioning while facing adversity but also advocates investigating the relations among psychological wellness constructs.[21,35]

The SEIS subscales have specific relevance for this sample as research has shown that cancer patients tend to suppress negative emotions.[36] Breast cancer patients are reported to feel overwhelmed, vulnerable and alone as their spouses, family and friends may not be able to relate to their experiences.[37] Riba reiterates that a variety of emotional reactions are common among cancer patients at the time of diagnosis, during treatment and after completion of treatment.[38] Different phases of treatment have also been known to trigger different emotional reactions. During treatment patients may swing between optimism and confidence, and hopelessness and sadness. Following treatment, patients may experience anxiety and fear at the possibility of a recurrence. The ability to make accurate assessments of emotions in the self and others (perception of emotion) and the ability to manage emotions in the self then become essential skills in living with cancer. Managing emotions includes the ability to stay open to feelings and to regulate others' and one's own emotions in order to enhance understanding and personal growth.

Researchers have noted that it is important for breast cancer patients to manage and express emotions appropriately.[39] Journaling, talking to one's spouse, friends or family, or joining a support group are some of the recourses suggested in terms of expressing emotions. The results show a statistically and practically significant negative correlation between the "managing own emotions" subscale (EQ2) and locus of control. Given the range of negative emotions that breast cancer patients experience, this sample's internal locus of control orientation would contribute to the patients' feeling that they are capable of managing their own emotions.

The ability to manage others' emotions is also an important skill for breast cancer patients as their family, friends and spouses have varying emotional reactions to their diagnosis.[40] They may interact with other breast cancer patients in the waiting room or in the treatment room who experience different emotional reactions to diagnosis, treatment and recurrences.[41] A statistically significant negative relationship was found between "managing others' emotions" (EQ3) and locus of control. This sample therefore has a sense of personal control with regard to managing others' emotions.

Conclusion and recommendations

This study is grounded in the theory of positive psychology that views human strengths as buffers against mental illness as well as physical vulnerabilities. The focus on strengths as opposed to deficits opens the door to prevention and health promotion. Intervention programmes could be developed and implemented during different phases of the chronic illness, which could lead to optimal functioning and improved quality of life. This study is therefore the first step in a relatively untouched research field that could contribute to more effective coping and the overall psychological well-being of individuals living with chronic illnesses in South Africa.

With specific reference to this sample, the findings shed light on the pivotal role that the skills associated with emotional intelligence can play in the myriad of emotional experiences that the breast cancer patient has to contend with. These skills, coupled with an internal locus of control orientation, could have important implications for the coping experience of breast cancer patients. In this article, the association between the ability to manage one's own emotions and locus of control as well as the association between the ability to manage others' emotions and locus of control gives interventionists some clues as to the role that personal control can play when imparting the skills of emotional intelligence. Fostering an internal locus of control can greatly enhance interventions that are aimed at imparting the skills of emotional intelligence. The timing of these interventions is also imperative as the phase of the disease in which the breast cancer patient is functioning has a profound influence on the self-report and further development of emotional intelligence and locus of control.[28,32]

The literature suggests that breast cancer patients seem to be more motivated during the treatment phase as a treatment plan is in place and treatment is in progress.[38,42] It is the phase after the completion of treatment that seems to be more challenging for patients.[42,43] However, research reveals that the majority of psychosocial interventions in previous studies have focused on the early diagnostic and the treatment phase.[43] In addition, the literature suggests that minimal interventions during the treatment phase

incorporate long-term follow-up, but research points to improved psychological functioning during later stages of survivorship when such interventions were implemented.[44] Therefore, although the treatment phase seems to be the best time for 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.

Regarding future research, it is recommended that studies using probability sampling be conducted to investigate emotional intelligence and locus of control and their relationship to each other in a multicultural South-African context. Furthermore, as stated earlier, the phase after the completion of treatment seems to be more challenging for patients and therefore 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, future research should eventually focus on exploring the specific function of these constructs, psychologically as well as physically in breast cancer populations in order to develop intervention programmes that will enhance these human strengths.

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