Locus of control, quality of life, anxiety, and depression among Malaysian breast cancer patients: The mediating role of uncertainty

Saeed Pahlevan Sharif
Taylor’s Business School, Taylor’s University Lakeside Campus, No. 1 Jalan Taylors, 47500 Subang Jaya, Selangor, Malaysia

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**Abstract**

**Purpose:** The main objective of this study was to investigate the mediating role of uncertainty in the relationship between locus of control with quality of life, anxiety, and depression.

**Methods:** A descriptive and correlational survey was conducted in a private hospital in Kuala Lumpur, Malaysia. A convenience sample of 118 Malaysian breast cancer patients voluntarily participated in the study and responded to a set of questionnaires including: socio-demographic questionnaire, the short form of Locus of Control Scale, the Functional Assessment of Cancer Therapy-Breast (FACT-B), the Hospital Anxiety and Depression Scale (HADS), and the Short-Form Mishel Uncertainty in Illness Scale (SF-MUIS).

**Results:** The results revealed that breast cancer patients with higher internal locus of control and lower external locus of control experience a higher quality of life, lower anxiety, and lower depression. Also, uncertainty mediated the relationship between locus of control with quality of life and depression (quasi-significant).

**Conclusions:** The findings indicated the need for early, targeted psychological interventions seeking to gradually shift cancer patients’ locus of control from external to internal in order to improve their quality of life and reduce their depression and anxiety. Moreover, health care providers by providing relevant information to cancer patients, especially for externally oriented patients, can reduce their uncertainty which in turn would improve their quality of life.

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1. Introduction

Breast cancer is a principal form of cancer and a significant cause of mortality in women worldwide. A report by UK Cancer Research estimated that more than 1.68 million new breast cancer cases were diagnosed and around 522,000 women died from breast cancer in 2012 worldwide (Cancer Research UK, 2016). Incidence rates remain high in both developed and developing countries. In Malaysia, the International Agency for Research in Cancer estimated 5410 new breast cancer cases and an age-standardized rate of 38.7 per 100,000 in 2012 (GLOBOCAN, 2012).

Research has shown that Malaysian women have poor survival from breast cancer (Yip et al., 2014) and even those who survive would suffer from psychological health issues, severe anxiety and depression, and low quality of life (QoL) (Basri et al., 2015; Boyle and Levin, 2008; Vahdaninia et al., 2010). This has attracted the attention and interest of researchers who seek to improve QoL of cancer patients. Among them, research suggests that locus of control (LoC) is one of the factors that contributes to the psychological health of cancer patients and plays an important role in patients’ health-related QoL and reduction of their anxiety and depression (Brown et al., 2015; Cheng et al., 2013; Panagiotou et al., 2014).

LoC is the degree to which an individual perceives that much of what happens in his/her life (including health) is controlled by either internal (his/her own actions) or external factors (powerful others, fate, or coincidence) (Lefcourt, 1976; Rotter, 1966). Indeed, LoC is best thought of as a continuum and each individual falls between these two ends (Brown et al., 2015).

A breast cancer patient faces a variety of reminders of death since the time of her illness diagnosis. Thus, she may unwillingly be forced to think about her mortality and assess the factors contributing to her illness and treatment. According to Brown et al. (2015), during such existential threat, a woman may respond in different ways. Among them, women with a high external LoC orientation believe that external factors determine outcomes and their own
efforts play a little role. These women feel powerless and doubt that they may have any control over their fate. Instead, they believe that their fate and health are influenced by powerful others (medical professionals), or no one at all (luck and chance). As a result, they may experience lower QoL and higher anxiety and depression.

Indeed, it is a widely held belief that high external LoC leads to demotivation, contributes to anxiety and depression, and has a negative impact on psychological outcomes and QoL (Birmelé et al., 2012; Brown et al., 2015; Presson and Benassi, 1996) and lower QoL and psychological outcomes (Brown et al., 2015; Iskandarsyah et al., 2013; Shaha et al., 2011), there are some studies that associated it with some advantages (Burish et al., 1984). Among them, there are also some studies that failed to support the relationship between LoC with QoL, anxiety and depression (Broers et al., 2000; Hulbert-Williams et al., 2012; Watson et al., 1990).

Despite the plethora of studies on the relationship between LoC and QoL, anxiety and depression, a paucity of data exists on the mechanism behind this association within the literature. Further, most research on this relationship has been done in the Caucasian population and there is a lack of empirical studies focusing on cancer patients in Malaysia. The present study, is an attempt to fill these gaps in the literature, investigates the relationship between LoC with QoL, anxiety, and depression among Malaysian breast cancer patients and also introduces uncertainty as a mediator in the aforementioned relationships to improve our understanding of the underlying process.

1.1. The mediating role of uncertainty

Uncertainty is defined as “the inability to determine the meaning of illness-related events and occurs in situations where the decision maker is unable to assign definite values to objects and events and/or is unable to accurately predict outcomes because sufficient cues are lacking” (Mishel, 1990). Women diagnosed with cancer experience uncertainty about the future and success of treatments which both provoke different psychological reactions (Mishel et al., 2002; Penrod, 2002). Women diagnosed with breast cancer may suffer from uncertainty, even for years after finishing their treatments due to the long-term effects and the risk of cancer recurrence (Shaha et al., 2008). There is an abundant literature that suggests the lack of certainty about a disease may result in lower QoL and higher anxiety and depression in patients (Barahmand and Hajj, 2014; Gaudine et al., 2003; Parker et al., 2013; Penrod, 2002; Wallace, 2003).

In order to manage uncertainty, patients may use a variety of coping strategies. Shaha et al. (2008) state that internal LoC can be an important one. For an individual with a high level of internal LoC, uncertainty would likely be perceived more controllable and as an opportunity. On the other hand, a person with high level of external LoC may appraise an uncertain event as dangerous in situations where the credible authority is not available (Mishel, 1988). The literature shows that patients with high level of internal LoC tend to have more effective coping strategies to manage uncertainty and live with distress and change (Lin and Tsay, 2005; Shaha et al., 2008). They have better understanding of their own conditions and tend to have a higher level of health information seeking behavior; as a result, they tend to have more exposure to health and medical information related to their disease. This, in turn, may help them to manage the uncertainty about their illness (Lin and Tsay, 2005; Shaha et al., 2008). Indeed, patients who have a disposition toward internal LoC are more likely to actively participate in their own health care and health-related information seeking and thus, they may be more likely to be informed about their diagnoses and treatments which in turn may reduce their uncertainty (Lin and Tsay, 2005; Watson et al., 1990). However, externally oriented patients tend to show the reverse pattern. Therefore, this study proposes that uncertainty mediates the relationship between LoC with QoL, anxiety, and depression in Malaysian breast cancer patients. For the purpose of this study and based on the literature reviewed previously, the following six hypotheses are developed.

H1.a: LoC has a relationship with QoL.
H1.b: LoC has a relationship with anxiety.
H1.c: LoC has a relationship with depression.
H2.a: Uncertainty mediates the relationship between LoC and QoL.
H2.b: Uncertainty mediates the relationship between LoC and anxiety.
H2.c: Uncertainty mediates the relationship between LoC and depression.

2. Method

2.1. Design

A descriptive and correlational cross-sectional, questionnaire-based design was undertaken to examine the mediating role of uncertainty in the relationship between two dimensions of LoC (internal and external) with QoL, anxiety, and depression in a sample of Malaysian women diagnosed with breast cancer.

2.2. Samples and settings

This study was conducted on Malaysian women with breast cancer in a private hospital in Kuala Lumpur from January 2016 through April 2016. During the data collection period, by using a convenience sampling technique a trained research assistant and two nurses approached 127 patients shortly after their appointment in the clinic to explain the purpose, procedure, and time required to participate in the study. Among them, nine patients declined to participate. Finally, the remaining 118 patients were included in the study. Eligible participants were 18 years and older and diagnosed with breast cancer, regardless of its stage. Assessments were conducted in a quiet room at the participating hospital. The results of power analysis by using Cohen et al. (2003) approach and G.Power 3.1.7 showed that this sample size is big enough to achieve an alpha less than or equal to 0.05 (two-tailed) and power greater than or equal to 80%.

2.3. Ethical consideration

Prior to beginning the study, the study protocol and the consent form were approved by the ethical committee of Taylor’s University. All participants provided informed consent. An overview of the objectives of the study was provided to the participants and they were assured that all questionnaires are anonymous, and participation in this study is voluntary.
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