



A biopsychosocial model of resilience for breast cancer: A preliminary study in mainland China

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ABSTRACT

Purpose: Patients diagnosed with breast cancer exhibited critical biopsychosocial functions following surgery or adjuvant treatment; therefore, it is important that they exhibit resilience. A Resilience Model for Breast Cancer (RM-BC) was developed using Chinese breast cancer patients to increase our understanding of how resilience outcomes are positively and negatively affected by protective and risk factors, respectively.

Methods: Chinese women with breast cancer completed the questionnaires within 1 week of beginning treatment. Exploratory Structural Equation Modeling was used to evaluate the RM-BC using a sample size of 342 patients.

Results: RM-BC suggested satisfactory goodness-of-fit indices and 67 percents of variance for resilience was explained. The Fit Indices for the measurement model were as follows: CFI = 0.909, GFI = 0.911, IFI = 0.897, NFI = 0.922, PNFI = 0.896, PCFI = 0.884, and RMSEA = 0.031. Three risk factors — emotional distress, physical distress, and intrusive thoughts — and four protective factors — self-efficacy, social support, courage-related strategy, and hope — were recognized.

Conclusion: The resilience model allows for a better understanding of Chinese breast cancer patients' resilience integration while undergoing treatment and provides an effective structure for the development of resilience-focused interventions that are grounded in their experiences. A randomized trial has provided evidences of feasibility in Chinese women with breast cancer and the resilience model could be used as a useful framework for more resilience intervention in the future.

1. Introduction

Breast cancer is the leading cause of cancer-related deaths in women and accounts for 10% of new malignancies annually worldwide (Torre et al., 2015). In Mainland China, about 210,000 women with breast cancer will be confirmed in 2018 and China will have 2.5 million breast cancer survivors by 2021 (Zhang et al., 2012). In the transition period, patients suffered a lot from biopsychosocial burdens induced by breast cancer and were required to learn self-care skills to combat the disease (Stanton et al., 2005). Despite the substantial amount of stress, the patients' psychosocial and physical reactions to this traumatic event

vary depending on multiple factors (Allen et al., 2009; Andersen et al., 2008); and some protective factors can help patients adjust themselves to this traumatic event, for example, by increasing their resilience levels, which is typically defined as the capacity to “bounce back” (or reduced negative responses) after encountering a traumatic event (Haglund et al., 2007). Whether resilience should be defined as a dynamic “state” variable or a stable “trait” variable is debated (Bonanno, 2012; Prince-Embury, 2013). Generally, it is suggested that anyone has a different baseline of resilience but can be enhanced through interventions. Resilience has been found in several western studies to be indicators of positive biopsychosocial functions and provides

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researchers with insights about how breast cancer survivors can resist negative biopsychosocial responses and achieve optimal transition during the treatment and subsequent survivorship [Allen et al., 2009; Andersen et al., 2008; Haglund et al., 2007; Luthar and Cicchetti, 2000].

2. Literature review

2.1. A model of resilience

Resilience is defined as the ability to display stable or optimal physical and psychosocial function when faced with significant adversity or traumatic events, such as a cancer diagnosis (Rutter, 1985). Resilience is characterized based on the protective factors (e.g., social resources, etc.) and risk factors (e.g., emotional distress, etc.) according to Kumpfer's resilience theory (Appendix, Fig. S1, Kumpfer, 1999). Positive factors and risk factors interact according to the empirical research, and protective resources are largely decreased if the subjects are exposed to long-term risk factors (Kumpfer, 1999; Craig, 2012). Thus, enhancing the protective factors and decreasing the risk factors of resilience could be an important intervention in breast cancer rehabilitation. Although the individualized process of adjustment to traumatic event was specifically described in the Kumpfer's framework, breast cancer has not been specifically described in the framework (Craig, 2012; Ye et al., 2017). All this suggests that a biopsychosocial resilience model for breast cancer (RM-BC) based on Kumpfer's theory can facilitate understandability of the adjustment process in breast cancer survivors.

2.2. Preliminary hypothesis for RM-BC

In this model, we proposed that four strength-based protective variables provide buffers for patients' resilience levels and decrease the effect of all types of risk factors on resilience. Patients who experience severe symptoms of physical or psychological distress (risk factors) and have low levels of external or internal strength (protective factors) will display lower levels of resilience, which is presented in Fig. 1. Four strength-based protective variables (social support, courage-related strategy, hope for the future and self-efficacy) are believed to directly contribute to resilience and, as potential mediators, will serve as buffers to resilience against the effect of three risk factors (emotional distress, physical distress, and intrusive thoughts). Resilience and transcendence

interacted and were added as outcome variables. This study was designed to examine the influencing factors of resilience among Chinese patients with breast cancer and to test the relationship of these factors in the RM-BC model. The information about risk and protective factors of RM-BC was detailed below.

2.2.1. Emotional distress (anxiety, depression and illness uncertainty, risk factors)

Anxiety and depression have been shown to have associations with elevated levels of stress and poor positive outcomes following a cancer diagnosis (Haglund et al., 2007; Steinhardt and Dolbier, 2008). Illness uncertainty is one of the most important psychological stressors when people are affected by life-threatening illnesses and patients with breast cancer experience higher levels of illness uncertainty compared with other cancer patients (Miller, 2012). They urgently want to know what they will suffer from the treatment and whether they will survive from the cancer disease (Miller, 2012). Anxiety, depression and illness uncertainty were three significant indicators to lower levels of resilience among patients with breast cancer in previous study (Ye et al., 2016a,b,c, 2017d,e).

2.2.2. Physical distress (fatigue, pain, nausea, risk factor)

More than 60% of patients with breast cancer were reported to have different levels of fatigue, which affects their health-related quality of life (Loprinzi et al., 2008). Pain is another common burdensome symptom; even 9.4 years following the diagnosis, 46% breast cancer survivors reported at least some pain (Jensen et al., 2010). Nausea and vomiting is common during the chemotherapy treatment for breast cancer and cause elevated levels both of physical and psychological distress, resulting in a lower level of QOL (Yates et al., 2005; Allen et al., 2009). Fatigue, pain, nausea will affect patients' resilience by increasing the level of emotional distress (i.e., depression and anxiety), which has been confirmed in patients with different cancer types (Stanton et al., 2005; Allen et al., 2009; Ye et al., 2016a,b,c, 2017d,e; Matsuoka et al., 2002).

2.2.3. Social support (protective factor)

A strong support system can help patients overcome difficulties in challenging situations and is a robust buffering factor between stressors and psychosocial symptoms, which has been proven in previous studies (Allen et al., 2009; Yates et al., 2005). Social support is also an important resource to resilience integration and was found to be positively

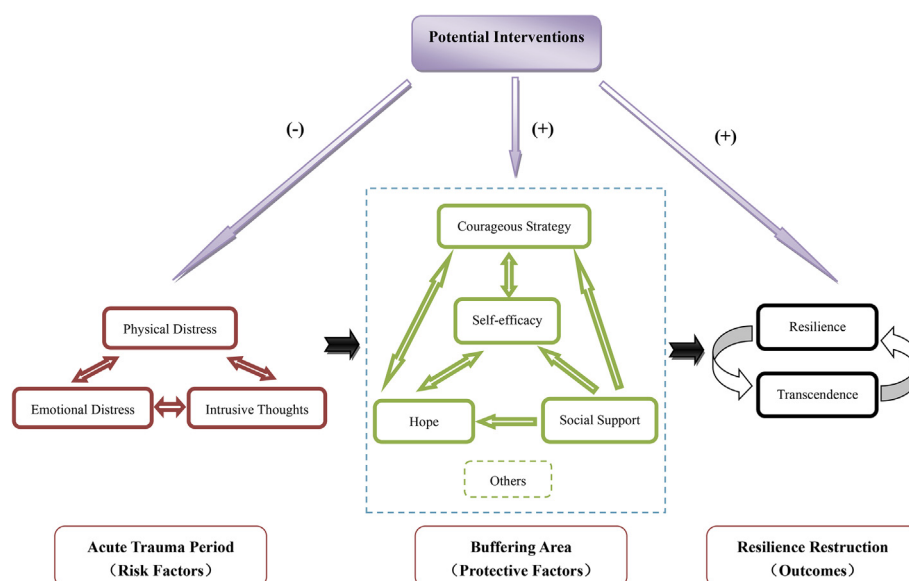


Fig. 1. Hypothesized model of resilience in Chinese breast cancer survivors (RM-BC).

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