The Mediation Role of Psychological Hardiness between Emotional Self-regulation and Stress Management in Breast Cancer Patients

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Authors' contributions

This work was carried out in collaboration among all authors. Author MSA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors MM and SMAH managed the analyses of the study. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Introduction: Breast cancer is the most prevalent cancer in both developed and developing countries. It may cause several problems regarding physical, psychological, and social aspects. Cognitive emotion self-regulation is key factor in coping with these issues. This study is aimed to assess the mediating role of psychological hardiness between emotional self-regulation and stress management in breast cancer patients.
Method: Current study is a cross-sectional study. Study society included women with breast cancer referring to shiraz governmental hospitals including Namazi, Shahid Faghihi and Bualisina Hospitals from which 120 individuals fulfilling inclusion criteria were enrolled in this study. This investigation is a descriptive-correlation study in which three questionnaires (psychological hardiness, emotional self-regulation and stress management) were used for data collection. Data

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was analyzed using statistical methods such as Pearson correlation coefficient and regression using SPSS ver. 24 software.

Results: Mean age of participants was 45 years in this study (81.7%). Results of regression test revealed a significant relationship between cognitive emotional self-regulation with stress management and cognitive hardiness (P<0.001). Regression results showed that cognitive emotional self-regulation explains 17% and 15% of all changes in cognitive hardiness and stress management.

Conclusion: Results of this study showed that emotional regulation (disorder in emotional regulation) can directly affect stress management ability. Moreover, increased emotional regulation disorder, reduced psychologic hardiness. Thus, emotional self-regulation can affect quality of life of these patients and improve their ability to cope with cancer-derived challenges.

1. INTRODUCTION

The pattern of disease has been changed because of social and industrial developments. Nowadays, the major health problem for individuals and health-related organizations is chronic diseases. They have psychological and social effects on people and society. Furthermore, they impose heavy economic costs on the governments. Threatening human health as well as active life at different ages, cancer is one of the critical health problems in the world that causes different individual, family, and social damages [1]. Some of the problems include a decrease in life quality, pain, fatigue, cognitive disorders, personality disorders, anxiety, despair, and hopelessness. Cancer treatment as a complicated process often has critical side effects- it affects the physical, psychological, and social aspects of the patients with cancer as well as their families. Cancer is a wide range of diseases with special etiology, treatment plans, and prognosis. After cardiovascular diseases, it is the second cause of death in human societies [2]. Breast cancer is the most common cancers in women and it is also the second most common cancers in the world. Moreover, it is the most emotionally and psychologically effective cancers in women. Though many developments made in the diagnosis and management of breast cancer, 520000 individuals in the world die because of it per year [3]. Stress is a condition that causes distress in normal psychological or physiological functions of most people. It is anything that engenders the survival of an individual; the body reaction is to put some responses into action trying to reduce the stress cause and restore the body's balance. The more an individual is exposed to the stress of cancer, the more the negative effect of psychological and physiological aspects of it will appear. So, the immune system function of an individual will reduce and have difficulty in dealing effectively with the disease. Chronic disease such as cancer leads to severe psychological stresses in the patients [4]. Hardiness is a personal trait that acts as a defense shield in dealing with life pressures to maintain individuals' physical and psychological health. It can affect the attitude towards stress and exposure to it to find a way to control it. Women with breast cancer experience many tensions and stresses due to awareness of the illness, heavy treatment cost, fear of death, dietary restriction, attending treatment sessions, physical fatigue, lack of control of the therapeutic process, and feeling of failure in life management [5]. Three components of control, commitment, and challenge have a single structure that can act as a shield against stress and reduce its harmful effects. After awareness of the disease, the first effective belief in maintaining health is to control the situations affect severely the life of women patients. Because the feeling of control reduces the immediate tension of awareness of the disease. The patients with the feeling of control can better control their negative emotions such as anger, strengthen past relationships and manage their therapeutic processes. The feeling of commitment as the other components of hardiness causes the stability of the individual in therapeutic plans. Committed women try to continue their therapeutic plans and do well their marital and maternal duties as much as possible. Struggling with the disease protects the women from the most psychological and physical pressures resulted from the disease. The women with overwhelming personalities believe that cancer like any other difficulty is a part of life; instead of escaping it one should strongly make an attempt to find a way to struggle with it. So, there is no reason for depression and severe anxiety. But, one should cope effectively with the disease and also its different symptoms by the change of attitudes

towards disease and the design of new methods of resistance [6].

The study of Rezaei Ardani, et al. (2012) was an applied study performed on 32 newly diagnosed breast cancer women at Stage 1 and Stage 2 referred to Medical Center of Imam Reza (AS) in Mashhad. The results of the study showed that stress and anxiety changes in the post-test were significantly different between intervention and control groups. The researchers concluded that stress management with a cognitive-behavioral method can affect stress, anxiety, and life quality in women with breast cancer [7].

The study performed in China by So, et al. (2010) investigated the prevalence of anxiety and depression in patients with breast cancer as well as its effect on the life quality of the patients. It was noticeable that the prevalence of anxiety and depression was higher in patients undergoing chemotherapy. As expected, the final result of the study showed the significant impact of anxiety and depression on the quality life of the patients (totally and separately affected on different aspects) [8].

Saniah, et al. (2010) suggested a prevalence of anxiety and depression in patients with breast cancer in Malaysia. The findings revealed that the high percentage of patients with breast cancer undergoing chemotherapy, experience anxiety as well as depression; the prevalence of anxiety was 24/1% and depression was 19/1% [9].

Tadayon, et al. (2018) performed a descriptive-analytical study under the title of "The study of the relationship between psychological hardship and flexibility to depression in women with breast cancer". The population of the study was the women with breast cancer undergoing chemotherapy at the oncology centers of Imam Hasan Mojtaba Hospital (AS) in Dezful, from July 2015 to December 2016. The findings resulted from the study showed that 61.4 percent of the respondents had depression symptoms. Among participants, the symptoms of the mild, moderate and severe depression appeared as 37.7, 2.20 and 3.5 percent, respectively. There was also a significant relationship between the flexibility and stability of depression in women with breast cancer. Although the level of disease resistance and flexibility increased among women with breast cancer, the level of depression decreased. It is indicative that there should be educational planning and counseling services for women

with breast cancer to improve their mental health [10].

According to the basics and literature review of the research, the performance of such a study is necessary. So, besides medical treatments, the usefulness of psychological-behavioral treatment should be pictured on a sample of the population of patients with cancer. To this end, the recovery will be accelerated, the length of stay will be decreased, the treatment cost will be reduced, and the patients will be back to life. The purpose of the study is to review the mediating role of the psychological hardiness between emotional self-control and stress management in patients with cancer.

2. MATERIALS AND METHODS

Among patients referring to governmental hospitals including Namazi, Shahid Faghihi and Bualisina Hospitals (21, January 2019 to 21, April 2019), 120 patients diagnosed with breast cancer entered the study according to variable features. In this study, Long and Gullet psychological hardiness (LGHS) and self-regulation and stress management Family health international (FHI) questionnaires were used for data collection. After taking informed consent from patients, considering study inclusion criteria, samples were taken by simple sampling method to reach desired sample size and considering investigator's desired characteristics. After data collection, data was analyzed using SPSS version 24. Desired information was gathered, classified and then analyzed using descriptive (mean and standard deviation) and inferential (independent t-test, Pearson correlation coefficient and multi-variable regression analysis) statistical tests with piecewise method.

3. RESULTS

In this part, the data analysis on 120 participants is presented. Study results are expressed in two descriptive and inferential parts including demographic information of sample group, mean and stand farad deviation of study variables and inferential statistics of hypothesis evaluation.

Table 1 shows frequency distribution of participants according to age, frequency, and percentage of participants regarding marital status, frequency distribution, and response percentage based on their job.

According to the information in the above Table, 2 patients aged 26 to 35 years (1.7%), 20

patients 36-40 years (16.7%), and the rest, 98 patients (81.7%) aged above 46 years. 95 patients were married (79.2%) and 25 patients were single (20.8%). Additionally, 13 patients were housewife (10.8%), 25 were employed (20.8%), 37 were self-employed (30.8%) and the rest, 45 patients (37.5%) were students.

It can be concluded from the analysis of regression analysis test in Table 2, it can be inferred that there is a linear significant relationship between predictor variable (emotional self-regulation) and criterion variable (stress management) [p<0.001; F=15.81]. Lack of accepting emotional responses (B=-0.16), disorder in performing intended behavior (B=-0.21), disorder in impulse control (B=-0.16) and lack of emotional awareness (B=-0.14) are significant negative predictors of stress management. Though, other aspects (limitation in emotional regulation approaches and lack of emotional transparency) could not predict stress management. R^2 equals 0.17 indicating that 17% of changes in stress management in breast cancer is predicted by emotional self-regulation.

According to the results of regression analysis test in Table 3, it can be inferred that there is a linear significant relationship between predictor variable (emotional self-regulation) and criterion variable (psychological hardiness) [p<0.001; F=21.65]. Disorder in performing intended behavior (B=-0.27), and lack of emotional awareness (B=-0.21) are significant negative predictors of psychological hardiness. Though, other aspects (lack of accepting emotional responses, limitation in emotional regulation approaches and lack of emotional transparency) could not predict stress management. R^2 equals 0.15 indicating that 15% of changes in psychological hardiness in breast cancer is predicted by emotional self-regulation.

Table 1. Demographic information of patients with breast cancer

Variable	Frequency (Frequency percentage)
Age (years)	
26-35	2 (1.7%)
36-45	20 (16.7%)
>46	98 (81.7%)
Marital status	
Married	95 (79.2%)
Single	25 (20.8%)
Job	
Housewife	13 (10.8%)
Employed	25 (20.8%)
Self-employed	37 (30.8%)
University Student	45 (37.5%)

It can be concluded from the analysis of regression analysis test in Table 4, that there is a linear significant relationship between predictor variable (psychological hardiness) and criterion variable (stress management) [p<0.001; F=19.45]. Commitment (B=-0.16), Control (B=-0.21), and aggression (B=-0.16) are significant positive predictors of psychological hardiness. R^2 equals 0.13 indicating that 13% of changes in stress management in breast cancer is predicted by emotional hardiness.

As it is demonstrated, the direct effect of emotional regulation on stress management and psychological hardiness is negative and significant. In fact, emotional regulation negatively and significantly predicts psychological hardiness (β_0=-0.27, P=0.001) and stress management (β_0=-0.31, P=0.001). Moreover, the effect of psychological hardiness on stress management is positive and significant. In fact, psychological hardiness significantly and positively predicts stress management (β_0=0.24, P=0.001).

Table 2. Results of multiple regression to predict stress management based on emotional self-regulation

Predictor variable	R	R^2	F	P<	Beta	T	P<
Lack of accepting emotional responses	0.41	0.17	15.81	0.001	-0.14	-2.52	0.05
Disorder in performing intended behaviors					-0.15	-2.61	0.02
Disorders in impulse control					-0.21	-3.06	0.002
Lack of emotional awareness					-0.16	-2.55	0.01
Limitations in emotional approaches regulation					-0.12	-1.93	0.09
Lack of emotional transparency					-0.09	-1.26	0.20

Table 3. Results of multiple regression to predict psychological hardiness based on emotional self-regulation

Predictor variable	R	R^2	F	P<	Beta	T	P<
Lack of accepting emotional responses	0.39	0.15	21.65	0.001	-0.06	-1.52	0.12
Disorder in performing intended behaviors					-0.19	-3.25	0.003
Disorders in impulse control					-0.27	-4.11	0.001
Lack of emotional awareness					-0.21	-2.14	0.002
Limitations in emotional approaches regulation					-0.10	-1.21	0.10
Lack of emotional transparency					-0.13	-1.84	0.07

Table 4. Results of multiple regression to predict stress management based on emotional self-regulation

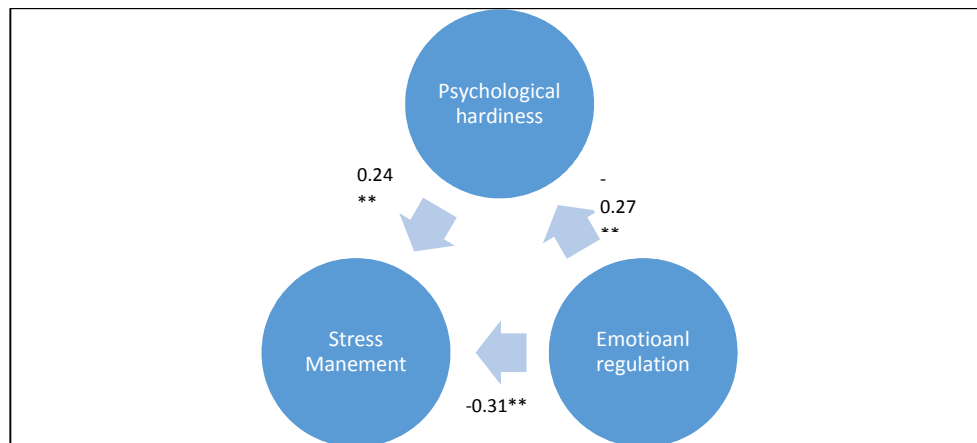| Predictor variable	R	R^2	F	P<	Beta	T	P<
Commitment	0.37	0.13	19.45	0.001	0.29	3.45	0.01
Control					0.17	2.05	0.03
Aggression					0.24	2.65	0.002

Fig. 1. Assessment of the mediator role of psychological hardiness between emotional self-regulation and stress management in breast cancer patients

4. DISCUSSION

The objective of this study is to evaluate the mediating role of psychological hardiness between emotional self-regulation and stress management in breast cancer patients. This study is a descriptive study of pathway analysis and statistical samples include all breast cancer patients in Shiraz in spring 2019.

Results of this study showed that there is a significant linear relationship between emotional self-regulation and stress management and aspects of lack of accepting emotional responses, disorder in performing intended behaviors, disorder in impulse control, and lack of emotional awareness significantly and negatively predict stress management. Though, other aspects (limitations in emotional regulation approaches and lack of emotional transparency) could not predict emotional hardiness. Moreover, 17% of stress management changes in breast cancer patients was predictable by emotional self-regulation. Besharat and Farahman (2017) reported consistent results with this study. They reported that emotional regulation difficulties increase the inability to manage stress and issues related to anxiety and depression. According to the results of studies and experimental evidences, it can be stated that due to the positive and constructive role of emotions in human life, there is another aspect in human

life which is the destructive role of emotion in their life. In fact, an emotion becomes destructive and harmful when it is demonstrated with wrong tools, in an inappropriate texture, very severe, or on a long-term course. This dual function of emotions points to the emotional regulation process in which individuals regulate and attenuate their emotions based on different situations. In fact, emotional regulation mentions the process through which people affect their emotions and based on this process, it is known that how people experience and express their emotions [11].

Results showed that there is a linear significant relationship between emotional self-regulation and psychological hardiness. Disorder in performing intended behavior and lack of emotional awareness are significant negative predictors of psychological hardiness. Though, other aspects (lack of accepting emotional responses, limitation in emotional regulation approaches and lack of emotional transparency) could not predict stress management. Additionally, 15% of changes in psychological hardiness in breast cancer is predicted by emotional self-regulation. In a consistent study with our study, Mecheal, et al. (2009) showed that cognitive-behavioral intervention for stress management helps the recovery of breast cancer patients during treatment or after the treatment course [12]. Coutinho, et al. (2010) stated that emotional regulation is a unique procedure to attenuate their emotional experience to achieve social desirability and reaching an appropriate physical and social status to respond to internal and external requests [13].

Results of this study showed that there is a linear significant relationship between psychological hardiness and stress management and commitment, control, and aggression are significant positive predictors of psychological hardiness. Furthermore, 13% of changes in stress management in breast cancer is predicted by emotional hardiness. In a consistent study with the current study, Tadayon, et al. (2018) showed that there is a negative significant relationship between psychological hardiness and flexibility with depression of women with breast cancer [10]. Aghajani, et al. (2017) showed a significant relationship between hardiness features with general health of women with breast cancer. According to the results of this study and experimental evidences, it can be stated that psychological hardiness is a personality feature which acts as a defensive

barrier to protect individuals physical and psychological health when facing life pressures which can affect attitude towards stress, and facing with it, and finally stress management [14].

5. CONCLUSION

According to the results of this study, the self-regulatory role of emotional regulation in effectiveness on stress management in women with breast cancer both directly and indirectly through psychological hardiness can be explained through ability or inability in emotion management in life challenges.

CONSENT

After taking informed consent from patients, considering study inclusion criteria, samples were taken by simple sampling method.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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