



The Relationship between Self-Efficacy, Optimism and Hope with Anxiety and Depression in Breast Cancer Patients during the COVID-19 Pandemic: The Mediating Role of Resilience

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Abstract

Introduction: Some breast cancer sufferers experience the recovery period due to the impact of covid-19, which is psychologically affected, staying at home and the recovery process increases the feeling of loneliness and psychological stress in them. The main purpose of this study was to investigate the relationship between self-efficacy, optimism and hope with anxiety and depression in women with breast cancer with the role of mediator of resilience during the covid-19 pandemic.

Methods: The present study is descriptive of the correlation type. The statistical population of this research included all women with breast cancer in Gorgan city, 135 women with breast cancer, according to the inclusion criteria (including pathological diagnosis of breast cancer by a specialist, age over 18 years, reading and writing literacy and no medical diagnosis Acute or chronic diseases such as cardiovascular and kidney problems) were selected by purposive sampling. Data were collected using Demographic Questionnaire, Hospital Anxiety and Depression Scale, Connor-Davidson Resilience Scale, Vision About Future Scale and Sherer General Self-Efficacy Questionnaire. The data was analyzed using SPSS and AMOS software with Structural Equation Model (SEM) analysis method.

Results: The findings showed that there is a positive and significant relationship between self-efficacy, optimism and hope with resilience and a negative and significant relationship with anxiety and depression of women with breast cancer ($P < 0.01$). Also, there is a negative and significant relationship between resilience and anxiety and depression ($P < 0.01$). The results of the model analysis also showed that resilience plays a mediating role in the relationship between self-efficacy, optimism and hope with anxiety and depression and has a favorable fit.

Conclusions: The result is that resilience along with self-efficacy, optimism and hope as a positive psychological factor can play a role in reducing the psychological distress of patients during the covid-19 pandemic. For these women, our findings suggest the implementation of psychological interventions that build resilience.

INTRODUCTION

The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes coronavirus disease-2019 (COVID-19) was first reported in China by the end of 2019 and spread rapidly to other countries by the beginning of 2020 [1]. Unfortunately, the respiratory disease Covid-19 affects people with the disease, and many people, including cancer patients, experienced feelings of fear and anxiety during this pandemic [2]. Breast cancer patients suffer from various physical, sexual and psychological problems following the disease and medical treatments. These problems

provide the basis for individual and interpersonal problems [3]. But the outbreak of the emerging disease of Covid-19 in 2019 is a challenge for breast cancer patients so that they cannot be present in the treatment and educational environments as before. In fact, this virus has created unprecedented stress in medical centers and among patients who are facing challenges whether they like it or not, and it can be considered as a disaster for people in society, especially women [4]. It should be noted that this creates double stress for patients with breast cancer, because these patients are

worried about possible delay in treatment on the one hand, and on the other hand, being treated and the possibility of contracting the corona virus poses a greater risk to patients. and this issue also has its own concern and is ultimately a threat to physical and mental health [5].

Breast cancer is the most common type of cancer among women, which is the cause of death of many women worldwide every year [6]. Studies have shown that breast cancer patients may experience psychosomatic symptoms caused by these treatments, such as fatigue, depression, anxiety, sleep disturbance, and cognitive dysfunction [7]. Another research has shown that the increase in the covid-19 epidemic has caused an increase in negative emotions such as fear, anxiety, depression and a decrease in positive emotions such as happiness in people with breast cancer [8]. Another study reported that specific fears and anxieties caused by COVID-19 are associated with increased depression, anxiety, and stress in people with cancer [9]. Also, the COVID-19 pandemic has exacerbated psychological and physical problems among breast cancer patients and survivors [10]. These studies emphasize the importance of identifying protective psychological variables to reduce the onset of these symptoms during the COVID-19 pandemic. Resilience is a good candidate for reducing the psychological problems of women with breast cancer and strengthening it through psychological interventions [11].

Resilience is an important psychosocial factor in breast cancer patients [12]. Resilience is the ability to cope with traumatic and stressful events and overcome them in an effective way and includes characteristics such as cognitive flexibility, positive emotions and active coping [13]. Evidence shows that resilience is considered as a defense mechanism to deal with the emotional and social stressors of breast cancer diagnosis and related to its treatment [14]. Resilience as a dynamic process that includes adaptation and levels of psychological functioning in facing stressful situations in breast cancer patients [15]. Studies have shown that resilience can be increased by positive personal variables such as self-efficacy, optimism, and hope in breast cancer patients [16]. People who are full of optimism, hope, are motivated and have solid social support system prior to the adversity, may be considered as more resilient [17]. Resilience can be increased through the activation of emotional-motivational mechanisms such as self-efficacy (i.e., belief in the ability to do new or difficult tasks and achieve desired results) in difficult situations, such as chemotherapy and radiotherapy after breast cancer surgery [18]. A study in this field showed that cancer patients who had higher self-efficacy also had a faster recovery rate [19]. On the other hand, cancer has the greatest impact on hope compared to other diseases [20]. Hope (that is, wanting something to happen or to be true) as an inner force can enrich life and enable breast cancer patients to see a vision beyond the

bleakness of their current situation [21]. Research results show that during treatment, people who have higher hope show greater resilience and resistance in enduring long and painful treatments and are more optimistic about the future [22, 23]. Also, optimism (i.e., a sustained tendency to expect positive rather than negative events in one's life) increases resilience in breast cancer patients [24]. cancer survivors, who are more optimistic and hopeful for the future, cope better with cancer and even experience personal growth [24]. Studies show that optimism is associated with a variety of adaptive outcomes such as improved psychological well-being, increased resilience, physical health, and coping with uncontrollable life events [25]. Taken together, optimism, hope, and self-efficacy can be seen as positive personality traits and may protect against negative mental health outcomes from COVID-19.

Several findings showed that resilience is associated with low levels of psychological distress, anxiety, depression, adaptation and better quality of life in breast cancer patients [26, 27] and helps to moderate and reduce psychological problems related to cancer [28]. In fact, a high level of resilience is a protective factor against depression and psychological distress and can be an effective factor in reducing stress [29] and high levels of resilience in women with breast cancer led to better emotional adjustment [30]. However, the COVID-19 pandemic poses an alarming challenge to breast cancer patients, as it has disrupted their treatment plans [31] and as a result, their psychological distress increases [10]. Therefore, we hypothesize that resilience can act as a protective factor against psychological problems caused by covid-19. Despite the evidence discussed above, no study has examined the stability of positive psychological resources and their key role in coping with difficulties and preventing psychological distress in breast cancer patients during the Covid-19 pandemic. Therefore, the purpose of this study is to investigate the relationship between self-efficacy, hope and optimism with anxiety and depression of women with breast cancer with the mediating role of resilience during the covid-19 pandemic.

METHODS

The present research is applied in terms of purpose and descriptive in terms of correlation type. The statistical population of this study included all women with breast cancer who visited three hospitals (5 Azar, Social Security, and Shafa) in Gorgan for chemotherapy and post-surgery care in the winter and spring of 2022. Sampling was done after obtaining approval from the Ethics Committee of Golestan University of Medical Sciences (IR.GOUMS.REC.1401.028) and considering ethical rules in the research, including obtaining informed consent from women with breast cancer and observing the principle of confidentiality. The sample size based on the general purpose of the study, the probability of type 1 error was 0.05%, the power of the

test was 0.1%, 135 patients with cancer. A number of 135 women with breast cancer were selected by purposive sampling method from three hospitals (5 Azar, Social Security and Shafa) in Gorgan city, following the inclusion criteria. Inclusion criteria include: (1) pathological diagnosis of breast cancer by an expert, (2) age over 18 years, (3) reading and writing literacy, (4) lack of medical diagnosis of acute or chronic diseases such as cardiovascular problems and Renal and exclusion criteria included: (1) patient with malignant tumor, (2) having physical problems, (3) acute mental disorder and (4) incomplete completion of the questionnaire. The method of implementation was that first, explanations about the research and its purpose were given to the people with the help of hospital nurses, how the patients cooperated and completed the questionnaires, and the principle of information confidentiality. Also, informed consent was obtained from all participants and it was explained that the obtained information will remain confidential and the identity of the individuals will not be revealed. Then the questionnaires of hope, self-efficacy, optimism and anxiety and depression were completed by the participants. For patients who could not complete the questionnaires independently, the researcher read the questions and filled in the patient's answers. The researcher got help from two nurse colleagues to collect data. It took approximately 30 to 45 minutes for each participant to complete the questionnaires, and due to the chemotherapy conditions of the participants, it took 55 days for the data to be completely collected. Descriptive and correlational statistical methods were first used to analyze the data. Then, to evaluate the conceptual model, structural equation modeling analysis with maximum likelihood estimation method was used in AMOS-24 and SPSS-26 software. The research questionnaires include the following:

Demographic questionnaire that included age, employment status, education level, and cancer grade. Hospital Anxiety and Depression Scale (HADS): This questionnaire was designed by Sigmund and Smith (1983) and contains 14 items [32]. 7 items assess depression and 7 item assess anxiety. The items were rated using a 4 - point Likert scale (from 0 to 3) with higher scores reflecting higher levels of depression and anxiety. A score between 0 and 7 in each subtest is considered as no disease, 8 to 13 as borderline and a score of 11 and above is considered a clinical disease. The total scores of the questionnaire range from 3 to 21 for each of the subscales. Cronbach's α were 0.85 and 0.88 for the depression and anxiety scale, respectively. In Iran, it was translated and validated by Montazeri, and Cronbach's alpha coefficient was mentioned as 0.78 [33]. Connor-Davidson Resilience Scale (CD-RISC): Resilience was measured with the Connor-Davidson Resilience Scale [34]. The 25 items were rated using a 5-point Likert scale ranging from 0 (not true at all) to 4

(true nearly all the time) and they are distributed in five sub-scales: positive acceptance (5 items), competence and tenacity (8 items), self-control (3 items), spiritual influences (2 items), and tolerance and trust (7 items). Therefore, the range of test scores is between 0 and 100. Higher scores indicate greater resilience of the subject. Internal consistency (Cronbach's α) for the total scale, positive acceptance, competence and tenacity, self-control, and tolerance and trust were 0.94, 0.77, 0.90, 0.67, and 0.87, respectively. The reliability of resilience scale in Iran has been obtained through retesting and Cronbach's alpha of 0.93 and 0.83, respectively, and the internal consistency of this scale has been reported as 0.90 [35]. Vision About Future Scale (VAF): Optimism and hope were measured using the Vision About Future Scale [36]. It consists of 19 items and assesses attitudes toward hope, optimism, and pessimism. Participants responded to each item on a scale from 1 (it describes me not at all) to 5 (it describes me very well). The 19 items are divided into three subscales that measure optimism (6 items), hope (7 items) and pessimism (6 items). For the purposes of this study, only the scores of the optimism and hope subscales were considered. In our sample, Cronbach's α for optimism and hope subscales were 0.90 and 0.92, respectively. In the Iranian sample, the reliability of this scale based on Cronbach's alpha is equal to 0.88 and the reliability of the subscale of hope and optimism is equal to 0.88 and 0.86, respectively [37]. General self-efficacy questionnaire (GSQ): Self-efficacy was measured by the general self-efficacy questionnaire of Sherer et al [38]. This questionnaire contains 17 items and the scoring method is such that each item is assigned from 1 to 5. Cronbach's alpha reliability coefficient for general self-efficacy subscale and social self-efficacy subscale was obtained as 0.86 and 0.71, respectively. In the Iranian sample, the reliability coefficient of 0.76 was obtained using the method of halving. Also, Cronbach's alpha for the whole scale was equal to 0.79. The construct validity of the self-esteem test was found to be 0.60, which was acceptable [39].

RESULTS

The number of participants in this research was 135 women with breast cancer. The average age of the participants was 41.09 ± 6.57 . In addition, 68 people (50.37%) had a diploma education, 40 people (29.62%) had a bachelor's education, and 27 people (20%) had a master's education. Also, 79 people (58.51%) were employed and 56 people (41.48%) were housewives. Finally, out of 135 women with breast cancer, 37 had grade 2 cancer, 77 had grade 3 cancer, and 21 had grade 4 breast cancer.

Mean and standard deviation of self-efficacy, Optimism and hope were 28.37 ± 6.11 , 20.18 ± 4.70 and 21.45 ± 5.01 , respectively. Also, mean and standard deviation of

Resilience, Anxiety and Depression was 52.98 ± 11.43 , 9.11 ± 3.29 and 6.08 ± 2.89 . All the skewness and kurtosis indices ranged within -1 and 1 (i.e., skewness ranged from -0.09 to -0.25 and kurtosis from 0.19 to 0.44) suggesting there was not a substantial departure from a normal distribution. These results indicate maximum likelihood estimation was appropriate for SEM [Table 1].

Pearson's correlation coefficients show that there is a positive and significant relationship between self-efficacy, optimism and hope with resilience with coefficients of 0.61 , 0.50 and 0.56 , respectively. Also, a negative and significant relationship has been obtained between self-efficacy, optimism, hope and resilience with anxiety (-0.52 , -0.48 , -0.42 & -0.47) and depression (-0.57 , -0.44 , -0.46 & -0.42) in women with breast cancer [Table 2].

In evaluating the path analysis using AMOS-24 software, the fit of the model was favorable. The fit indices of the model are ($\chi^2/df = 1.67$) less than 3 , ($IFI = 0.97$) more than 0.9 , ($CFI = 0.99$) more than 0.9 , ($IFI = 0.91$) ($TLI = 0.96$) was greater than 0.9 , ($GFI = 0.95$) was greater than 0.9 , ($NFI = 0.98$) was greater than 0.9 , and ($RMSEA = 0.05$) was less than 0.08 . Therefore, the model fit tests showed that the standard model of the research has a good fit. According to [Table 3], the direct effects of self-efficacy on resilience, anxiety and depression were respectively (0.55 , -0.48 and -0.53), the direct effects of optimism on resilience, anxiety and depression (0.49 , -0.45 and -0.39) as well as the direct effects of hope on resilience, anxiety and depression (0.51 , -0.38 and -0.42).

Table 1. Mean, standard deviation, skewness and kurtosis of the research variables in the participants

Variable	M (SD)	Skewness	Kurtosis
Self-efficacy	28.37 (6.11)	-0.22	0.34
Optimism	20.18 (4.70)	-0.09	0.19
Hope	21.45 (5.01)	-0.25	0.31
Resilience	52.98 (11.43)	-0.18	0.44
Anxiety	9.11 (3.29)	-0.23	0.38
Depression	6.08 (2.89)	-0.17	0.40

Table 2. Pearson Correlation Coefficients between Self-Efficacy, Optimism, Depression, hope with Resilience, Anxiety and Depression (n=135)

Variable	1	2	3	4	5	6
1. self-efficacy	-					
2. Optimism	0.55**	-				
3. hope	0.68**	0.59**	-			
4. Resilience	0.61**	0.50**	0.56**	-		
5. Anxiety	-0.52**	-0.48**	-0.42**	-0.47	-	
6. Depression	-0.57**	-0.44**	-0.46**	-0.42	0.55**	-

** P<0.01

Table 3. Standard coefficients of direct, indirect and total predictive and mediating variables on the level of anxiety and depression

Regression paths	Direct Effect	Indirect Effect	Total Effect	t	P
Self-efficacy → Resilience	0.55	-	0.55	1.02	0.001
Self-efficacy → Anxiety	-0.48	-	-0.48	2.05	0.001
Self-efficacy → Depression	-0.53	-	-0.53	2.67	0.002
Optimism → Resilience	0.49	-	0.49	1.89	0.001
Optimism → Anxiety	-0.45	-	-0.45	2.61	0.002
Optimism → Depression	-0.39	-	-0.39	3.12	0.021
Hope → Resilience	0.51	-	0.51	2.71	0.001
Hope → Anxiety	-0.38	-	-0.38	3.22	0.010
Hope → Depression	-0.42	-	-0.42	1.17	0.001
Self-efficacy → Resilience → Anxiety	-0.48	0.23	-0.25	3.90	0.023
Self-efficacy → Resilience → Depression	-0.53	0.22	-0.31	3.03	0.019
Optimism → Resilience → Anxiety	-0.45	0.21	-0.24	4.01	0.031
Optimism → Resilience → Depression	-0.39	0.19	-0.20	2.77	0.017
Hope → Resilience → Anxiety	-0.38	0.22	-0.16	1.49	0.026
Hope → Resilience → Depression	-0.42	0.20	-0.22	3.06	0.011

$\chi^2/df = 1.67$, $IFI = 0.97$, $CFI = 0.99$, $IFI = 0.91$, $TLI = 0.96$, $GFI = 0.95$, $NFI = 0.98$, $RMSEA = 0.05$

Table 4. The results of Sobel's statistic for the significance of indirect paths

Regression Paths	Sobel's Statistic	P
Self-efficacy → Resilience → Anxiety	2.98	0.029
Self-efficacy → Resilience → Depression	3.07	0.010
Optimism → Resilience → Anxiety	4.62	0.028
Optimism → Resilience → Depression	1.84	0.019
Hope → Resilience → Anxiety	3.34	0.038
Hope → Resilience → Depression	2.63	0.015

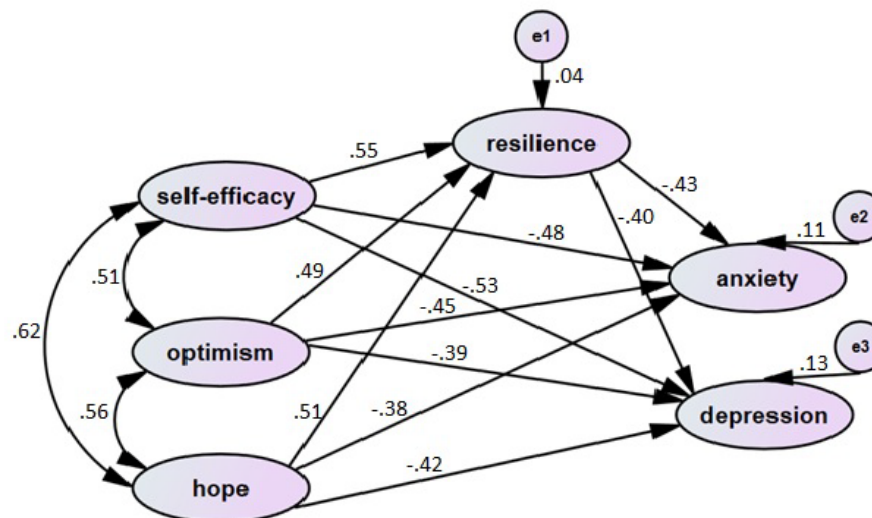


Figure 1. Regression weights of variable paths in the standard final model

The indirect effect of self-efficacy on anxiety and depression with the mediating role of resilience was equal to (-0.25 and -0.31); The indirect effect of optimism on anxiety and depression with the mediating role of resilience was equal to (-0.24 and -0.20) and the indirect effect of hope on anxiety and depression with the mediating role of resilience was equal to (-0.16 and -0.22) [Figure 1]. Also, the value of t-statistic is significant in all regression paths and this shows that the standard model has a good fit and resilience as a positive psychological variable can play a role in reducing anxiety and depression in women with breast cancer [Table 3]. The Sobel statistic shows the significant indirect effects of self-efficacy, optimism and hope on anxiety and depression through the mediating variable of resilience, and all regression paths are significant [Table 4].

DISCUSSION

This study was conducted with the aim of investigating the relationship of self-efficacy, optimism and hope with anxiety and depression in women with breast cancer with the mediating role of resilience during the covid-19 pandemic. The results showed that there is a positive and significant relationship between self-efficacy, optimism and hope with resilience and a negative and significant relationship with anxiety and depression of women with breast cancer. The results of the model analysis indicated that resilience as a mediating variable in the relationship between self-efficacy, optimism and hope with anxiety and depression reduces psychological problems in women with breast cancer. Therefore, the analysis confirmed the hypothetical-theoretical model of the research. The results of this study are in line with the researches of [26-29]. And this confirms the result that self-efficacy, optimism and hope in women with breast cancer increases the resilience levels in these people and actually improves their psychological distress [30]. Resilience as a main psychological factor increases a person's ability to deal with the stressful

situation of cancer. In fact, resilience increases a person's adaptation to symptoms after surgery, chemotherapy and radiotherapy [40]. Therefore, people with higher levels of resilience deal with stressful events with optimism, assertiveness, and self-confidence. As a result, they see these events as controllable, the person's optimistic attitudes make information processing more effective, and the person uses more active coping strategies, and the person's ability to cope with the difficult conditions of cancer symptoms increases [41]. In fact, by increasing resilience levels, patients are helped to increase their self-management in how to deal with cancer symptoms and participate more in controlling the symptoms of their disease and indirectly reduce the number of psychological symptoms caused by breast cancer [42].

It can also be said that increasing the resilience levels of a person with breast cancer can be achieved by reducing negative emotions, improving the feeling of control over the disease and also improving the physical condition with the help of post-surgery treatments through compliance and receiving appropriate services and as a result reduce physical limitations; Therefore, in general, resilience leads to the improvement of psychological and physical conditions, followed by greater disease tolerance. For these women, our findings suggest the implementation of psychological interventions that build resilience to effectively reduce psychological distress during the COVID-19 pandemic.

CONCLUSION

Overall, our results show that during the second wave of the COVID-19 pandemic, resilience acted as a protective factor for coping with a stressful situation and was fostered by the self-efficacy of optimism and hope of individual characteristics. In addition, these resources positively influenced resilience, which protected against anxiety, depression, despite being diagnosed with

cancer during the pandemic and having close experiences with Covid-19.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

ETHICAL CONSIDERATION

This proposal has been approved by the ethics committee (IR.GOUMS.REC.1401.028) and written

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