



International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Examining the Relationship between Emotion Regulation, Alexithymia, and Perceived Stress in Women with Breast Cancer Mediated by Perceived Social Support

¹*Shakila Akhavan Hamzeh**, ²*Mehdi Gholami*

¹ MSc in Clinical Psychology, Department of Psychology, Faculty of Medicine, Islamic Azad University, Sari Branch, Mazandaran, Iran
shakila.akhavan.h@gmail.com

² Assistant Professor, Department of Psychology, Faculty of Medicine, Islamic Azad University, Behshahr Branch, Mazandaran, Iran

ABSTRACT

This research aims to determine the relationship between emotion regulation, Alexithymia, and perceived stress in women with breast cancer, with the mediation of perceived social support. This study is both descriptive and correlational in nature, as it is based on the subject matter and its objectives. The statistical population of this research consists of women with breast cancer in Sari County in 2023 who were undergoing treatment. Due to accessibility conditions, 127 participants were selected using purposive sampling. Data were collected using the Emotion Regulation Questionnaire by Garnefski and Kraaij (2006), the Toronto Alexithymia Scale (1994), the Perceived Stress Scale by Cohen (1983), and the Perceived Social Support Scale by Zimet (1988). The data were then analyzed using regression analysis in larger dimensions (path analysis) using SPSS and Smart PLS software. The results indicated that there is a significant positive relationship between emotion regulation, Alexithymia, and perceived stress in women with breast cancer, mediated by perceived social support ($p < 0.05$), thus accepting the main hypothesis of the research.

Keywords: Emotion Regulation, Perceived Stress, Perceived Social Support, Women with Breast Cancer

Introduction

Breast cancer is a heterogeneous disease influenced by both genetic and environmental factors. One of the significant consequences of this illness is a decline in emotion regulation. Emotion regulation refers to the set of goal-directed strategies that individuals use to modify their emotional experiences, including awareness and acceptance of emotions, controlling impulsive behaviors, and employing appropriate strategy to manage negative feelings in line with personal goals (Samiei, Karimi, Akbari, 2023). The ability to regulate emotions enhances the quality of social relationships and individual mental health, facilitating better adaptation to challenging circumstances. Research has shown that cognitive reappraisal of emotions, cognitive flexibility, and mindfulness are all positively related to the psychological well-being of cancer patients (Karbalaie et al., 2021). Among the factors influencing the mental health of cancer patients, Alexithymia also holds great importance. This concept refers to the inability to describe feelings and limitations in fantasy life (Arslan et al., 2022). Alexithymia acts as a barrier to emotion regulation and causes difficulties in psychological adaptation (Nerimani, Jani, Rezaei, 2020). Affected individuals are often described as cold and unfeeling, deprived of imagination and daydreaming, and primarily rely on logical reasoning. Studies have reported significant differences in levels of Alexithymia between cancer patients and healthy individuals, with disease severity being one of the important predictors of this index (Madugalle et al., 2018). Another crucial factor in patients' experiences is perceived stress, which can impact the recovery process (Yousefi et al., 2023). Perceived stress occurs when an individual evaluates environmental demands as exceeding their coping capabilities (Abedin et al., 2023). This concept refers to an individual's perception of unpredictability and uncontrollability in stressful situations. In cancer patients, perceived stress is associated with negative psychological and physical outcomes, and expressing feelings and concerns can enhance their ability to cope with treatment conditions. In this context, perceived social support acts as an important coping resource, helping patients better confront their illness. This support relates to feelings of belonging, acceptance, and receiving help during difficult times and can prevent the emergence of adverse symptoms while positively affecting an individual's physical, mental, and social status. Research has shown that social support is one of the strongest factors for successful adaptation to chronic illnesses, including cancer, and understanding women's experiences of this support can improve care quality. Given that Iranian women typically develop breast cancer a decade earlier than their counterparts in developed countries and that the incidence is on the rise in the country (Abedin et al., 2023), identifying psychological factors related to the well-being of these patients is of paramount importance. Breast cancer, in addition to posing a physical threat, creates extensive psychological and social challenges that may lead to a decline in quality of life. The stress arising from diagnosis and treatment, concerns about the future, treatment side effects, and economic and familial pressures all create conditions conducive to the emergence of psychological problems. In such circumstances, social support and emotion regulation skills can play a crucial protective role. Studies indicate that cancer patients, alongside medical treatments, need

attention to their psychological needs; needs such as intimate communication, respect, belonging to supportive groups, hope, social acceptance, and receiving special care from family (Azadi Azad, 2011). These needs become particularly pronounced during critical stages of the illness, and if unmet, may disrupt the patient's adaptation to their condition. Despite numerous studies on breast cancer and its psychological aspects, a review of the research background shows that simultaneous examination of the variables of emotion regulation, Alexithymia, perceived stress, and perceived social support in a comprehensive model has been less frequently conducted. Therefore, the present study is designed to investigate the relationship between emotion regulation and Alexithymia and perceived stress in women with breast cancer, with the mediating role of perceived social support. This study, emphasizing the identification of psychological factors affecting the quality of life and mental health of patients, can pave the way for developing effective psychological and social interventions in the treatment and rehabilitation process for women with breast cancer.

Research Background

Mobaraki and Esmkhani (2023) demonstrated that emotion-focused couple therapy increases marital commitment and improves interpersonal emotion regulation in couples where one partner has breast cancer, with these effects lasting for up to four months. Samiei et al. (2022) found that uncertainty and cognitive flexibility are related to adaptation in breast cancer patients both directly and indirectly (through difficulties in emotion regulation), and that training these skills can enhance adaptation. Vafaei et al. (2021) reported that anxiety, depression, and stress are common among these patients, and the type of surgery has an indirect impact on stress. Basaknejad et al. (2021) found that social support and problem-focused coping styles are positively related to quality of life, while illness perception and emotion-focused coping styles have a negative relationship with it. Moemenpour et al. (2021) showed that negative automatic thoughts and ineffective attitudes reduce psychological well-being by increasing perceived stress. Abedini et al. (2020) found that mindfulness and resilience directly impact emotional well-being and emotion regulation, although the mediating role of emotion regulation was not significant. BabazadehNamini et al. (2020) discovered that social support increases post-traumatic growth through resilience. Abdollahi et al. (2019) reported that self-compassion moderates the relationship between perceived stress and self-care behaviors. Kiaei et al. (2019) showed that social support and resilience increase emotional adjustment and reduce stress; life satisfaction plays a mediating role. Azadi et al. (2019) found that social support mediates the relationship between psychological resilience and psychological well-being. Mohaghegh et al. (2019) stated that perceived social support has a positive relationship with health-promoting lifestyles. Narimani et al. (2019) reported that Alexithymia and mindfulness play roles in predicting depression and anxiety in women with breast cancer.

Gimarsa et al. (2024) showed that difficulties in emotion regulation, particularly limitations in accessing effective strategies and emotional clarity, are associated with decreased well-being. Liu et al. (2023) reported that the CALM intervention after surgery enhances resilience and quality of life for patients by increasing social support. Alsharifi and Behilak (2023) found that social support does not have a significant relationship with mental adjustment; however, disease severity affects positive adjustment dimensions. Ben et al. (2022) stated that perceived stress and loneliness decrease sleep quality, while resilience moderates this effect. Gomez-Molinero et al. (2022) demonstrated that emotion regulation can reduce cognitive impairment and maintain the work ability of cancer survivors. Arslan et al. (2022) found that low Alexithymia and social support are associated with depression in the early stages of the disease. Mora et al. (2021) reported that adaptive emotion regulation and emotional sharing improve quality of life. Srivastava et al. (2021) stated that social support enhances patients' life satisfaction through positive emotional experiences. Etkan et al. (2021) found that Alexithymia and low social support reduce psychological resilience. Plaschak et al. (2021) referred to the potential impact of environmental and socio-economic factors on perceived stress. Chacmak et al. (2021) demonstrated that an active response to cancer, particularly in individuals with high Alexithymia, facilitates post-traumatic growth.

Theoretical Foundations

Emotion Regulation

Emotions are one of the most important dimensions of human beings. The mental health of individuals depends on their emotional and affective well-being. People with normal affectivity can make accurate judgments about their own behaviors, the behaviors of others, and social relationships. Emotions serve various functions, including acting as a means of communication with others; they also help individuals recognize and convey their needs, desires, and feelings to others. Ultimately, it is through understanding their own emotions that individuals can recognize and comprehend the emotions of those around them. Klingina (1981) believes that emotion results from the interaction of cognitive, environmental, neural, and hormonal components. To support his viewpoint, he presents the following points (Bakhshandeh Sajad, 2022):

- a) Emotions arise from emotional experiences;
- b) Emotions lead to cognitive appraisals in individuals;
- c) Emotions assist in physiological adjustments;
- d) Emotions result in expressive, goal-directed, and adaptive behaviors.

Emotion consists of four elements: subjective, biological, functional, and social:

- 1) Subjective Element:** Emotion is subjectively perceived and felt in terms of intensity and quality at a mental level;
- 2) Biological Element:** This element includes the activity of autonomic and hormonal systems that intervene in adapting to emotions.

3) Functional Element (Goal-Oriented): This element addresses the benefits of emotion for the individual, meaning what the individual gains from this emotion. An individual requires emotions for development; for example, someone who lacks the capacity for anger, fear, or love is at a survival disadvantage.

4) Social Element: This aspect focuses on the expressive and communicative dimensions of emotion. We convey our emotions to others through gestures, tone of voice, and facial expressions, and we receive others' emotions in the same way. Emotions usually refer to feelings and emotional reactions, and each emotion has three fundamental components:

1) Cognitive Component: Thoughts, beliefs, and expectations that determine the type and intensity of emotional reactions. What may be interesting to one person might be frightening or boring to another.

2) Physiological Component: Relates to physical changes in the body; most emotions involve general and non-specific arousal of the nervous system;

3) Behavioral Component: Refers to the various expressions of emotion. Facial expressions, body language, tone of voice, intonation, etc., change with different emotions (Ryu, 2005).

Individuals can achieve their goals by managing their emotions in socially acceptable ways. This management of emotions is known as emotion regulation. Emotion regulation refers to a set of methods through which individuals decide which emotions to use in different situations and how to express them. Emotion regulation can occur consciously or unconsciously. It is a multifaceted concept that encompasses various dimensions such as physiology, expression, and experience of emotion (Lafrance Banaji, 1992). Individuals' lifestyles are influenced by successful or unsuccessful emotion regulation. Regulation consists of two parts: the first part relates to regulating thoughts and behaviors, while the second part pertains to regulating emotions. According to this categorization, when the first part is executed correctly, the second part will also be implemented effectively. From Thompson's perspective (1994), emotion regulation refers to internal and external manifestations that lead to the modification of emotional responses and assist individuals in achieving their goals. In general, enhancing the characteristics of emotion is referred to as positive emotion regulation. The concept of emotion regulation encompasses individuals' biological, behavioral, and social domains, which include aspects such as appraisal, rumination, self-disclosure, and avoidance (Thompson, 1994). Some researchers believe that emotion regulation is a voluntary response aimed at modulating emotional states to aid in achieving social and biological adaptation. In fact, stimuli trigger emotional reactions, and individuals with more effective emotion regulation can better manage the arousal caused by these stimuli (Campos et al., 2004). Ineffective and unsuccessful emotion regulation can disrupt psychological processes such as attention, problem-solving, and individual flexibility. Emotion regulation is a process that focuses on individuals' goals; to maintain their relationships with others, individuals must be able to manage their emotions. Essentially, emotion regulation is a form of self-regulation. Effective emotion regulation helps individuals utilize their emotions to achieve social acceptance.

Perceived Social Support

Humans are social beings from birth and develop and grow within social relationships. This interaction and connection from birth contribute to the formation of an individual's personality and behavior. Through interactions with society, individuals learn social skills from childhood, and their behavior gradually takes on a social character. Social support assists individuals in learning how to socialize properly (Nissi et al., 2005). Research indicates that having social support positively affects individuals' quality of life and also improves their mental health and emotional well-being. Furthermore, social support leads to a reduction in stress and tension, allowing individuals to gain greater peace from their presence in society. Researchers focusing on social issues believe that social cohesion leads individuals to experience higher levels of social support; according to the theory of social cohesion, in a community where members are cohesive and have meaningful relationships, they can better support each other. Conversely, in a chaotic community, there is a significant decrease in individual support. In a community where individuals support each other cohesively, people achieve a correct sense of identity and engage in more meaningful interactions. Mental health professionals working in the field of social support primarily focus on the impact of social support on reducing stress and tension among individuals in society. Since the 1970s, social support has attracted the attention of researchers and professionals in mental health as well as sociologists. The first person to introduce the concept of social support was Cobb (1976). According to Cobb, social support is a concept through which an individual believes they are important and that their surroundings and society provide support and attention, leading them to perceive themselves as a member of a community that is cared for by society. Interaction within society is a type of two-way communication that, like all other relationships, requires trust and respect. According to Brownell and Schumacher (1984), social support is a two-way interaction where one party strives for the well-being and comfort of the other. Social support refers to the care and assistance provided by family, friends, acquaintances, social institutions, and politicians within a community. Social support encompasses various dimensions and forms; it can be financial, psychological, social, occupational, educational, etc. Some researchers define social support solely as emotional and psychological support, while others view it as material and economic support. Additionally, some researchers define any form of kindness and attention as social support (Sarafino, 1999). Some researchers consider social support to arise from the community and those around them, while others view it as stemming from an individual's perceptions and inner beliefs (Sarason, 1978). Those who see social support as a multidimensional structure identify two aspects: actual and perceived (AlipourBirgani et al., 2015). Social support has been defined in various ways, with the most comprehensive definition being that it is a social activity aimed at assisting with the emotional, psychological, financial, economic, and other important needs of an individual or group within the community (Azadi et al., 2011). Social support is viewed as an exchange of resources between two people, where one party gives and the other receives resources, intending to increase the happiness and peace of both parties or at least one of them. Social support should be such that individuals perceive it from their family, friends, acquaintances, and society in general, and feel good emotions from this support. Social support has multiple advantages, the most important of which include the enhancement of self-esteem, the feeling of

being loved and cared for, and being acknowledged (Berkman et al., 2000).

Research Methodology

This study is a descriptive-correlational design, conducted to explain the relationships between variables and analyze the descriptive data. The statistical population consisted of all women diagnosed with breast cancer in Sari County in 2023 who were undergoing treatment. Based on Morgan's table, the sample size was determined to be 127 individuals, and due to physical and treatment conditions, a purposive sampling method was employed. To examine the relationships between variables, regression analysis and path analysis were utilized using SPSS and Smart PLS software. The data collection tools included:

- The Garnefski and Kraaij (2006) Cognitive Emotion Regulation Questionnaire, consisting of 18 items across 9 subscales, with a Cronbach's alpha reliability ranging from 0.73 to 0.80, is divided into adaptive and maladaptive strategies.
- The Toronto Alexithymia Scale (1994), with 20 items in three subscales, shows a total reliability of 0.85 and confirmed validity and internal consistency in the Persian version.
- The Cohen et al. (1983) Perceived Stress Scale, which includes 14 items with two subscales measuring positive and negative perceptions of stress, with a Cronbach's alpha of 0.84.
- The Zimet et al. (1988) Multidimensional Scale of Perceived Social Support, consisting of 12 items in three subscales: family, friends, and community, with a total Cronbach's alpha of 0.91 and confirmed validity in an Iranian sample.

Research Findings

Descriptive Statistics: From the total statistical population examined in this study, which consisted of women diagnosed with breast cancer in Sari County, 127 valid questionnaires were collected that had been distributed randomly.

Respondents' Age Distribution: Figure 4-1 presents the age distribution of respondents to the questionnaire. According to the chart, the largest number of respondents falls within the age range of 41 to 50 years, totaling 58 individuals (45.67%), while the smallest number pertains to those under 30 years old, with 7 individuals (5.51%).

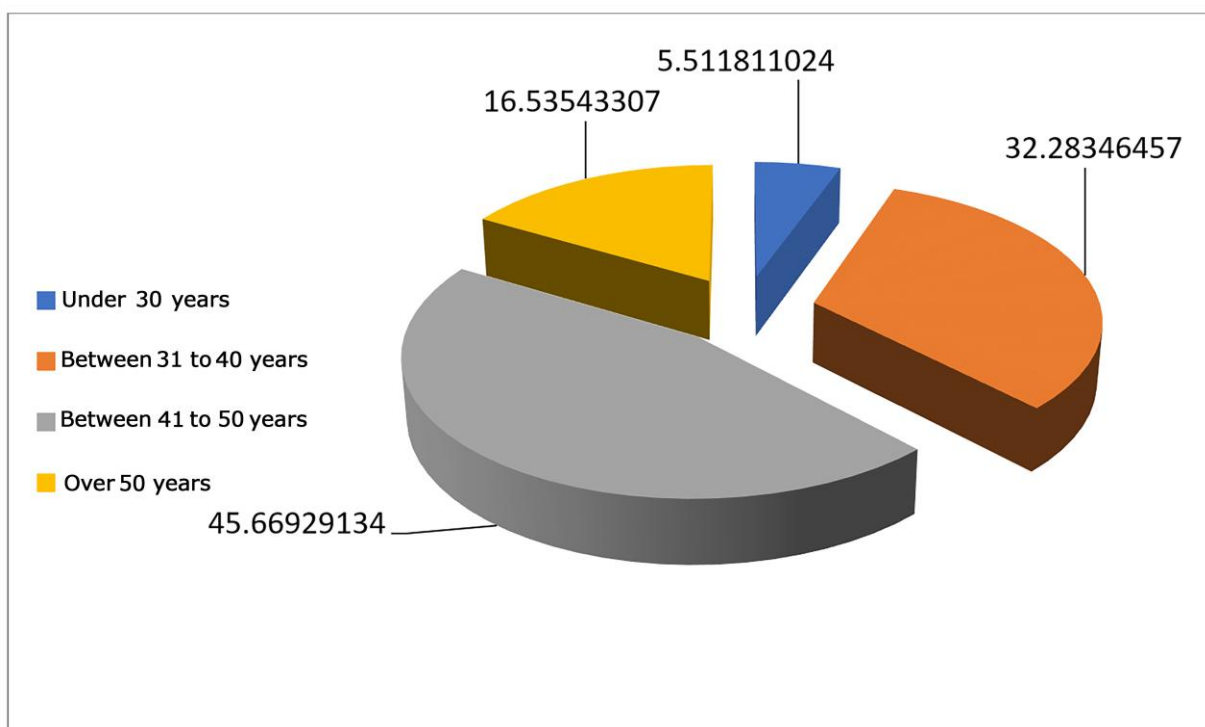


Figure 1: Respondents' response status

Respondents' Education Level: In Figure 4-3, the educational level of respondents is depicted. As observed, among the 127 respondents, the highest number corresponds to those with a bachelor's degree, totaling 37 individuals (29.13%), while the least number pertains to those with a doctoral degree, totaling 5 individuals (3.94%).

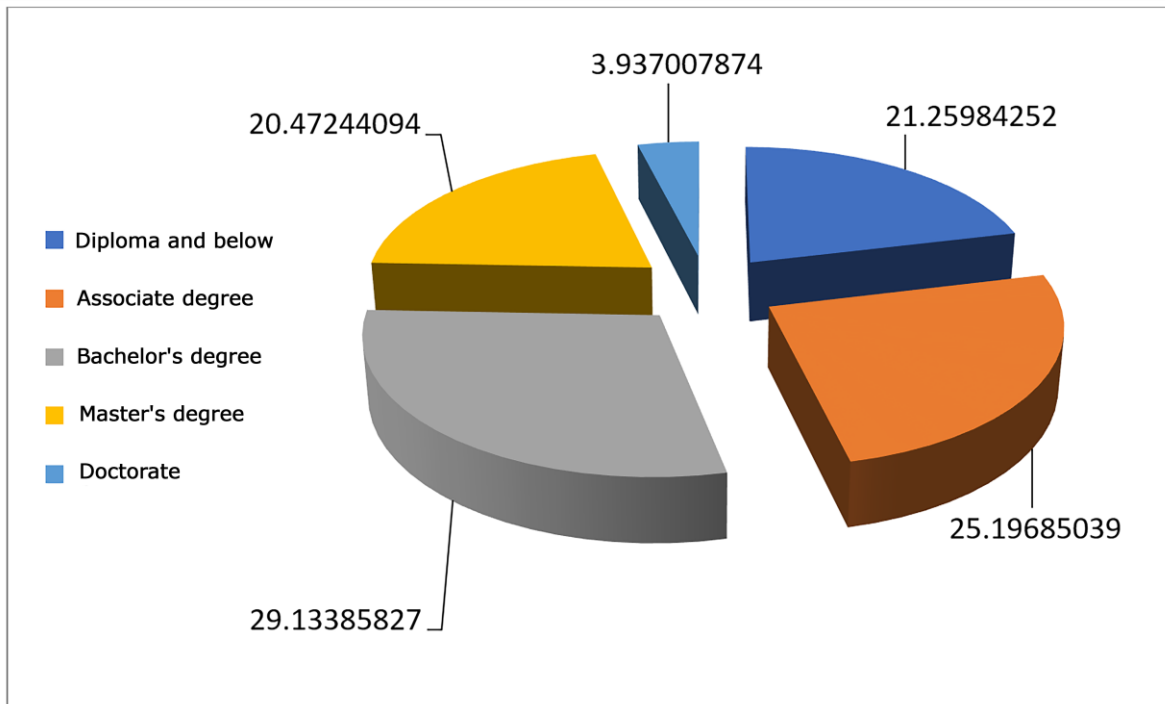


Figure 2: Educational level status of respondents

Respondents' Medical History: In Figure 4-3, the medical history status of respondents is shown. It is noted that among the 127 respondents, the largest number has a medical history of less than one year, totaling 46 individuals (36.22%), while the smallest number has a medical history of more than seven years, totaling 13 individuals (10.24%).

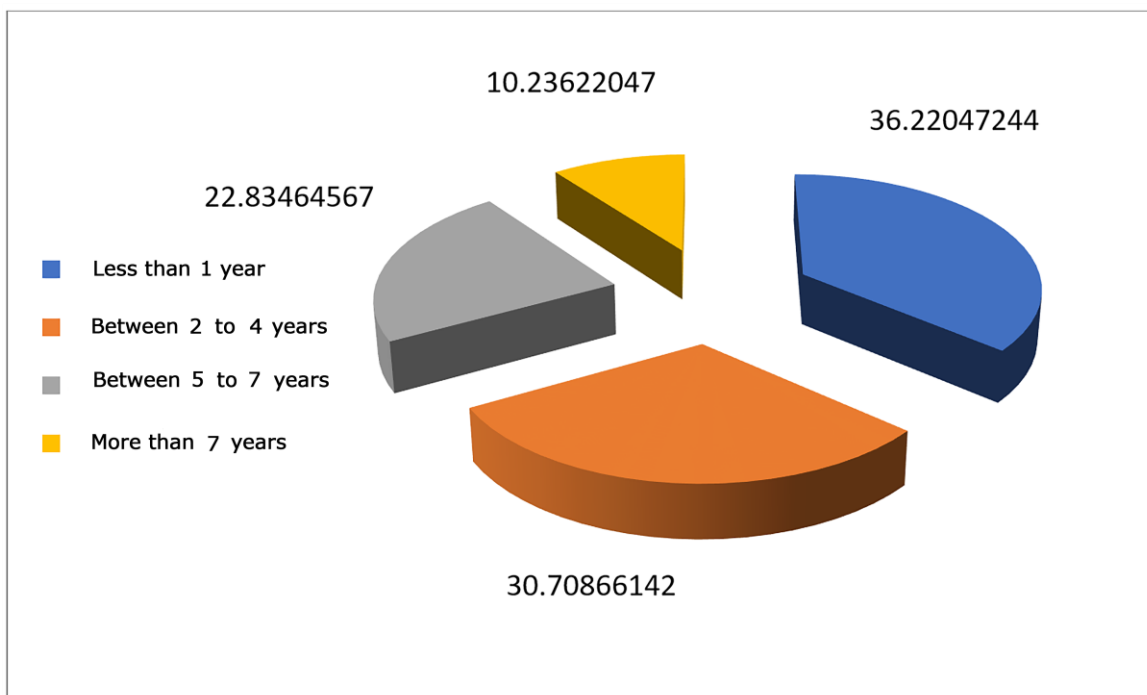


Figure 3: Medical history status of respondents

Section Two: Inferential Statistics: In this section, we evaluate and test the research hypotheses using structural equation modeling. Initially, the Kolmogorov-Smirnov test is conducted to assess the normality of the distribution of research variables. To examine the research hypotheses, structural equation modeling will be employed.

Results of the Kolmogorov-Smirnov Test:

Initially, the Kolmogorov-Smirnov test is used to determine whether the variables in the model are normal or non-normal. The hypotheses for this test

are:

$$\begin{cases} H_0 = \text{The distribution is normal} \\ H_1 = \text{The distribution is not normal} \end{cases}$$

The results of this test are presented in Table 4-1.

Table 1: Results of the Kolmogorov-Smirnov Test

		Emotion Regulation	Perceived Social Support	Alexithymia	Perceived Stress
	Number of Data	127	127	127	127
Normal Parameters	Mean	3.21	3.19	3.16	3.18
	Variable	1.27	1.24	1.24	1.25
	Z Statistic	2.474	3.028	2.561	2.616
	Sig Value	0.000	0.000	0.000	0.000

As observed, the Sig value for all variables is less than 0.05; therefore, the null hypothesis (H_0) for all variables is rejected. Consequently, the assumption of normality for all variable distributions is rejected, necessitating the use of non-parametric methods to examine the hypotheses.

Results of Structural Equation Modeling

Main Hypothesis of the Research:

H_0 : There is no significant positive relationship between emotion regulation, alexithymia, and perceived stress in women with breast cancer mediated by perceived social support.

H_1 : There is a significant positive relationship between emotion regulation, alexithymia, and perceived stress in women with breast cancer mediated by perceived social support.

To test the main hypothesis of the research, structural equation modeling using Partial Least Squares (PLS) method was employed. In this model, relationships between research variables are measured simultaneously, determining each observed variable's contribution to explaining the latent concepts of the research. Figure 4-4 shows the estimated coefficients of the structural model for the research hypotheses. According to Figure 4-4, it can be observed that the factor loading corresponding to each of the indicators related to the research variables is greater than the empirical value of 0.6, indicating an appropriate allocation of the indicators to the evaluated factors. To assess the significance of the coefficients obtained in the model, the absolute values of the significance statistics, which follow a t-distribution, have been considered. Figure 4-5 presents the findings of this statistic in the research model.

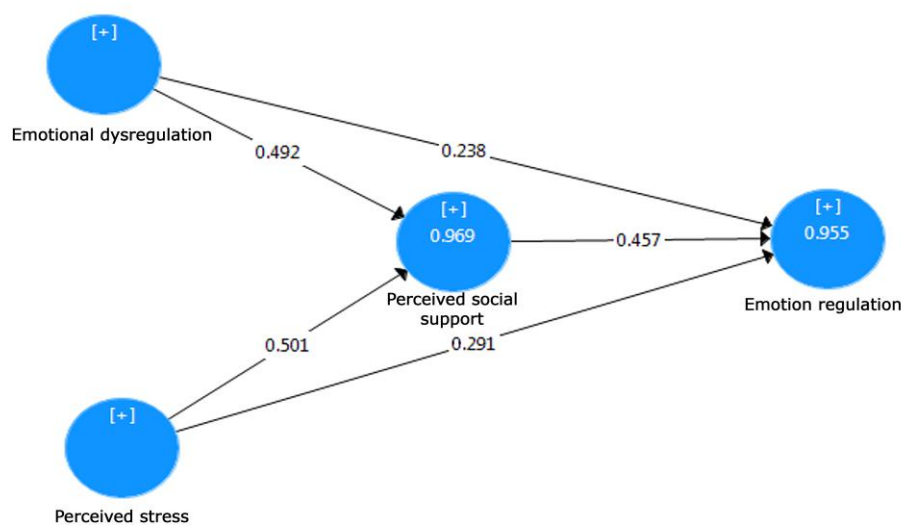


Figure 4: Estimated impact coefficients of the structural model for research hypotheses

Based on the estimation of significance test statistics in Figure 4-5, it can be seen that these values are greater than the critical value from the t-distribution table, which is approximately equal to 1.96; thus, it can be accepted that the estimated relationships between the main variables and the

factor loadings estimated among latent and observed variables are significant at the 0.05 error level. Ultimately, based on the results obtained, it can be stated that there is a positive and significant relationship between emotion regulation and alexithymia with perceived stress in women with breast cancer, mediated by perceived social support, and the main hypothesis of the research is accepted.

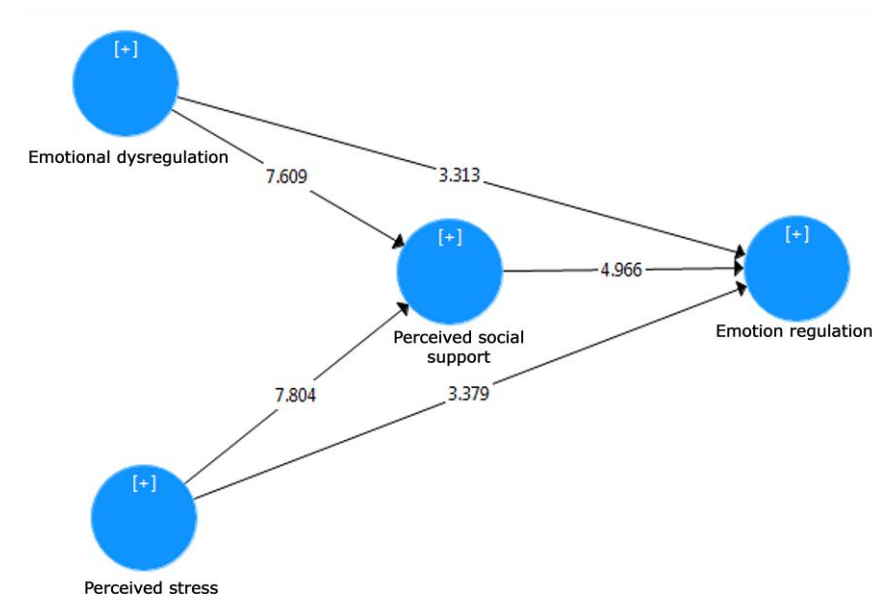


Figure 5: Estimated significance statistics of the coefficients of the structural model for research hypotheses

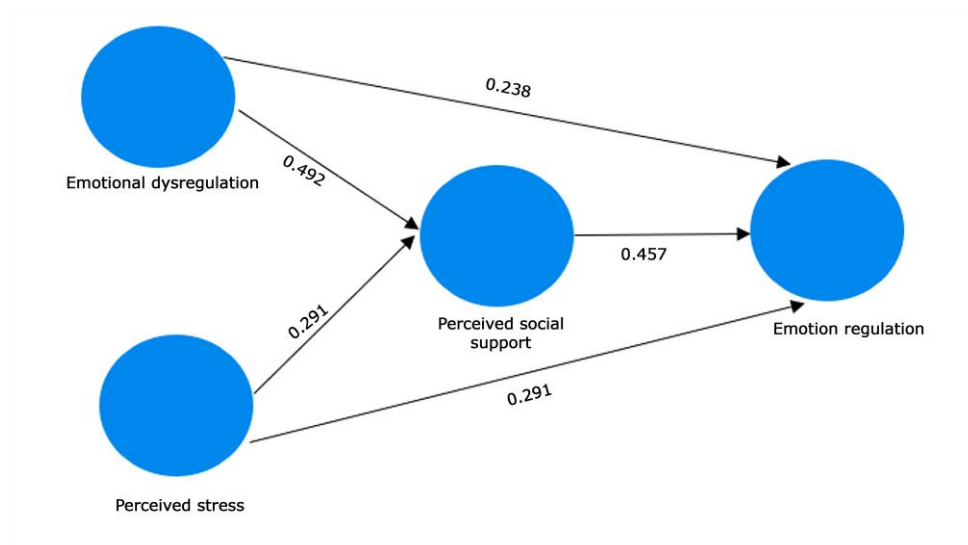


Figure 6: Estimated standardized coefficients of the structural model for research hypotheses

Specific Hypothesis One:

H₀: There is no positive and significant relationship between emotion regulation and alexithymia in women with breast cancer.

H₁: There is a positive and significant relationship between emotion regulation and alexithymia in women with breast cancer. Table 4-2 summarizes the findings related to the hypothesis test.

Table 2 Significance of impact coefficients of the research model for Specific Hypothesis One

Result	Critical Value	t-Test Statistic	Standard Deviation	Impact Coefficient	Sample Mean	Independent Variable←Dependent Variable
Significant	1.96	3.313	0.072	0.283	0.236	Alexithymia←Emotion Regulation

The significance test statistic obtained for measuring the relationship between emotion regulation and alexithymia is greater than the critical value of this distribution in the t-table; therefore, a significant relationship between emotion regulation and alexithymia is confirmed. Additionally, considering the standardized coefficient ($0.238 = \beta$), it can be concluded that there is a positive and significant relationship between emotion regulation and alexithymia in women with breast cancer. Thus, Specific Hypothesis One is confirmed at a 0.05 level of Type I error.

Specific Hypothesis Two:

H0: There is no positive and significant relationship between emotion regulation and perceived stress in women with breast cancer.

H1: There is a positive and significant relationship between emotion regulation and perceived stress in women with breast cancer. Table 4-3 summarizes the findings related to the hypothesis test.

Table 3 Significance of impact coefficients of the research model for Specific Hypothesis Two

Result	Critical Value	t-Test Statistic	Standard Deviation	Impact Coefficient	Sample Mean	Independent Variable←Dependent Variable
Significant	1.96	3.379	0.086	0.291	0.298	Perceived Stress←Emotion Regulation

The significance test statistic obtained for measuring the relationship between emotion regulation and perceived stress is greater than the critical value of this distribution in the t-table; thus, a significant relationship between emotion regulation and perceived stress is confirmed. Furthermore, based on the standardized coefficient ($0.291 = \beta$), it can be concluded that there is a positive and significant relationship between emotion regulation and perceived stress in women with breast cancer. Therefore, Specific Hypothesis Two is confirmed at a 0.05 level of Type I error.

Specific Hypothesis Three:

H0: There is no positive and significant relationship between emotion regulation and perceived social support in women with breast cancer.

H1: There is a positive and significant relationship between emotion regulation and perceived social support in women with breast cancer. Table 4-4 summarizes the findings related to the hypothesis test.

Table 4 Significance of impact coefficients of the research model for Specific Hypothesis Three

Result	Critical Value	t-Test Statistic	Standard Deviation	Impact Coefficient	Sample Mean	Independent Variable←Dependent Variable
Significant	1.96	4.966	0.092	0.457	0.458	Perceived Social Support←Emotion Regulation

The significance test statistic obtained for measuring the relationship between emotion regulation and perceived social support is greater than the critical value of this distribution in the t-table; therefore, a significant relationship between emotion regulation and perceived social support is confirmed. Additionally, considering the standardized coefficient ($0.457 = \beta$), it can be concluded that there is a positive and significant relationship between emotion regulation and perceived social support in women with breast cancer. Thus, Specific Hypothesis Three is confirmed at a 0.05 level of Type I error.

Specific Hypothesis Four of the Research:

H0: There is no positive and significant relationship between the mediating role of perceived social support in the relationship between emotion regulation and alexithymia in women with breast cancer.

H1: There is a positive and significant relationship between the mediating role of perceived social support in the relationship between emotion regulation and alexithymia in women with breast cancer.

To examine this hypothesis, structural equation modeling and the Sobel test were used. Table 4-5 shows the results of the fitted model for examining Specific Hypothesis Four of the research.

Table 5: Estimated coefficients of the structural equation model related to Specific Hypothesis Four of the research

Significance	Critical Value	Standard Deviation	Standard Coefficient	Sample Mean	Dependent	Independent
0.000	7.609	0.065	0.492	0.485	Perceived Social Support	← Alexithymia
0.000	4.966	0.092	0.457	0.451	Emotion Regulation	← Perceived Social Support

To assess the mediating role, the Sobel test was employed. The results of this test are shown in Table 4-6.

Table 6 Results from the Sobel test for Specific Hypothesis Four

A	B	S _a	S _b	z-value	Significance
0.485	0.451	0.065	0.092	4.097	0.000

Based on the obtained result, the z-value is greater than 1.96 and the significance level is less than 0.05, which supports the acceptance of Specific Hypothesis Four, indicating that there is a positive and significant mediating role of perceived social support in the relationship between emotion regulation and alexithymia in women with breast cancer.

Specific Hypothesis Five of the Research:

H0: There is no positive and significant relationship between the mediating role of perceived social support in the relationship between emotion regulation and perceived stress in women with breast cancer.

H1: There is a positive and significant relationship between the mediating role of perceived social support in the relationship between emotion regulation and perceived stress in women with breast cancer.

To examine this hypothesis, structural equation modeling and the Sobel test were used. Table 4-7 shows the results of the fitted model for examining Specific Hypothesis Five of the research.

Table 7: Estimated coefficients of the structural equation model related to Specific Hypothesis Five of the research

Significance	Critical Value	Standard Deviation	Standard Coefficient	Sample Mean	Dependent	Independent
0.001	3.379	0.086	0.291	0.298	Perceived Social Support	← Alexithymia
0.000	4.966	0.092	0.457	0.451	Emotion Regulation	← Perceived Social Support

To assess the mediating role, the Sobel test was employed. The results of this test are shown in Table 4-8.

Table 8 Results from the Sobel test

A	B	S _a	S _b	z-value	Significance
0.298	0.451	0.086	0.092	2.829	0.004

Based on the obtained result, the z-value is greater than 1.96, and the significance level is less than 0.05, which supports the acceptance of Specific

Hypothesis Five, indicating that there is a positive and significant mediating role of perceived social support in the relationship between emotion regulation and perceived stress in women with breast cancer.

Discussion and Conclusion

The results of the statistical data analysis indicate that the critical t-value obtained is approximately equal to 1.96; consequently, it can be stated that there is a significant relationship between alexithymia and perceived stress, with emotion regulation mediated by perceived social support in women with breast cancer. Furthermore, this study represents one of the first investigations conducted on this subject. In interpreting this finding, it can be said that the model of alexithymia and perceived stress with emotion regulation mediated by perceived social support in women with breast cancer has a good fit.

In explaining this finding, it can be noted that cancer is recognized as a life-threatening disease. The dangerous nature of cancer leads to significant concerns and anxiety upon diagnosis (LotfiKashani et al., 2014). One reason for developing cancer is alexithymia, continuous stress, and lack of social support. Individuals who cannot recognize or express their emotions tend to suppress them; furthermore, continuous stress leads to activation of glands and systems in the body, which can be detrimental to physical and mental health due to prolonged activation and a state of fight or flight. Social support is one of the components that helps individuals experience less loneliness and worry. Those who receive social support have a higher chance of survival despite having cancer because they are supported by their surroundings and community; thus, social support is one of the beneficial and impactful variables for individuals with cancer. Individuals with cancer can identify and express their emotions by developing programs for emotion regulation, which can help reduce their level of alexithymia. Instead of enduring stress, they can talk about it and express it, allowing them to more easily and quickly reach appropriate solutions for managing stress. Continuous stress and the inability to articulate unpleasant emotions can exacerbate their conditions and illnesses. Therefore, to prevent the worsening of the disease and to halt its progression, it is essential to incorporate psychological interventions alongside medical treatments as much as possible. The first specific hypothesis of the research was that there is a relationship between alexithymia and emotion regulation in women with breast cancer. The results of the statistical data analysis indicate that the effect size between alexithymia and emotion regulation is 0.238, demonstrating a positive and significant correlation between emotion regulation and alexithymia in women with cancer. Additionally, the results align with studies by Zahedi Tajrishi and Basharat (2015), Basharat et al. (2017), and Asheghi et al. (2017) within the country, as well as Dubey et al. (2010), Stasiewicz et al. (2012), Lockwood et al. (2014), and Taylor and Bagby (2000) internationally.

In general, emotion regulation is a skill that helps individuals control and delay their emotions in response to environmental needs and demands. Those who have deficiencies in emotion regulation are more susceptible to physical and chronic diseases (Kozłowska & Williams, 2009). Alexithymia is a condition in which an individual struggles to express their emotions and lacks the ability to identify and describe them. Individuals suffering from alexithymia experience higher levels of anxiety and are consequently more prone to physical and mental health issues (Dubey et al., 2010). According to theoretical definitions, alexithymia is related to emotion regulation strategies (Kozłowska, 2005). Childhood traumas and not allowing children to express their emotions lead to severe disturbances that may hinder their ability to recognize and discuss their internal experiences in adulthood. As a result, they may express their discomfort and emotions indirectly, possibly manifesting them in aggressive ways or entirely refraining from expressing them, which can lead to multiple physical ailments. In fact, individuals who cannot properly express their emotions and thus suffer from alexithymia struggle to regulate their emotions effectively, as proper emotion regulation requires individuals to process information correctly a challenge for those with alexithymia who tend to use maladaptive emotion regulation strategies (Connelly & Denney, 2007). Therefore, based on an individual's level of alexithymia, one can predict their ability to regulate emotions, a finding consistent with the research by Asheghi et al. (2017).

The second specific hypothesis of the research was that there is a relationship between perceived stress and emotion regulation in women with breast cancer. The results of the statistical data analysis indicate that the effect size between perceived stress and emotion regulation is 0.291, demonstrating a positive and significant correlation between perceived stress and emotion regulation in women with cancer. The findings also align with studies by Sharifi (2020), ShastiFooladi & Manshayi (2015), Pasandideh & Salek Mahdi (2019), and Sepehrian Azar & AsadiMajre (2015) within the country, as well as Martin & Dahlen (2005), Raio et al. (2013), and Kadzikowska-Wrzosek (2012) internationally.

In explaining this finding, it can be said that stress has cognitive, behavioral, and physiological dimensions. According to Lazarus and Folkman, stress depends on an individual's interactions and attitudes toward environmental events and occurrences; in fact, stress arises from the interaction between an individual and their surrounding environment. Research shows that perceived stress levels are higher in those who develop chronic illnesses compared to healthy individuals (Edman et al., 2017). Chronic stress endured over time leads to physical problems and chronic diseases; for example, one of the primary causes of heart disease and cancer two of the most common causes of death worldwide is perceived stress (Blum et al., 2010). Stress is an emotional state that, when it exceeds a normal level, negatively impacts an individual's inner experiences. In fact, when the level of stress exceeds an individual's threshold of tolerance, they encounter difficulties in emotion regulation and are unable to control their perceived stress or regulate their emotions (Asghari et al., 2008). Individuals who experience stress often do not recognize their emotions well and are unable to regulate them. Experiencing emotions is an inseparable part of human life (Badri et al., 2022). On the other hand, emotion regulation helps individuals better recognize their emotions, be aware of them, and express them appropriately in suitable conditions. Understanding stress beyond an individual's capacity and tolerance leads to difficulties in selecting emotion regulation strategies, preventing them from effectively regulating their emotions. Normal levels of stress allow individuals to successfully identify and express emotions; research shows that those who perceive higher levels of stress tend to suppress their emotions. Therefore, individuals who perceive and tolerate stress at normal levels tend to be more successful in emotion regulation, a finding consistent with the research by Moore et al. (2008) and Mahmoudpour et al. (2017).

The third specific hypothesis of the research was that there is a relationship between perceived social support and emotion regulation in women with breast cancer. The results of the statistical data analysis indicate that the effect size between perceived social support and emotion regulation is 0.457, demonstrating a positive and significant correlation between perceived social support and emotion regulation in women with cancer. The results are also consistent with studies by Mohammadi et al. (2017), Rezaei & Fath (2020), Rahimi Taghanaki et al. (2023) within the country, as well as Wittig et al. (2016), Lopez-Martinez et al. (2008), and Cano (2004) internationally.

To explain this finding, it can be said that when individuals are supported by those around them and their community during distressing and unfortunate life situations, the level of tension and pressure they experience decreases. In fact, social support during crises helps individuals make better decisions and behave appropriately, serving as a buffer for them. Social support is one of the components that can lead individuals to love themselves more and harm themselves less while enhancing their sense of worth (Michel et al., 2010). A wide range of inner experiences depends on the level of received social support. Perceived social support leads individuals to regulate their emotions adaptively; conversely, when individuals do not receive support from society, they may engage in maladaptive emotion regulation. Thus, receiving social support helps individuals behave more adaptively and flexibly while identifying, regulating, and expressing their emotions more effectively (Mohammadi et al., 2015). Receiving social support is crucial for patients with chronic illnesses, as it helps them better regulate their emotions and reduce anxiety related to their illness and its challenges. These patients can also achieve better social functioning through more adaptive emotion regulation strategies, receive more social support, and experience less isolation and loneliness. Therefore, the more individuals with chronic illnesses receive social support and have their needs addressed by family and society, the better they can manage their emotion regulation, leading to improved social functioning, which in turn facilitates further support.

The fourth specific hypothesis of the research was that there is a relationship between emotional alexithymia and emotion regulation with the mediation of perceived social support in women with breast cancer. The results of the statistical data analysis indicate that to examine the mediating role of perceived social support, Sobel's test was used, yielding a z-value of 4.097; thus, there is a significant mediating role of perceived social support in the relationship between emotional alexithymia and emotion regulation in women with breast cancer. The results of the present study are also consistent with the research conducted by Mohammadi and Jafari (2020), Mohammadi and colleagues (2023), Fath and Rezaei (2020), Kazemi and colleagues (2020) within the country, as well as the studies by Rieffe et al. (2009), Martinez et al. (2015), Tominaga et al. (2014), and Swart et al. (2009) internationally. To explain this finding, it can be said that individuals with emotional alexithymia have difficulty expressing their emotions. They also manifest their unexpressed emotions through physical symptoms and illnesses, leading them to misinterpret these physical symptoms and attribute them to physical problems, while the underlying cause of these symptoms is actually [psychological](#) issues and repressed emotions. Social support acts as a buffer against the adversities and discomforts of life. When an individual feels secure about their surroundings and the people around them, knowing they are supported by them, they perceive the external environment as less threatening, which in turn reduces their feelings of insecurity. Individuals who receive social support from their peers and community are better able to articulate, recognize, and express their feelings and emotions. Those who receive social support employ strategies for regulating their emotions that are effective, thereby preventing their emotions from being suppressed to the point of becoming physical or psychological disorders. Access to social support helps individuals use their emotions as informational resources to determine the best course of action during challenging and distressing moments in life, leading to fewer negative emotions and emotional turmoil.

The fifth specific hypothesis of the research was that there is a relationship between perceived stress and emotion regulation with the mediation of perceived social support. The results of the statistical data analysis indicate that to examine the mediating role of perceived social support, Sobel's test was used, yielding a z-value of 2.829; thus, there is a significant mediating role of perceived social support in the relationship between perceived stress and emotion regulation in women with breast cancer. Additionally, the results of the present study are consistent with the research conducted by SkafiNoghani et al. (2015), MousavianKhorasani et al. (2019), Mozaffari (2018), Saadatnejad and Delir (2021), Mohebbi and Zarei (2019) within the country, as well as with Franciskovic et al. (2007), Friedlander et al. (2007), Coyne (2003), Vazques et al. (2007), and Wang et al. (2021) internationally.

To explain this finding, it can be said that the support individuals receive from family, friends, and society in general helps reduce psychological pressure and stress in them, enabling them to cope better with life's challenges. It appears that perceived social support plays a moderating role against perceived stress (SaadatnejadDelir, 2021). Social support serves as a cushion against stressful life events and protects individuals from abnormal perceived stress. It also helps individuals experience a more peaceful life. Social support enables individuals to better confront life's challenges; conversely, when perceived stress exceeds normal levels and leads to maladaptive behaviors and [mismanagement](#), it results in a decrease in the level of support an individual receives from society and less acceptance from the community. Overall, perceived social support has a positive and significant relationship with perceived stress. Perceived social support helps individuals utilize effective emotion regulation strategies and behave more flexibly and adaptively. Daily events and experiences during different phases of life can lead individuals to experience high levels of emotion and confusion, resulting in stress; however, social support is one of the components that helps individuals regulate their emotions. The findings from the statistical data analysis and review of the [literature](#) indicate that the mediation of perceived social support helps reduce perceived stress, allowing individuals to regulate their emotions more effectively with the help of perceived social support, thus preventing high levels of perceived stress from hindering their emotion regulation.

References:

- Azadi, Sara; Azad, Hossein. (2011). Examining the relationship between social support, resilience, and mental health of witness and martyr students at universities in Ilam city. *Journal of Veterans' Medicine*; 3(4): 48-58.
- SkafiNoghani, Maryam; Nateghian, Samaneh; ShirinZadehDastgerdi, Samad; Mohammadzadeh, Ali; Najafi, Mahmoud.

(2015). The relationship between post-traumatic stress disorder, social support, quality of life, and mental happiness in spouses of veterans suffering from post-traumatic stress disorder. *Journal of Veterans' Medicine*; 8(1): 17-23.

Asghari Moghaddam, Mohammad Ali; Saed, Favad; Dibaaj Nia, Parvin; Zanganeh, Jafar. (2008). Preliminary study on the validity and reliability of the Depression, Anxiety, and Stress Scales (DASS) in non-clinical samples. *Bi-monthly Scientific-Research Journal of Clinical Psychology and Personality (Daneshvar-Raftar)*; 15(31): 23-48.

Bakhshandeh Sajjad, Amir Reza. (2022). Investigating the causal model of emotional schema and alexithymia with anxiety sensitivity through the mediating role of difficulty in emotion regulation among students. Master's thesis in Clinical Psychology. Department of Psychology, Faculty of Literature and Humanities, Shahid Bahonar University of Kerman.

Badri, Omid; Sabet, Mehrdad; Ahadi, Hassan; Nejat, Hamid. (2022). The effectiveness of emotion regulation training on perceived stress, self-efficacy, and sleep quality in elderly patients with type 2 diabetes. *Journal of Preventive Medicine*; 9(2): 132-143.

Basharat, Mohammad Ali. (2017). The mediating effect of defense styles in the relationship between attachment styles and emotional alexithymia. *Applied Psychology*.

Basharat, Mohammad Ali; Khalili Khazrabadi, Mahdieh; Rezazadeh, Seyed Mohammad Reza; Hosseini, Seyedeh Asma. (2017). The mediating role of difficulty in emotion regulation in the relationship between maladaptive personality traits and emotional alexithymia. *Scientific-Research Quarterly Journal of Psychological Methods and Models*; 8(3): 183-206.

Pasandideh, Mohammad Mahdi; Salek Mahdi, Faranak. (2019). Comparison of perceived stress, emotion regulation strategies, and cognitive flexibility in gastrointestinal patients and healthy individuals. *Scientific-Research Quarterly Journal of Health Psychology*; 8(1): 82-100.

Rezai, Zahra; Fath, Najmeh. (2020). The mediating role of cognitive emotion regulation strategies in the relationship between emotional alexithymia, pain perception, and perceived social support in patients with chronic pain disorder. *Methods and Models in Psychology*; 11(40): 27-40.

Ryu, John Marshall. (2016). *Motivation and Emotion*. Translated by Yahya Seyed Mohammadi. Tehran. Fifteenth edition.

Zahedi Tajrishi, Kamil; Basharat, Mohammad Ali. (2015). Emotional alexithymia and emotion regulation strategies in somatization and anxiety patients. *Contemporary Psychology*; 10: 739-743.

Sepehrian Azar, Firouzeh; AsadiMajreh, Samereh. (2015). Testing the relational model of family emotional environment with perceived stress: The mediating role of difficulties in emotion regulation. *Scientific-Research Biannual Journal of Shahed University*; 22(12): 89-100.

Saadatnejad, Maryam; Delir, Mojtaba. (2021). The relationship between perceived social support with secondary stress and mental health. *Military Psychology*; 12(47): 45-62.

Sami'i, Vahideh; Karimi, Kiumars; Akbari, Maryam. (2023). Evaluating the disease adaptation model based on uncertainty and cognitive flexibility in women with breast cancer with the mediating role of difficulty in emotion regulation. *Psychological Growth Journal*; 12(1): 63-74.

ShastFooladi, Mahtab; Mansha'i, Gholamreza. (2015). The effect of group emotion regulation training on stress in women with breast cancer in Isfahan city. *Journal of Knowledge and Research in Applied Psychology*; 16(4): 14-22.

Abedin, Maryam; Barqi Irani, Ziba; Akbari, Hamzeh. (2023). Comparing the effectiveness of compassion-based therapy and behavioral activation therapy on perceived stress and self-efficacy in women with breast cancer. *Journal of Psychological Sciences*; 22(122), 409-422.

Asheghi, Mehdi; Asheghi, Mostafa; Zabih Nia, Zakiyeh; Amani, Maryam. (2017). Predicting emotional alexithymia based on personality traits and emotion regulation in high school students. *Contemporary Psychology*; 12: 1144-1147.

AlipourBirgani, Sirous; Sahaghi, Hakim; Jelodar, Arash. (2015). Investigating the relationship between perceived social support and academic self-efficacy with social adaptation among students at JandiShapur University in Ahvaz. *Journal of Strategies for Development in Medical Education*; 2(1): 26-37.

Karbalaee, Mahboubeh; Yazdanbakhsh, Kamran; Karimi, Parvaneh. (2021). Predicting psychological well-being based on emotion regulation, cognitive flexibility, and mindfulness in cancer patients. *Scientific Research Quarterly Journal of Health Psychology*; 10(37), 141-160.

Mohebi, Mahmoud; Zaarei, Sahar. (2019). The relationship between emotion regulation strategies and trait-state

dimensions of competitive anxiety in taekwondo athletes at the Ambassador Cup in South Korea. *Journal of Cognitive Psychology and Psychiatry*; 6(2): 86-101.

Mohammadi, Leila; Tanha, Zahra; Rahmani, Sudeh. (2017). The relationship between cognitive emotion regulation strategies and risky behaviors mediated by perceived social support. *Journal of New Psychological Research*; 10(39): 161-187.

Mozaffari, Valieh. (2018). The effectiveness of mindfulness-based cognitive therapy on resilience and emotional regulation in spouses of veterans with mental health issues. *Journal of Veterans' Medicine*; 11(2): 61-66.

MousavianKhorasani, Seyed Hossein; Vaqarsidin, SeyedAbolfazl; Zarei, Bahareh; Shafiei, Farzaneh. (2019). The relationship between perceived social support and secondary traumatic stress, and perceived stress among nurses. *Journal of Midwifery and Paramedical Sciences*; 5(2): 69-80.

Narimani, Mohammad; Jani, Setareh; Rezaei, Ronak. (2020). The role of emotional alexithymia and mindfulness in predicting depression and anxiety in women with cancer. *Journal of Cognitive Psychology and Psychopathology*; 7(1): 78-89.

Nissi, Abdolkazem; ShahniYilagh, Monijeh; Farashbandi, Afsaneh. (2005). Investigating the simple and multiple relationships of self-esteem, general anxiety, perceived support, and psychological resilience with social anxiety among first-grade high school female students in Abadan County. *Journal of Educational Sciences and Psychology, Shahid Chamran University of Ahvaz*; 12: 25-36.

Yousefi, Mehdi; Sadaghatipour, Maedeh; Alizadeh Nawai, Reza; Kamali, Mahsa; Bagheri Nesami, Masoumeh. (2023). The relationship between illness perception and coping styles with perceived stress in patients with gastrointestinal cancer in Sari city. *Journal of Mazandaran University of Medical Sciences*; 33(222): 77-87.

Berkman, L. F., Glass, T., Brissett, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science and Medicine*; 51: 843-857.

Blum, C. A., Borglund, S., & Parcells, D. (2010). High - fidelity nursing simulation: Impact on student self-confidence and clinical competence. *International Journal of Nursing Education Scholarship*; 7(1): 1548- 1549.

LaFrance, M., & Banaji, M. (1992). Toward a reconsideration of the gender-emotion relationship. *Emotion and social behaviour*; 14: 178-201.

Lockwood, P. L., Seara-Cardoso, A., & Viding, E. (2014). Emotion Regulation Moderates the Association between Empathy and Prosocial Behavior.

Martin, R. C., & Dahlen, E. R. (2005). Cognitive emotion regulation in the prediction of depression, anxiety, stress, and anger. *Personality and Individual Differences*; 39: 1249–1260.

Michel JS, Mitchelson JK, Pichler S, Cullen KL. (2010). Clarifying relationships among work and family social support, stressors, and work-family conflict. *Journal of Vocational Behavior*; 76: 91- 104.

Sarafino, E. P., & Ewing, M. (1999). The Hassles Assessment Scale for Students in College: Measuring the frequency and unpleasantness of and dwelling on stressful events. *Journal of American College Health*; 48(2): 75-84.

Sarason, I. G., Johnson, J. H., & Siegel, J. M. (1978). Assessing the impact of life changes: Development of the Life Experiences Survey. *Journal of Consultant Clinical Psychology*.

Taylor, G. J., & Bagby, M. (2000). An overview of the alexithymia construct. In R., bar-On, & J. D. A., Parker (eds). *The handbook of emotional intelligence* (pp. 263-276). San Francisco: Jossey Bass.

Thompson, R. A. (1994). Emotional regulation: a theme in search for definition. *Journal Society- Research in Child Development*; 4(59): 25-52.