

Predicting Quality of Life Based on Early Maladaptive Schemas and Personality Traits in Women with Breast Cancer

Hoda Katebi¹, Maryam Kalthornia Golkar^{2*}, Robabeh Ataefar³

¹M.A., Department of psychology, Karaj branch, Islamic Azad University, Karaj, Iran.

²Assistant Professor, Department of Psychology, Karaj Branch, Islamic Azad University, Karaj, Iran.

³Assistant Professor, Department of psychology, Karaj branch, Islamic Azad University, Karaj, Iran.

* **Corresponding authors:** Maryam Kalthornia Golkar, Department of Psychology, Karaj Branch, Islamic Azad University, Karaj, Iran. Email: m.kalthornia@kiaiu.ac.ir

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Abstract

Background: Cancer is one of the most common diseases in the world, and more than 30,000 Iranians die of cancer every year. This study aimed to predict the quality of life based on early maladaptive schemas and personality traits in women with breast cancer.

Objectives: The method of the current study was descriptive-correlational. The statistical population of the study included 240 women with breast cancer referring to Jam hospital in Tehran, Iran, in 2019, out of whom 144 individuals were selected using convenience sampling. The data were obtained using the quality of life questionnaire, Young Schema Questionnaire-Short Form, Personality Traits Questionnaire, and Early Ineffective Schema Questionnaire. The data were analyzed by Pearson's correlation coefficient and linear regression using SPSS software (version 22).

Methods: This correlational study was conducted using the path analysis statistical method. The statistical population (n=195) included all middle-aged patients with diabetes referred to the endocrinologists of Bushehr Province, Iran, in 2019 and selected by the availability sampling method. The instrument used to collect data were questionnaires, namely a demographic form, the SF-36 Health-Related Quality of Life Questionnaire, Diabetes Self-Care Questionnaire, Pittsburgh Sleep Quality Questionnaire, and Mental Well-Being Scale. The data were analyzed in SPSS software (version 22) and Amos software (version 22) using the path analysis method.

Results: The obtained results showed that the quality of life has a predictive role based on early maladaptive schemas and personality traits in women with breast cancer ($P < 0.001$). The results of the regression coefficient indicated that quality of life can predict agreeableness ($\beta = 0.38$), social isolation/alienation ($\beta = -0.26$), distress ($\beta = -0.22$), pleasantness ($\beta = 0.26$), and obedience ($\beta = 0.17$).

Conclusion: It can be concluded that the quality of life has a predictive role based on early maladaptive schemas and personality traits in women with breast cancer.

Keywords: Self-care, Sleep, Mental health, Quality of life

1. Introduction

Cancer is one of the most common diseases in the world, and more than 30,000 Iranians die of cancer every year. In fact, after cardiovascular diseases and accidents, cancer is the third leading cause of mortality among Iranians. It is estimated that more than 70,000 new cases of cancer occur annually in the country. With the increase in life expectancy and percentage of aging in the population, the incidence of cancer is expected to double in the next two decades. Among these, breast cancer is the most common cancer and the most common cause of cancer mortality among Iranian women. Iran is one of the countries with a lower incidence of breast cancer than other countries. However, the increase in its incidence in recent years has shown this disease as the most common malignancy among Iranian women (1).

Currently, the prevailing model in the field of health and disease is a comprehensive biopsychosocial model that considers psychosocial factors as well as biological

factors. Behavioral habits contrary to the health, predictability of the disease in individuals, and use of psychological therapies in addition to medical therapies have been examined. Among the discussed topics is the relationship between the disease and personality traits of familiar people, which can occur, Continuity and treatment of the disease play a role (2). Different personality traits can have a significant impact on how individuals deal and relate to their environment (3). First believed that numerous psychological studies led to erroneous conclusions due to the neglect of personality dimensions (4). Personality traits are important factors that determine how individuals will adapt to stressful conditions and how they will recover from these events. Personality traits reflect the patterns of thoughts, feelings, and actions that are relatively stable over time and situations (5).

One of the most important issues in the investigation of patients with chronic diseases, including cancer, is the quality of life of patients. Considering the factors related

to the quality of life of cancer patients is an important point in the assessment of the effectiveness of treatment and process of the disease in these patients. The quality of life has a multidimensional structure that is examined in various functional, social, psychological, and emotional dimensions. These parameters demonstrate the important indicators of patient performance after cancer diagnosis and treatment. Among the most common issues studied in the quality of life investigations are the issues related to cancer patients. Over the past decades, the quality of life has been one of the most important topics in clinical studies, has been confirmed as one of the effective aspects of inpatient care, and has been used to recognize differences between patients, predict disease outcomes, and evaluate therapeutic interventions (6)

Early maladaptive schemas are among the factors affecting the quality of life; however, the mechanism of this vulnerability is not well perceived. The word schema has been used in various fields of studies. A schema is generally defined as a structure, format, or framework. Young believes that early maladaptive schemas are pervasive patterns that consist of memories, emotions, cognitions, and bodily feelings about oneself and relationships with others. These schemas are formed during adolescence or childhood, persist throughout an individual's life, and are highly dysfunctional. Improper maladaptive schemas perpetuate themselves through cognitive distortion, self-injurious patterns, and maladaptive coping styles and directly and indirectly lead to psychological distress and personality disorder. The dysfunctional nature of schemas usually arises when individuals act in a way that approves of their schemas in their daily lives and their interactions with others (7). With this background in mind, the present study aimed to predict the quality of life based on early maladaptive schemas and personality traits in women with breast cancer.

2. Materials and Methods

The method of the current study was descriptive-correlational. The statistical population of the study included 240 women with breast cancer referring to Jam hospital in Tehran, Iran, in 2019. The sample size was calculated using the formula of $n > 50 + 8(x)$; accordingly, 144 women were selected using convenience sampling so that the list of women who had been referred to Jam hospital for treatment and had the necessary conditions to enter the study was available. Based on the list of names, 144 women were selected, contacted, and asked to go to the hospital. Then, the participant went to the hospital and was asked the questions of the questionnaires. Before asking the questions, it was explained that the study participation was voluntary and the information would remain confidential.

The inclusion criteria were women with 1) breast cancer within the age range of 40-55 years, 2) no disease other than breast cancer (e.g., diabetes, thyroid, kidney infections, and cardiovascular disease), 3) no use of psychiatric drugs and drugs related to the aforementioned diseases, and 4) grade one and undergoing lumpectomy treatment. The exclusion criteria were women 1) with breast cancer under 45 and over 55 years of age, 2) suffering

from diseases (e.g., diabetes, thyroid, kidney infections, and cardiovascular disease), 3) no use of neuroleptic drugs and drugs related to the aforementioned diseases, and 4) above grade one and undergoing mastectomy treatment.

Quality of Life Questionnaire:

This questionnaire has been used for the measurement of the quality of life of an individual in the last two decades. It was designed by the World Health Organization in collaboration with 15 international centers in 1989. It does not belong to one of the domains and evaluates the state of health and quality of life in general. The four sections of this questionnaire are 1) physical health, 2) psychological domain, 3) social relations, and 4) living environment. The scoring method of this questionnaire is based on a 5-point Likert scale. Therefore, for each question, five options from 1 to 5 are considered. The sum of the total scores of the items shows the quality of life of the individual. The Cronbach's alpha coefficient was considered within the range of 0.73-0.89 for the four subscales. In Iran, Safaee and Moghim Dehkordi (8) used three test methods with a three-week interval, halving and Cronbach's alpha for scale reliability, which were equal to 0.67, 0.87, and 0.84, respectively.

Young Schema Questionnaire-Short Form:

A short 75-item version of this scale was developed by Yang evaluating 15 initial inconsistent schemas based on a 6-point Likert scale from completely true about me = 6 to completely false about me = 1. The results showed that Cronbach's alpha of this scale as an indicator of internal consistency for each subscale was higher than 0.80 and for the whole scale was 0.96. They showed that this questionnaire has good differential validity. This scale was standardized in Iran by Sadooghi et al. (10), with the Cronbach's alpha reported within the range of 0.90-0.62.

Personality Traits Questionnaire:

The NEOPI-R Personality Questionnaire is a replacement for the NEO test, developed by McCrae and Costa in 1985. This questionnaire measures 5 main personality factors and 6 traits in each factor or 30 traits, thereby providing a comprehensive assessment of personality. The questionnaire has two forms. The first form (S) is for personal reports, including 240 five-point items from strongly agree to disagree strongly, which are graded by the subject and are suitable for men and women of all ages. The other form is called (R) or revised form and is based on observer ratings. The reliability coefficient obtained from the retest method in a sample of 31 individuals with an interval of 3 months is within the range of 0.66-0.92 for subtraits and higher reliability coefficients (0.93, 0.87, 0.86) (11).

Statistical analysis was performed in two sections, namely descriptive and inferential. In descriptive statistics, mean, variance, and standard deviation were calculated. In inferential statistics, linear regression was used to examine the relationship between variables using the Pearson' correlation and determine the prediction of the criterion variable based on predictor variables through the observation of assumptions (e.g., normality and linearity). It is worth mentioning that the raw data were statistically analyzed using SPSS software (version 22).

3. Results

The mean value of participants' age was reported as 45.13 ± 8.09 years. Table 1 shows the descriptive statistics of the study variables in women with breast cancer.

The results of the Kolmogorov-Smirnov showed that the data had a normal distribution. Therefore, according to the results of the skewness and elongation test, the distribution of the data for all the traits was normal. In addition, the results of correlation demonstrated that there was a negative and significant correlation between the quality of life and neurotic dimension of personality traits. Moreover, there was a positive and significant correlation between the quality of life with the dimensions of extraversion, pleasantness, and agreeableness with a 99% confidence interval; however, the dimension of conscientiousness did not significantly correlate with the quality of life. Multivariate regression analysis was used to evaluate the quality of life of women based on personality traits. In this method, the total quality of life score of women with breast cancer was entered into the regression equation as a predictor variable and personality traits as a criterion variable. The results of this analysis are

reported in the following tables.

The results of Table 2 showed that 54% of the changes in the quality of life among women with breast cancer were dependent on early maladaptive schemas and their personality traits. The rest of the variance depends on other factors that have not been considered or unknown in this study. In other words, the rest of the variance was related to variables associated with the variance of quality of life in women with breast cancer; nevertheless, the current study did not investigate them.

According to the significant level of regression analysis test, the effect of predictive variables on the criterion variables can be statistically accepted. However, since the regression coefficient was significant, the importance and significance of each component of the predictive variable can be determined according to the regression analysis table.

Based on the results of the regression analysis in Table 4 and considering the significant levels of the table, it can be said that early maladaptive schemas and personality traits in women with breast cancer can predict their quality of life. The results of the regression coefficient showed

Table 1. Descriptive statistics of study variables in women with breast cancer

| Variable | Min | Max | Mean | Standard deviation |
|---|-----|-----|--------|--------------------|
| Physical health dimension | 12 | 28 | 19.90 | 4.44 |
| Psychological dimension | 15 | 30 | 23.83 | 4.28 |
| Social relations dimension | 3 | 10 | 7.00 | 1.98 |
| Living environment dimension | 11 | 40 | 21.88 | 6.40 |
| Total score of quality of life | 50 | 104 | 61.79 | 13.72 |
| Emotional deprivation | 6 | 27 | 12.61 | 6.23 |
| Release/Instability | 6 | 26 | 13.96 | 6.07 |
| Distrust/Mistreatment | 6 | 16 | 8.24 | 2.53 |
| Social Isolation/Alienation | 6 | 24 | 10.09 | 4.37 |
| Defect/Shame | 6 | 15 | 8.18 | 2.20 |
| Failure | 6 | 19 | 10.18 | 3.73 |
| Dependency/Incompetence | 6 | 21 | 9.54 | 3.99 |
| Vulnerability to loss and disease | 6 | 23 | 11.20 | 4.43 |
| Caught/Untransformed self | 6 | 26 | 10.88 | 4.27 |
| Obedience | 6 | 27 | 11.31 | 4.63 |
| Sacrifice | 8 | 30 | 17.69 | 5.77 |
| Emotional inhibition | 6 | 30 | 13.06 | 6.54 |
| Strict criteria | 8 | 29 | 12.97 | 6.58 |
| Entitlement | 6 | 25 | 13.47 | 5.80 |
| Self-control/Inadequate self-discipline | 6 | 23 | 13.04 | 5.03 |
| Neuroticism | 42 | 113 | 78.25 | 18.34 |
| Extraversion | 38 | 110 | 68.04 | 18.62 |
| Pleasantness | 42 | 161 | 117.47 | 27.22 |
| Agreeableness | 52 | 103 | 73.79 | 10.79 |
| Conscientiousness | 35 | 105 | 67.03 | 17.70 |

Table 2. Multiple correlation coefficients (regression coefficients) through early maladaptive schemas and personality traits to predict quality of life in women with breast cancer

| Model | R | R ² | Adjusted R ² | Estimation criterion error |
|----------------------------|------|----------------|-------------------------|----------------------------|
| Quality of life prediction | 0.74 | 0.56 | 0.54 | 29.9 |

Table 3. Results of stepwise multiple regression analysis to determine quality of life in women with breast cancer based on early maladaptive schemas and personality traits

| Predictive variable | Statistical index | SS | Df | MS | F | P-value |
|---------------------|-------------------|----------|-----|---------|-------|---------|
| | Regression | 15127.86 | 5 | 3025.57 | 35.37 | 0.001 |
| Quality of life | Remaining | 11802.35 | 138 | 85.52 | | |
| | Total | 26930.22 | 143 | | | |

Dependent variable: Quality of life

Table 4. Regression coefficients of variables evaluated for quality of life based on early maladaptive schemas and personality traits in women with breast cancer

| Model | Unstandardized coefficients | | Standard coefficients | t | P-value |
|----------------------------------|-----------------------------|----------------|-----------------------|-------|---------|
| | β | Standard error | β | | |
| Constant | 43.48 | 8.61 | | 5.04 | 0.001 |
| Agreeableness (X1) | 0.48 | 0.07 | 0.38 | 6.58 | 0.001 |
| Social Isolation/Alienation (X2) | -0.82 | 0.19 | -0.26 | -4.21 | 0.001 |
| Neuroticism (X3) | -0.16 | 0.04 | -0.22 | -3.89 | 0.001 |
| Pleasantness (X4) | 0.13 | 0.03 | 0.26 | 45.41 | 0.001 |
| Obedience (X5) | 0.52 | 0.17 | 0.17 | 2.89 | 0.004 |

Dependent variable: Quality of life

that the quality of life can predict agreeableness ($\beta=0.38$), social isolation/alienation ($\beta=-0.26$), distress ($\beta=-0.22$), pleasantness ($\beta=0.26$), and obedience ($\beta=0.17$).

4. Discussion

The present study aimed to predict the quality of life based on early maladaptive schemas and personality traits in women with breast cancer. The obtained findings revealed that the quality of life based on early maladaptive schemas and personality traits has a predictive role in women with breast cancer. This result is consistent with the findings of a study by Glavić et al. (13). To explain that dysfunctional schemas and personality traits predict the quality of life in women with breast cancer, it can be said that the quality of life has a multidimensional structure with different examined functional, social, psychological, and emotional dimensions. As Ridgel et al. stated, the quality of life assessment in cancer studies is an important variable related to clinical care. It can be used to diagnose differences among patients, predict disease outcomes, and evaluate therapeutic interventions (5).

Dimensions affecting the quality of life include physical, social, and mental aspects of health that are affected by an individual's experiences, beliefs, expectations, and perceptions. Individuals with chronic diseases have a quality of life related to individual characteristics, and physical diseases affect these responses. In order to improve and be effective in treatment, in addition to the effect of drugs and treatment methods, other effective

factors, such as early maladaptive schemas and personality traits, should be considered to improve patients' quality of life (12).

Explaining that early maladaptive schemas predict the quality of life in women with breast cancer, it can be said that the quality of life is associated with early maladaptive schemas and plays an important role in health. Psychology has a role in patients. In explaining this finding, it can be said that the existence of early maladaptive schemas in patients impairs their quality of life and disrupts their social functioning. An individual with an early dysfunctional schema has beliefs about him/herself that make him/her feel weak, ineffective, and helpless. This schema has important effects on his/her quality of life (10). Early maladaptive schemas in patients lead to the experience of negative events in life, and the presence of such events in an individual's life causes a feeling of excessive stress. Those who excessively use dysfunctional schemas are affected by negative life events. In addition, Kooraneh and Amirsardari (12) argued that how to overcome negative life events is to separate them from positive life events and focus on the positive ones.

In explaining that personality traits predict the quality of life in women with breast cancer, it can also be said that neurosis is a key indicator of vulnerability in individuals with depression and other injuries. It is psychological. The tendency to experience negative emotions, such as anxiety, fear, anger, hostility, sadness, guilt, and hatred, is the main component of psychosis. Negative excitability

will constantly cause physiological arousal of the nervous system so that negative emotions, such as stress and anger, cause changes in neural activity that can increase stress in women with breast cancer (12).

Masthoff et al. stated that neuroticism and harm avoidance negatively correlate with the quality of life; however, extraversion, conscience, and self-leadership are directly related to the quality of life. Personality seems to play a significant role in the quality of life and related concepts, such as life satisfaction and well-being (13). Therefore, it is recommended to give attention to personality and mood in future diagnostic methods, treatment policies, and evaluation of care programs in women with breast cancer. The quality of life and personality traits are significant and relevant areas for patients and caregivers. Various studies confirm that personality and its dimensions can affect many aspects of an individual's life.

One of the limitations of the present study was the sample of women with breast cancer in Jam hospital in Tehran in 2018; therefore, caution should be exercised in generalizing the results to other groups. Moreover, the severity of symptoms were not considered in this study. The extent of involvement in breast cancer is unclear and varies from person to person. The instrument used in this study was a questionnaire and the use of one tool alone, such as a questionnaire, may not correctly show the results. The subject of prediction was the quality of life based on inefficient schemas and personality traits in women with breast cancer. It is suggested to use other assessment tools, such as observation, interview, information from others, and questionnaires, in order to achieve more accurate results and provide a clearer picture.

It is recommended to consider the role of other factors affecting the quality of life in future studies. The lives of women with breast cancer should also be examined in the form of an experimental study. Moreover, similar studies should be performed on other individuals in the community and male patients with cancer, and the results should be compared to the findings of the present study. To evaluate and compare the results with the present findings, similar studies on other people in the community to increase the generalizability of the results and compare them with each other, in subsequent studies the impact of other variables in the form of a comprehensive theoretical model and using methods such as the structural equation modeling approach achieved a rich and coherent empirical model. It is suggested to carry out similar studies in other cities of the country and compare and examine the differences in demographic characteristics.

5. Conclusion

Based on the findings of this study, it can be concluded that the quality of life has a predictive role based on early maladaptive schemas and personality traits in women with breast cancer.

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