Investigating the Psychometric Properties of the Persian Version of the McGill Quality of Life Questionnaire-Revised (MQOL-R) in Women with Breast Cancer

Mahboobeh Soleymani Moghadam[1], Sajad Khanjani[2*] and Aliakbar Foroughi[1]

[1]*Department of Clinical Psychology, Kermanshah University of Medical Sciences, Kermanshah, Iran*

[2]*Research Center for Cognitive and Behavioral Sciences in Police, Directorate of Health, Rescue and Treatment, Police Headquarter, Tehran, Iran*

Corresponding Author*

Sajad Khanjani
Research Center for Cognitive and Behavioral Sciences in Police, Directorate of Health, Rescue and Treatment, Police Headquarter, Tehran, Iran
E-mail: soleymani.psy@gmail.com

Abstract

Background: Breast cancer is a very stressful disease and makes sufferers face many challenges. Many of them experience various symptoms that significantly decrease their quality of life during and after treatment.

Purpose: This study aims to investigate the psychometric properties of the Persian version of the Revised McGill Quality of Life Questionnaire (MQOL) in Iranian women with breast cancer.

Method: The present study was conducted on 240 women with breast cancer referred to Imam Reza hospital and Mahdiyeh clinic of Kermanshah university of medical sciences from September 2021 to April 2022. The participants were selected using convenience sampling and completed the McGill quality of life, demoralization, positive and negative affect, state hope and patient health questionnaires. Data were analyzed using SPSS-24 and LISREL software. Descriptive statistics, Cronbach's alpha, Pearson's correlation coefficient and confirmatory factor analysis were used for data analysis.

Results: Internal consistency was obtained by calculating Cronbach's alpha coefficient for subscales of physical (0.92), psychological (0.96), existential (0.94), social (0.95) subscales and total score (0.97), which indicated good reliability of this scale. Also, Confirmatory Factor Analysis (CFA) results showed that the four-factor model of MQOL-R is a good fit.

Conclusion: The results of this study showed that the McGill quality of life questionnaire-revised can be used as a reliable instrument to evaluate the quality of life of women with breast cancer who need clinical intervention by examining physical, psychological, social and existential dimensions.

Keywords: Breast cancer • Quality of life • Demoralization • Hope • Psychometrics

Introduction

Breast cancer is the most common type of cancer in women worldwide and affects more than two million women worldwide yearly [1]. In Iran, this disease onset is a decade earlier than in developed countries [2]. Due to a lack of awareness and proper screening and postponement of screening, it is usually diagnosed when the disease is in an advanced stage. This disease is associated with mental distress [3]. The existence of negative experiences and emotions such as anxiety, anger, suffering, guilt and fear of death affect the quality of life of these patients [4]. Since more than 80% of these affected women survive for more than five years, the quality of life in these patients is an important issue. Quality of life in cancer patients is a broad, multidimensional issue [5]. Moreover, it can have different meanings, so it needs to be contextualized [6]. Quality of Life (QOL) can be defined as: "A person's perception of his position in life within the framework of the culture and value system in which he lives and is related to his goals, expectations, standards and concerns". In 1995, Robin Cohen and his colleagues, reviewing the existing quality-of-life instruments, found that these instruments had a shortcoming in the context of life-threatening diseases (such as cancer) and had neglected the existential domain [7]. Also, some of these quality-of-life measures have focused too much on the physical domain. Most instruments try to measure quality of life by listing problems and do not attempt to measure positive aspects of quality of life [8]. Therefore, they developed the McGill Quality of Life Questionnaire (MQOL), which evaluates physical well-being, psychological, support, existential or spiritual domains. Then, in 2017, Robin Cohen and his colleagues revised the McGill Quality of Life Questionnaire (MQOL) to solve its limitations [9]. In the revised version of the McGill Quality of Life Questionnaire (MQOL), the wording and structure of items were improved. The number of questions decreased. The physical well-being subscale became more coherent. The support subscale was renamed to social because it focused on interpersonal relationships. Also, the existential subscale included questions with high performance [10]. Respondents prefer shorter instruments because they are easier to complete. Therefore, another advantage of this questionnaire is that it can be completed in 5 to 10 minutes. Quality of life can be an important predictor for better treatment results and cancer patients are among the people for whom quality of life assessment is of primary importance [11]. Previous studies have been conducted on people at the end of their lives and people with life-threatening diseases [12]. However, the advantage of the current study is that McGill's quality of life was explicitly examined in women with breast cancer. Due to medical advances and increased chance of survival, more women are living with this disease. Therefore, considering there was no suitable tool to evaluate the quality of life in the breast cancer population, the researchers were motivated to implement McGill's quality of life tool in the Iranian cultural and social context. Hence, we aimed to perform the validity and reliability of the Persian version of the McGill Quality of Life Questionnaire-Revised (MQOL-R) in a sample of women with breast cancer.

Materials and Methods

Demographic information

Demographic information includes age, education, marital status and duration of illness.

McGill Quality of Life Questionnaire-Revised (MQOL-R)

This questionnaire was developed by Robin Cohen, et al., in 2017. It contains 14 questions (a general question assessing quality of life). It covers physical well-being, psychological, social and existential subscales. The score of the questions ranges from 0 (worst situation) to 10 (best situation). Questions 1, 3, 4, 5, 6, 7, 10 are scored in reverse. Cronbach's alpha was 0.94 in the original questionnaire.

Demoralization Scale (DS-II)

The demoralization scale was developed by Kissane, et al., in 2016. This scale has 16 questions and two components. The first component includes meaning and purpose and the second one consists of distress and the ability to cope. Scores range from 0 to 32. Cronbach's alpha was 0.89 in the original study [13].

Positive and Negative Affect Schedule (PANAS)

This scale consists of 20 questions and has two subscales that evaluate a person's positive and negative affect. Questions are rated on a five-point Likert scale from very little or none to very much [14].

State Hope Scale (SHS)

The scale comprises six questions and two subscales of agency and pathways, which measure three questions each. The questions are rated on an eight-point Likert scale from entirely false to completely true.

Patient Health Questionnaire (PHQ-9)

The questionnaire has nine questions and examines depressive symptoms in the past fourteen days. Responses are ranked on a Likert scale ranging from 0 (not at all) to 3 (almost every day) [15].

Results

In the research sample, 240 women with breast cancer aged 28-67 years and an average age of 46.46 ± 8.48 participated. The duration of breast cancer diagnosis in the research sample was ranged from 5-14 months, with an average diagnosis duration of 8.88 ± 2.53 months. The marital status, educational status, the duration of breast cancer diagnosis and age of the research participants are presented in Table 1.

Table 1. Profile of the research participants.

| Variable	Category	n	Percentage
Marital	Single	24	10
	Married	197	82.1
	Divorce	3	1.3
	Widows	16	6.7
Education	<A high school diploma	114	47.5
	High school diploma	42	17.5
	Bachelor	46	19.2
	Master	38	15.8
Age	28-30	8	3/3
	31-39	43	43/8
	40-49	105	43/8
	50-59	69	28/8
	60-67	15	6/3
Duration of breast cancer diagnosis	5-7	82	34/2
	8-10	96	40
	11-14	62	25/8

Confirmatory factor analysis

Confirmatory factor analysis was conducted to investigate the four-factor structure of the Persian version of MQOL-R in the sample of women with breast cancer (Figure 1). The fit indices of the four-factor structure in the sample show that the MQOL-R four-factor structure has a relatively good fit (Table 2).

Table 2. Fit indices of MQOL-R scale four factor model.

Fit indexes	X^2	P	X^2/df	SRMR	GFI	IFI	CFI	NNFI	NFI	RMSEA
MQOL-R	30.356	0.001	5.02	0.04	0.82	0.98	0.98	0.97	0.97	0.09

Note: SRMR: Standardized Root Mean Square Residual; GFI: Goodness-of-Fit Index; IFI: Incremental Fit Index; CFI: Comparative Fit Index; NNFI: Non-NFI; NFI: Normed Fit Index; RMSEA: Root Mean Square Error of Approximation; MQOL-R: McGill Quality of Life Questionnaire-Revised
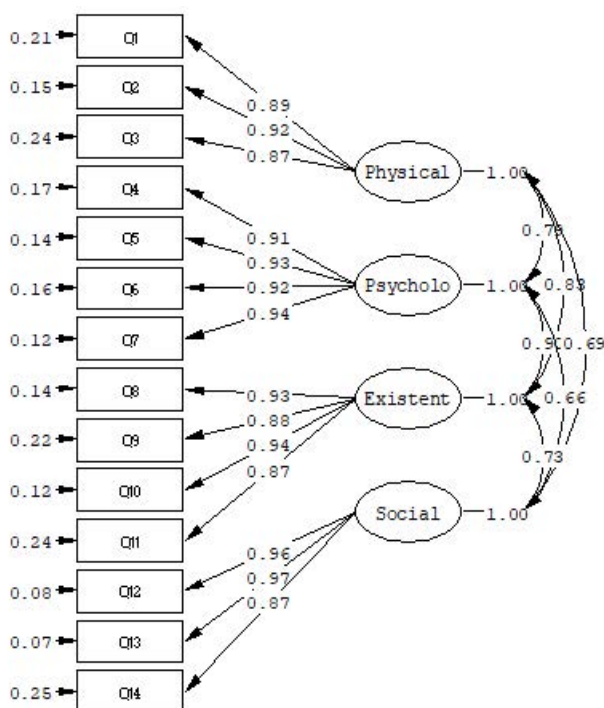
Figure 1. MQOL-R Scale II four factor model.

The correlation between MQOL-R subscales and the total McGill quality of life score ranged from 0.81 to 0.95. Additionally, the correlation among MQOL-R subscales ranged from 0.62 to 0.85.

Reliability

The internal consistency was obtained by calculating Cronbach's alpha coefficient for the subscales of physical, psychological, existential, social and the total score was obtained: 0.92, 0.96, 0.94, 0.95 and 0.97 respectively, indicating a high level of reliability for this scale (Table 3).

Table 3. Convergent and divergent validity results.

Variable	Physical	Psychological	Existential	Social	State hope	Positive affect	Demoralization	Negative affect	Patient's health
McGill quality of life	0.88**	0.92**	0.95**	0.81**	0.72**	0.45**	-0.16**	-0.64**	-0.65**
Physical	-	0.73**	0.79**	0.63**	0.62**	0.41**	-0.45**	-0.56**	-0.57**
Psychological		-	0.85**	0.62**	0.67**	0.26**	-0.68**	-0.73**	-0.66**
Existential			-	0.70**	0.69**	0.46**	-0.55**	-0.56**	-0.52**
Social				-	0.56**	0.53**	-0.41**	-0.40**	-0.54**

Convergent and divergent validity

Pearson's correlation coefficient results demonstrated a positive and significant correlation between McGill quality of life and its subscales with state hope and positive affect, which indicates the appropriate convergent validity of McGill quality of life questionnaire. Moreover, the Pearson correlation coefficient results showed that there is a negative and significant correlation between McGill quality of life questionnaire and its subscales with demoralization, patient's health and negative affect, which shows the scale has good divergent validity.

Discussion

This study aimed to investigate the psychometric properties of the factor structure of the Persian version of the McGill Quality of Life Questionnaire-Revised (MQOL-R) in women with breast cancer. The research results showed that this instrument has a suitable factor structure. These results are in line with the original research conducted by Robin Cohen, et al. and research conducted in Italy, Brazil and Korea. In this study, like the study of Robin Cohen and colleagues, physical well-being, psychological, existential and social subscales were analyzed. The findings show that quality of life is a

multidimensional concept that includes psychological, existential and interpersonal dimensions and physical well-being [16]. The physical well-being subscale is the first subscale of McGill's quality of life. This subscale included questions such as "Over the past two days, I have felt physically terrible/well" and "Over the past two days, my physical symptoms have been (such as pain, nausea, fatigue and others.).". Women with breast cancer struggle with physical deterioration and after mastectomy, body damage is the primary source of stress in these patients, which reduces their quality of life [17]. The second subscale of McGill's quality of life is the psychological subscale. It is known that several breast cancer patients suffer from distress in the early stages of the disease and suffer from psychological problems such as stress, anxiety, fear and sadness, which affect their quality of life [18]. Also, breast cancer creates feelings such as feelings of worthlessness or hopelessness. The existential subscale is the third subscale of McGill's quality of life, which includes questions like "Over the last two days, my life has been utterly meaningless and without purpose/very purposeful and meaningful". The existential domain includes concerns about death, freedom, isolation and meaning [19]. Breast cancer often confronts women with fear and uncertainty and, most importantly, with the thought of their mortality. The fourth subscale of McGill's quality of life is the social subscale, which focuses more on relationship. Psychological issues (such as anxiety, loneliness, guilt and changes in body image) that arise in patients with breast cancer are often associated with marital and relationship stress, isolation and changes in social support. Social support has been found to be an important predictor of quality of life, which is defined as the number of social contacts and the amount of social participation with friends and family. Survivors with a high quality of life receive enough emotional support from family and friends. Also, the presence of a caring husband or partner should not be ignored because the quality of marriage and husband's support is a critical factor in the quality of life of breast cancer patients [20]. McGill Quality of Life (MQOL) evaluates positive and negative effects on quality of life. Also, the results of the present study showed that the quality of life scale has good internal consistency. This study obtained a good alpha score in all four components of quality of life. Trait hope and positive affect scales were used for the convergent validity of this scale. This study obtained a high correlation between quality of life with hope and positive affect. Emotional functioning has been found to be a major predictor of health-related quality of life levels because cancer patients often experience distress. Also, cancer, which is considered an existential disorder, can lead people to review their lives and values, which for some can lead to unresolved suffering and despair. The scale of demoralization, negative affect and patients' health was used for divergent validity. The present study showed a significant correlation between lower quality of life with demoralization and depression.

Conclusion

The existential subscale of McGill's quality of life includes items that show a sense of purpose and meaning in life, achieving life goals and judging the value of life. Therefore, we selected the demoralization scale for validity as it includes an existential component, which is losing the meaning and purpose of life. The current research had some limitations, including that some patients did not want to cooperate due to inappropriate psychological conditions and fatigue caused by chemotherapy and this caused the loss of several samples. Also, this research used self-report instruments to collect data, which may be biased. In general, since different aspects of the life of women with breast cancer are affected by this disease, McGill's quality of life questionnaire can be used as a reliable instrument to evaluate the quality of life in women with cancer and identify those who need clinical intervention.

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