

## Evaluation of Different Types of Pain in Patients with Breast Cancer

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### A B S T R A C T

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**Background:** Cancer, a common disease in the world, is considered the second cause of mortality in developed countries. In the management of symptoms created by breast cancer (BC), pain is the most important. So, this study aimed to evaluate different dimensions of pain in patients using the McGill Pain Questionnaire. In this way, physicians could perform effective treatment for patients.

**Methods:** This case study was done on BC patients aged 30-60 years old in some specialized cancer hospitals in Tehran. The utilized research instrument in this study was the McGill Pain Questionnaire. Data were analyzed by SPSS Software.

**Results:** The BC pain in various dimensions as sensory, emotional, general understanding, and different pain types was studied on 166 women with BC. Our results indicated that pain was more in the sensory dimension in studied patients with an average rate of 80.4, which attributed 1 to 10 rows of the questionnaire. The most chosen words by BC patient in the sensory, emotional, and general understanding dimensions were as follow: the word "Sharp" with 69, "Troublesome" with 47, and "Nauseating" with 87 were the most frequent respectively.

**Conclusion:** According to these results, it is possible to use effective and better treatment to reduce BC patients' pain.

**Keywords:** Pain, Breast cancer, McGill Pain Questionnaire, Pain management



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## INTRODUCTION:

Cancer is a common disease worldwide (1) and mostly recognized after creating some side effects in the advanced stages, resulting in patients' death very quickly. This dangerous and painful disease is the second cause of mortality in developed countries.

According to the World Health Organization report, the mortality rate of patients with cancer in America, an advanced country specifically in cancer treatment, is increasing and is expected to develop more and more (2, 3). In Iran, the number of cancer patients has increased 3.3 times from 1986 to 2006. This increase is considerable due to the reduction in patients' ability in life and its negative effect on their quality of life (3-5).

Among the most common cancers, breast cancer (BC) is the most prevalent malignancy in women. The onset of BC in developing countries like Iran is increasing more than in other developed countries (6). Also, its diagnosis in Iran is usually delayed. On the other hand, the diagnosis of disease in an advanced stage creates a complicated treatment process. The risk factors for BC include age, high BMI, white race, medical history, alcohol consumption, specific diets, smoking, low physical inactivity, use of contraceptive pills, early menarche, and late menopausal, nulliparity or low parity, and high age at first pregnancy (7).

Despite the acquired achievement in recent decades, some factors such as the lack of access to medicine, insufficient oncology expertise, being loyal to harmful specific cultures, and exacerbated risk factors due to lifestyle could explain the increased number of patients with BC and their mortality. It should be noted that a statistically significant variation is seen in the reports from different countries. For instance, 93 to 100 among 100,000 women in North America, North Europe, and Australia, 13.5 to 30 people among 100,000 women in

Africa are diagnosed with BC (8, 9). In symptom management, BC pain is one of the most important components with very complicated management (10-12).

Pain is an unpleasant sensory and emotional experience, usually along with certain tissue damage. This experience affects all aspects of an individual's life and could create or strengthen other symptoms like fatigue, depression, impatience, sleep disorders, etc., in patients with BC (11, 12). The prevalence of pain among BC patients is considerable and is about 66 percent. On the other hand, these patients sometimes experience pain due to the side effects of treatment. For example, mastectomy's pain syndrome is common among rescued patients from BC (13, 14). Among patients who experience pain, 10 to 20 percent continuously suffer from pain, resulting in long-term use of lenitive drugs as acetaminophen or Nonsteroidal anti-inflammatory drugs. Thus, using these drugs for a long time creates a reasonable aftereffect (10). Although some pain-relief clinics nowadays in developed countries manage these patients' pain, overall, pain management is not a desirable status to provide services for patients in the world (3). Understanding pain management and pain assessment as the first step in effective pain management leads to focusing on pain control and improving patients' life quality with BC (11). Though pain assessment has been studied in developed countries over the past years and extensive studies have been administered on patients, we know that many factors contribute to the good quality of life in a patient with cancer.

Factors as ethnicity, a social and economic issue, and even individual beliefs in different countries can express the different definitions of patients' life quality in these countries. So, a study on pain evaluation in a specific country cannot be generalized to all countries. Therefore, each country needs to operate extensive and useful studies to improve patients' life quality and manage their pain (3, 9, 15). To help pain management in

BC patient in Iran, it is essential to assess the type of pain. We should realize whether this neuropathic pain is a report of a state as Burning, Tingling, Numbness, Powerlessness, Cold, and Hotness, or what is the degree of pain, mild to moderate, or very severe and miserable and how the patient interprets his pain. For this purpose, we used the McGill Pain Questionnaire to help express patients' different feelings and count on a score of 0 to 100 to justify the severity of their pain quantitatively.

### **METHODS:**

This case study was conducted in 2016 on 166 women patients who suffered from chemotherapy's pain. Data collection was done in some of the specialized hospital related to cancer in Tehran. Sampling of this study was not limited to a hospitalized patient. Therefore, other patients in different hospital wards as chemotherapy, radiotherapy, and even hospital clinic, were studied. BC patients who suffered from the pain after chemotherapy and liked to participate in this study were chosen. Thus, patients suffering from other cancers, those with no pain, patients the end-stages of the disease, those with poor mental status and who were reluctant to participate in this study, were excluded from this research. The research instrument used in this study was the McGill Pain Questionnaire. Since pain is one of the most complicated processes of the human body, which has different physical and psychological dimensions, its measuring and recording is one of the fundamental problems in the field of health. So McGill Pain Questionnaire is one of the most reliable and standard instruments designed for pain measurement especially chronic and resistant pains. The most important features of a research tool are accuracy and reliability, stability, and most importantly, its validity, that the McGill Pain Questionnaire has all of these characteristics. This questionnaire allows the patient, by choosing appropriate words, to express his perception of pain in sensory, emotional,

general understanding, and various pains.

In this study, the modified version of McGill Pain Questionnaire, SF-MPQ, is used, so that in this revised form, in addition to non-neuropathic pain, by adding phrases as Boring pain, Tiring, Shock, Cold, Frozen feeling, Powerlessness, Itching, Tingling, and Numbness, also neuropathic pain has been examined. This questionnaire was developed in such a way that the nature and severity of pain were analyzed from the sensory and emotional aspects quantitatively and statistically. The McGill questionnaire contains 78 descriptive words in twenty rows, and the words in each row usually have the most similarity. Undoubtedly, some of these words are synonym with differentiation in intensity. Dimensions of this questionnaire are: the sensory conception of pain, including the set of 1 to 10, with phrases as: Flickering, Quivering, Shooting, Sharp, Tingling, Sore, and Heavy. Recruited words in each row take the point from 1 to maximum 6. For example, in first row the word (Flickering) take the score of 1 and the word (pounding) takes the score of 6. The patient could choose one word from each row. If the patient did not find a word with his sense of pain in one or more row, could leave those rows in blank.

The emotional conception of pain: this dimension of pain conception expresses the quality of pain stimulus in the form of stress, fear and other autonomic features which are a part of pain experience. This dimension consists of 11 to 15 rows and utilized words in this dimension is including: Tiring, Fearful, Grueling, and Blinding. Recruited words in each row take the point from 1 to maximum 5.

The dimension of general understanding of pain: this dimension consists of the sixteenth row of questionnaire and the words in this row express the intensity and sense of the general and mental experience of pain. The maximum score of words in this row is 5. For example, if patient in the basis of his pain, chooses the

word (Unbearable) from this row, he gets the score of 5 and if none of the words of this row matches his sense of pain, his score is zero.

The dimension of different pains: this dimension attributed the questionnaire rows of 17 to 20 to itself and the used words in this dimension is not included in previous dimensions. Scoring is in the basis of chosen word. It means that the first words of each group take number 1 and the maximum number of this dimension is 5. Therefore, the chosen words not only show the quality of pain, but also represent their intensity, and the scoring of McGill Pain Questionnaire is in such a way that in each row just one word is calculated. If patient by mistake chose more than one word in each row, the word with maximum score is calculated for her. This questionnaire was completed through interview by patient. In order to comply with morality, before doing interview, the aim of study and its procedure, and how to answer to questions of questionnaire were explained to all chosen patients and they were self-sufficient to take part in this study, so if they were not desired, they weren't interviewed. This research was carried out daily by referring to the relevant centers and completion of questionnaires by the patients with an average age of 30 to 60 years. The data obtained from this study were analyzed using SPSS software.

**RESULTS:**

About 166 women with BC who suffered from the pain after chemotherapy, were chosen for this study. Their average age was 54.08 ±3.17 (between 30 to 60) years old. McGill Pain Questionnaire evaluates the pain in different aspects as: sensory, emotional, general understanding of pain, and various pain. By analyzing the statistical data and comparing the mean of these dimensions which is shown in **Table 1**, we realized that the pain of studied patients was more of sensory perception. This dimension of questionnaire contains the row 1 to 10 and 42 used words in these 10 rows are including: Flickering, Pressing, Burning, Tingling, Sore, Dull and so on.

This questionnaire comprises of 20 rows. In **Table 2** the word frequency of each row is shown and by comparing this frequency, we can found which word has been the most choice by patients.

For instance: in first row, the words as Flickering, Pulsing, Quivering, Throbbing, Beating, and Pounding were used. Comparing the frequency of first row words, we concluded that the word "Flickering" with 26 frequency, has been the most choice among the studied patients. Second row of questionnaire comprises of words as: Jumping, Flashing, and Shooting, so that 53 of 166

**Table 1. The mean of used words in each dimension of McGill Pain Questionnaire**

Dimension of McGill Pain Questionnaire	Total frequency of words related to each dimension	Average
Sensory dimension (1st to 10th rows)	Total frequency of words in 10 rows 804	80.4
Emotional dimension (11th to 15th rows)	Total frequency of words in 5 rows 390	78
General understanding dimension (16th row)	Total frequency of words in 1 row 95	19
Various pain dimension (17th to 20th rows)	Total frequency of words in 4 rows 286	71.5

**Table 2. Word frequency of each row of McGill Pain Questionnaire**

The sets		Words of each row with the frequency expression of 166					
Pain perception	word frequency of first row	Flickering 26	Pulsing 4	Quivering 23	Throbbing 22	Beating 3	Pounding 3
	word frequency of second row	Jumping 38	Flashing 9	Shooting 53			
	word frequency of third row	Pricking 5	Boring 19	Drilling 16	Stabbing 5	Lancinating 0	
	word frequency of fourth row	Sharp 69	Cutting 4	Lacerating 5			
	word frequency of fifth row	Pinching 6	Pressing 62	Gnawing 0	Cramping 0	Crushing 4	
	word frequency of sixth row	Tugging 28	Pulling 4	Wrenching 13			
	word frequency of seventh row	Hot 62	Burning 25	Scalding 1	Searing 10		
	word frequency of eighth row	Tingling 26	Itchy 44	Smarting 21	Stinging 0		
	word frequency of ninth row	Dull 42	Sore 50	Hurting 2	Aching 2	Heavy 31	
		Tender 14	Taut(tight) 19	Rasping 34	Splitting 0		
		Average = $\frac{\text{total frequency of 10 row words}}{\text{number of row (10)}} = \frac{804}{10}$					
Pain sensation	word frequency of eleventh row	Tiring 89	Exhausting 20				
	word frequency of twelfth row	Sickening 97	Suffocating 11				
	word frequency of thirteenth row	Fearful 68	Frightful 11	Terrifying 10			
	word frequency of fourteenth row	Punishing 35	Grueling 3	Cruel 4	Vicious 0	Killing 12	
	word frequency of fifteenth row	Wretched 26	Blinding 4				
		Average = $\frac{\text{total frequency of 5 row words}}{\text{number of row (5)}} = \frac{390}{5}$					

**Table 2. Continue...**

	The sets	Words of each row with the frequency expression of 166				
<b>General understanding of pain</b>	word frequency of sixteenth row	Annoying 25	Troublesome 47	Miserable 6	Intense 10	Unbearable 7
	Average = $\frac{\text{total frequency of 5 row words}}{\text{number of row (5)}} = \frac{95}{5}$					
<b>Perception of various pain</b>	word frequency of seventeenth row	Spreading 36	Radiating 59	Penetrating 0	Piercing 0	
	word frequency of eighteenth row	Tight 39	Numb 0	Squeezing 17	Drawing 0	Tearing 0
	word frequency of nineteenth row	Cool 1	Cold 6	Freezing 1		
	word frequency of twentieth row	Nagging 20	Nauseating 87	Agonizing 9	Dreadful 8	Torturing 3
	word frequency of fifteenth row	Wretched 26	Blinding 4			
Average = $\frac{\text{total frequency of 4 row words}}{\text{number of row (4)}} = \frac{286}{4}$						

patients chose the word “Shooting”.  
 The third row of questionnaire is including the words like: Stabbing, Drilling, Boring, and Pricking, so that 19 of 166 studied patients chose the word “Boring” to express their pain. The fourth row composes of words like: Sharp, Cutting, and Lacerating. From this row of questionnaire 69 of 166 patients chose “Sharp” to represent their pain and also patients suffered from Hot and Burning feeling. The words as: Pinching, Pressing, Gnawing, Cramping, and Crushing exist in the fifth row of questionnaire, in which 62 of 166 patients chose the word “Pressing”, expressing their perception of pain and also, they complained from feeling of Pressing and Heavy on their chest.  
 The sixth row of questionnaire consists of: Tugging,

Pulling, and Wrenching words, and from them, the word “Tugging” with 28 frequency was the most one. Seventh row, composed of words such as: Hot, Boring, Scalding, and Searing. The most choice of patients was the word “Hot” and patients after chemotherapy had the feeling of Heat. The used words in eighth row were Tingling, Itchy, Smarting, and Stinging, which among them the word “Itchy” was chosen by 44 of 166 patients.  
 In ninth row of questionnaire the words as: Dull, Sore, Hurting, Aching, and Heavy were utilized and by comparing their frequency, we realized that the word “Sore” with 50 frequency had the most choice and patients suffered from Sore and fatigue especially after chemotherapy. Indeed, this “Sore” had been the inhibi-

tor of patient from their daily activity. In tenth row, the words Tender, Taut, Rasping, and Splitting were used, so by comparing their frequency, it was shown that 34 of 166 patients expressed their pain as a “Rasping” factor. Totally, by comparing the frequency of used words in 1 to 10 row of questionnaire which consists of sensory conceptions, we understood that from 42 used words in these 10 rows, the words as: Sharp, Shooting, Flickering, Boring, Pressing, Tugging, Hot, Itchy, Sore, and Rasping had the most choice, which were the most descriptive words in the field of sensory aspect, used by patients.

The row of 11 to 15 of McGill Pain Questionnaire is including the emotional conception of pain. It means that psychological perception (mental & spiritual). The eleventh row of this dimension included the words as: Tiring, and Exhausting and the word “Tiring” with 89 frequency has been the most choice among patients. The twelfth row of questionnaire, consists of the words “Sickening” with 97 frequency and the word “Suffocating” with frequency of 11, so the word “Sickening” had the most choice among patients.

In thirteenth row the following words; Fearful, Frightful, and Terrifying were used. 68 of 166 studied patients chose the word “Fearful”. The following words in fourteenth row were Punishing, Grueling, Cruel, Vicious, and Killing which among them the word “Punishing” with 35 frequency was the most option to be chosen by patients. Actually the reason to choose this word by patients was apparent changes, created by chemotherapy and mastectomy after treatment.

In fifteenth row among words Wretched, and Blinding, the word “Wretched” with frequency of 26 has been the most choice. This word was chosen by patients who mentally felt defeated against their disease. Sixteenth row which evaluates the general understanding of patients, the words as: Annoying, Troublesome, Miserable, Intense, and Unbearable were used. By comparing

the words frequency of this row, we found that the word “Troublesome” with 47 frequency has been the most choice. Indeed, general understanding of patients from their disease and pain was an annoying factor which was established negative effect both physically and mentally on their life. Seventeenth to twentieth row of questionnaire is including different pain which were not mentioned in previous rows.

In seventeenth row, the used words were Spreading, Radiating, Penetrating, and piercing and among them 59 of 166 patients chose the word “Radiating”. The words: Tight, Numb, Squeezing, Drawing, and Tearing exist in eighteenth row, and the word “Tight” with frequency of 29 was the most chosen word by patients, also they felt Tight and Laxity after chemotherapy. In nineteenth row the following words Cool, Cold, and Freezing were utilized and through comparing their frequency, we understood that the word “cold” with frequency of 6 among the words was the most chosen word. In twentieth and last row of questionnaire, the recruited words were Nagging, Nauseating, Agonizing, Dreadful, and Torturing. Among the words of this row 87 of 166 studied patients chose the word “Nauseating”, because they complained from nauseous feeling after chemotherapy and this factor was the reason of their dissatisfaction of chemotherapy.

#### **DISCUSSION:**

Cancer, a widespread disease in the world, is the second cause of fatality in developed countries. One of the most common complications of cancer is pain, usually created after chemotherapy. This study aimed to evaluate the quality and intensity of pain in BC patients since the pain related to cancer is a subjective and complex experience consisting of multiple dimensions. Pain assessment could help the physicians truly understand the various aspects of pain and have better and more effective pain management. For this purpose, we used the McGill Pain Questionnaire, one of the pain measur-

ing instruments. This measuring instrument can assess patients' pain in some dimensions: sensory, emotional, general understanding, and in various pains. The result of this study in 2017 confirmed that measuring cancer pain using MPQ can provide physicians with information on the mechanism of pain, sensory status, emotional and overall pain experience. In 2003, G Majani et al. evaluated the McGill pain questionnaire efficiency based on pain description in different aspects. They studied two pain measuring instruments, including Visual Analogue Scale (VAS), a one-dimensional measuring instrument of pain, and the MPQ as a multidimensional one. These instruments assessed and compared different types of pains (neuropathic, acute, chronic, muscle, and cancerous pains). Their study showed that the MPQ instrument is useful for evaluating chronic and cancerous pains and could provide accurate information about different dimensions of patients' pain (16). In 2009, another study was done on the effectiveness of the McGill Pain Questionnaire. In this study, the McGill Pain questionnaire was compared by verbal dialogue with patients. Their results showed that the McGill Pain Questionnaire could not determine the patients' description and their mental experience of different pain dimensions. In contrast, in verbal dialogue with patients, due to the attention of questioner to patients' pain and experience, patients are more motivated to describe their pain accurately. This verbal dialogue is a kind of psychotherapy in patients with chronic and cancerous pains (17). Since cancer could happen at any age, in our study, both young and old people were evaluated due to the average age of 30-60. In the study conducted by Goethe et al. in 2014, it was shown that MPQ is a reliable and valuable instrument to evaluate pain quality in patients with different ages (18).

Khosravi et al. studied pain in 84 cancer patients using the McGill Pain Questionnaire. They showed that the questionnaire's Alpha coefficient is 0.85, and stable co-efficiency in sensory, emotional, and other assess-

ments was more than 0.8. regarding our experiment, their results indicated that the McGill Pain Questionnaire is efficient in the epidemiology of chronic pain in Iranian cancer patients (19).

In a study that we have done on 166 patients with BC, we showed that patients' pain based on the McGill Pain Questionnaire was more in the sensory dimension of pain with an average of 80.4. While in similar study, done in 2015, on patients with cancer, the pain of patients was reported more on sensory and emotional dimension. In this study, we found that in sensory dimension of questionnaire, including 1 to 10 rows of that, the most chosen word by patients, was the "Boring" word with frequency of 69. The result of our study was in consistent with another study in 2003, so that in that study the "Boring" word was the most chosen (20). This word was chosen more by patients, who undergoing chemotherapy treatment. It is possible that recruited drugs in chemotherapy result in damages to nerve system and subsequently Boring. To reduce this pain, it is possible to use sedative drugs or by using nerve block ways, suppress the nerves that carry the message of pain to brain and the spinal cord and finally reduce or stop the pain.

The emotional dimension of the McGill Pain Questionnaire consists of 11 to 15 rows of the questionnaire. So, the word "Sickening" with a frequency of 97 was the most option to be chosen. Weakness, fatigue, and lack of enough energy to do everyday work were the most expressed BC patients. Its exact reason usually is not clear, but it could be due to prolonged illness, chemotherapy, anemia, continuous pain, stress, anorexia, or many other causes, however, patients could decrease their weakness by doing the following exercises (enough rest and sleep, light sports movements as walking, exercise, massage therapy, yoga and stretching). The aim of the sixteenth row is evaluating the general understanding of patients from pain, and the word "Troublesome" was the most choice by patients.



Actually, the general understanding of patients from illness process and their pain was a kind of annoying factor that negatively affects them both physically and mentally. In a similar study in 2015, the word “Troublesome” was expressed as the most chosen option (21). The 17 to 20 rows of the McGill Pain Questionnaire explain the dimension of various pains. The achieved data of this study showed that, in this dimension the word “nauseating” in 20th row was the most choice. The patients complained about the feeling of vomiting, especially after chemotherapy (21), and this factor was the reason for their dissatisfaction after chemotherapy. Another study, accomplished in 2016, presented that Chemotherapy-induced vomiting was the major problem of patients with cancer, while if nausea and vomiting of patients do not control seriously, it could affect their quality of life and treatment outcomes, and also create severe consequences for patients such as: losing body water, nutritional disorders, imbalance in metabolism, anorexia, etc. (22). Among the therapeutic methods, using anti-nausea and vomiting drugs such as dexamethasone and metoclopramide could be useful. Also, using herbal remedies, such as capsules containing ginger and chamomile, as complementary therapies can help solve this problem (23).

The limitation of this study was the rejection of participants to continue the study. The emergency of some patients prevented us from getting information about urgent BC patients.

### CONCLUSION:

Chronic pain is a major challenge in patients with cancers undergoing chemotherapy. In BC, pain management is introduced as a good outcome of chemotherapy. Therefore, the identification of various types of pain is critical for pain management in the therapy period. This study indicates that the McGill Pain Questionnaire is a suitable questionnaire for the assessment of pain in BC patients. Using this questionnaire helps the medi-

cal team know the type of pain and have a high-performance in pain management. For future studies, we suggest studying the McGill Pain Questionnaire’s impact on different kinds of chronic pain-involving diseases, i.e., other types of cancers.

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