RESEARCH ARTICLE

# Comfort and Anxiety Levels of Women with Early Stage Breast Cancer Who Receive Radiotherapy

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## Abstract

**Background: The aim of this planned research was to determine the comfort and anxiety levels of women with breast cancer receiving radiotherapy. Materials and Methods: This descriptive type study covered patients that applied to the radiation oncology breast polyclinic of our university hospital between January and May 2011. Patient Identification Form, Radiation Therapy Comfort Questionnaire (RTCQ), Spielberger State Trait Anxiety Inventory (STAI) were completed and analysed. Results: The mean age of the women who participated in the study was 51.6±10.4 years. Mean scores of women were 3.73±0.31 for RTCQ, 29.1±5.88 for SAI and 37.8±6.91 for TAI. While the comfort levels of the women with breast cancer receiving radiotherapy were moderate, they experienced only low levels of anxiety. Conclusions: By determining the comfort level of the patient before radiotherapy, besides providing comfort in this direction, eliminating/minimizing anxiety and stress will positively affect radiotherapy application. More attention of nurses to this issue is to be recommended.**

**Keywords:** Breast cancer - radiotherapy - comfort - anxiety - nursing - Turkey

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## Introduction

Breast cancer is by far the most frequent cancer among women with an estimated 1.38 million new cancer cases diagnosed in 2008 (23% of all cancers), and ranks second overall (10.9% of all cancers). It is now the most common cancer both in developed and developing regions with around 690,000 new cases estimated in each region (population ratio 1:4). Incidence rates are high (greater than 80 per 100,000) in developed regions of the world (except Japan) and low (less than 40 per 100,000) in most of the developing regions (IARC, 2008; Zhu, 2011). Breast cancer is the most common cancer in women in Turkey as well as in the world. Cancer incidence reaches a maximum level of 16.7% in the 45-49 age groups (Özmen, 2013).

Diagnosis and treatment methods of breast cancer cause anxiety in women. In the literature it is expressed that, radiotherapy is a stress factor among cancer treatment methods because it has a lot misunderstood concerning it. Detection of a tumor in the breast, fear of radiotherapy, the devices used and their effects are not known, perception of the waiting and treatment room, experiencing side effects and mutual occurrence of these factors causes anxiety. It has been determine in the literature that; anxiety due to radiotherapy is ranked first among other factors influencing patients' adherence to treatment, this is followed by physical discomfort (Dragomir and Fodoreanu, 2013; Ho et al., 2013; Hyphantis, 2013).

The term comfort is often used in several contexts of nursing practice as part of nurses' common language. The concept is frequently related to the person's physical dimension, but, within nursing literature, it assumes a more extensive meaning. The literature shows that comfort is a concept that has been identified as an element of nursing care; it is attached to its genesis and has assumed, throughout history, different meanings which are related with the historical, political and religious evolution of humanity, as well as with the technical-scientific progress in health sciences, especially nursing. "Throughout its history, the mission of nursing has been focused on patients' discomfort and interventions to relieve it. Nursing should base its interventions in operable theories that support the provision of comfort through an assessment of the patients' needs, implementation of care, and assessment of the results from those interventions" (Apóstolo and Kolcaba, 2009).

Several nursing theories show different perspectives of comfort, but the most significant ones are those by Leininger, Watson, Morse and Kolcaba. In Watson's and Leininger's theory, care takes on a central importance and comfort is a care component. Both Leininger and Watson consider comfort as a component of care, while Morse considers care as a construct of comfort. Morse and Kolcaba agree that the nursing intervention is the action of comforting and that comfort is the result of this intervention (Apóstolo and Kolcaba, 2009; Apóstolo et al., 2013).

Kolcaba considered comfort as a resulting state of

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nursing interventions to alleviate or eliminate distress. Comfort is a state in which basic needs related to the state of relief, ease and transcendence are satisfied. Relief is the state of having a specific need met, being necessary for the person to re-establish his/her usual functioning; ease is a state of calm and contentment necessary for effective performance; transcendence is a state in which each person feels they have skills or potential to plan, control their destiny and solve their problems. This type of comfort is also called renewal. These three comfort states develop into four contexts: the physical context relates to bodily sensations; the social context to interpersonal, family and social relationships; the psychospiritual context to internal awareness of self, including esteem, concept, sexuality and the meaning of one's life, which may also involve a relationship to a higher order or being; and the environmental context which involves aspects such as light, noise, equipment (furniture), color, temperature and natural versus synthetic elements (Kolcaba and Fox, 1999; Apóstolo et al., 2013).

It is stressed in the literature that; early stage (I-II) radiotherapy administered breast cancer patients experience negatively affects the comfort of the patients; consequently leading to changes in simulation parameters during radiotherapy application, demonstrating how important the comfort of the patient is; it clearly explains the importance of radiation oncology nursing. The Comfort Theory and RTCQ that were developed by Kolcaba, have the characteristics of a guide in directing the care and determining the efficiency of nursing care.

According to Kolcaba's Comfort Theory; nurses define the need of comfort of the individuals in a stressful healthcare environment. They evaluate the improvement of comfort by elimination of anxiety via applying comfort improving nursing interventions for unmet requirements or at least minimized it. It has been mentioned that, besides providing the comfort of the patient before radiotherapy, elimination or minimization of anxiety and stress will positively affect the radiotherapy application (Kolcaba and Fox, 1999). However, primarily before planning and applying patient specific comfort improving nursing interventions, it is necessary to determine the comfort and anxiety levels of each patient.

In Literature, along with the many studies that analyzes the anxiety levels of patients with breast cancer in Turkey (Alacacioglu et al., 2009; Turhal et al., 2010; Dastan and Buzlu, 2011; Tasci et al., 2012) and around the world (Zainal et al., 2013; Schleife et al., 2014; Stafford et al., 2014); there are many studies that analyze the impact of non-pharmacological interventions towards patients on the anxiety and comfort level (Liu et al., 2011; Can et al., 2012; Emilsson et al., 2012; Özkorumak et al., 2012; Yavuzsen et al., 2012; Carayol et al., 2013; Halkett et al., 2013; Henderson et al., 2013; Kim et al., 2013; Serra et al., 2013; Tanrıverdi and Aydemir, 2013). However when the literature is analyzed, there could not be found a single study towards determining the comfort and anxiety levels of women that receive early stage breast cancer radiotherapy in our country. The aim of this planned research is to determine the comfort and anxiety levels of women with breast cancer receiving radiotherapy.

## Materials and Methods

*Setting and sample*

The universe of this descriptive type study consisted of the women with breast cancer that applied to the radiation oncology breast polyclinic of a university hospital between January and May 2011. The sample of the study consisted of 66 women who were diagnosed as breast cancer, receiving radiotherapy at an early stage (1st and 2nd stage), applied as an outpatient, 18 years old and older, literate and agreed to participate in the study.

*Instrument and data collection*

By using Patient Identification Form, Radiation Therapy Comfort Questionnaire (RTCQ), Spielberger State Trait Anxiety Inventory (STAI) were filled by face to face interview technique by the researcher. Each interview took approximately 15-20 minutes.

*Patient identification form*

The form which was developed by the researchers in line with relevant literature, consist of descriptive features that is thought to affect the comfort and anxiety of the individual during radiotherapy and Information about the disease (age, marital status, education level, family history of breast cancer presence, the presence of any other disease, menopausal status, cancer stage) are present.

*Radiation therapy comfort questionnaire (RTCQ)*

RTCQ which is developed by Kolcaba (1999) and its reliability and validity studies performed by Karabacak and Acaroğlu (2004) in our country; examines the relationship between health promoting behaviors and comfort within the nursing care and also determines that comfort improves health promoting behaviors of the individual. RTCQ is a senary (1-6) Likert type paper-pen questionnaire each extending from "certainly agree" to "certainly disagree", consisting of 26 items used to evaluate comfort in women with breast cancer and receiving radiotherapy. The higher scores obtained from the questionnaire indicates better comfort (min 1 and max 6). Karabacak and Acaroğlu (2004) found RTCQ cronbach alpha coefficient of 0.61 for application and 0.63 for retest application. In this study, the cronbach alpha coefficient of the questionnaire has been found as 0.71.

*Spielberger the state-trait anxiety inventory (STAI)*

"State Trait Anxiety Inventory (STAI) " which is developed by Spielberger et al (1970) and its validity and reliability studies was performed in our country by Öner and Le Compte (1977) is preferred since it is one of the mostly examined questionnaire for anxiety, mostly tested for validity and reliability and commonly used. This questionnaire consist of two parts; "State Anxiety Inventory (SAI)" and "Trait Anxiety Inventory (TAI)".

SAI is a quadruplet Likert type scale consisting of 20 items which aims to determine how the individual feels at a certain moment and under certain conditions. The lowest total score that can be obtained from SAI is 20 and the highest total score is 80. High scores indicate high anxiety levels and low scores indicate low anxiety levels.

Trait Anxiety Inventory (TAI), independent from the status and circumstances, is a quadruplet Likert type scale consisting of 20 items aims to identify how the patient feels. The lowest score that can be obtained from Trait Anxiety Inventory is 20 and the highest total score is 80. High scores indicate high anxiety levels and low scores indicate low anxiety levels.

In the validity and reliability study of STAI; reliability coefficients were found for SAI between 0.26 and 0.68 and for TAI between 0.71 and 0.86. Internal consistency and homogeneity coefficients were between 0.94 and 0.96 for SAI; and between 0.83 and 0.87 for TAI (Aydemir and Köroğlu 2000).

*Statistical analysis*

Data were analyzed using the Statistical Package for Social Sciences (SPSS) for Windows version 15.0 (SPSS, 2006). Descriptive statistics were used to describe the demographics. For data evaluation; number, percentage, mean, standard deviation, Mann Whitney U, Kruskal Wallis methods and Pearson correlation analysis were used. A p value of <0.05 was considered statistically significant.

*Ethical considerations*

The research was performed according to the guidelines delineated by the Declaration of Helsinki. Written permission to conduct the research was obtained from Ege University Faculty Nursing Scientific Ethics Committee and verbal consent was obtained from the participants after they were informed about the purpose of the study. Participants in this study voluntarily participated.

## Results

The mean age of the women who participated in the study was 51.63±10.38 years (min 32, max 75). 34.8% of the women were high school graduate, 68.2% were married and 69.2% were in their menopausal period. 53% of the women had no healthcare problems, 59.1% had no history of cancer in their relatives, and 60.6% of the women were in the 2nd stage of the disease.

RTCQ mean scores of women were found as; 3.73±0.31 (min 3, max 4.46), SAI; 29.12±5.88 (min 18, max 50) and TAI; 37.80±6.91 (min 25, max 53) (Table 1).

A weak negative correlation is found between SAI and TAI with RTCQ (p<0.05) (Table 2).

It was determined that there was no significant difference in the women with breast cancer according to marital status, RTCQ, SAI and TAI mean scores (p>0.05). While the RTCQ (3.79±0.36), SAI (31.23±6.72) mean scores of the single women were higher than the married ones RTCQ (3.71±0.29) and SAI (28.13±5.23) mean scores TAI mean scores; (37.84±6.71) of the married women were higher than the singles (37.71±7.51) (Table 3).

There was no significant difference found in women for RTCQ, SAI and TAI mean scores according for educational status (p>0.05). While the RTCQ mean scores (3.58±0.30) of the university graduates were the lowest, SAI (29.83±5.89) and TAI mean scores of primary school graduates (39.13±6.80) were the highest (Table 3).

There was no significance for average scores obtained from three scales according to presence comorbidities (p>0.05). Mean scores of RTCQ; 3.70±0.30, SAI; 29.12±6.17 and TAI 37.77±7.20 were found in breast cancer women with comorbidities. The mean scores of the women with breast cancer with comorbidities obtained from three scales were similar to each other (Table 3).

According to the menopause status of the women, there was no significance detected for RTCQ, SAI, TAI mean scores (p>0.05). Mean scores of RTCQ of

**Table 1. RTCQ, SAI and TAI Mean Scores of Women with Breast Cancer**

| | X±Ss | |
|---|---|---|
| RTCQ | 3.73±0.31 | (min 3.00 -max 4.46) |
| SAI | 29.12±5.88 | (min 18.00-max 50.00) |
| TAI | 37.80±6.919 | (min 25.00-max 53.00) |

**Table 2. The Correlation between RTCQ, SAI, TAI**

| | | RTCQ | SAI | TAI |
|---|---|---|---|---|
| RTCQ | r | 1 | -0.39** | -0.24** |
| | p | | 0.01 | 0.04 |
| SAI | r | | 1 | 0.23 |
| | p | | | 0.06 |
| TAI | r | | | 1 |
| | p | | | |

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed)

**Table 3. RTCQ, SAI and TAI Mean Scores of Women with Breast Cancer According to Descriptive Features**

| Descriptive features | RTCQ X±Ss | SAI X±Ss | TAI X±Ss |
|---|---|---|---|
| Marital Status | | | |
| Married (N=45) | 3.71±0.29 | 28.13±5.23 | 37.84±6.71 |
| Single (N=21) | 3.79±0.36 | 31.23±6.72 | 37.71±7.51 |
| | U=410.000 | U=345.500 | U=463.000 |
| | Z=-0.86 | Z=-1.75 | Z=-0.13 |
| | p=0.38 | p=0.08 | p=0.89 |
| Educational status | | | |
| Primary school (N=18) | 3.80±0.32 | 29.83±5.89 | 39.13±6.80 |
| Secondary school (N=17) | 3.80±0.33 | 28.70±4.77 | 36.05±5.34 |
| High school (N=23) | 3.66±0.29 | 29.56±7.27 | 38.64±8.70 |
| University (N=8) | 3.58±0.30 | 27.12±3.39 | 36.12±6.17 |
| | $X^2$=4.67 | $X^2$=1.98 | $X^2$=2.46 |
| | p=0.1 | p=0.57 | p=0.48 |
| Other health problems | | | |
| Yes (N=31) | 3.70±0.30 | 29.12±6.17 | 37.77±7.20 |
| No (N=35) | 3.76±0.33 | 29.11±5.69 | 37.83±6.70 |
| | T=0.78 | T=0.01 | T=0.03 |
| | p=0.43 | p=0.99 | p=0.96 |
| Menopause status | | | |
| Menopausal women (N=45) | 3.78±0.34 | 29.09±5.12 | 37.13±6.82 |
| Non-Menopausal women (N=21) | | | |
| | 3.71±0.27 | 29.13±6.25 | 39.23±7.07 |
| | U=447.00 | U=456.000 | U=391.000 |
| | Z=-0.35 | Z=-0.22 | Z=-1.12 |
| | p=0.43 | p=0.99 | p=0.96 |
| History of cancer in the family | | | |
| Yes (N=27) | 3.69±0.33 | 29.19±5.29 | 38.66±6.75 |
| No (N=39) | 3.75±0.305 | 29.11±6.75 | 36.55±7.09 |
| | U=470.000 | U=483.000 | U=433.000 |
| | Z=-0.73 | Z=-0.56 | Z=-1.22 |
| | p=0.46 | p=0.56 | p=0.22 |

the menopausal women with breast cancer (3.78±0.34) were detected higher than the non-menopausal women (3.71±0.27) (p>0.05). Mean scores of SAI (29.13±6.23) and TAI (39.23±7.07) of the non-menopausal women are detected higher than menopausal women (Table 3).

According to history of cancer in the family, there was no significant difference detected between the mean scores obtained from the three scales (p>0.05). Mean RTCQ scores of the women who have cancer history in the family were low (3.69±0.33) and mean scores of SAI (29.11±6.75) and TAI were discovered to be high (Table 3).

## Discussion

Cancer is a disease that adversely affect human life (Nazik et al., 2012). Radiation treatment; applied after the diagnosis of breast cancer which is a severe and universal health problem of women, surgical procedures following the diagnosis and to prevent probable dissemination of the disease, includes a difficult and challenging period for both patient and family from physical, to psychological as well as social aspects; this negatively affects the life quality and comfort of the individual (Karakoyun-Celik et al., 2010; So et al., 2010; Ho et al., 2013; Hyphantis et al., 2013).

Comfort is an outcome that is highly desired by patients and their family, and hence represents an important goal of nursing care. Kolcaba defined comfort as "the immediate state of being strengthened through having the human needs for relief, ease, and transcendence addressed in four contexts of experience (physical, psychospiritual, sociocultural and environmental)", and quantified comfort by developing comfort questionnaires. The juxtaposition of the three states of comfort with the four contexts of comfort experience results in a 12-cell grid called the taxonomic structure that has been used in both research and practice. Assessing comfort as a positive, holistic outcome enables nurses to direct their care in ways that are both goal-directed and measurable (Kim and Kwon, 2007).

In this study while the comfort levels of the women with breast cancer receiving radiotherapy were moderate, they experience low levels of anxiety. However, the trait anxiety levels of the women were seen to be higher than their state anxiety levels. The 'state' can be interpreted as the anxiety originating from the strangeness of the equipment and treatment environment, the anxiety decreases with adherence to treatment. In other studies that analyze the anxiety levels of patients with breast cancer, the anxiety levels of patients are found medium, which is similar to our study result (Alacacioglu et al., 2009; Turhal et al., 2010; Dastan and Buzlu, 2011; Tasci et al., 2012; Malik and Kiran, 2013; Schleife et al., 2014; Stafford et al., 2014). Similar to comfort finding, Karabacak and Acaroğlu (2004) detected during RT; RTCQ mean score of the experiment group was 4.62±0.76 and RTCQ mean score of the control group was 4.31±0.67.

A weak negative correlation is found between SAI and TAI with RTCQ (p<0.05). With the increasing comfort of the women with breast cancer it is seen that the state and trait anxiety levels decrease. In their study, Kolcaba and Fox (1999) showed that there is a relationship between the anxiety and comfort of the women with breast cancer that receive radiotherapy; and that increase in anxiety affect the comfort of individuals negatively. However in different studies it is stated that the anxiety and stress can be decreased as much as possible and quality of life is increased by keeping the comforts of individuals at the highest (Karabacak and Acaroğlu, 2004; Apóstolo and Kolcaba, 2009; Apóstolo et al., 2013).

There was no significant difference for mean scores of RTCQ, SAI and TAI according to the marital status of the individuals (p>0.05). However, SAI mean scores of single women were higher than the married women. The reason for this could be suggested as; single women were not receiving emotional support before t radiotherapy, but married women were come to the radiotherapy unit with their spouses and in this way decreasing their state anxiety levels. In the literature it is stressed that family, spouse and children support are important for coping the anxiety, side effects and adherence to treatment in women diagnosed with breast cancer (Alacacioglu et al., 2009; den Heijer et al., 2011). Comfort levels of the married women were determined low and trait anxiety levels were determined higher than in singles. This is thought to originate from anxiety they experienced having to worry about the status of their family members with them during the radiotherapy and cancer treatment process; as society warrants married women carry the responsibilities of their spouses and children along with themselves, have to resume the responsibilities as spouse and mother. In the literature it is proposed that the psychosocial stages cancer patients experience are lived together with the patient and their families (Alacacioglu et al., 2009; den Heijer et al., 2011; Liu et al., 2011; Schleife et al., 2014). Zainal et al. (2013) detected that depressive situation is exacerbated in breast cancer patients without spouse or partner support.

There was no significant difference detected for mean scores of RTCQ, SAI and TAI according to the educational status of the individuals (p>0.05). However, the women with the lowest comfort levels (lowest mean score of RTCQ) are university graduates. It was suggested that this, could be due to the fact that most university graduate women are working and parallel to their higher socio-economical levels their comfort expectations are also high. The group with highest mean scores of SAI and TAI are observed as the primary school graduate women. In the study of Zainal et al. (2013), depressive status exacerbates in breast cancer patients of primary and secondary educational qualification. In the literature it is reported that women with high educational levels better cope with the stress and anxiety of the diagnosis and treatment and tend to be involve in comfort improving practices (Pan et al., 2013; Stafford et al., 2014). Similarly in a different study it is stressed that women with higher educational levels have better mechanisms to cope with stress and they use the interventions to improve their quality of life and support their comfort (Malik and Kiran, 2013).

While there was no significant difference found according to the status of having comorbidities besides cancer for the mean scores of RTCQ, SAI and TAI (p>0.05), the mean scores obtained from these three scales were seen close to each other. Lower comfort levels and

high anxiety levels are expected results for the individuals that have comorbidities that can negatively affect the quality of life besides a disease with serious treatment such as cancer.

According to the menopausal status of the women; there was no significant difference found for the mean scores of RTCQ, SAI and TAI ($p>0.05$); comfort levels of the menopausal women are low and anxiety levels are high. Besides the negative preconceptions for cancer, breast is seen as a symbol of sexuality, reproduction and motherhood in our society. Therefore, desire for prospective children, thoughts such as their sexuality and reproduction will end may negatively affected the levels of comfort and anxiety in non-menopausal women. Since the reproductive life ends with menopausal period, women in menopausal period are thought not to experience these anxieties or are affected less.

There was no significant difference determined for the mean scores of RTCQ, SAI and TAI according to the family history of cancer of the individuals ($p>0.05$). However, the comforts levels of the women are lower than those with history of cancer in their relatives. This is thought to be related with experiencing negative experiences and observation of the difficulties of their relatives and development of a negative preconception for themselves. Anxiety levels of the women who have cancer in their relatives are high. It is known that most of the individuals have inadequate, incorrect orientation and information problems about cancer in our country. Negative attitude, inadequate and false information may cause delay applications to health care services and therefore increase of the anxiety of the individual due to the progression of the disease. It is reported in the literature that the individuals who have history of cancer in the family are affected negatively. A history of breast cancer in the family was an important risk factor for anxiety and depression (Dastan and Buzlu, 2011; Lambert et al., 2013). Parallel with the literature, in our study too, trait and state anxiety levels of the individuals who have relatives with breast cancer history are high.

In conclusion, determining the problems that come out as a result of different reasons depending on the side effects of the treatment after radiotherapy in the physical, psychospritual, environmental and sociocultural aspects based on the factors that creates the taxonomic structure of the comfort hypothesis, implementing and attempts that can increase and maintain the comfort level, which is the symbol of a quality life are among the main responsibilities of the nurses. Before planning and applying patient specific comfort providing nursing interventions, it is necessary to determine the comfort and anxiety levels of each patient. While the comfort levels of the women with breast cancer receiving radiotherapy were moderate, they experience low levels of anxiety as the result of this study. By determining the comfort level of the patient before radiotherapy, besides providing comfort in this direction, eliminating/minimizing the anxiety and stress will positively affect radiotherapy application and more attention of nurses and other health professionals to this issue are recommended.

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