

# Does Treatment Impact on the Quality of Life in Breast Cancer Patients? A Comparative Study Between Treatments

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## Research Article

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# **Abstract**

## **Background**

Breast cancer involves complicated emotional processes. One of the factors that impacts the psychological symptoms and decreases QoL is the side effects of treatment. This study compared the psychological and physical impacts of women with early stages of breast cancer (stages I to III) being treated with chemotherapy versus hormone therapy. This study also intended to identify which symptoms could predict a decrease in quality of life (QoL) and functionality according to the treatment.

## **Method**

This study had a cross-sectional design. The participant sample comprised 129 women with breast cancer (63 receiving chemotherapy and 66 hormone therapy).

## **Results**

Significant differences were found in groups regarding QoL, functionality, symptomatology (fatigue and nausea), coping strategies, and alexithymia. Furthermore, in patients receiving chemotherapy, both symptomatologies explained the variance in QoL, but only fatigue explained role functioning. For patients receiving hormone therapy, fatigue was the symptom that explained the variance for both QoL and role functioning.

## **Conclusions**

The results confirmed that women undergoing chemotherapy are more physically and psychologically impacted. For both treatments, fatigue was a crucial symptom that affected QoL and role functioning. These results show the need to help women alleviate their psychological symptoms because they can affect their physical condition.

## **Plain English Summary**

Breast cancer is the most common tumour in female population. Despite the multitude of studies carried out on the treatment of breast cancer, affected women continue to show alterations in the quality of life that persist until the survival phase. Difficulties in physical functionality, as well as adverse symptoms associated with medical treatment are linked to the deterioration of the quality of life. In addition, the physical condition seems to be associated with a worse psychological adaptation of the disease. This study indicates that adverse symptoms such as fatigue or nausea have been associated with low levels of quality of life in patients who are on chemotherapy or hormone therapy. The findings of this study encourage future lines of research on the inclusion of physical exercise and psychological therapy in the treatment of patients with breast cancer in early stages (stages I to III).

## **Introduction**

Breast cancer is the most prevalent cancer in the Hispanic female population with an increase of 50% in Hispanic countries such as Mexico or Spain in the coming years [1-2]. The reduction of mammograms as early detection tests or the cancellation of urgent surgeries and medical treatments during the most complicated months of COVID-19 pandemic will pose a serious risk to the health of cancer patients<sup>2</sup>. Despite these statistics, improvements in treatment, prevention, and detection techniques have increased cancer survival rates. However, breast cancer patients can manifest adverse physical and psychological symptoms that have a serious impact on their quality of life (QoL) [3].

Studies conducted to determine the QoL of patients with breast cancer have considered medical factors such as treatment, performed surgeries, and the stage of the disease [4] and psychological factors such as coping strategies that impact perceived stress and decision-making regarding the medical treatment [5-6]. Coping strategies are the efforts made by a person to manage specific external and/or internal demands of the situations they are experiencing. The type of treatment to which the patient is subjected plays a fundamental role in the type of strategy that is put in place [7].

If we focus on the medical treatment, chemotherapy is the treatment most associated with a decrease in QoL, especially in the first cycles in which women experience the uncertainty of suffering symptoms such as body weakness, vomiting, fear of hair loss, and so forth [3-4]. The threat posed by chemotherapy sessions predisposes women to implementing maladaptive coping strategies such as avoidance, negative thoughts, and emotional suppression [7-8]. These coping strategies are usually accompanied by symptoms of anxiety and depression, especially at the beginning of treatment [9]. On the other hand, fatigue, insomnia, and pain tend to be the most common physical problems and are usually accentuated after the third cycle of chemotherapy [10-11]. Adjuvant treatments such as radiotherapy are likely to begin when chemotherapy sessions have ended [12]. As QoL decreases due to chemotherapy, physical problems and tiredness increase throughout radiotherapy sessions [13]. For this reason, emotional problems such as anxiety and depression appear during radiotherapy [14-15].

After surgery, hormone therapy is another medical treatment that is considered to have less adverse effects than those of chemotherapy and radiotherapy. It consists of the administration of active ingredients that act directly on oestrogen and is usually administered to prevent relapses, slow the progression of breast cancer in the earliest diagnoses, and for women who are in remission. Although the side effects of hormone therapy are not physically observable, it has been confirmed that patients taking antiestrogens report an accentuation of anxious-depressive symptoms at the beginning of treatment, mostly promoted by fear of relapse [16-17]. Since the condition of women who follow this treatment is centred on the behaviour of sex hormones, the onset of early menopause and related physical symptoms such as hot flashes, fatigue, sweating, insomnia, and relationship problems due to a decreased libido are very common [18-19]. Despite these consequences, it has been observed that women who receive hormone therapy, compared to women who receive chemotherapy and/or radiotherapy tend to face the disease as a challenge in which the information they receive from professionals is essential to help them improve their health [20].

A common characteristic of women with breast cancer who are at the beginning of their medical treatment is their emotional condition<sup>3</sup>. According to previous studies, these patients rarely display emotional distress, and even fail to recognise what emotions trigger their discomfort [21-22]. This inability to recognise and/or express emotions (alexithymia) is considered a triggering factor that leads to malfunctions in the immune system, decreased QoL<sup>21</sup>. As noted above, emotional distress is the greatest during treatment sessions; however, the emotional effects of hormone therapy are still unknown. In addition, it is still unclear whether the role of alexithymia in patients is affected by the disease or whether it is related to the type of medical treatment they receive [21.23].

Given the scarcity of studies regarding psychological variables and their relationship to the treatment received, the first objective of the present study was to determine whether there were differences in QoL, functionality, symptomatology, coping strategies, and alexithymia in women diagnosed with early stage breast cancer (from I to III) depending on the principal medical treatment they received. The second objective was to identify whether these symptoms can predict the decrease in QoL and functionality in patients undergoing either treatment.

## Methods

### *Study Design*

This study is part of a larger project focused on the design of a psychological intervention aimed at women with breast cancer. The overall project consists of two phases based on the same participant sample. The results of the present study were part of Phase 1, conducted between 2016 to 2019. This phase utilised a cross-sectional analytical observational design aimed at exploring the influence of medical treatment on physical symptoms, physical functionality, and coping strategies among women.

### ***Study Sample***

This study was approved by the Ethics Committee of the principal institutions (omitted for double-blinded review). A STROBE checklist was used to evaluate study methods (Supplementary file 1). All participants provided signed informed consent and the participation sheet to be included in this study. The inclusion criteria included: a) women older than 18 years of age, b) diagnosed in the early stages of the disease (stages I to III), c) aware of the disease, and d) having no serious psychiatric illness.

For this study, we recruited 139 women who met the inclusion criteria. The response rate was 92.80%. Ten participants did not complete the questionnaires and were excluded; thus, the final sample comprised 129 individuals. According to clinical data, patients were divided into two groups based on their principal medical treatment through convenience sampling (chemotherapy vs. hormone therapy). The first group of 63 participants received chemotherapy as the main treatment. In this group, there were 32 women (50.79%) who received radiotherapy as an adjuvant treatment. The other group consisted of 66 women who only received hormone therapy.

For the evaluation, we collected questions to gather information about the patients' country of residence, marital status, educational and employment level, medical information related to the stage of the disease, the assigned medical treatment, and additional information about psychological variables of interest. According to sociodemographic characteristics, 99 women were Mexican (76.74%), 62 were married (48.1%), 73 had university studies (57.4%), and 75 did not work (58.14%). In relation to the diagnosis, 55 women were diagnosed with IIA-IIIB stage disease (42.6%), 41 with IA-IB stage disease (31.8%), and 33 with IIIA-IIIB stage disease (25.6%). Furthermore, 22 participants had undergone a mastectomy (17%), 59 had undergone a total mastectomy (45.7%), and 48 had undergone breast conserving therapy (37.3%). The average age of participants was 52.91 ( $SD= 10.43$ ), and the average diagnostic time was 22.23 ( $SD= 10.32$ ). This means that the participating sample comprised women who had been recently diagnosed and those who had been diagnosed for a long time (those who only took hormone therapy). Sociodemographic and clinical variables are shown in Table 1.

### ***Instruments***

Global quality of life, physical functionality, and symptomatology were evaluated using the Spanish validation of the European Organization for Research and Treatment of Cancer questionnaire entitled 'Quality of life Questionnaire version 3.0' (EORTC-QLQ-C30) [24]. The EORTC-QLQ-C30 was a 30-item scale that measured QoL in cancer patients who received scores for global health status. Moreover, it contained a symptom scale (fatigue, nausea, pain, dyspnoea, and insomnia) and a functional scale (daily activities that require physical effort). Each item was rated on a Likert scale (ranging from not at all to very much) with the exception of two items on global QoL. According to the scores received, a higher score indicated greater functionality and better QoL. However, on the scale of symptomatology, a higher score also indicated a greater perception of adverse symptoms. We found the following Cronbach's alpha coefficients for each scale: QoL (0.92), functionality (0.75), fatigue (0.82), nausea (0.71), pain (0.80), dyspnoea (0.72), and insomnia (0.60).

Cancer coping strategies were evaluated using the Spanish version of the Mental Adjustment to Cancer (MAC) [25]. This instrument was a 40-item self-rating questionnaire, with each item was rated on a four-point Likert scale (ranging from totally false to totally true). It measured five strategies: fighting spirit, helplessness, fatalism, anxious preoccupation,

and avoidance. Separate scores were calculated for each subscale, and a higher score implied greater use of these strategies. In the current study, Cronbach's alpha for each strategy was as follows: fighting spirit (0.80), helplessness (0.94), anxious preoccupation (0.90), fatalism (0.77), and avoidance (0.76).

Finally, we measured alexithymia using the Spanish version of the Alexithymia Toronto Scale (TAS- 20) [26]. This scale evaluated three factors within the alexithymia construct: difficulty in describing feelings, difficulty in identifying feelings, and externally oriented thinking. This self-report measure was composed of 20 items with a five-point Likert response format ranging from "strongly agree" to "strongly disagree". A high score in any of the subscales indicated greater difficulties in identifying and expressing feelings. Cronbach's alpha was 0.81 for the total scale, 0.78 for the difficulty of emotional identification, 0.75 for the difficulty of expression, and 0.66 for concrete thinking.

### ***Statistical Analyses***

Analyses were performed using SPSS 21 Statistics Package. Descriptive analyses of QoL, role functioning, symptomatology, coping strategies, and alexithymia were conducted. Comparisons between means (Student's t-tests using a  $p < 0.05$  level of significance) were conducted to assess the differences between the groups (chemotherapy and hormone therapy) for the study variables and to assess, in each group of participants, the differences related to these variables in breast cancer patients receiving chemotherapy or hormone therapy. To identify the influence of symptomatology on QoL and functionality for each treatment, hierarchical multiple regression analyses were performed. QoL and role functioning were identified as dependent variables and symptomatology (fatigue and nausea) as independent variables. All study variables were categorical; therefore, they fulfilled the condition to build a regression model. The method used to explain the regression model was the mandatory variable input method (enter). This technique allowed the variable selection process to be manual, starting from an initial model, in which all the selected variables were forced to enter. Those variables that contributed less in the explanation of the model were excluded to develop a new model using this technique. This process was repeated multiple times until it was considered that the model obtained was one that best fitted the hypotheses proposed in this study.

## **Results**

### ***Comparisons between Types of Treatment regarding QoL and Symptoms***

There were statistically significant differences in QoL ( $p = 0.039$ ) and role functioning ( $p = 0.016$ ) scales, with lower scores found in patients receiving chemotherapy. In addition, we found differences in the symptomatology subscales of fatigue ( $p = 0.043$ ) and nausea ( $p = 0.022$ ) finding higher scores in patients receiving chemotherapy (see Table 2). The effect size was considered to be low-moderate.

### ***Comparisons between Types of Treatment regarding Coping Strategies and Alexithymia***

As can be seen in Table 3, there were statistically significant differences in anxious preoccupation ( $p = 0.039$ ), finding higher scores in patients receiving chemotherapy. The effect size was considered to be low-moderate. Concerning alexithymia, patients receiving chemotherapy had significantly higher scores on externally oriented thinking ( $p < .05$ ). The effect size was considered to be moderate.

### ***Predictors of QoL and Role Functioning according to Treatment***

To determine the relative significance of symptomatology in predicting QoL and role functioning according to treatment, we conducted four different hierarchical multiple regression analyses. First, analyses were performed for patients receiving chemotherapy. Both symptoms were highly significant,  $F(2.60) = 30.45$ ,  $P < 0.001$ , accounting for 50% of the

explained variance in QoL. For predicting role functioning, analyses showed that only fatigue was significant,  $F(2.60) = 28.92$ ,  $P < 0.01$ , explaining 49% of the variance. For patients who were receiving hormone therapy, multiple regression analyses showed that the only symptom that was significant ( $F(2.63) = 6.793$ ,  $P < 0.05$ ) was fatigue, accounting for 17.7% of the explained variance of QoL. For predicting role functioning, also only fatigue was significant,  $F(2.63) = 6.024$ ,  $P < 0.01$ , explaining 16.1% of the variance (see Table 4 for a summary of the analyses).

## Discussion

This study aimed to identify the differences in the psychological and physical impact of patients with breast cancer according to the principal treatment received. Hence, role functioning and QoL among patients were analysed according to the main treatment they received. In addition, the study aimed to determine if symptomatology, such as fatigue and nausea, could predict the effects in role functioning and QoL of these women.

Regarding the psychological impact of the disease in the initial phase of medical treatment, it was observed that there were significant differences among women who received chemotherapy compared with women who received hormone treatment. Previous research has confirmed that there are differences in the symptoms experienced at a physical and emotional level between groups that received chemotherapy and radiotherapy as independent treatments<sup>27</sup>. The results of our study provided new results when compared with the information gathered from the hormonal treatment group and studying the elements of discomfort experienced by this group of women. To our knowledge, no studies have so far compared both types of treatment and compared their physical and psychological impact. The major question of clinical practice is to discover the relationship that may exist between the medical treatment phase and the impact on the QoL of patients [5-6,27]. According to these studies, the level of QoL fluctuates over time according to medical treatment. In terms of the fluctuation of QoL found in previous studies, the possibility arises that some psychological constructs, such as coping strategies, act as mediators between emotional state and QoL [7]. The present study has not been able to confirm the mediating role of coping strategies in patients who are in the active phase of treatment; however, significant differences found in important maladaptive strategies reflected the importance of coping and its impact on QoL. Despite the inconsistencies found in QoL over time, there appears to be a consensus that the group most affected is the one receiving chemotherapy. One plausible explanation for this result is the effect of radiotherapy as an adjunctive treatment. As confirmed by previous literature, adverse symptoms caused by chemotherapy increase its intensity in patients undergoing adjuvant radiotherapy [12].

The coping mechanisms used by patients with breast cancer receiving chemotherapy appear to be focused on how they perceive situations as a potent threat that generates anxiety, the feeling of being helpless when coping with the impossibility of controlling the progress of the disease, as well as feeling hopeless in the face of the disease [7-8]. Studies have been shown that this type of strategy leads women to anticipate situations that involve decision-making (go to medical consultations, deliberate decisions about treatment with your doctor, and so forth), which can generate high levels of anxiety [28]. Our study offers consistent results regarding the feeling of helplessness in relation to the medical treatment to which patients are subjected, responding to the study that also made this comparison by evaluating coping strategies, without finding significant differences depending on the treatment [29]. The methodology employed by previous studies to explore the comparison between patients usually focused on the division of the participating sample based on the main medical treatment. Generally, the main cancer treatments are usually chemotherapy and radiation [5,30]. However, it is important to note that radiotherapy is often prescribed as an adjunct to chemotherapy in a high percentage of patients [12]. According to the data provided on the adjuvant of medical treatment, we have verified that more than 50% of participants who completed their chemotherapy sessions as their main treatment also have radiotherapy prescribed as the next treatment that they must complete to slow the progress of breast cancer. In addition, we have verified that another of the main treatments, in addition to chemotherapy, is hormone

therapy. Despite the lack of knowledge about the impact of hormonal cancer treatment on QoL, our results emphasise the emotional distress of patients who comply with this treatment. It has been shown that the trend in the use of coping strategies focused on the feeling of hopelessness is prevalent both in the chemotherapy and hormone therapy groups.

This study yields results regarding coping mechanisms that are used by women who receive hormonal treatment to prevent recurrences. Our results support those found by previous studies that confirm that patients on hormone therapy perceive the disease as a threat and visualise their prognosis negatively, preventing them from performing some control over it [31-32]. This lack of control to deal with stressful situations linked to the disease is called helplessness. Helplessness feeds on concerns about certain issues that surround the disease (secondary symptoms of treatment, prognosis, and so forth) and causes women to feel unable to make decisions to improve their health [8,16].

Regarding alexithymia, we also observed significant differences between both groups, with higher scores in the group treated with chemotherapy. These results offer new information regarding the role of alexithymia, clarify some questions raised in previous studies [21,23], and support the idea that difficulty in emotional recognition is fed by anxiety in adverse situations, such as treatment sessions [21-23]. Our results showed a tendency in women receiving chemotherapy to focus their thinking towards that which is external to them, preventing an internalisation of the emotions they are experiencing. The tendency to focus thinking towards concrete situations is related to the confrontation that these women activate during their treatment, focusing on the avoidance of situations that cause them to suffer [34-35]. These data address some of the limitations found in previous studies, such as that proposed by Gritti et al. [23] and Gutiérrez et al. [33], in which conclusive results on the difficulty of emotional identification in the active phase of treatment was found.

According to the role that symptomatology plays in relation to the effects of the treatment received, the results of our study showed that physical symptoms were closely related to a decrease in QoL in patients with chemotherapy and adjuvant radiotherapy. Research suggests that chemotherapy increase the chances of negative physical and emotional symptoms, leading to a decrease in QoL [36]. In the studies that contemplated the transition from chemotherapy to radiotherapy, it has been shown that QoL fluctuates over time, being the worst after finishing radiotherapy [37-38] and that physical symptoms are closely related to a decrease in QoL in patients receiving chemotherapy and adjuvant radiotherapy [10]. In research dedicated to the study of women in hormonal treatment, they suggest that this type of treatment improves QoL, although long-term benefits are not guaranteed because there is still a probability that new recurrences may appear- [31-32,39].

Among women who receive a hormonal treatment, it has also been observed that changes in their physical condition noticeably affected their QoL; however, the appearance of emotional problems caused by oestrogen receptors was also common [18]. A single study conducted in Egypt, which compared the three types of treatment separately, identified chemotherapy as the most aversive treatment, while hormone therapy did not significantly affect QoL. In addition to confirming the existence of an inverse relationship between fatigue and QoL, as indicated by previous studies on chemotherapy in breast cancer, this study also provides more information highlighting fatigue as the physical symptom that plays the most relevant predictive role in explaining low QoL in patients who are undergoing chemotherapy with adjuvant radiotherapy and hormone therapy. Furthermore, fatigue and nausea tend to be very harsh symptoms for patients and exacerbate fear before the beginning of any cancer treatment, especially in chemotherapy, impacting how women perceive a decline in their health and QoL [40].

In addition to QoL, this study considers treatment as a factor in the decrease of patients' physical functioning in their daily tasks due to fatigue [40-41]. Other studies highlight fatigue as a symptom that better explains the results in physical functioning, QoL, and emotional state [38]. Our results support the importance of fatigue in the prediction of

physical functioning, considering those women who are under hormonal treatment, as they also report high levels of fatigue similar to the group of women with chemotherapy.

### ***Study limitations***

The present study had several methodological limitations to consider. The most important limitation is its transversal design, which does not allow for making causal inferences. It should be considered that the physical and psychological conditions vary from the beginning to the end of treatment, so it would be interesting to collect these measures at several time points, as previous studies consider chemotherapy as the main treatment. Another limitation was related to the fact that the sample comprised of adult female breast cancer patients who were Hispanic and was limited to a specific geographic area, which could also affect the generalizability of the results. Furthermore, it should be noted that for the generalisation of results, it is advisable to increase the number of participants and to compare different types of chemotherapy and hormonal treatments. It is further recommended to opt for the recollection of qualitative data that would complement the information collected by self-reports during the evaluation sessions, which allows us to understand how the experimentation of these symptoms affects patients as the medical treatment sessions progress.

### ***Clinical implications***

The results of this study aim to be an impetus for future research in the study of psychological and physical variables that can affect women receiving hormone therapy for breast cancer. We have been able to confirm that hormonal therapy also affects patients at the psychological and physical levels; thus, research dedicated to the design of intervention programmes could verify whether people who undergo this type of hormonal treatment require a special psychological approach that would reduce their impact.

Our study aims to motivate future lines of research in the design of therapies that include components such as physical activity that favour the QoL of patients within a multidisciplinary framework. It is evident in existing studies that the implementation of physical exercises adapted to Oncology benefits the experimentation of pleasant emotions that allow patients to endure the treatment process. Furthermore, physical exercise can also reduce symptoms such as pain and fatigue. However, medical treatment is a factor that can interfere with the effectiveness of physical exercise as a therapeutic component, and it is important to consider the adversity of treatment within the biopsychosocial approach to health in patients with breast cancer. Thus, the present study emphasises the multidisciplinary nature of Oncology and the role of psychological therapy as an essential component for improving patients' physical condition and QoL.

## **Conclusions**

In conclusion, the results of the present study show the most negative implications for psychological and physical conditions in women affected by breast cancer who undergo oncological treatment of chemotherapy. However, hormonal treatment also has a negative impact on the QoL and functionality of patients. For this reason, this comparative study, which includes hormone therapy, aims to be an impetus for health disciplines to be more multidisciplinary in the individual approach of each woman who is undergoing complete cancer treatment to improve their physical, psychological functionality, and QoL.

## **Declarations**

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## **Conflict of interest statement for all authors:**

The first author of the manuscript reference, in their name and in that of all signatories authors declare that there is not potential conflict of interest related to the article.

## **Availability of data and material:**

Data are available upon request of the author

## **Code availability (Not applicable)**

## **Author contribution**

GUTIÉRREZ-HERMOSO, Lorena performed study conception/design; data collection/analysis; drafting of manuscript; and supervision. VELASCO-FURLONG, Lilian performed study conception/design; critical revisions for important intellectual content; supervision; and statistical expertise. SÁNCHEZ-ROMÁN, Sofía performed data collection/ analysis and administrative/technical/material support; and supervision. BERZAL-PÉREZ, Elisabeth performed data collection and administrative/technical/material support. ALCOCER-CASTILLEJOS, Natasha and QUIROZ-FRIEDMAN, Paulina performed data collection/analysis and administrative/technical/material support; and supervision.

## **Ethical approval**

The study followed the ethical principles for research with human participants and was approved by the University Rey Juan Carlos, Salvador Zubirán Institute of Medical Sciences and Nutrition México and Hospital Universitario Móstoles Committee on Ethics. Reference number 281020154715 (University Rey Juan Carlos), 1591(Salvador Zubirán Institute) and 005/2016 (Hospital Universitario Móstoles).

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## Tables

**Table 1. Sociodemographic and clinical variables (n= 129)**

	<b>Chemotherapy</b>	<b>Hormone therapy</b>
	N (%)	N (%)
	n=63 (48.8)	n=66 (51.2)
	With adjuvant radiotherapy n=32 (50.79)	
<b>Age</b>		
M(SD)	49.83(10.81)	55.85(9.20)
<b>Country</b>		
Mexico	34(54)	65(98.5)
Spain	29(46)	1(1.5)
<b>Marital status</b>		
Single	16(25.4)	19(28.8)
Married	28(44.4)	34(51.5)
Separated/Divorciated	8(12.7)	7(10.7)
Widowed	6(9.5)	3(4.5)
Domestic paternity	5(7.9)	3(4.5)
<b>Educational level</b>		
No studies	1(1.6)	2(1.5)
Primary studies	3(4.8)	5(7.7)
High school	25(40.3)	20(30.8)
University studies	34(53.3)	39(60.00)
<b>Employment level</b>		
Work	27(43.5)	27(40.9)
No work	36(56.5)	39(59.1)
<b>Stage disease</b>		
IA-IB	15(23.8)	26(39.4)
IIA-IIIB	30(47.6)	25(37.9)
IIIA-IIIB	18(28.6)	15(22.7)
<b>Surgery</b>		
Yes	42(70)	41(62.1)
No	21(30)	25(37.9)

M= mean

SD= statistic deviation

**Table 2. Comparison between patients receiving chemotherapy and hormone therapy regarding quality of life**

Scale	Chemotherapy mean (SD)	Hormone therapy mean (SD)	t	p	d Cohen
Quality of Life	61.62 (24.93)	70.06 (20.92)	-2.087	.039*	.36
<b>FUNCTIONAL SCALES</b>					
Physical functioning	78.43 (21.37)	83.76 (13.76)	-1.692	.093	-
Role functioning					
Emotional functioning	70.26 (33.76)	82.32 (21.25)	-2.439	.016*	.43
Emotional functioning					
Cognitive functioning	62.32 (27.55)	67.61 (27.25)	-1.096	.275	-
Cognitive functioning					
Social functioning	70.97 (30.51)	72.04 (27.28)	-.210	.834	-
Social functioning					
<b>SYMPTOM SCALES</b>					
Fatigue	42.92 (30.04)	33.39 (22.65)	2.040	.043*	.36
Nausea					
Pain	22.49 (28.57)	12.37 (20.53)	2.316	.022*	.41
Pain					
Dyspnoea	34.33 (31.94)	26.26 (25.82)	1.582	.116	-
Dyspnoea					
Insomnia	23.59 (30.16)	16.45 (26.87)	1.419	.158	-
Insomnia					
Insomnia					

**Table 3. Comparison between patients receiving chemotherapy and hormone therapy regarding coping strategies and alexithymia**

Scale	Chemotherapy mean (SD)	Hormone therapy mean (SD)	t	p	d Cohen
Fighting Spirit	49.97 (6.67)	48.54 (5.72)	.311	.192	-
Hopelessness/Helplessness	9.75 (3.67)	9.72 (4.24)	.042	.966	-
Cognitive Avoidance	1.88 (1.20)	1.90 (1.10)	-.106	.915	-
Fatalism	19.57 (4.42)	19.58 (4.62)	-.022	.983	-
Anxious preoccupation	24.62 (4.27)	22.96 (4.73)	2.082	.039*	0.36
Total Score Alexithymia	55.82 (12.42)	52.57 (13.38)	1.426	.156	-
Difficulty Identifying Feelings	19.85 (6.36)	18.83 (6.82)	.880	.381	-
Difficulty Describing Feelings	13.89 (4.82)	13.14 (5.06)	.864	.389	-
Externally-Oriented Thinking	22.21 (5.01)	20.16 (4.47)	2.449	.016*	0.43

**Table 4. Multiple regression analyses: symptoms predicting QoL and role functioning in patients receiving chemotherapy or hormone therapy**

Chemotherapy										
Quality of Life					Role functioning					
Predictor	B	DE <sub>B</sub>	Standardized β	t	Sig	B	DE <sub>B</sub>	Standardized β	t	Sig
<i>Fatigue</i>	-.419	.089	-.505	-4.72***	.000	-.814	-.122	-.724	-6.691***	.000
<i>Nausea</i>	-.262	.093	-.300	-2.806**	.007	.056	-.128	.047	.438	.00
Hormone therapy										
Quality of Life					Role functioning					
Predictor	B	DE <sub>B</sub>	Standardized β	t	Sig	B	DE <sub>B</sub>	Standardized β	t	Sig
<i>Fatigue</i>	-.432	.125	-.468	-3.446***	.001	-.390	.129	-.415	-3.028***	.004
<i>Nausea</i>	.105	.138	.103	.758	.451	.029	.142	.028	.206	.838

\*\*\*  $p \leq 0.001$ ; \*\*  $p \leq 0.01$ ; \*  $p \leq 0.05$ ; B=non-standardized regression coefficient; DE<sub>B</sub>=Standard error of the coefficient; Standardized β= standardized regression coefficient

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