Cogitare Enfermagem

ORIGINAL ARTICLE

HOPE OF WOMEN UNDERGOING CHEMOTHERAPY TREATMENT FOR BREAST CANCER

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ABSTRACT
Objective: To analyze the levels of hope of women undergoing chemotherapy treatment and related factors.
Method: Observational, cross-sectional, quantitative study conducted in a chemotherapy service of a teaching hospital in northeastern Brazil from March to September 2018. For this study, 55 women undergoing chemotherapy for breast cancer were interviewed. The Spiritual Well-Being Scale, the Herth Hope Index and the Duke Religion Index were applied.
Results: Religiousness and spiritual well-being were significant predictors of hope ($p = 0.024$), but the small magnitude of the effect had a low predictive value ($f^2=0.29$), explaining 22.6% (R^2) of the variable's behavior. Spiritual well-being was the only independent predictor variable for hope ($\beta = 0.439$; $t = 3.376$; $p = 0.001$).
Conclusion: The main predictor variable of hope was spiritual well-being. Hope was found to be independent of sociodemographic factors and treatment.

DESCRIPTORS: Breast cancer; Hope; Psychological adaptation; Chemotherapy; Oncology.

HOW TO REFERENCE THIS ARTICLE:
Macêdo E de L, Gomes ET, Bezerra SMM da. Hope of women undergoing chemotherapy treatment for breast cancer. Cogitare enferm. [Internet]. 2019 [access "insert day, monh and year"]; 24. Available at: http://dx.doi.org/10.5380/ce.v24i0.65400.

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ARTIGO ORIGINAL / ARTÍCULO ORIGINAL

ESPERANÇA DE MULHERES EM TRATAMENTO QUIMIOTERÁPICO PARA O CÂNCER DE MAMA

RESUMO

Objetivo: analisar a esperança de mulheres em tratamento quimioterápico e os fatores relacionados.

Método: estudo observacional, seccional, quantitativo, realizado em um serviço de quimioterapia de um hospital universitário do Nordeste do Brasil, entre março e setembro de 2018. Foram entrevistadas 55 mulheres em tratamento quimioterápico para câncer de mama. Foram aplicados a Escala de Bem-Estar Espiritual, Questionário de Esperança de Herth e o Índice de religiosidade de DUKE.

Resultados: a religiosidade e o bem-estar espiritual apresentaram-se como fatores preditores de esperança significativos (p=0,024), correspondendo magnitude do efeito sobre a variável dependente considerada de pequeno valor preditivo (f^2=0,29), explicando 22,6% (R^2) do comportamento da variável. O bem-estar espiritual foi a única variável previsora isolada para esperança (β=0,439; t=3,376; p=0,001).

Conclusão: a principal variável preditora da esperança foi o bem-estar espiritual. A esperança mostrou-se independente de fatores sociodemográficos e do tratamento.

DESCRITORES: Câncer de Mama; Esperança; Adaptação Psicológica; Quimioterapia; Oncologia.

ESPERANZA DE MUJERES EN TRATAMIENTO DE QUIMIOTERAPIA PARA EL CÁNCER DE MAMA

RESUMEN:

Objetivo: analizar la esperanza de mujeres en quimioterapia y los factores asociados.

Método: estudio observacional, seccional, cuantitativo, que se realizó en un servicio de quimioterapia de un hospital universitario de Nordeste del Brasil, entre marzo y septiembre de 2018. Se entrevistaron 55 mujeres en quimioterapia para cáncer de mama. Se aplicaron la Escala de Bienestar Espiritual, Cuestionario de Esperanza de Herth y el Índice de religiosidad de DUKE.

Resultados: la religiosidad y el bienestar espiritual fueron los factores significativos que predicen esperanza (p=0,024), lo que corresponde a la magnitud del efecto sobre la variable dependiente considerada de pequeño valor predictivo (f^2=0,29), explicando 22,6%(R^2) del comportamiento de la variable. El bienestar espiritual fue la única variable previsora aislada para esperanza (β=0,439; t=3,376; p=0,001).

Conclusión: la principal variable que predice la esperanza fue el bienestar espiritual. La esperanza se mostró independiente de factores sociales demográficos y del tratamiento.

DESCRIPTORES: Cáncer de Mama; Esperanza; Adaptación Psicológica; Quimioterapia; Oncología.

INTRODUCTION

Breast cancer is the second most common cancer. It occurs in Brazil and worldwide every year, with a higher prevalence among women aged 35 years or older [1-2]. Breast cancer treatments include surgery, chemotherapy, radiotherapy, and/or palliative care. However, the selection of the appropriate therapy is based on the histopathological characteristics, disease staging and clinical conditions of the patient [2-5].

As soon as a definitive diagnosis is established, the multidisciplinary team relies on specific protocols guided by scientific evidence in order to prescribe the most appropriate treatment. Moreover, the healthcare team should be aware of the side effects of the treatment that interfere with the physical and mental dimensions, impacting the cognitive and behavioral process, generating feelings such as anger, distress, anxiety, and undesirable symptoms such as nausea, vomiting, pain, itching, alopecia, tachycardia and infections[6].

When they receive the diagnosis of breast cancer the women experience variable, conflicting emotions, sometimes negative, sometimes positive. It is noteworthy that hope is a positive emotion experienced in coping with the disease, i.e., hope is an emotional belief in the possibility of positive outcomes related to events and circumstances of personal life in order to alleviate the negative effects at the moment of diagnosis, both in mental and spiritual dimensions. The prospect of dying may diminish hope, making it difficult for the patient to accept the disease and cope with it [7].

Similar studies have shown women's reactions to breast cancer diagnosis and suggested that religiousness/spirituality are factors that have a positive impact on the mental and spiritual dimensions, as they increase hope in the face of suffering[8-10]. During the illness process, faith becomes a key factor for women to develop coping mechanisms, as they renew hope and thereby develop ways of communicating with a Higher Being and feel strong to face the disease [11-12].

Thus, hope is made possible by the human principles, which are the basis of care, of the use of knowledge in practice, interpersonal relationships, and the way in which health professionals arrange the environment and provide care. Nursing professionals are essential during the treatment of individuals with cancer, as they spend more time with patients than any other health professionals. In this sense, nursing professionals can generate hope, as they are in contact with the patients throughout their long hospital stay. They can establish ties and empathic relationships, considering that the nursing process is continuous [7].

Therefore, it is necessary to understand the phenomenon of hope and its role in the well-being of patients facing breast cancer in outpatient chemotherapy treatment and verify to what extent the understanding of this phenomenon is relevant to the health care of cancer patients. Despite the lack of studies on this topic, the multidisciplinary team need to understand the phenomenon and subjectivity of the disease process, take into consideration the gaps in care to cancer patients and build or seek scientific evidence, in order to perform their duties.

The present study aimed to analyze the hope of women undergoing chemotherapy and related factors.

METHOD

Cross-sectional study with a quantitative approach conducted in a chemotherapy service of a teaching hospital that is an oncology referral center in northeastern Brazil, from March to September 2018.

The present study included women undergoing outpatient chemotherapy for breast cancer, and the exclusion criteria were medical diagnosis of secondary breast cancer

(metastasis of other tumors), patient hospitalized at the time of collection, undergoing immunotherapy and with impaired verbal communication.

The equation (formula) for estimating means and standard deviation was used in the sizing of the sample, and Hope was considered a dependent variable. For this purpose, a 95% confidence level was considered, with a maximum desired error of 1.5 point in the scale and a standard deviation of 6.11, found in a previous study that used the Herth Hope Index (HHI) in a sample of cancer patients [13]. The sample size was calculated using the correction factor for finite populations. The final sample of this study was composed of 55 patients who were interviewed.

The patients were interviewed during the chemotherapy drug procedure, since in the service's chemotherapy room patients remain unaccompanied during drug administration. Data collection was divided into two parts: 1) sociodemographic, clinical and therapeutic characterization of patients and 2) evaluation, based on the following scales: Spiritual Well-Being Scale (SWS); Herth's Hope Index and the Duke Religion Index (DUREL).

Spiritual well-being is related to the various dimensions of human life, enabling the individuals to seek the different sorts of sensations and pleasures in life [13-14]. The SWS is an instrument divided into two subscales (10 items each), one for religious well-being (RWB) and one for existential well-being (EWB) [15]. RWB-related items contain a reference to God, and EWB-related items concern a sense of finding meaning in and committing oneself to something meaningful in life. The scale is composed of 20 items and the total score can range from 20 to 120[15-16].

The HHI was selected because it is an instrument that assesses the levels of hope through a self-report scale that is quick and easy to apply, multidimensional, clearly reflecting the dimension of hope in clinical populations. The questionnaire was validated to consider hope as a construct related to a positive prospect for the future, which provides a coping mechanism and enables transcending a current situation, fostering a positive new awareness of the being[13]. The HHI is a scale composed of 12 yes/no questions, and items rated on a 4-point Likert scale [13]. The total score ranges from 12 to 48, and the higher the score, the higher the level of hope [14,16].

The Duke Religion Index (DUREL) has five items that capture three of the religious dimensions most related to health outcomes and which are assessed separately: organizational (OR), non-organizational (NOR), and intrinsic religiousness (IR) [17].

Organizational religiousness is related to public participation in religious services in temples or churches. In the non-organizational dimension, the individual does not have to go to a religious institution to pray, praise and meet with the transcendent being, and the concept of intrinsic religiousness is related to beliefs, psychological aspects of religion, knowledge and attitudes related to religious experiences [18-19].

Data was stored and organized in Microsoft Excel 2016 spreadsheets and analyzed with descriptive and inferential statistics using the SPSS 20.0 (Statistical Package for the Social Sciences) program. The reliability of the use of Likert scales was assessed by Cronbach's alpha, with all scales and domains with high values ($\alpha > 0.7$). The Kolmogorov-Smirnov test was used to evaluate the main outcome for hope and showed that it did not have a Gaussian distribution ($p = 0.001$). To assess the association between other continuous variables and the outcome Hope, Spearman correlation coefficient was used. To compare Hope scores between groups, nonparametric Mann-Whitney and Kruskal-Wallis tests were used.

Subsequently, multiple linear regression analyzes of the dependent variable hope related to continuous quantitative sociodemographic variables (age, income, years of schooling), time of diagnosis and treatment time, and religiosity and spiritual well-being scores were made, with insertion of independent variables using the hierarchical method. Regressions are presented with the standardized coefficients, t-test and p-values of the entered variables and the coefficient of determination and result of analysis of variance

(ANOVA) for the model under test. It was verified whether there was multicollinearity in the inserted variables, as well as homoscedasticity and outliers in the regression residues. Finally, Cohen's post-hoc f^2 test was used to evaluate the size of the model's effect on the dependent variable. The level of statistical significance was considered for p-value <0.05 and bootstrapping was not used in the tests.

The study was approved by the Research Ethics Committee of the institution, under Protocol No. 2,705,063.

RESULTS

Fifty-five (55) women participated in this study, as follows: 30 (54.5%) were aged 50 years or less, with an average age of 49.6 ± 12.5 years; 41 (74.5%) had an income up to one minimum wage; 33 (60.0 %) was employed (50.9%) did not have a companion; (76.4%) had children, and (35; 63.6%) lived in the Metropolitan region. Regarding religion, most women said they were Catholic and evangelical (24; 43.6% respectively).

Regarding the dichotomized sociodemographic variables, the patients with the highest scores were those who had a companion (Table 1).

Table 1 – Distribution of Hope scores according to sociodemographic variables. Recife, PE, Brazil, 2018 (continues)

Variables	Hope		
	Md (Sd)	Median	p†
Marital status			
Has a companion	40.89 (3.8)	41	0.002
Does not have a companion	44.1 (3.0)	44	
Children			
Yes	42.7 (3.8)	44	0.467
No	41.8 (3.8)	43	
Age			
50 years or less	43.1 (3.5)	43	0.42
50 years or older	41.2 (4.1)	44	
Employment			
Yes	41.9 (3.8)	43	0.167
No	43.3 (3.7)	44	
Education			
Up to 8 years	41.6 (3.9)	42	0.233
More than 8 years	43.0 (3.6)	44	
Income			
Up to 1 minimum wage	41.9 (3.9)	42	0.068
More than 1 minimum wage	43.5 (0.7)	43	
Religion			

Catholic	41.8 (3.4)	41	0.287‡
Evangelical	43.3 (4.3)	43	
Spiritualist	43.3 (2.1)	43	
Others	41.2 (3.6)	41	

†Mann-Whitney test, ‡ Kruskal-Wallis test.

Regarding chemotherapy treatment, 61.8% (34) were receiving adjuvant treatment (34; 61.8%). Only 7 (12.7%) had also been submitted to radiotherapy. Most patients had been diagnosed with breast cancer for more than six months (38; 69.1%) and had been undergoing treatment for up to six months (30; 54.5%) (Table 2).

Table 2 –Treatment Data. Recife, PE, Brazil, 2018

	n	%
Chemotherapy		
Adjuvant	34	61.8
Neoadjuvant	21	38.2
Surgical treatment	34	61.8
Radiotherapy	7	12.7
Time elapsed since diagnosis		
Up to 6 months	17	30.9
More than 6 months	38	69.1
Length of time in treatment		
Up to 6 months	30	54.5
More than 6 months	25	45.5

No variable with significant difference was obtained in the comparison of hope results according to treatment data (Table 3).

Table 3 – Distribution of Hope scores according to treatment data. Recife, PE, Brazil, 2018 (continues)

Variables	**Hope**		
	Md (Sd)†	**Median**	**p‡**
Chemotherapy			
Adjuvant	42.2 (3.7)	44	0.821
Neoadjuvant	41.7 (5.1)	43	
Surgical Treatment			

Yes	42.6 (3.7)	43	0.814
No	42.5 (3.6)	44	
Radiotherapy			
Yes	42.3 (5.0)	43	0.951
No	42.5 (3.6)	44	
Time elapsed since diagnosis			
Up to 6 months	42.5 (4.3)	44	0.66
More than 6 months	42.5 (3.6)	43	
Length of time in treatment			
Up to 6 months	42,8 (3.5)	45	0.486
More than 6 months	42.2 (4.1)	43.5	

† Md (Sd): Mean (standard deviation) ‡ Mann-Whitney test

Descriptive analysis of the outcomes hope, spiritual well-being, and religiosity is shown in Table 4. Hope had high scores; religious well-being was better than existential, while total spiritual well-being was higher (greater than 100 points). Regarding religiousness assessment, it can be affirmed that organizational religiousness had lower scores than non-organizational religiousness, while intrinsic religiousness, related to spirituality, had high scores (Table 4).

Table 4 – Distribution of descriptive statistical indicators. Recife, PE, Brazil, 2018

	Md (Sd)†	**Median**	**Minimum**	**Maximum**
Hope	42.5 (3.8)	45	34	48
Religious Well-being	57.7 (3.9)	59	42	60
Existential Well-being	50.7 (6.7)	55	31	60
Spiritual Well-being (total)	108.3 (8.7)	107	79	120
Intrinsic Religiousness	13.2 (1.7)	13	9	15
Organizational Religiousness	2.2 (1.8)	3	1	6
Non-Organizational Religiousness	5.7 (1.0)	5	1	6

†Md (Sd): Mean (standard deviation)

Hope was not moderately or strongly associated with any of the quantitative variables tested by Spearman correlation. The other outcomes tested, religiosity and spiritual well-being, were also not significantly associated with hope.

An explanatory model for hope, including the independent variables age, income, education, time elapsed since diagnosis and length of time in treatment, was tested and was not statistically significant by ANOVA ($p = 0.268$).

Therefore, considering the hypothesis that religiousness and spiritual well-being could

impact the hope of women undergoing chemotherapy, a second model was developed for multiple regression analysis considering the independent variables organizational religiousness (OR), non-organizational religiousness (NOR) and intrinsic religiousness (IR), and spiritual well-being at its highest value and in the subdomains of the scale: religious well-being (RWB) and existential well-being (EWB). However, the variable spiritual well-being in its highest variance inflation factor (VIF) was excluded because of multicollinearity with the subdomains of the scale and non-organizational religiousness. ANOVA test showed that the model was statistically significant to explain the behavior of dependent variable hope ($p = 0.024$), as it was unlikely that this occurred by chance. There was no multicollinearity among the other variables, as the correlations between them were weak to moderate. In the model, there was homoscedasticity and no outliers, and regression showed normal distribution of the residuals for hope.

Finally, Cohen post-hoc test f^2 was applied, and a result of $f^2 = 0.29$ was obtained, corresponding to a small predictive value. We chose to consider the second explanatory model hope, presented in Table 5.

Table 5 – Multiple linear regression of the Hope variable related to the dimensions or religiousness and religious and existential well-being. Recife, PE, Brazil, 2018

Variables	Hope		
	β†	t	p
Organizational Religiousness	0	0	0.495
Non-Organizational Religiousness	0	0	0.83
Intrinsic Religiousness	0	0	0.56
Religious Well-being	0	0	0.576
Existential Well-being	0.439	3.376	0.001

† standardized coefficient

For hope, the model tested showed a moderate correlation ($R = 0.475$), explaining 22.6% (R^2) of the behavior of the variable. Existential Wellbeing was the only independent predictor variable of Hope, contributing 19.3% to the hope score variance ($\beta = 0.439$; $t = 3.376$; $p = 0.001$) (Table 5).

DISCUSSION

Hope can be said to give meaning and joy to life and, because it is an abstract word, is a concept that means different things to each person during different times of his life [13]. In many cases, it is valid to say that hope stems from faith in God or from a spirituality quotient of the individual [13].

It was found that sociodemographic data did not directly influence the hope of the patients assessed, although some studies found a significant association with income [7].

Women who had companions, although a minority, had a higher rate of hope. Thus, to ensure successful treatment, emotional restoration and increased hope of women, the presence and support of the companion is necessary throughout the illness process [20].

However, decreased self-esteem because of cancer and its treatment may directly affect marital relationships [21].

There was no change in hope levels over time. However, in a study with women from the city of São Paulo undergoing treatment for breast cancer, hope was dependently observed throughout the treatment process. Hope was positive when the patient was in a good clinical condition and almost cured, and negative at the prospect of the treatment, delayed diagnosis, psychological disorders and adverse effects of treatment [7].

In descriptive analysis, hope obtained high scores and religious well-being obtained better results than existential well-being. An international study with women with breast cancer receiving chemotherapy found that the patients who engaged in religious activities such as prayer, worship, rituals experienced different emotions and feelings about the disease and felt more hopeful because of their religious faith [22].

Faced with a diagnosis of cancer, women become vulnerable to biopsychological, social and spiritual suffering. However, by expressing their religiousness/spirituality, they approach a transcendent being, and may have hope to cope with the illness process [23]. A study of newly diagnosed women showed that the perceived illness and a coping strategy predicted 50% of variation in depression, 42% in general anxiety disorders, and 40% in cancer-related distress[24]. Both the perception of the disease and coping strategies may change according to the patient's religiousness and spirituality, as well as family support.

Organizational religiousness obtained a lower score than non-organizational religiousness, and one factor likely to influence this result is the fact that patients undergoing chemotherapy have immunosuppression and blood disorders, needing care. These patients are hence advised to avoid crowded public places, so that they can be protected various infections or complications [25].

During the descriptive analysis of the outcomes of the hope levels of women undergoing chemotherapy, it was found that intrinsic religiousness had high scores. Spirituality/religiousness can mediate comfort and improve hope, being a positive strategy for persons undergoing cancer treatment [10]. In illness, faith motivates women to develop coping mechanisms that allow feelings of tranquility and acceptance, and patients who perform spiritual and religious practices can present strengthening of psychic and social dimensions, minimizing symptoms such as anxiety, depression, hopelessness and others [11]. A study with women undergoing breast cancer chemotherapy at a US service found that those who obtained higher religious-spiritual coping scores maintained higher levels of spiritual well-being and less distress [26].

A model based on patients' religiousness and spiritual well-being explained the behavior of the hope variable, but the magnitude of the effect was small, i.e. the predictive value was low (f^2 de Cohen = 0.29). This model explains 22.6% (R^2) of the variable's behavior, and existential well-being was the only independent predictor variable of hope, contributing 19.3% to the variance of the hope score ($\beta = 0.439$; $t = 3.376$ ($p = 0.001$). Given that sociodemographic variables and length of hospital stay did not show a statistically significant association with hope, it can be inferred that, in addition to these variables, religiousness and maintenance of spiritual, religious and existential well-being, other factors that were not tested, or their set, should be more crucial for the maintenance of hope.

Existential well-being, which is related to the way patients deal with existential conflicts arising from cancer, had a significant association and contribution in determining the variance of hope score. This result suggests that patients who can cope with existential crises and overcome emotional, intra and interrelational barriers, are more willing to develop strategies and future perspectives, obtaining higher levels of hope.

Hope appears to be a mediator between social support and depression, for example, as if higher hope scores could favor the acceptability of social and family support and coping, preventing depression and other related disorders [27]. According to a qualitative

study the topics that women in neoadjuvant chemotherapy considered to be of great importance included impact on the family and the need for support and empathy. This reinforces the recommendation that interventions for these patients should involve family members [28-29].

Some limitations of this study were the lack of continuous monitoring of the patients during treatment to verify changes in hope levels throughout the process; the study design that did not allow to define mediating or moderating factors for hope, and the small sample size, since it was obtained from only one collection site, making it difficult to infer the results for other populations.

CONCLUSION

Sociodemographic variables, length of stay and time of diagnosis were not significantly associated with hope. However, religiousness and maintenance of spiritual, religious and existential well-being provided a small significant contribution to the prediction of the variable hope. Existential well-being was the only independent predictor variable of hope, contributing 19.3% to the variance of the hope score ($\beta = 0.439$; $t = 3.376$; $p = 0.001$). Other factors that have not been tested, or a set of them, should be more determinant for maintaining hope.

The results obtained offer important insight about the topic addressed, broadening the understanding of the phenomenon of coping with disease and chemotherapy treatment, drawing attention to ways to search for strategies that favor hope during this period.

Testing the relationship between hope and spirituality through specific and validated scales for this construct is suggested.

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Received: 12/03/2019
Finalized: 03/09/2019

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - ELM, ETG
Drafting the work or revising it critically for important intellectual content - ETG, SMMSB
Final approval of the version to be published - SMMSB