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RESEARCH

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Uncertainty in women diagnosed with breast cancer: a cross-sectional study

Incertidumbre en mujeres diagnosticadas con cáncer de mama: estudio transversal

Incerteza de mulheres com diagnóstico de câncer de mama: estudo transversal

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Abstract

Objective: to determine the level of uncertainty in women diagnosed with breast cancer and the relationship with sociodemographic variables. **Method:** an observational, cross-sectional and correlational study. The sample included 121 women, selected through intentional and non-probabilistic sampling. The Illness Uncertainty Scale was used. Descriptive analysis used measures of central tendency, frequencies and percentages. Inferential analysis used Pearson's correlation method, Spearman's Rho, Fisher's exact test and a linear regression model. **Results:** 69.4% of women reported a high level of uncertainty. The ambiguity dimension contributed most to this high score (62%). A significant negative correlation was found between the level of uncertainty with the level of education (p=0.03) and monthly income (p=0.004). **Conclusions**: the high level of uncertainty in more than half of the women was related to the level of education and monthly income. **Final considerations and implications for practice**: the level of uncertainty is a present variable that is clearly identified at the beginning of breast cancer treatment. Healthcare professionals, especially nurses, must comprehensively assess women's needs at this stage, providing care where educational tools and emotional support prevail over techniques and procedures.

Keywords: Breast Cancer; Diagnosis; Education; Nursing; Uncertainty.

Resumen

Objetivo: determinar el nivel de incertidumbre en mujeres diagnosticadas con cáncer de mama y la relación con variables sociodemográficas. **Método:** estudio observacional, transversal y correlacional. La muestra incluyó 121 mujeres, seleccionadas mediante muestreo no probabilístico e intencional. Se utilizó la Escala de Incertidumbre ante la Enfermedad. El análisis descriptivo usó medidas de tendencia central, frecuencias y porcentajes. El análisis inferencial usó método de correlación de Pearson, Rho de Spearman, prueba exacta de Fisher y modelo de regresión lineal. **Resultados:** el 69,4% de las mujeres reportó alto nivel de incertidumbre. La dimensión de ambigüedad contribuyó más a esta alta puntuación (62%). Se encontró correlación negativa significativa entre el nivel de incertidumbre y el nivel de educación (p=0, 03) y el ingreso mensual (p=0, 004). **Conclusiones:** el alto nivel de incertidumbre en más de la mitad de las mujeres se relacionó con el nivel de educación y el ingreso mensual. **Consideraciones finales e implicancias para la práctica:** el nivel de incertidumbre es una variable presente que se identifica claramente previo al tratamiento del cáncer de mama. Los profesionales sanitarios, especialmente enfermeros, deben evaluar integralmente las necesidades de las mujeres en esta etapa y brindar una atención donde las herramientas educativas y el apoyo emocional prevalezcan sobre las técnicas y procedimientos.

Palabras clave: Cáncer de Mama; Diagnóstico; Educación; Enfermería; Incertidumbre.

Resumo

Objetivo: determinar o nível de incerteza em mulheres diagnosticadas com câncer de mama e a relação com variáveis sociodemográficas. **Método:** estudo observacional, transversal e correlacional. A amostra contou com 121 mulheres, selecionadas por meio de amostragem intencional e não probabilística. A análise descritiva utilizou medidas de tendência central, frequências e percentuais. A análise inferencial utilizou método de correlação de Pearson, Rho de Spearman, teste exato de Fisher e modelo de regressão linear. **Resultados:** 69,4% das mulheres relataram alto nível de incerteza. A dimensão ambiguidade foi a que mais contribuiu para esta pontuação elevada (62%). Foi encontrada uma correlação negativa significativa entre o nível de incerteza e a escolaridade (p=0,03) e a renda mensal (p=0,004). **Conclusões**: o alto nível de incerteza em mais da metade das mulheres foi relacionado ao nível de escolaridade e renda mensal. **Considerações finais e implicações para a prática**: o nível de incerteza é uma variável presente e claramente identificada no início do tratamento do câncer de mama. Os profissionais de saúde, principalmente os enfermeiros, devem avaliar de forma integral as necessidades das mulheres nesta fase, prestando cuidados onde as ferramentas educativas e o apoio emocional prevalecem sobre as técnicas e procedimentos.

Palavras-chave: Câncer de Mama; Diagnóstico; Educação; Enfermagem; Incerteza.

INTRODUCTION

Cancer is the second leading cause of premature death in the world, representing a global public health concern due to its high incidence and high mortality burden.[1] The latest estimates from the International Agency for Research on Cancer (IARC) in 2020 reported 19.3 million new cases and 9.9 million deaths from this disease.[2] In Ecuador, 29,273 new cases of cancer were diagnosed, with breast cancer being the malignant neoplasm with the highest incidence in the female population, at 38.2%.[3,4] It is estimated that, by 2040, there will be an increase of up to 60% of new cases,[5] mainly in poor countries.[6]

Specifically, breast cancer diagnosis constitutes a stressful and traumatic situation, causing a high emotional and psychological impact, further affecting the physical health of women who suffer from it.[7,8] They also experience fear, insecurity, anguish, anxiety, sadness and hopelessness, due to the connotation of being a potentially fatal disease,[7,9] conditions that generate great uncertainty and can cause a state of confusion that immobilizes them and prevents them from understanding their disease,[10] which can interfere with the development of coping strategies,[11] and therefore with their well-being and quality of life.

Uncertainty is shown as an inherent state of chronic diseases and, especially, in breast cancer, as previously mentioned, by generating great ambiguity, being complex and unpredictable.[12] This state can arise mainly due to the lack of information that people have about their disease, disease treatments, prognosis and severity,[12,13] factors that cognitively disable them and condition their ability to interpret events related to the disease and its process, which in turn interferes with the construction of a meaning or a conceptual framework of their own to interpret and understand the disease and its challenges.[13]

Merle Mishel addresses in depth the phenomenon of uncertainty in the face of disease, and conceptualizes it as the "inability to determine the meaning of facts related to the disease".[14] Her theory shows that stimulus framework, cognitive capacity and sources of structure are antecedents to be assessed, since they determine uncertainty, uncertainty that has an immobilizing effect and causes an inability to predict the facts related to the disease process.[15] She suggests that uncertainty can be perceived as a danger when it is related to a pessimistic view of the future or as an opportunity when it is associated with the illusion and hope of positive results,[15,16] with both being decisive for the adoption of new life perspectives and good coping with their health condition.[13]

Based on this theory, nursing has been developing various studies in the field of oncological care, the results of which show a negative influence of uncertainty on quality of life, well-being, motivation and as a factor that weakens coping strategies for the disease.[12,17] It is described in patients with cancer as a psychological stressor[15], generating high levels of multidimensional suffering[18] and a determining cognitive factor for adaptation to the new health condition derived from breast cancer.[19]

In Ecuador, the "National Strategy for Comprehensive Cancer Care" has been proposed,[20] whose fundamental focus is the design of interventions based on valid and reliable information, obtained through scientific research, which contributes to comprehensive oncological care, which represents a valuable opportunity to contribute with scientific evidence to care for people with cancer in the country. The theory of uncertainty in the face of disease provides a solid framework of framework for nursing research in this field, providing elements that allow us to understand women's experience in the oncological process in aspects related to their physical, psychological, social and spiritual well-being.

In accordance with the above, addressing uncertainty from the science of care becomes necessary in chronic diseases such as breast cancer, since it offers guidelines that allow the detection of variables that could influence the psychological well-being of those affected, as well as for the design of interventions focused on reducing its immobilizing effect, enabling the development of cost-effective coping strategies. From there, the present investigation arises with the objective of determining the level of uncertainty and its relationship with the sociodemographic variables of women with breast cancer at the beginning of oncological treatment.

METHOD

This is an observational, cross-sectional, correlational and prospective follow-up study, carried out on 121 women over 18 years of age from the Metropolitan District of Quito, Ecuador, between November 2020 and May 2021. Participants were selected by non-probabilistic and convenience sampling, with a confidence level of 95% and a margin of error of 5%, considering only cases of breast cancer with a confirmed diagnosis for the first time and who at the time of the interview were about to start oncological treatment.

The ethical aspects of this study were safeguarded through review and approval by the Scientific Ethics Committee of the Faculty of Nursing and the Ethics, Bioethics and Biosafety Committee of the Vice-Dean of Research and Development, both of the *Universidad de Concepción-Chile*, and by the *Hospital Carlos Andrade Marín* Research Ethics Committee (CEICH-HCAM) of Ecuador, through Resolution IESS-HCAM-CEISH-2020-1163-DF. The study was considered to be of minimal risk for women, ensuring information confidentiality, privacy and anonymity, and contemplated voluntary participation through the signing of informed consent.

The following instruments were used to collect information:

a) A questionnaire of sociodemographic and clinical data, which was designed by the researchers, which asked about age, marital status, educational level, family and personal history, support received, relationship with partner and family relationship, disease stage, diagnosis and treatment, with open- and closed-ended questions.
b) To assess uncertainty, the Scale of Uncertainty about Disease in Patients and Companions Who Go to an Emergency Service (ESINESU - *Escala de Incertidumbre ante la Enfermedad en el Servicio de Urgencias*) was used, adapted and validated in Spanish by[21], getting a Cronbach's alpha of 0.90. It is a Likert-type scale, consisting of 12 items. Questions 5, 10 and 11 have an inverted measurement

score. The instrument assesses the factors that directly affect the presence of uncertainty through two dimensions: complexity and ambiguity. It has a minimum score of 12 and a maximum of 60 points, where the higher the score, the higher the level of uncertainty, categorizing it as low (less than 25 points), medium (25 to 36 points) and high (greater than 36 points).

The complexity dimension was calculated by adding items 1, 4, 5, 6, 7 and 11, which includes aspects related to information, knowledge about health problem and therapeutic indications. The ambiguity dimension includes items 2, 3, 8, 9, 10 and 12, associated with disease prognosis and evolution.

A pilot test was conducted that included 30 women diagnosed with breast cancer after obtaining informed consent. The instruments were administered through a personal interview between the participants and the researcher in the post-consultation office before starting oncological treatment. The mean duration of each interview was 30 minutes. Instrument reliability through Cronbach's alpha was 0.75, indicating that the instrument has acceptable reliability.[22]

The data were tabulated in a matrix in Microsoft Excel version 2010, and the Statistical Package for the Social Sciences (SPSS) version 25.0 statistical software was used for analysis. In descriptive analysis, measures of central tendency, calculation of frequencies and percentages were used. To explore the relationship between sociodemographic variables and the level of uncertainty, Fisher's exact test was applied for categorical variables, and Pearson and Spearman correlations were applied for numerical variables according to data normality and a linear regression model, accepting a significance p-value<0.05.

RESULTS

Participant profile

Regarding the sociodemographic and clinical profile of 121 participants (Table 1), participants' age range fluctuated between 26 and 81 years, with a mean age of 54 years (SD=12.3). The entire sample was affiliated with social security. A large number of women earned between US$1 and US$800 dollars per month, 43% of them receiving less than US$400 per month, with 48% of their employment being from private sources. As for marital status, most women were married (41.4%). In terms of education, more than a third of the sample had a university education (37.2%), 24.6% had secondary education, and 26.3% had primary education. The mean waiting time between diagnosis and treatment was up to 150 days (median 90 days). Thus, 44.7% of respondents had a family history of breast cancer. Almost 50% were diagnosed with cancer classified as CSIIA-IIB involving localized cancers and/or cancers that had spread to some adjacent lymph nodes. Moreover, 50.4% had comorbidities, the most frequent of which were Diabetes Mellitus (23%) and hypertension and thyroid disorders (13.2%).

Uncertainty

When determining the level of uncertainty (Table 2), according to the classification established by the authors, on a scale of 12 to 60 points[21], there is a general average score of 39.60 points, where two thirds of women (64.9%) show a high level of uncertainty (between 37 and 60 points) and almost 30% show a medium level of uncertainty (between 25 and 36 points).

Regarding the two dimensions of the level of uncertainty, it was identified that the dimension of ambiguity, which is related to knowledge about disease prognosis, evolution and status, was the one that contributed most to this high level of uncertainty (62%), while the dimension of complexity, associated with information about the disease and the therapy, contributed to the average level of uncertainty (83.5%) (Figure 1).

To establish the relationship between the variables studied, data distribution normality was previously assessed by applying the Kolmogorov-Smirnov normality test, as well as asymmetry, kurtosis, mean, median and the graphical representation of each variable under study. The level of uncertainty, the level of education and age show a distribution close to normal; the mean and median are similar; and skewness and kurtosis are less than one. The waiting time between diagnosis and the start of treatment, the number of treatment cycles and monthly income do not show a normal distribution.

Based on the above, Pearson correlation was used to determine the relationship between the level of uncertainty, the level of education and age. Spearman's Rho was used for the waiting time to start treatment and monthly income. It was found that the level of uncertainty only shows a significant negative correlation with monthly income (R=-0.263**; p=0.004) and with the level of education (R=-0.194*; p=0.03), indicating that women with a lower monthly income and a lower level of education have a higher level of uncertainty. The other variables analyzed, such as age and waiting time to start treatment, did not show a correlation with the level of uncertainty.

To search for an association between sociodemographic and clinical variables (marital status, place of residence, job dependency, clinical stage, treatment regimen, symptoms before treatment) and the level of uncertainty, this was dichotomized into two categories: low-medium level and high level, since most of the sample was at the high and medium level of uncertainty. When associating these categorical variables using Fisher's exact test, no significant association was found with the level of uncertainty (Table 3).

To further explain the structure of the relationship between uncertainty and the two variables that presented a significant relationship (monthly income and education level), a multiple linear regression model (Table 4) was performed using the "Intro" method.

Table 4 shows that there is a significant inverse linear relationship between the level of education and the level of uncertainty (β=-0.22, p= 0.02), implying that the level of education is a predictor variable of uncertainty score values. If the monthly income variable is added to the model, no statistically significant

Table 1. Sociodemographic and clinical profile of participating women with breast cancer (n=121)

Variable	Frequency	Percentage (%)
Age group		
26-35	7	5.8%
36-45	27	22.3%
46-55	33	27.3%
56-65	27	22.3%
66-75	24	19.8%
76-85	3	2.5%
Marital status		
Married	50	41.3%
Single	35	28.9%
Divorced	21	17.4%
Free union	8	6.6%
Widowed	7	5.8%
Education level		
University	45	37.2%
Secondary	30	24.8%
Primary	26	21.5%
Vocational	13	10.7%
None	7	5.8%
Waiting time between diagnosis and treatment		
30 to 90 days	51	42.1%
91 to 180 days	43	35.5%
181 to 365 days	17	14.0%
366 to 1,037 days	10	8.3%
Clinical stage		
CS IA-IB	10	8.3%
CS IIA-IIB	60	49.6%
CS IIIA-IIIB	43	35.5%
CS IV	8	6.6%
Monthly income		
Less than US$400	52	43%
US$401 to US$800	39	32.2%
US$801 to US$1,200	16	13.2%
US$1,201 to US$1,500	10	8.3%
US$1,501 and above	4	3.3%
Labor dependency		
Public	33	27.2%
Private	58	48%
Independent	30	24.8%
Total	121	100%

Source: the authors.

Table 2. Level of uncertainty of participating women. Quito, Ecuador

Level of uncertainty	Cohort points for assessment	Frequency	Percentage (%)
Low	Less than 25 points	1	0.8%
Medium	From 25 to 36 points	36	29.8%
High	More than 36 points	84	69.4%
Total		121	100%

Source: the authors.

Table 3. Association between sociodemographic and clinical variables with the level of uncertainty of participating women. Quito, Ecuador

Variable	Level of uncertainty				p-value
	Low-medium	%	High	%	
Marital status					
Married	15	30.0	35	70.0	0.599
Single	13	37.1	22	62.9	
Divorced	5	23.8	16	76.2	
Widowed	3	42.9	4	57.1	
Free union	1	12.5	7	87.5	
Place of residence					
Quito	29	30.5	65	68.4	0.475
Other provinces	8	34.7	15	65.2	
Cities near Quito	0	0	4	100	
Labor dependency					
Private sector	15	28.9	43	74.1	0.247
Public sector	14	42.4	19	57.6	
Independent	8	26.6	22	73.3	
Clinical stage					
CS I	2	10.0	8	80.0	0.438
CS II	20	33.3	40	66.7	
CS III	11	25.6	32	74.4	
CSIV	4	50.0	4	50.0	
Treatment scheme					
Cyclophosphamide/doxorubicin	32	31.1	71	68.9	0.605
Docetaxel/cyclophosphamide/doxorubicin	3	33.3	6	66.6	
Paclitaxel/trastuzumab	1	100	0	0.0	
Gemcitabine/carboplatin	1	14.3	6	85.7	
Trastuzumab	0	0.0	1	100	
Treatment symptoms					
None	22	30.6	50	69.4	0.138
Local discomfort	14	41.2	20	58.8	
Impaired mobility	1	10.0	9	90.0	
General discomfort	0	0.0	5	100	
Total			121		100%

Source: the authors.

Table 4. Multiple linear regression model for predictors of uncertainty in participating women. Quito, Ecuador

Model		Non-standardized coefficients		Standardized coefficients	t	*p*
		B	Error deviation	B		
1	(Constant)	43.498	1.654		26.295	0.000
	Education level	-0.678	0.272	-0.223	-2.494	0.014*
2	(Constant)	43.255	1.641		26.362	0.000
	Education level	-0.323	0.326	-0.106	-0.992	0.323
	Monthly income	-0.003	0.001	-0.206	-1.922	0.057

* The correlation is significant at the 0.05 level (two-sided).
Source: the authors.

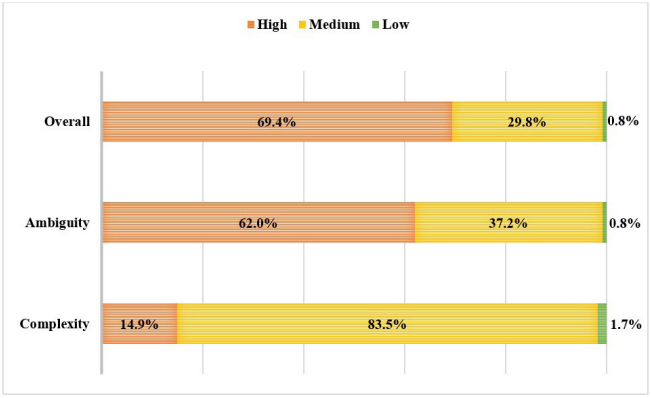

Figure 1. Dimensions of the level of uncertainty identified in the sample. Quito, Ecuador.
Source: the authors.

relationship is observed, since it is concluded that only the level of education explains 22% of the variance in the level of uncertainty in the women studied.

DISCUSSION

The main results, regarding the levels of uncertainty found in women with breast cancer at the beginning of oncological treatment, indicate a high level of uncertainty in two thirds of the sample, together with a medium level of uncertainty in the remaining third, according to the classification indicated by its authors[21].This is consistent with a study with cancer patients in the United States[23] in their study with cancer patients in the United States, showing that uncertainty during confirmation of cancer diagnosis was significantly higher (p=0.03). Likewise, a study with women with breast cancer shows that they presented a medium level of uncertainty[24]. This result could be explained because the perception of the diagnosis of the oncological disease is initially faced as a condition of great vulnerability, negatively impacting women's emotional and psychological stability due to the fear of potential death associated with this condition[13] as well as the progressive deterioration of quality of life.

It was found that these women's experience when diagnosed with breast cancer and waiting for treatment would represent a state of high vulnerability and psychological stress, product of the inability to determine the meaning of events that are related to the disease, which generates a negative perception about the disease and increases social stigma of cancer in general.

The dimension that contributed the greatest percentage to the high level of uncertainty in the participants was ambiguity, verifying that these women's experience with breast cancer would represent, in the words of Merle Mishel, an "inability to determine the meaning of the facts that are related to the disease";[14] in this case, related to cancer prognosis and evolution. In the latter, several factors could come together, such as the new health situation that would impose a series of changes in their vital structure and adaptation, Impairing their cognitive ability to assess events related to the disease process[16], also the lack of clarity in the information provided by health personnel as well as knowledge about the prognosis, evolution, possibility of recovery and survival.[13] All of this could intervene in the generation of negative meanings such as fear of disease, death and pain.[24]

In the complexity dimension, the majority of women showed an intermediate level of uncertainty, indicating that they were unaware of the disease, the presence of symptoms and treatment[25] can contribute as factors generating uncertainty. Uncertainty then becomes evident as a psychological stressor that undermines peace of mind and accompanies women and their families throughout the cancer process.[13]

Consequently, it is necessary to highlight the relevance of providing specific information and knowledge to people who suffer from this pathology, which must be clear and truthful[26] by health professionals, and especially by nursing, as a provider of structure and reliable authority, in order to promote an adequate cognitive scheme in affected women that allows them to be consistent with events related to the disease. The desire to provide adequate information and knowledge must be led by nursing

professionals, due to their responsibility in comprehensive care for people in the different phases of the disease process, through valid interdisciplinary, cognitive and psychosocial protocols that effectively reduce the level of uncertainty during the onset and transition of this disease. This is due to the harmful effects that it entails and that cause a deep vital and emotional crisis[27] as well as changes in the psychological adaptation to the new health condition[25].

It is noted that breast cancer is a highly stressful disease that makes women feel vulnerable, which is aggravated by the uncertainty generated by diagnosis confirmation and the wait for treatment. All of this leads to a negative perception of this disease,[28] which adds to social stigma of cancer in general as an "incurable disease that devours and consumes", "a serious condition that causes a lot of pain and suffering" and as a "harbinger of death"[26], which makes it difficult for women to assimilate their current health condition.

The above highlights the growing need for information and care for women diagnosed with breast cancer.[29] The high levels of uncertainty found in those affected show weaknesses in the role of nursing and healthcare professionals responsible for care, diagnosis and treatment, producing a deep reflection and posing serious challenges, since nurses constitute a key piece in the provision of education and information on aspects related to the disease trajectory.[30] Also notable studies highlighted the significant contribution of continuous provision of information to cancer patients as a fundamental strategy for empowering the disease and for promoting coping and active management of uncertainty in the face of the disease from diagnosis to survival.[31,32]

As already mentioned, when associating the level of uncertainty with biodemographic variables, a significant negative relationship was found between uncertainty and the level of education (p=0.03), showing that the lower the academic training, the higher the levels of uncertainty, which coincides with what was found in similar studies[15,27] that show an inverse relationship between these variables: the higher the academic training, the lower the degree of uncertainty. For Merle Mishel, the level of academic training is a key element for managing uncertainty, as it provides people with greater cognitive resources to understand and cope with the disease.[14] However, according to the identified health structure, the lack of educational protocols to address the process of this type of disease, with specific, precise and individualized information and education, leads to a greater risk of women experiencing greater confusion and distress,[33] which affects their emotional stability and compromises therapeutic adherence.

Other authors also recognize the importance of considering certain factors that contribute to a higher level of uncertainty in cancer patients.[13] These include low credibility and trust in healthcare providers, ambiguous responses to concerns about the disease, use of complex clinical terminology, limited time spent in healthcare, and poor communication between healthcare professionals and patients.[34] Faced with this problem, Mishel suggests that a good relationship with structure providers reduces uncertainty.[35]

Nursing professionals constitute an important therapeutic support for alleviating the uncertainty that is triggered by an insufficient and imprecise level of knowledge about the disease. Therefore, it is essential that nurses constantly communicate and assess the individual information and care needs of women with breast cancer in order to provide holistic care in conditions that generate uncertainty based on the approach of Merle Mishel's theory,[14] which will allow to understand indivisible human beings' needs and promote the implementation of interventions focused on promoting adaptation to the disease.

Similarly, a significant correlation was found with monthly income (p=0.004), although, in the multiple linear regression model, it did not turn out to be a predictor variable of the level of uncertainty. This significant correlation could be caused by the concern of women, mostly dependent on a private labor system, with the high costs involved in cancer care,[36] this condition is corroborated by a study that identified that 49% of women developed uncertainty due to economic concerns[37]. Although all participants had health insurance coverage that fully covers cancer care, there are additional financial needs for support, care, mobility, food and accommodation, which entail costs that can affect family economic stability, in addition to the fact that the largest percentage of women have low monthly income.[36]

In addition, women may experience uncertainty due to constant worry and fear of job loss due to functional and physical limitations caused by the disease or treatments.[38] In this sense, the evidence suggests that institutional monitoring of workers with cancer is relevant to gain in-depth knowledge of the impact of the disease, the consequences, and access to treatments, the socio-economic impact and the conditions for returning to work, inputs that will allow for the formulation of comprehensive management strategies aimed at both the public health and occupational health areas[39].

In addition to the above, it is also necessary to identify how the effect of the COVID-19 pandemic has influenced timely access to breast cancer care,[40] due to the individual experience of waiting, the intense and continuous fear of disease progression, the helplessness in the face of administrative procedures for access to immediate treatment and the negative impact of suffering on emotional balance[13], situations that could increase the presence of uncertainty in women with breast cancer. Therefore, the understanding of the meaning of the experience of women with breast cancer during the waiting time must be assessed by the nurse, in order to more efficiently manage the entry to treatment, providing compassionate, humane and comprehensive care. However, these conditions should be explored in greater depth.

The limitations of this study are related to the institutional security restrictions in this vulnerable population, due to the fragile situation of participants caused by the COVID-19 pandemic.

The instrument used may entail some type of social desirability bias.

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE

The high level of uncertainty found in those affected reflects a weakness and, at the same time, a challenge to deliver education and information about the disease process in a clear, systematic, credible and quality manner by structural providers and especially by nurses. It is essential to strengthen communication and interaction skills between nurse and patient, so that this professional can provide effective permanent therapeutic support that alleviates uncertainty in the continuum of the disease process.

Regarding the relationship between the level of uncertainty and bio-demographic variables, statistical significance (p=<0.03) was found with the level of education, where women with a lower level of education have a higher level of uncertainty. The ambiguity or lack of information provided, the low credibility of structural sources or unmet information needs can generate uncertainty, conditions that push women with a higher level of academic training to use other means of information to resolve doubts or concerns, causing risks of greater confusion and distress and generating greater uncertainty.

A significant relationship was also found between the level of uncertainty and monthly income, although all those affected had health insurance that covers all cancer care, which may raise concerns about increased costs for additional care, support, mobility and accommodation, because most women had low income or constant worry and fear about the risk of losing their job due to functional and physical limitations generated by the disease or treatments.

Nursing professionals constitute an important therapeutic support for alleviating the uncertainty derived from an insufficient and imprecise level of knowledge about the disease. It is therefore essential that nurses constantly assess individual information and care needs of women with breast cancer, with the aim of providing holistic care for conditions that generate uncertainty based on the approach of Merle Mishel's theory, which allows us to understand indivisible human beings' needs and enhances the implementation of interventions focused on promoting adaptation to the disease.

The willingness to provide the appropriate information and knowledge must be led by nursing professionals due to their responsibility for comprehensive care for people under their care, in the various stages of the disease process, through interdisciplinary, valid, cognitive and psychosocial protocols, aspects that would enable the reduction of the level of uncertainty during the onset and transition of this disease, due to all the harmful effects it brings (feelings of fear, sense of loss, dread, anguish and insecurity), which results in a profound vital and emotional crisis, and difficulties in psychological readjustment to the new health condition.

This study aimed to be a contribution to nursing practice theoretical support and a contribution to improve the quality of oncological care based on Merle Mishel's theory that, as a theoretical tool, allows nurses to understand and assess the needs for information and care, from the multidimensionality of human beings as holistic beings, in order to enhance nursing interventions focused on the support and comprehensive care of women with breast cancer that favor the development of coping strategies against cancer and promote adaptation to the disease.

The limitations of this study may be related to institutional security restrictions in this vulnerable population, due to the COVID-19 pandemic, as well as the instrument used could generate a social desirability bias.

AUTHOR'S CONTRIBUTIONS

Study design conception. Rosa Herminia Pastuña-Doicela. Olivia Inés Sanhueza-Alvarado

Data acquisition. Rosa Herminia Pastuña-Doicela.

Data analysis. Rosa Herminia Pastuña-Doicela. Olivia Inés Sanhueza-Alvarado

Interpretation of results from the scientific literature. Rosa Herminia Pastuña-Doicela. Olivia Inés Sanhueza-Alvarado

Manuscript writing and critical review. Rosa Herminia Pastuña-Doicela. Olivia Inés Sanhueza-Alvarado

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