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RESEARCH

Fear of cancer recurrence and quality of life in early breast cancer survivors: association with clinical and sociodemographic characteristics

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ABSTRACT

INTRODUCTION Fear of cancer recurrence is one of the most frequent concerns among breast cancer survivors and can significantly affect health-related quality of life. However, it remains insufficiently explored in routine clinical practice. The aim of this study is to describe the frequency of fear of cancer recurrence and quality of life in patients with early breast cancer, to analyze their association with clinical and sociodemographic characteristics. As a complementary descriptive exploration, communication between patients and the healthcare team regarding fear of cancer recurrence was also assessed.

METHODS Cross-sectional observational study conducted in two public centers. A total of 301 women with stage I–III breast cancer, disease-free and at least 12 months post-treatment, were included. Fear of cancer recurrence was assessed using the Cancer Worry Scale, and quality of life was evaluated using the PROMIS Global 10 questionnaire.

RESULTS High fear of cancer recurrence was observed in 34.9% of participants, and moderate fear of cancer recurrence in 20.9%. This concern was significantly associated with ≤5 years since diagnosis, age <50 years, education level, chemotherapy, and endocrine therapy. No associations were found with tumor stage, type of breast surgery, axillary surgery, or radiotherapy. Nearly half of the patients had not discussed fear of cancer recurrence with their medical team, mainly because they did not consider it a serious issue or were unaware that it could be addressed during consultations. PROMIS scores showed median values of 37.4 for physical health and 43.5 for mental health. Quality of life did not vary according to clinical characteristics or treatments but was associated with age and education. Patients with higher fear of cancer recurrence consistently showed poorer quality of life across all domains ($p < 0.001$).

CONCLUSIONS Fear of cancer recurrence is highly frequent and strongly associated with poorer quality of life, independently of clinical variables. Its identification and management should be systematically integrated into survivorship care for women with breast cancer.

KEYWORDS Breast Cancer, Cancer Survivorship, Quality of Life, Fear, Anxiety, Health Behavior, Fear of Cancer Recurrence, Patient-Reported Outcomes, Psychological Distress, Survivorship Care

INTRODUCTION

Breast cancer is the most common type of cancer worldwide and the leading cause of death among women [1,2]. According to GLOBOCAN 2022, approximately 2.3 million new cases were diagnosed, with an age-standardized rate of 47.8 per 100 000 people [1]. In Uruguay, breast cancer is also a significant public health issue, ranking first in both incidence and mortality among women [3].

Over the past three decades, five-year survival has increased steadily, rising from 77% in 1989 to more than 91% in 2020, due to earlier detection and therapeutic advances, particularly in targeted and hormonal therapies [4,5]. This increase has

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MAIN MESSAGES

- Fear of recurrence is highly prevalent (55.8% with moderate or high levels of fear) among early-stage breast cancer survivors, even years after treatment, constituting a persistent concern that extends beyond the initial post-diagnosis stage.
- This study presents a descriptive exploration of communication between patients and the healthcare team regarding fear of recurrence—an area that has been understudied in our context—and provides preliminary information to guide future research and interventions.
- Key strengths of this study include its sample size and the use of internationally validated instruments, which allow for comparison of results with those of other populations. Furthermore, the inclusion of patients from two centers provides a representative view of actual clinical practice.
- Among the limitations, the cross-sectional design precludes establishing causality and does not allow assessment of changes in fear of cancer recurrence or quality of life over time. Furthermore, the use of self-administered questionnaires may introduce recall or social desirability bias, and voluntary participation could introduce selection bias, among other issues.

highlighted the need to assess the impact of diagnosis and treatment on long-term health outcomes, particularly quality of life, persistent symptoms, and psychosocial well-being [5,6].

Interest in understanding the experience of cancer survivors has grown significantly, driven by the physical, emotional, and social challenges that persist after treatment. Beyond traditional clinical outcomes (such as recurrence, mortality, or physician-assessed toxicity), many symptoms and functional limitations go unnoticed, creating a gap between what patients perceive and what healthcare professionals record [7]. The incorporation of patient-reported outcome measures enables a more accurate assessment of the impact of cancer and its treatments on quality of life. In this context, instruments such as the Patient-Reported Outcomes Measurement Information System (PROMIS) Global or the Cancer Worry Scale have been shown to improve symptom detection, optimize interventions, and potentially influence survival [8].

Health-related quality of life is now a central goal in oncology, especially when clinical benefits are limited or the objective is palliative care [9]. According to the model proposed by Wilson and Cleary, health-related quality of life integrates biological, individual, and environmental factors that shape the overall perception of health [10]. Measuring it with validated instruments enables assessment of physical and emotional well-being, guidance of person-centered decisions, and detection of clinically relevant changes [11]. Furthermore, its role has

Table 1. Clinical and sociodemographic characteristics and treatments received.

Variable	Cathegories	n (%)	95% CI
Time since diagnosis	≤ 2 years	56 (18.6%)	14.6 to 23.4%
	2 to 5 years	128 (42.5%)	37.1 to 48.2%
	> 5 years	117 (38.9%)	33.8 to 44.5%
Age (years)	< 50 years	52 (17.3%)	13.4 to 22.0%
	50 to 65 years	115 (38.2%)	33.2 to 43.9%
	> 65 years	134 (44.5%)	39.0 to 50.2%
Educational level	Incomplete elementary/secondary education	116 (38.5%)	33.2 to 44.1%
	Complete secondary education	155 (51.5%)	45.9 to 57.1%
	Tertiary education	30 (10.0%)	7.1 to 13.9%
Stage	I/II	242 (80.4%)	75.5 to 84.5%
	III	59 (19.6%)	15.5 to 24.5%
Breast surgery	Segmental mastectomy	197 (65.4%)	59.9 to 70.7%
	Total mastectomy	104 (34.6%)	29.3 to 40.1%
	Axillary surgery		
	Sentinel lymph node biopsy	142 (47.2%)	41.6 to 52.8%
	Axillary lymph node dissection	159 (52.8%)	47.2 to 58.4%
Chemotherapy	No	129 (42.9%)	37.4 to 8.5%
	Yes	172 (57.1%)	51.5 to 62.6%
Radiation therapy	No	44 (14.6%)	11.1 to 19.1%
	Yes	257 (85.4%)	80.9 to 88.9%
Hormone therapy	No	25 (8.3%)	5.7 to 12.0%
	Yes	276 (91.7%)	88.0 to 94.3%

CI, Confidence interval.
Data obtained from the 301 patients included in the study.
Source: Prepared by the authors based on the study results.

Table 2. Scales for measuring fear of cancer recurrence based on patient characteristics.

Variable	Total n (%)	Minimun n (%)	Moderate n (%)	High n (%)	P value
Time from diagnosis					0.006
≤ 2 years	56 (19%)	16 (12%)	11 (17%)	29 (28%)	
2 to 5 years	128 (43%)	55 (41%)	25 (40%)	48 (46%)	
> 5 years	117 (39%)	62 (47%)	27 (43%)	28 (27%)	
Age					< 0.001
< 50 years	52 (17%)	2 (1.5%)	10 (16%)	40 (38%)	
50 to 65 years	115 (38%)	25 (19%)	41 (65%)	49 (47%)	
> 65 years	134 (45%)	106 (80%)	12 (19%)	16 (15%)	
Educational level					< 0.001
Elementary/Middle School, Inc.	116 (39%)	94 (71%)	12 (19%)	10 (9.5%)	
High School (Full Course)	155 (51%)	32 (24%)	41 (65%)	82 (78%)	
College	30 (10%)	7 (5.3%)	10 (16%)	13 (12%)	
Stage					0.342
I/II	242 (80%)	111 (83%)	47 (75%)	84 (80%)	
III	59 (20%)	22 (17%)	16 (25%)	21 (20%)	
Breast surgery					0.718
Segmental mastectomy	197 (65%)	89 (68%)	39 (62%)	68 (65%)	
Total mastectomy	104 (35%)	44 (33%)	24 (38%)	37 (35%)	
Axillary surgery					0.402
Sentinel lymph node biopsy	142 (47%)	66 (50%)	32 (51%)	44 (42%)	
Axillary lymph node dissection	159 (53%)	67 (50%)	31 (49%)	61 (58%)	
Chemotherapy					Less than 0.001
No	129 (43%)	76 (57%)	33 (52%)	20 (19%)	
Yes	172 (57%)	57 (43%)	30 (48%)	85 (81%)	
Radiation therapy					0.098
No	44 (15%)	26 (20%)	7 (11%)	11 (10%)	
Yes	257 (85%)	107 (80%)	56 (89%)	94 (90%)	
Hormone theraphy					0.024
No	25 (8.3%)	3 (2.2%)	9 (14%)	3 (2.9%)	
Yes	276 (92%)	120 (90%)	54 (86%)	102 (97%)	

inc., incomplete.
Data were obtained from the 301 patients included in the study.
Source: Prepared by the authors based on study results.

expanded to include regulatory assessments and prognostic value, as its decline is associated with lower survival rates [12,13]. In breast cancer survivors, health-related quality of life can be affected by demographic and clinical factors. Young women with lower socioeconomic status or who are overweight tend to have a poorer health-related quality of life. Furthermore, certain treatments (such as mastectomy or axillary dissection) can leave lasting sequelae, including altered body image, anxiety, lymphedema, pain, and functional limitations [14–16].

Fear of cancer recurrence is one of the most common and persistent concerns in this group. It is also recognized as a key determinant of health-related quality of life. Between 18% and 56% of patients experience clinically significant fear of cancer recurrence [17,18]. This fear is associated with increased emotional stress (including anxiety and depression), as well as impaired social, occupational, and daily functioning [17]. Fear of cancer recurrence can exacerbate common symptoms such as fatigue, sleep disturbances, and reduced physical activity, all of which correlate with higher levels of worry [18,19]. Key risk factors include young age, perceived stress, intensive treatments, and avoidant coping strategies [17–20]. Furthermore, fear of cancer recurrence can persist for years after treatment, underscoring the need for its systematic screening and specific psychosocial interventions [18,20].

Despite the available evidence, some aspects remain insufficiently characterized. International studies show mixed results regarding the influence of sociodemographic variables (particularly age and educational level), with associations varying by cultural context. Many cohorts combine patients undergoing active treatment with disease-free survivors, making it difficult to isolate the impact of clinical characteristics and treatments once the therapeutic phase has ended. The persistence of fear and its association with quality of life in cohorts who have completed treatment has been rarely reported using standardized instruments such as PROMIS, and in Latin America—particularly in Uruguay—there is virtually no data on these phenomena. The objective of this study is to describe the prevalence of fear of recurrence, quality of life, and their association with clinical and sociodemographic variables in survivors of early-stage breast cancer. The hypothesis is that greater fear of recurrence is associated with poorer quality of life.

Table 3. Findings regarding the dialogue with the professional.

Item	Cathegory	n (%)	95% CI
Reason for not discussing (n = 154)	I don't consider it a serious problem	71 (46.1%)	(38.4%; 54.0%)
	I didn't know I could discuss it with my doctor	56 (36.4%)	(29.2%; 44.2%)
	I didn't have a chance during the appointment	27 (17.5%)	(12.3%; 24.3%)
Discussed recurrence (n = 301)	No, but I'd like to discuss it	83 (27.6%)	(22.8%; 32.9%)
	No, and I don't think it's necessary	71 (23.6%)	(19.1%; 28.7%)
	Yes, during more than one appointment	32 (10.6%)	(7.6%; 14.6%)
	Yes, during one appointment	115 (38.2%)	(32.9%; 43.8%)
Professional's response (n = 147)	I was referred to another professional	35 (23.8%)	(17.6%; 31.3%)
	The risk of recurrence was explained to me clearly and in a way I could understand	52 (35.4%)	(28.1%; 43.4%)
	I was reassured and offered emotional support	34 (23.1%)	(17.0%; 30.6%)
	My concern was not taken into account or was downplayed	26 (17.7%)	(12.4%; 24.7%)
Did the professional provide strategies? (n = 246)	No, but I would like to receive coping strategies	71 (28.9%)	(23.6%; 34.8%)
	No, and I don't think I need them	110 (44.7%)	(38.6%; 51.0%)
	Yes, but I didn't find them helpful	34 (13.8%)	(10.1%; 18.7%)
	Yes, and they were helpful	31 (12.6%)	(9.0%; 17.3%)
Change in Level of Concern (n = 80)	It has decreased slightly	6 (7.5%)	(3.5%; 15.4%)
	It has decreased significantly	25 (31.2%)	(22.2%; 42.1%)
	It has remained the same	49 (61.2%)	(50.3%; 71.2%)
Type of Support You Would Like (n = 301)	Access to a support group	61 (20.3%)	(16.1%; 25.2%)
	Advice on how to manage anxiety related to recurrence	62 (20.6%)	(16.4%; 25.5%)
	Referral to a mental health professional	21 (7.0%)	(4.6%; 10.4%)
	More information about my risk of recurrence	47 (15.6%)	(12.0%; 20.1%)
	I don't need additional support	110 (36.5%)	(31.3%; 42.1%)

CI, Confidence interval.
Notes: Data obtained from the 301 patients included in the study.
Source: Prepared by the authors based on the study results.

METHODS

Study design and setting

A cross-sectional observational study conducted at two public referral centers in Uruguay: the Hospital de Clínicas (Montevideo) and the Hospital Departamental Zoilo A. Chelle (Soriano).

Participants

The study included patients over 18 years of age diagnosed with early-stage breast cancer (stages I–III) who had completed treatment with surgery, chemotherapy, and radiation therapy at least 12 months prior to enrollment and who had not experienced a relapse at the time of the study. Patients were recruited during outpatient follow-up at both centers and completed self-administered questionnaires at enrollment.

Variables and data sources

Sociodemographic and clinical variables were collected through self-administered questionnaires and a retrospective review of medical records. The primary variables (fear of recurrence and quality of life) were assessed using the instruments described below.

- Sociodemographic variables: age at the time of the study (under 50, 50 to 65, over 65 years), educational level (incomplete elementary/secondary school, completed secondary school, college/university), and time since diagnosis (2 years or less, 2 to 5 years, more than 5 years).
- Clinical and treatment variables: tumor stage at diagnosis (I, II, or III), type of breast surgery (segmental or total mastectomy), type of axillary surgery (axillary lymph node dissection or sentinel lymph node biopsy), and receipt of adjuvant treatments (chemotherapy, radiation therapy, and hormone therapy) as dichotomous variables (yes/no).

Health-related quality of life was measured using the PROMIS Global 10 questionnaire [20], which assesses physical and mental well-being through 10 items with Likert-scale responses. From these, two summary scores on the T-scale (global physical health and global mental health) and two individual items reported as raw scores (global health and daily functioning) are derived. T-scores are calibrated against the general U.S. population, with a mean of 50 and a standard deviation of

Table 4. PROMIS scale scores for physical health.

Variable	Cathegory	N	Median (ICR)	P value
Time since diagnosis				0.714
	≤ 2 years	56	37.4 (29.6 to 50.8)	
	Between 2 and 5 years	128	37.4 (29.6 to 50.8)	
	More than 5 years	117	37.4 (29.6 to 50.8)	
Age				0.019
	< 50 years	52	37.4 (29.6 to 50.8)	
	50 to 65 years	115	37.4 (29.6 to 50.8)	
	> 65 years	134	50.8 (29.6 to 50.8)	
Educational level				< 0.001
	Incomplete elementary/secondary education	116	50.8 (37.4 to 54.1)	
	High school graduate	155	37.4 (29.6 to 50.8)	
	College/University	30	37.4 (29.6 to 50.8)	
Stage				0.905
	I/II	242	37.4 (29.6 to 50.8)	
	III	59	37.4 (29.6 to 50.8)	
Breast surgery				0.468
	Segmental mastectomy	197	37.4 (29.6 to 50.8)	
	Total mastectomy	104	37.4 (29.6 to 50.8)	
Axillary surgery				0.999
	Sentinel lymph node biopsy	142	37.4 (29.6 to 50.8)	
	Axillary lymph node dissection	159	37.4 (29.6 to 50.8)	
Chemotherapy				0.324
	No	129	37.4 (29.6 to 50.8)	
	Yes	172	37.4 (29.6 to 50.8)	
Radiation therapy				0.880
	No	44	39.8 (29.6 to 50.8)	
	Yes	257	37.4 (29.6 to 50.8)	
Hormone therapy				0.924
Time since diagnosis	No	25	37.4 (29.6 to 50.8)	
	Yes	276	37.4 (29.6 to 50.8)	

PROMIS, Patient-Reported Outcome Measure Information System. RIC, interquartile range.
Notes: Scores based on the characteristics of the 301 patients.
Source: Prepared by the authors based on the study results.

10. Values above 50 indicate better self-perceived health than the population average, and values below 50 reflect poorer health, with each 10-point difference equivalent to one standard deviation. Although PROMIS does not establish universal clinical cut-off points, T-scores below 40 are generally interpreted as moderate impairment, and those below 30 as severe impairment of self-perceived health. The Spanish (Latin American) version, administered by HealthMeasures and officially validated and standardized, was used [21].

Fear of recurrence was assessed using the Cancer Worry Scale [22], consisting of 6 items on a Likert scale (total score 6 to 24). Higher scores on this scale reflect greater fear. Scores were operationally classified into three levels: low (6 to 10), moderate (11 to 18), and high (19 to 24). The original version does not propose universal clinical cutoff points. The ranges used reflect predominantly low, intermediate, and high responses across the six items and allow for clinically interpretable stratification.

Additionally, communication between patients and the healthcare team regarding fear of recurrence was explored through ad hoc questions posed by the research team (the presence and reasons for the dialogue, responses received, changes in concern, and the type of support desired). The results are presented descriptively.

Sample size

The sample size corresponded to a fixed available sample, consisting of all patients who met the inclusion criteria during the recruitment period at both centers. No formal a priori sample size calculation was performed, given the descriptive nature of the study. The final cohort of 301 patients allows estimation of frequencies with 95% confidence intervals of approximately ± 5.7 percentage points for an expected proportion of 50% (maximum-variance scenario).

Statistics

Statistical analysis was performed using R software. Demographic and clinical characteristics, as well as health-related quality of life scores, were described using measures of central tendency and dispersion for continuous variables. Absolute and relative frequencies were used to describe categorical variables.

Associations between clinical and sociodemographic characteristics, as well as categories of fear of cancer recurrence, were assessed using the chi-square test. Comparisons of health-related quality of life between groups were performed using nonparametric tests (Kruskal–Wallis or Mann–Whitney, as appropriate).

Table 5. PROMIS scale scores for mental health.

Variable	Cathegory	N	Median (ICR)	P value
Time since diagnosis				0.678
	≤ 2 years	56	43.5 (33.8 to 53.3)	
	Between 2 and 5 years	128	43.5 (33.8 to 53.3)	
	More than 5 years	117	43.5 (33.8 to 53.3)	
Age				0.008
	< 50 years	52	43.5 (33.8 to 53.3)	
	50 to 65 years	115	43.5 (33.8 to 53.3)	
	> 65 years	134	53.3 (33.8 to 53.3)	
Educational level				< 0.001
	Incomplete elementary/secondary education	116	53.3 (43.5 to 53.3)	
	High school graduate	155	43.5 (33.8 to 53.3)	
	College/University	30	43.5 (33.8 to 53.3)	
Stage				0.922
	I/II	242	43.5 (33.8 to 53.3)	
	III	59	43.5 (33.8 to 53.3)	
Breast surgery				0.588
	Segmental mastectomy	197	43.5 (33.8 to 53.3)	
	Total mastectomy	104	43.5 (33.8 to 53.3)	
Axillary surgery				0.964
	Sentinel lymph node biopsy	142	43.5 (33.8 to 53.3)	
	Axillary lymph node dissection	159	43.5 (33.8 to 53.3)	
Chemotherapy				0.485
	No	129	43.5 (33.8 to 53.3)	
	Yes	172	43.5 (33.8 to 53.3)	
Radiation therapy				0.670
	No	44	43.5 (33.8 to 53.3)	
	Yes	257	43.5 (33.8 to 53.3)	
Hormone therapy				0.796
Time since diagnosis	No	25	43.5 (33.8 to 53.3)	
	Yes	276	43.5 (33.8 to 53.3)	

PROMIS: Patient-Reported Outcomes Measurement Information System. RIC, interquartile range.
Notes: Scores based on the characteristics of the 301 patients. Source: Prepared by the authors based on the study results.

A p-value < 0.05 was considered statistically significant. Results were reported with 95% confidence intervals.

Ethics

The study was conducted in accordance with the Declaration of Helsinki, the MERCOSUR Guidelines for Clinical Trials, and the research regulations approved by the National Ethics Commission. The protocol was reviewed and approved by the Research Ethics Committee of the Hospital de Clínicas under number 15-25. All participants provided informed consent, and data were handled confidentially in accordance with Law 18 331 on the Protection of Personal Data, ensuring their privacy at all stages of the study.

RESULTS

A total of 301 patients with early-stage breast cancer were included. The median age was 65 years (range 22 to 93). 38.2% of the patients were between 50 and 65 years old, and 44.5% were over 65 years old.

The time since diagnosis was two years or longer in more than 80% of the cohort, with the majority having been diagnosed between 2 and 5 years prior. Most had completed high school.

Regarding clinical characteristics, 80% had stage I or II disease. The most common breast surgery was segmental mastectomy (65.4%), and slightly more than half required axillary lymph node dissection.

Regarding adjuvant treatments, 57.1% received chemotherapy and 85.4% received radiation therapy, while more than 90% had undergone or were undergoing hormone therapy (Table 1).

44.2% of the patients reported minimal fear of recurrence (95% confidence interval: 38.7 to 49.8). Moderate fear was observed in 20.9% (95% confidence interval: 16.7 to 25.9), while one-third of the cohort (34.9%; 95% confidence interval: 29.7 to 40.4) reported a high level of fear of recurrence.

In the bivariate analysis, fear of cancer recurrence showed significant associations with several clinical and sociodemographic variables. Patients who had been diagnosed 5 years or less ago and those under 50 years of age had a higher prevalence of moderate or high fear of cancer recurrence ($p = 0.006$ and $p < 0.001$, respectively). Educational level was also associated with fear of cancer recurrence ($p < 0.001$): women with only elementary or incomplete secondary education reported a higher frequency of minimal fear of cancer recurrence, while those with a complete secondary education had the highest levels. Chemotherapy ($p < 0.001$) and hormone therapy ($p = 0.024$) were associated with a higher proportion of moderate/high fear of cancer recurrence. No significant associations were observed between fear of recurrence and

Table 6. PROMIS scale scores for overall health.

Variable	Cathegory	N	Median (ICR)	p value
Time since diagnosis				0.708
	≤ 2 years	56	3.0 (2.0 to 4.0)	
	Between 2 and 5 years	128	3.0 (2.0 to 4.0)	
	More than 5 years	117	3.0 (2.0 to 4.0)	
Age				0.007
	< 50 years	52	3.0 (2.0 to 4.0)	
	50 to 65 years	115	3.0 (2.0 to 4.0)	
	> 65 years	134	4.0 (2.0 to 4.0)	
Educational level				< 0.001
	Incomplete elementary/secondary education	116	4.0 (3.0 to 4.0)	
	High school graduate	155	3.0 (2.0 to 4.0)	
	College/University	30	3.0 (2.0 to 4.0)	
Stage				0.934
	I/II	242	3.0 (2.0 to 4.0)	
	III	59	3.0 (2.0 to 4.0)	
Breast surgery				0.557
	Segmental mastectomy	197	3.0 (2.0 to 4.0)	
	Total mastectomy	104	3.0 (2.0 to 4.0)	
Axillary surgery				0.941
	Sentinel lymph node biopsy	142	3.0 (2.0 to 4.0)	
	Axillary lymph node dissection	159	3.0 (2.0 to 4.0)	
Chemotherapy				0.460
	No	129	3.0 (2.0 to 4.0)	
	Yes	172	3.0 (2.0 to 4.0)	
Radiation therapy				0.725
	No	44	3.0 (2.0 to 4.0)	
	Yes	257	3.0 (2.0 to 4.0)	
Hormone therapy				0.702
Time since diagnosis	No	25	3.0 (2.0 to 4.0)	
	Yes	276	3.0 (2.0 to 4.0)	

PROMIS, Patient-Reported Outcome Measure Information System. RIC, interquartile range.
Notes: Scores based on the characteristics of the 301 patients.
Source: Prepared by the authors based on the study results.

disease stage, type of breast surgery, axillary surgery, or radiation therapy (Table 2).

Nearly half of the patients did not discuss their fear of recurrence with their healthcare team. Among them, the most common reasons were not considering it a serious problem (46.1%), not knowing they could discuss it with their doctor (36.4%), and a lack of opportunity during the appointment (17.5%).

Regarding communication with the healthcare team, 38.2% of patients reported having brought up the topic during a visit, while 10.6% did so during more than one visit. On the other hand, 27.6% stated that they had not discussed it but would like to do so, and 23.6% felt it was unnecessary.

Among the patients who discussed the issue with a healthcare professional (n = 147), the most common responses included referral to another professional (23.8%), clear explanations of the risk of recurrence (35.4%), and reassuring emotional support (23.1%). 17.7% reported that the professional did not take their concern into account.

Regarding the need for coping strategies (n = 246), 44.7% indicated that they would not like to receive additional strategies and did not believe they needed them. However, 28.9% expressed that they would like to receive them.

Among patients who reported changes in their level of concern following the consultation (n = 80), 31.2% reported a significant decrease, while 61.2% reported no change.

Regarding the type of support they would like to receive (n = 301), the most frequently mentioned options were access to a support group (20.3%) and advice on managing anxiety related to recurrence (20.6%). A total of 36.5% reported not needing additional support (Table 3).

In the assessment of quality of life using the PROMIS scale, physical health had a median score of 37.4 (range 29.6 to 67.7), while mental health had a median score of 43.5 (range 28.4 to 67.6).

Regarding items interpreted as raw scores, overall health had a median of 3.0 (range: 2.0 to 5.0), and daily activities had a median of 3.0 (range: 2.0 to 5.0).

In the analysis of quality-of-life scores assessed using PROMIS (physical health, mental health, overall health, and daily activities), no significant differences were observed based on time since diagnosis, tumor stage, type of breast surgery, axillary surgery, chemotherapy, radiation therapy, or hormone therapy (all $p > 0.05$).

In contrast, age and educationa. l level were the only variables that showed significant associations across all PROMIS

Table 7. PROMIS scale scores for common functions.

Variable	Cathegory	N	Median (ICR)	P value
Time since diagnosis				0,673
	≤ 2 years	56	3.0 (2.0 to 4.0)	
	Between 2 and 5 years	128	3.0 (2.0 to 4.0)	
	More than 5 years	117	3.0 (2.0 to 4.0)	
Age				0.007
	< 50 years	52	3.0 (2.0 to 4.0)	
	50 to 65 years	115	3.0 (2.0 to 4.0)	
	> 65 years	134	4.0 (2.0 to 4.0)	
Educational level				< 0.001
	Incomplete elementary/secondary education	116	4.0 (3.0 to 4.0)	
	High school graduate	155	3.0 (2.0 to 4.0)	
	College/university	30	3.0 (2.0 to 4.0)	
Stage				0.956
	I/II	242	3.0 (2.0 to 4.0)	
	III	59	3.0 (2.0 to 4.0)	
Breast surgery				0.584
	Segmental mastectomy	197	3.0 (2.0 to 4.0)	
	Total mastectomy	104	3.0 (2.0 to 4.0)	
Axillary surgery				0.987
	Sentinel lymph node biopsy	142	3.0 (2.0 to 4.0)	
	Axillary lymph node dissection	159	3.0 (2.0 to 4.0)	
Chemotherapy				0.420
	No	129	3.0 (2.0 to 4.0)	
	Yes	172	3.0 (2.0 to 4.0)	
Radiation therapy				0.708
	No	44	3.0 (2.0 to 4.0)	
	Yes	257	3.0 (2.0 to 4.0)	
Hormone therapy				0.844
	No	25	3.0 (2.0 to 4.0)	
	Yes	276	3.0 (2.0 to 4.0)	

PROMIS, Patient-Reported Outcome Measure Information System. RIC, interquartile range.
Notes: Scores based on the characteristics of the 301 patients. .
Source: Prepared by the authors based on the study results.

dimensions. Patients over 65 years of age had higher scores for physical health (p = 0.019), mental health (p = 0.008), overall health (p = 0.007), and daily functioning (p = 0.007). Likewise, patients with incomplete elementary or secondary education had the highest scores on these four dimensions, with significant differences by educational level (p < 0.001).

The complete results for each dimension are detailed in tables 4–7.

PROMIS scores by level of fear of recurrence

Patients with the highest fear of recurrence had significantly lower scores in physical health, mental health, overall health, and daily functioning, with a clear gradient between minimal, moderate, and high fear of cancer recurrence (p < 0.001 across all dimensions) (Table 8).

DISCUSSION

Our results confirm that even in a cohort of disease-free survivors, fear of recurrence and quality of life remain critical areas that require systematic attention. The high prevalence of fear of cancer recurrence and its association with lower health-related quality of life scores highlight the importance of incorporating its assessment into clinical follow-up.

55.8% of patients reported moderate or high fear, a proportion consistent with international figures reporting between 45% and 59% of moderate/high fear among cancer patients and approximately 19% at clinically relevant levels [23]. In breast cancer, studies show rates of high fear of cancer recurrence ranging from 15 to 20% several years after diagnosis [17,19]. In Latin America, studies in Brazil report rates of 32% and 43% [24], with particularly high levels among young women and vulnerable groups, such as Latina women in the United States [25]. The factors most strongly associated with fear of cancer recurrence were time since diagnosis, age, and educational level. Patients who had been diagnosed 5 years or less previously reported significantly higher levels of fear of cancer recurrence than those diagnosed more than 5 years prior, a finding consistent with the available evidence. Longitudinal studies show that fear of cancer recurrence is most intense in the first few years after diagnosis and tends to decrease gradually, although up to 30% of survivors may continue to experience high levels of fear even 5 or 6 years later [26–29]. As has been described internationally, younger patients reported higher levels of fear of cancer recurrence, reinforcing the fact that age is one of the most consistent predictors of heightened concern about recurrence [29,30]. Although most studies report

Table 8. PROMIS scale scores by category of fear of recurrence.

Variable	Cathegory	N	Median (ICR)	P value
PROMIS Physical Health (T-score)				< 0.001
	Low	133	50.8 (37.4 to 54.1)	
	Moderate	63	37.4 (37.4 to 37.4)	
	High	105	37.4 (29.6 to 39.8)	
PROMIS mental health (T-score)				< 0.001
	Low	133	53.3 (43.5 to 53.3)	
	Moderate	63	43.5 (43.5 to 43.5)	
	High	105	43.5 (33.8 to 43.5)	
Overall health				< 0.001
	Low	133	4.0 (3.0 to 4.0)	
	Moderate	63	3.0 (3.0 to 3.0)	
	High	105	3.0 (2.0 to 3.0)	
Routine functions				< 0.001
	Low	133	4.0 (3.0 to 4.0)	
	Moderate	63	3.0 (3.0 to 3.0)	
	High	105	3.0 (2.0 to 3.0)	

IQR, interquartile range.PROMIS: Patient-Reported Outcomes Measurement Information System.
Source: Prepared by the authors based on the study results.

greater fear of cancer recurrence among patients with lower levels of education [27,29,30], in our cohort, women who had completed high school had the highest levels. This discrepancy may reflect local sociocultural differences, variations in risk perception, or differences in access to medical information.

Nearly half of the patients did not discuss their fear of cancer recurrence with their healthcare team, reflecting a widely described phenomenon: although between 13% and 38% of survivors report high levels of fear of cancer recurrence according to the Cancer Worry Scale (and up to 72% in cases of advanced cancer), many patients do not spontaneously raise this concern during their appointments [23,27]. International studies show that between 60 and 70% of those who experience fear of cancer recurrence wish to discuss the issue, but often do not do so due to lack of knowledge, lack of opportunity, or the perception that "it is not serious enough" [23,27]. This is consistent with our findings, in which the main reasons were not considering it a serious problem or not knowing it could be discussed with the doctor. Likewise, satisfaction with the healthcare provider's response varies widely: while some patients appreciate receiving clear explanations or emotional support, others report that their concerns were not taken into account, which reflects the gaps previously described in the literature, especially regarding access to psychological support and specific strategies for managing fear of cancer recurrence [23,27].

The PROMIS scores in our cohort showed lower physical and mental health scores, a finding consistent with the literature, in which breast cancer survivors tend to have a lower quality of life than the general population, especially in the physical and emotional domains [31,32]. However, unlike previous studies that report a negative impact of cancer stage or treatments on health-related quality of life [32], no differences were observed in our population across clinical or therapeutic characteristics, suggesting a relatively homogeneous health-related quality of life once cancer treatment was completed. In contrast, age and educational level showed significant associations across all PROMIS domains. Indeed, women over 65 years of age and those with lower educational levels had higher scores, a pattern that may reflect differences in expectations, coping strategies, and perceptions of well-being—a phenomenon also described in other cohorts [32,33]. These results underscore the influence of sociodemographic factors on health-related quality of life and support the need for interventions tailored to age and educational level. PROMIS scores showed a progressive decline across all domains as fear of recurrence increased, a finding fully consistent with the literature. It is known that high fear of cancer recurrence negatively affects physical and mental health, social functioning, and the ability to resume daily activities, and may be clinically significant in 18–56% of breast cancer survivors [17,18,34]. Furthermore, fear of cancer recurrence is associated with increased anxiety, fatigue, and sleep disturbances—factors that contribute to an overall decline in health-related quality of life [18,19].

This study has several strengths, including a robust sample size and the use of internationally validated instruments (the Cancer Worry Scale and PROMIS), which allow us to compare our results with those of other populations. Furthermore, the inclusion of patients from two centers provides a representative view of real-world clinical practice. Furthermore, a descriptive analysis of communication between patients and the healthcare team regarding fear of recurrence was incorporated; this area has been poorly characterized in our context and provides preliminary information to guide future research and interventions.

Among the limitations, the cross-sectional design precludes establishing causality and does not allow assessment of changes in fear of cancer recurrence or quality of life over time. The use of self-administered questionnaires may introduce recall or social desirability bias, and voluntary participation

could introduce selection bias. Furthermore, no details were collected regarding comorbidities or persistent symptoms that could influence PROMIS scores. Furthermore, although both instruments have Spanish versions previously used in other populations—PROMIS Global 10 via the universal Latin American translation administered by HealthMeasures, and the Cancer Worry Scale in a culturally adapted Spanish version—no formal assessment of semantic or conceptual equivalence was conducted in the Uruguayan population, nor is there specific validation available for our setting. This limitation should be taken into account when interpreting the scores obtained. Furthermore, aspects of communication between patients and the healthcare team were explored using ad hoc questions formulated by the research team rather than a validated instrument; therefore, the analysis is presented descriptively and should be interpreted as exploratory. Finally, given that the cohort comes from public healthcare centers, generalizations to other contexts should be interpreted with caution.

CONCLUSIONS

In this cohort of breast cancer survivors, fear of recurrence and quality of life remain central aspects of follow-up, even several years after diagnosis. The high prevalence of fear of cancer recurrence and its association with lower PROMIS scores highlight the importance of routinely assessing this issue. Furthermore, sociodemographic factors such as age and educational level significantly influenced both the fear of cancer recurrence and quality of life, reinforcing the need for personalized interventions. Our findings underscore the value of integrating psycho-oncological strategies and structured support into the routine care of breast cancer survivors.

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Temor a recurrencia y calidad de vida en sobrevivientes de cáncer de mama precoz: asociación con características clínicas y sociodemográficas

RESUMEN

INTRODUCCIÓN El temor a la recurrencia es una de las principales preocupaciones de las sobrevivientes de cáncer de mama, lo que puede afectar de forma significativa su calidad de vida. Sin embargo, sigue siendo poco explorado en la práctica clínica. El objetivo de este trabajo es describir la frecuencia del temor a la recurrencia y la calidad de vida en pacientes con cáncer de mama precoz, junto con analizar su asociación con características clínicas y sociodemográficas. De forma complementaria y descriptiva, se exploró la comunicación entre las pacientes y el equipo de salud en relación con el temor a la recurrencia.

MÉTODOS Estudio observacional de corte transversal realizado en dos centros públicos. Se incluyeron 301 mujeres con cáncer de mama en estadios I a III, libres de enfermedad y con al menos 12 meses desde la finalización del tratamiento. El temor a la recurrencia se evaluó con la *Cancer Worry Scale* y la calidad de vida mediante el cuestionario PROMIS Global 10.

RESULTADOS Un 34,9% presentó temor a la recurrencia alto y un 20,9% moderado. El temor a la recurrencia se asoció significativamente con un tiempo inferior o igual a cinco años desde el diagnóstico, edad menor de 50 años, nivel educativo, quimioterapia y hormonoterapia. No se observaron asociaciones con el estadio, el tipo de cirugía ni la radioterapia. Casi la mitad de las pacientes no habló del temor a la recurrencia con su equipo médico, principalmente por no considerarlo un problema grave o por no saber que podía abordarlo en la consulta. Los puntajes del cuestionario PROMIS mostraron una mediana de 37,4 en salud física y 43,5 en salud mental. La calidad de vida no varió según las características clínicas ni los tratamientos, pero sí según la edad y el nivel educativo. Las pacientes con mayor temor a la recurrencia tuvieron peor calidad de vida en todos los dominios ($p < 0,001$).

CONCLUSIONES El temor a la recurrencia es altamente frecuente y se asocia con peor calidad de vida, independientemente de las variables clínicas. Su identificación y abordaje deben integrarse de forma sistemática en el seguimiento de las sobrevivientes de cáncer de mama.

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