Distress, Pain, and Nausea on Postoperative Days 1 and 14 in Women Recovering From Breast-Conserving Surgery: A Repeated-Measures Study

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OBJECTIVES: To determine the incidence and trajectory of distress, pain, and nausea and vomiting at postoperative day (POD) 1 and at POD 14 following breast-conserving surgery.

SAMPLE & SETTING: 75 women aged 18 years or older receiving breast-conserving surgery with sentinel lymph node biopsy for treatment of early-stage primary breast cancer at an ambulatory surgery center.

METHODS & VARIABLES: This prospective, repeated-measures study assessed distress, pain, and nausea and vomiting using the National Comprehensive Cancer Network Distress Thermometer and Problem List on POD 1 and POD 14.

RESULTS: Pain and distress scores were highest on POD 1. The number of women who reported depression increased from POD 1 to POD 14. Thematic analysis revealed that family concerns, fears and worries, and postoperative issues contributed to pain and distress.

IMPLICATIONS FOR NURSING: Women experience pain and distress during recovery at home after breast-conserving surgery. Nurses can use these results to apply evidence-based practice to reduce this symptom burden. Future nursing research should focus on targeted interventions outside of the hospital setting.

KEYWORDS breast-conserving surgery; distress; pain; nausea; recovery at home; breast cancer
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One in eight American women will experience breast cancer in their lifetime (Siegel et al., 2024). With greater occurrence of early screening and diagnosis, most women with breast cancer are diagnosed at an early stage (stage I or II), when surgery remains the primary treatment (DeSantis et al., 2019). The majority of patients with early-stage breast cancer are eligible for treatment consisting of breast-conserving surgery followed by adjuvant radiation therapy (Ji, Yuan, et al., 2022). In addition to the surgical removal of the breast tumor, these surgeries often include pathology procedures, such as sentinel lymph node biopsy (SLNB) lymph node removal, which within about a two-week time frame provide diagnostic information that guides the next treatment steps (Goetz et al., 2019; National Comprehensive Cancer Network [NCCN], 2019). Consequently, women receiving breast-conserving surgery often experience the typical symptoms of the surgical procedure, including pain and postoperative nausea and vomiting (PONV), while also awaiting results, which may compound already high levels of psychological distress related to their breast cancer diagnosis.

The NCCN (2022) Guidelines for Distress Management recommend that providers monitor, recognize, document, and treat psychological distress in all settings and related to all stages of cancer. Distress exists along a continuum, and it consists of an experience of multiple physical, social, psychological, and/or spiritual factors that are unpleasant and may interfere with coping related to the disease, symptoms, and treatment (NCCN, 2022). As more surgeries move to the outpatient setting, assessment and treatment of

distress and other associated symptoms following surgery moves from the hospital setting to the home, which adds new complexities.

Despite the urgent need to understand the incidence and trajectory of symptoms in the postoperative period, a scoping review demonstrated a significant gap in the literature (Majumdar & Yermal, 2023). Much of the literature addressing psychological distress, pain, and PONV following breast cancer surgery focuses on patients undergoing total mastectomy procedures (Kant et al., 2018; McFarland et al., 2018; Schreiber et al., 2019). Psychological distress and other symptoms in these patients starting on postoperative day (POD) 1, when pain (Gan, 2017) and PONV (Wesmiller et al., 2017) are most acute, are rarely addressed and often not reported even if the data are collected (Ji, Sang, et al., 2022; Kulkarni et al., 2017; Schreiber et al., 2019; Yang et al., 2019). In addition, studies indicate that the prevalence of pain following breast-conserving surgery may range from as low as 9% to as high as 94% (Bruce et al., 2012; Killelea et al., 2018; Powell et al., 2016), underscoring the need for better characterization of the pain experience. Finally, the literature does not address the impact of the current standard of care following breast-conserving surgery, which includes home-based recovery with absent or minimal patient–provider interaction to assess distress and other symptoms. Additional research is required to help guide oncology nursing practice and improve patient care.

This prospective study is based on Lazarus and Folkman's (1984) Transactional Model of Stress and Coping, a widely used conceptual framework for understanding how stress affects patient outcomes. The purpose of this study was to determine the incidence and trajectory of distress, pain, and PONV at baseline, POD 1, and POD 14 following breast-conserving surgery.

Methods

Study Design and Participants

This study is based on a subset of data from a prospective, repeated-measures study. The results related to the use of the Transactional Model of Stress and Coping will be reported separately. From August 15, 2020, to October 15, 2020, patients who met inclusion criteria were consecutively recruited following surgery at an ambulatory surgical facility at Memorial Sloan Kettering Cancer Center in New York, New York (Afonso et al., 2021). Inclusion criteria were being a woman aged 18 years or older, receiving breast-conserving surgery with SLNB for treatment of early-stage (stage I or II) primary breast cancer, and selecting English as their preferred language. Patients who were diagnosed with unrelated severe medical or psychological comorbidities, required transfer to another hospital for medical reasons, or had a previous cancer diagnosis were excluded from the study.

Procedures and Data Collection

This study was approved by the Memorial Sloan Kettering Cancer Center Institutional Review Board (X20-042). Participants were recruited on POD 1 by email, and they provided consent to participate and for researchers to access their electronic health records for additional information. Demographic and predictor data abstracted from the electronic health records consisted of patient age, zip code, children at home, perceived social support, employment status, sick leave status, smoking status, history of PONV, and baseline NCCN Distress Thermometer results. Participants who completed the first questionnaire, consisting of the Distress Thermometer and Problem List, on POD 1 were sent an additional questionnaire on POD 14. By POD 14, patients would have received the additional diagnostic results from the SLNB and met with the surgeon.

Data for this study collected by email were managed via a secure REDCap database. REDCap is a platform that enables secure collection of research data using a web-based interface (Majumdar et al., 2024). All connections to REDCap were encrypted to ensure data were protected (Harris et al., 2019).

Instruments

In the postanesthesia care unit (PACU), pain was measured using the numeric pain rating scale, which measures pain on a scale of 0 (no pain) to 10 (worst pain), and PONV was measured based on the number of antiemetics administered. Patients undergoing general anesthesia received standard prophylactic antiemetics. In the PACU, antiemetics were administered only for the treatment of PONV based on standard-of-care treatment protocol.

At baseline prior to surgery, all patients completed the NCCN Distress Thermometer. The Distress Thermometer measures self-reported distress on a scale ranging from 0 (no distress) to 10 (extreme distress). The Distress Thermometer has been validated in patients with different types of cancer, in different settings, and in different languages, cultures, and countries (NCCN, 2022). A meta-analysis of 42 studies and more than 14,000 patients indicated pooled sensitivity to be 81% (95% confidence interval [CI]

[0.79, 0.82]) and pooled specificity to be 72% (95% CI [0.71, 0.72]), with a cutoff score of 4 for identifying clinically significant levels of distress (Ma et al., 2014). In addition, when compared with the Hospital Anxiety and Depression Scale, the meta-analysis concluded that a cutoff score of 4 maximized the balance between pooled sensitivity (0.82, 95% CI [0.8, 0.84]) and pooled specificity (0.73, 95% CI [0.72, 0.74]), with an area under the curve of 0.8432 (Ma et al., 2014). In this study, a patient-reported Distress Thermometer score of 4 or greater represented a moderate and clinically relevant level of distress. Open-ended survey questions collected responses from participants to identify other problems contributing to postoperative pain and distress and to provide additional related information.

On POD 1 and POD 14, participants completed the NCCN Distress Thermometer and Problem List, version 2.2016, with "COVID-19" identified as an additional listed problem, to collect levels of distress, pain, and nausea. The NCCN (2022) recommends including the Problem List to assist in identifying sources of patient distress. It consists of a comprehensive list of categories, including practical, family, physical, and emotional problems, which participants can check off to indicate what is causing them distress (Ownby, 2019).

Data Analysis

All patients who accepted and completed the first questionnaire were included for the purpose of data analysis. Statistical analyses were conducted using IBM SPSS Statistics, version 25.0. Frequencies and percentages were used for categorical variables, and means, SDs, ranges, and medians with interquartile ranges were used for continuous variables. Repeated-measures analysis of variance was used to compare the Distress Thermometer scores across the data collection points. In addition, to assess whether a relationship existed between distress and SLNB results, statistical analyses were performed at the three time points using the Mann–Whitney U test. McNemar's test was used to compare the frequency of items on the Problem List.

The open-ended responses were analyzed by a qualitative methods specialist (J.G.) in Patient-Reported Outcomes, Community-Engagement, and Language Core at Memorial Sloan Kettering Cancer Center and by the primary investigator (J.R.M.). These data were analyzed using a matrix analysis approach, in which responses to each item were coded for primary themes and subthemes. This approach has been previously used to characterize key thematic content in open-ended survey responses (Uscher-Pines et al., 2020; Vaismoradi et al., 2013).

Results

Sample Characteristics

The final sample consisted of 75 women. Of 123 potential participants, 75 (61%) responded and agreed to participate. The average age of the sample was 58.7 years (SD = 9.51). More than half of the participants were employed (n = 40), and the majority of those employed had access to sick leave (n = 29). Table 1 provides complete descriptive information.

Distress Thermometer and Problem List

The highest frequency of clinically relevant levels of distress (Distress Thermometer score of 4 or greater) was reported on POD 1 (see Figure 1). Prior to the first surgical visit (baseline), 17 of 75 patients reported a Distress Thermometer score of 4 or greater. On POD 1, 64 patients reported a score of 4 or greater. On POD 14, 26 patients reported a score of 4 or greater. The levels of distress were highest at POD 1 ($\bar{X}$ = 4, SD = 2.9), followed by baseline ($\bar{X}$ = 3.5, SD = 2.9), and they were lowest at POD 14 ($\bar{X}$ = 3.3, SD = 2.5). According to the repeated-measures analysis of variance using the Greenhouse–Geisser correction, the mean scores for distress were not significantly different across the three time periods (F = 1.69, p = 0.195). The results indicated a higher median distress score (median = 4) in patients with positive pathology results (i.e., SLNB results that indicate that cancer has spread to lymph nodes) than in patients with negative pathology results (median = 3) at POD 14; however, these results were not significant (U = 9, p = 0.059).

On POD 1, most of the participants in this study reported worry as a problem (n = 49). In addition, about half of the participants (n = 33) reported concerns about treatment decisions, fear (n = 34), nervousness (n = 38), sadness (n = 27), fatigue (n = 29), and sleep (n = 38). About one-third of the participants reported problems with swelling (n = 23) and pain (n = 25). Some participants reported problems with constipation (n = 13), work/school issues (n = 13), changes in appearance (n = 13), memory/concentration (n = 13), and COVID-19 concerns (n = 13). All problems decreased from POD 1 to POD 14 except for depression, getting around, and sexual issues, which had higher frequency at POD 14 (see Figure 2).

McNemar's test was used to assess the difference in distress as measured by the Distress Thermometer based on whether the women experienced problems

on the Problem List at POD 1 and POD 14. Eighteen problems were significantly associated with distress at POD 1. Distress was significantly higher in participants with concerns about treatment decisions, fear, nervousness, sadness, worry, loss of interest, changes in appearance, constipation, swelling, fever, getting around, indigestion, and memory/concentration ($p < 0.001$). Family health issues and sleep were also associated with distress ($p = 0.01$). Work/school issues and sexual issues were also associated with higher levels of distress ($p < 0.05$).

Only nine problems were significantly associated with distress at POD 14. Distress was significantly higher in patients reporting constipation ($p < 0.001$). Problems related to work/school issues, concerns about treatment decisions, dealing with a partner, fear, nervousness, sadness, worry, loss of interest, and breathing were also associated with higher levels of distress ($p < 0.05$). Breathing and dealing with a partner were not associated with higher distress at POD 1, but they were at POD 14.

TABLE 1. Sample Characteristics (N = 75)

Characteristic	n
Age (years)	
18–39	2
40–49	12
50–69	53
Older than 70	8
Home state	
New York	63
New Jersey	9
Connecticut	2
Florida	1
Children at home	
No	70
Yes	5
Employed	
Yes	40
No	35
Receiving sick leave[a]	
Yes	29
No	11
Social support	
Yes	67
No	8
Current smoker	
No	52
Yes	23
History of postoperative nausea and vomiting	
No	72
Yes	3

[a] If employed

Pain and PONV

When in the PACU immediately following surgery at baseline, most patients (n = 42) experienced some pain, and about one-third of the participants (n = 29) experienced moderate to severe pain greater than 4 on the numeric pain rating scale. Most participants did not experience any PONV (n = 73). On POD 1, 25 participants reported pain and 5 participants reported PONV as problems causing distress. On POD 14, 20 participants reported pain and 1 participant reported PONV as a problem causing distress.

Open-Ended Survey Questions

Twenty-nine patients provided responses to the open-ended survey questions. When asked to identify other problems contributing to postoperative pain and distress and to provide additional related information, patients provided responses that fell into the following two domains: contributing factors to pain and distress, and contributing factors to the improvement of pain and distress. Domain 1, contributing factors to pain and distress, consisted of the following four themes: family concerns, fears and worries, postoperative issues, and other physical concerns. Domain 2, contributing factors to the improvement of pain and distress, consisted of the following theme: observed improvement of symptoms and side effects over time. Supporting quotations can be found in Table 2.

Domain 1: contributing factors to pain and distress: Family concerns were of importance to patients, who highlighted family dysfunction, death of close relatives, and family health issues, including other cancer diagnoses, as factors that contributed to their postoperative pain and distress.

Fears and worries were common factors for pain and distress. Patients discussed concerns around navigating their cancer diagnosis and how to cope, including concerns about future longevity. Patients noted that their diagnosis has caused anxiety, stated that they have seen friends die from similar diagnoses, and speculated about their own life trajectory. Patients also expressed concerns related to treatment of their cancer, including waiting for test results

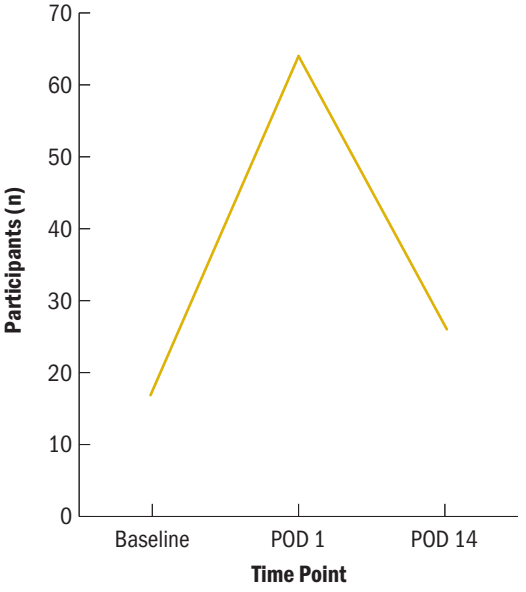
and dealing with side effects from adjuvant therapies. Surgical considerations were also of concern for patients. Some worried whether they had made the right surgical choice, and others were concerned about postoperative appearance and side effects like lymphedema. Some patients also worried about returning to work after surgery and the possibility of disease recurrence. COVID-19 was also a prominent cause of fear and worry for patients, with several patients discussing concerns around increased susceptibility to infection and increased exposure during travel to and from appointments.

Postoperative issues that concerned patients fell into the following three categories: at the surgical site, outside of the surgical site, and at the biopsy site. Concerns at the surgical site included general soreness, pain in breasts, scar tissue, stress from having a drain, and wound care. Concerns outside of the surgical site included sore throat from the breathing tube, migraine, fever, and increased urination. Concerns at the biopsy site included fluid buildup where sentinel lymph nodes were removed.

Other physical concerns that caused pain and distress for patients were the inability to engage in their "normal" activities, concerns around engaging in physical activity (i.e., not wanting to "overdo it"), increased fatigue and sleep issues, and medical concerns not related to cancer diagnosis, such as shingles.

Domain 2: contributing factors to the improvement of pain and distress: Patients shared that when they observed a general improvement of symptoms and side effects over time, it affected their experience of pain and distress. Patients noted that issues related to sleep, pain, and anxiety all improved after this observation, contributing to lower pain and distress scores.

FIGURE 1. Number of Participants Reporting Clinically Relevant Levels of Distress (N = 75)



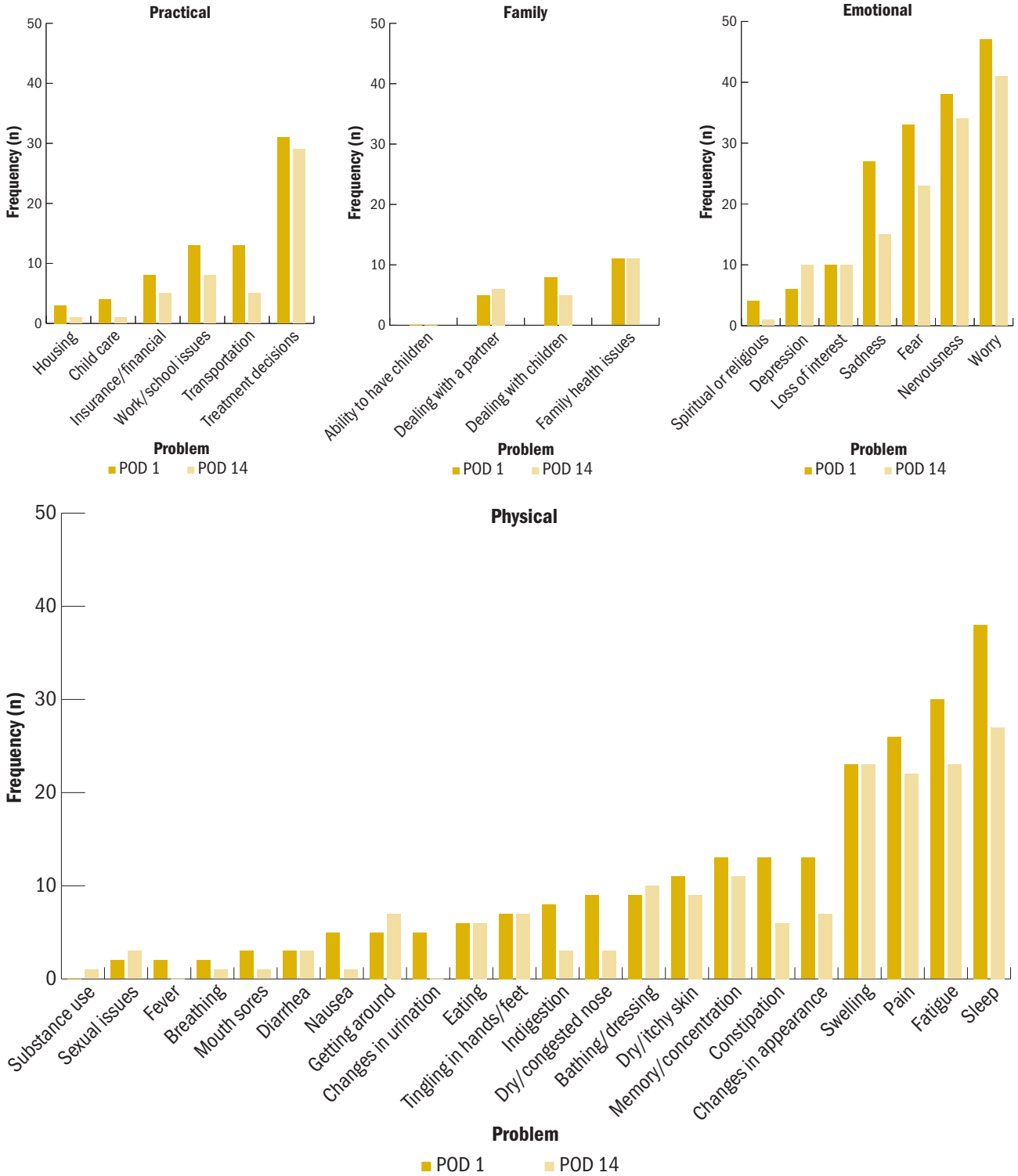
POD—postoperative day
Note. Distress was measured using the National Comprehensive Cancer Network Distress Thermometer. The Distress Thermometer measures self-reported distress on a scale ranging from 0 (no distress) to 10 (extreme distress). Clinically relevant distress was determined at a score of 4 or greater.

Discussion

The purpose of this study was to determine the incidence and trajectory of distress, pain, and PONV at baseline, POD 1, and POD 14 following breast-conserving surgery. This analysis underscores the importance of assessment and treatment of symptoms like distress and pain following breast-conserving surgery. The majority of the participants (n = 64) reported clinically relevant levels of distress (i.e., 4 or greater on the Distress Thermometer) on POD 1. On POD 14, only 26 participants reported a distress score of 4 or greater. However, the large SDs relative to the mean scores for distress on POD 1 and POD 14 indicate a considerable divergence in the levels of distress experienced by participants. In alignment with the current literature, these results demonstrate the variability in severity and the importance of assessment for patients experiencing distress or at high risk for severe distress symptoms (Bruce et al., 2012; Killelea et al., 2018; Montgomery et al., 2010; Schreiber et al., 2019).

Using the Problem List in addition to the Distress Thermometer allowed participants to report aspects of their lives that contributed to their levels of distress. A notable result was that the number of participants who reported depression increased between POD 1 and POD 14, and the number of participants who reported problems related to anxiety (nervousness and worry) decreased between POD 1 and POD 14. These results are in alignment with research on patients following breast cancer surgery demonstrating that 33% of the participants reported moderate to severe depression and 18% of the participants reported severe anxiety (Karabulut Gul et al., 2023). This notable difference provides additional guidance for developing and evaluating interventions targeting anxiety at POD 1 and depression at POD 14. In addition, more than one-third of the participants

FIGURE 2. National Comprehensive Cancer Network Problem List Frequency at POD 1 and POD 14 by Category (N = 75)



POD—postoperative day

Note. The National Comprehensive Cancer Network Problem List consists of a comprehensive list of categories, including practical, family, emotional, and physical problems, which participants can check off to indicate what is causing them distress.

described fatigue, sleep, and swelling as problems at POD 14, which represent additional symptoms for future researchers to explore and target.

Because of the invasiveness of the surgery, mild levels of pain were an expected outcome; however, about one-third (n = 29) of participants experienced moderate to severe pain in the PACU at baseline. In addition, about one-eighth of the participants (n = 9) experienced severe pain. Also of note, 26 participants continued to identify pain as a problem at POD 14, only a small decrease from the 29 who identified pain as a problem at POD 1. Lötsch et al. (2018) found that patients who experienced higher levels of pain during the postoperative period were at higher risk for persistent and chronic pain, which supports the importance of identifying this higher-risk population and providing effective interventions to treat their pain and help reduce long-term sequelae. Although the literature reported the frequency of pain as varying from 9% to 94% (Bruce et al., 2012; Killelea et al., 2018; Powell et al., 2016), the results from the current study are in alignment with those of Schreiber et al. (2019), who reported that 30% of a similar sample experienced pain two weeks after surgery. In addition, in the same study, almost 10% continued to experience pain nine months after surgery (Schreiber et al., 2019). As healthcare providers move away from using opioids to treat pain, there is greater necessity for pain assessment and increased importance of multimodal treatment to ensure that pain is being adequately managed. Ongoing pain experienced by patients may reduce mobility and social interaction and hinder their ability to fully recover from surgery and prepare for the next treatment phase. At home, one-third of patients in the current study reported pain as causing distress, which could also be related to concern about the pain being more severe than expected.

Only one participant reported PONV at POD 14, which represents a much lower rate in this population than that reported by other researchers, who found rates as high as 30% (Wesmiller et al., 2017, 2023). This result may reflect the implementation of standardized enhanced recovery protocols targeting PONV, which include multimodal intraoperative antiemetics for high-risk patients receiving outpatient surgeries (Majumdar et al., 2019, 2021, 2022).

The Problem List associated with the Distress Thermometer identified problems apart from cancer that were related to distress in this population that healthcare providers can address. Of note, about 20% of the participants reported problems with constipation, work/school issues, changes in appearance, transportation, memory/concentration, and COVID-19 concerns. COVID-19 concerns were a relevant issue for this population, and they may have been greater because the study was conducted in a major metropolitan area at the center of the COVID-19 pandemic. By asking specific questions and bringing up common concerns, providers can help patients deal with ongoing issues that they feel may not be relevant to their healthcare providers. Expressing concern about these common distress-causing issues and assuring patients that they are expected may relieve some of the distress, discomfort, or fear related to unexpected side effects of surgery or medication. In addition, many issues may have relatively simple solutions; however, if providers do not know that patients are experiencing these problems, they cannot help patients obtain relief.

KNOWLEDGE TRANSLATION

- On postoperative day 1, most women experienced moderate levels of distress, which was a previously underrecognized time period for this symptom severity.
- One in three women continues to experience pain two weeks after breast-conserving surgery, demonstrating the need for multimodal interventions.
- Future research should develop targeted interventions to reduce distress in patients recovering from breast-conserving surgery and other populations awaiting diagnostic test results.

Limitations

The study was completed at a single location; however, the sample included participants from multiple surrounding states. A longer longitudinal follow-up study could provide additional data points to evaluate the severity of symptoms to help target interventions. The participants comprised only women who could read and write in English and who were computer literate. Finally, the Distress Thermometer captured only one element in a complex set of psychological reactions, and a different instrument may have provided a more complete understanding of the experience. However, the Distress Thermometer is a simple, well-known instrument that reduced the respondent burden.

Implications for Nursing

These results provide vital information for oncology nurses that should influence and improve current nursing practice in the following three major areas: identification, assessment, and implementation. First, the results identify the incidence and severity of

symptoms for clinicians providing care for the population. Second, the results provide guidelines for the additional assessment of symptoms outside of the standard periods. Third, the results provide guidance for symptoms to target using interventions.

Participants in the study population faced physical, psychological, social, and logistical issues as they recovered from breast cancer surgery. This study's findings indicate that a significant proportion of patients experience pain and distress throughout the initial treatment period following breast-conserving surgery, and they can be used to guide clinical practice. Identifying the frequency and severity of symptoms can help clinicians and patients to set appropriate expectations. Preoperatively providing reassurance that a symptom like distress is common can provide comfort. In addition, many patients may expect little or no pain 24 hours or two weeks following surgery, but describing the expected incidence of pain before the surgical period can help them set proper expectations for their recovery and help with their planning for the recovery period.

Next, the study identified symptoms and periods of time during the perioperative period that may require additional assessment. Patients experienced distress, pain, and additional symptoms outside hospitalization, indicating the importance of developing new methods to assess and treat symptoms following outpatient procedures. The majority of patients experienced moderate levels of distress 24 hours following surgery, demonstrating a time point at which distress is not routinely captured in nursing assessment. In addition, the results indicated that 35% of participants (n = 26) continued to identify pain as a problem on POD 14. These results confirm that although breast-conserving surgery is less invasive and more conservative than other options, patients continue to experience pain afterward, justifying additional assessment and intervention beyond the immediate postoperative period. This ongoing

TABLE 2. Themes From Open-Ended Survey Questions

Theme	Illustrative Quotation
Domain 1: contributing factors to pain and distress	
Family concerns	■ "My biggest cause of distress is my dysfunctional nuclear family. Receiving a breast cancer diagnosis in the midst of having an upheaval with them wasn't great. It also caused issues between my partner and me." (patient 5) ■ "My husband has chronic but stable health issues. I am concerned about being able to help him with his treatment issues. I plan to take it one step at a time and do the best I can." (patient 16)
Fears and worries	■ "Very anxious about having cancer. The word has always frightened me. Lost a close friend to breast cancer when she was 41." (patient 35) ■ "My only concern was trying to deal with the [radiation therapy] process and the side effects that can occur. I was nervous about the breast incision/scar, but when I saw it, my surgeon did an amazing job." (patient 18) ■ "[I was] mainly worried about lymphedema and future cancer appearing." (patient 10) ■ "Having difficulty coping with giving up my career because I am scared to death to work with teenagers during a pandemic while waiting for [radiation therapy] treatments." (patient 60)
Postoperative issues	■ "Fluid buildup from lymph node biopsy is uncomfortable. Can't find comfortable, supportive bra, and COVID-19 makes it harder." (patient 30) ■ "Was not prepared for the level of wound care required. I felt underprepared and had to rely on phone calls and portal conversations. I was not prepared for what my breast looked like and how much tissue was exposed." (patient 69)
Other physical concerns	■ "I miss doing yoga but don't want to overdo it." (patient 65) ■ "Had difficulty falling asleep and staying asleep. [I] would reach for my iPad even though I knew it was counterproductive." (patient 21)
Domain 2: contributing factors to the improvement of pain and distress	
Observed improvement of symptoms and side effects over time	■ "I feel good, almost like this never happened." (patient 3) ■ "Feeling much better this week after doctor's follow-up visit. Still some swelling [in my] underarm, but [it] has greatly improved." (patient 40) ■ "The sleep issues were concerning, but they have stopped." (patient 74)

pain may reduce mobility and social interaction and hinder a patient's ability to fully recover from surgery and prepare for the next treatment phase. In current practice, all outpatients receive a telephone call from the institution where they received surgery 24 hours after their procedure. This telephone call could serve as an ideal time to assess distress and pain and provide resources if the patient reports high levels. This assessment should employ standardized and validated measures to capture distress and pain, which would facilitate effective interventions.

Finally, the results of this study demonstrate additional areas for implementation of evidence-based interventions to manage untreated pain, nausea, and distress. Most patients do not see their surgeons for follow-up until several weeks after surgery, when many symptoms may have already resolved themselves. However, although symptoms may resolve prior to follow-up, the extended experience of postoperative symptoms may increase anxiety if and when the patient needs future surgeries.

Conclusion

Following breast-conserving surgery, women experience pain and distress when recovering at home. Oncology nurses can use the results of this study to support the application of evidence-based practice to reduce the symptom burden in this population. Future nursing research should focus on developing innovative targeted interventions that can be used outside of the hospital setting.

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