Day Surgery for Breast Cancer: Effects of a Psychoeducational Telephone Intervention on Functional Status and Emotional Distress

Nicole C. Allard, RN, PhD

Purpose/Objectives: To determine the efficacy of a nursing intervention based on self-regulation theory known as the Attentional Focus and Symptom Management Intervention (AFSMI) in enhancing physical and emotional well-being in women who underwent day surgery for breast cancer.

Design: Randomized clinical block trial; subjects were randomly allocated to the experimental group (n = 61) or the usual care (control) group (n = 56). Subjects in the experimental group received the AFSMI during two phone sessions, at 3–4 days and 10–11 days after surgery.

Setting: The convenience sample was drawn from five regional centers located in different geographic areas (urban and rural regions) in Quebec, Canada.

Sample: 117 patients with primary breast cancer who underwent day surgery as part of their initial treatment for cancer.

Methods: Data collection and nursing intervention via telephone interviews.

Main Research Variables: Functional status and emotional distress.

Findings: Significant differences between the experimental and control group were found at post-test on home management, total mood disturbance, confusion, and tension scores.

Conclusions: The AFSMI was effective in reducing emotional distress and enhancing physical functioning.

Implications for Nursing: Findings validate the use of the self-regulation model in designing individualized nursing interventions. Redirecting attention and focusing on concrete objective features hold potential in developing other innovative nursing interventions.

Key Points . . .

- Pain, fatigue, and distress are not highly prevalent and disturbing symptoms immediately after day surgery for breast cancer, although a great deal of variability was observed in the sample of women in the present study.
- Emotional ventilation is beneficial immediately after day surgery for breast cancer, followed by redirection toward problem-solving activities.
- Short-term individualized telephone intervention based on self-regulation may be beneficial in relieving emotional distress and enhancing functioning after surgery for breast cancer.

On average, 407 Canadian women will be diagnosed with breast cancer and 100 will die of the disease every week. In 2006, an estimated 22,200 women were diagnosed with breast cancer and 5,300 died of it. An estimated 160 men will be diagnosed with breast cancer and 45 will die of it. On average, 429 Canadian women will be diagnosed with breast cancer every week. On average, 102 Canadian women will die of breast cancer every week. Since 1993, incidence rates for breast cancer have stabilized and death rates have declined steadily (National Cancer Institute of Canada, 2006). For the majority of women with primary breast cancer, surgery is the first treatment offered. Most women initially are treated with surgery, primarily lumpectomy, followed by radiotherapy. The main reasons for keeping women in the hospital after surgery traditionally have been nursing care, physical recovery, and drain-catheter management. However, a system such as the Jackson Pratt suction reservoir is available now, is simple to use, and reduces difficulty of emptying the reservoir for patients. Furthermore, with the recent restructuring of the healthcare system, length of stay in the hospital setting has been reduced. Outpatient surgery now is being implemented in most countries, including Canada. With outpatient surgery, patients have limited contact with healthcare professionals in the initial postoperative period. The admission process and physical preparation of patients take the majority of preoperative nursing time, leaving minimal opportunity for education, reinforcement of effective self-care strategies, and emotional support following surgery (Sladek, Swenson, Ritz, & Schroeder, 1999). No studies have examined the effects of an intervention in the immediate postoperative period on women who underwent lumpectomy for primary breast cancer in an outpatient setting. Studies are warranted in which the type of surgery and the time since surgery are controlled, functioning and emotional distress are measured, and the intervention is provided by nurses. Providing patients with psychoeducational support is an important feature of nursing care and has been shown to be beneficial in reducing emotional distress, pain, and fatigue (Cimprich, 1993; Devine & Cook, 1983; Johnson, Christman, & Stitt, 1985).

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The purpose of this study was to examine the effects of an intervention based on self-regulation theory, functional status, and emotional well-being in women recovering at home after outpatient surgery for breast cancer. Self-regulation theory has been tested extensively with patients before surgery. The present study is innovative because the effects of the intervention were examined after and not before outpatient surgery took place.

Literature Review

Results from previous studies indicate that women experience pain, fatigue, and sleep disturbances in the first month following surgery for breast cancer (Baron, Fey, Borgen, & Van Zee, 2004; Hoskins, 1997; Schrenk, Rieger, Shamiyeh, & Wayand, 2000; Wyatt & Friedman, 1998). When symptoms are not managed well during this stressful period, they can cause discomfort and anxiety, interfere with women's normal physical and emotional functioning, and have an effect on women's quality of life. In the context of outpatient surgery, whether women who undergo outpatient surgery for primary breast cancer receive adequate continuing care after discharge is unclear. An urgent need exists for interventions designed to assist women in managing their symptoms, becoming emotionally comfortable, and maintaining normal functioning during the immediate postoperative period.

Symptom Experience and Breast Cancer Surgery

Previous research has demonstrated that numerous expected and unexpected symptoms, such as pain and loss of sensitivity in the breast area, may appear immediately following surgery for breast cancer, regardless of the type of surgery (Bandura, 2001; Baron et al., 2002, 2004; Bundred et al., 1998; Maunsell, Brisson, & Deschenes, 1993; Tasmuth, von Smitten, Hietanen, Kataja, & Kalso, 1995; Tasmuth, von Smitten, & Kalso, 1996). Specific symptoms reported were stiffness, pain, and numbness, and the percentages of women reporting the symptoms had changed little after 15 months (Maunsell et al., 1992). The proportion of women with high psychological distress increases with the number of problems reported in the affected arm (Maunsell et al., 1993). The findings indicate that women experience a moderate level of emotional distress following outpatient surgery for breast cancer, possibly because of their inability to cope with the symptoms they experience. When symptoms are not well managed during the stressful postoperative period, they can cause discomfort and anxiety, interfere with normal physical and emotional functioning, and affect quality of life. Therefore, assisting women in managing their conditions immediately after surgery, with the goal of improving their functioning, is imperative.

Functional Status

Functional status is defined as the ability to perform usual daily activities. Women (N = 50) in one study who had either lumpectomies (40%) or mastectomies (60%) reported a wide range of physical problems after surgery (Ganz, Schag, Polinsky, Heinrich, & Flack, 1987). Problems included difficulty lifting, limited upper-extremity mobility, and trouble doing household chores. During the first month after surgery for breast cancer, most women reported significant impairment in their activities of daily living at one month after surgery (Schag et al., 1993). Hughes (1993) found that women's ability to function physically and meet normal role obligations was significantly lower after surgery. Bochenek (1996) indicated that the most frequently reported limitations were avoiding vigorous activities, which is a requirement of the surgical recovery experience, and being unable to walk farther than one mile (55%). However, functional status seemed to improve significantly six weeks to three months after surgery among women who had surgery only. In women who had surgery and adjuvant treatment, functional status decreased significantly within six weeks after surgery (Wyatt & Friedman, 1998). Therefore, helping women manage symptoms effectively to promote and enhance optimal functioning is necessary.

Emotional Distress

According to Lazarus and Folkman (1984), stress is a relationship between a person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being. For this study, emotional distress was described as a person's inability to regulate his or her emotional response when facing a stressful health experience, namely surgery for breast cancer. Emotional distress is a subjective, transient state comprised of four dimensions: anger, confusion, anxiety, and depression (McNair, Lorr, & Droppleman, 1971).

Although most women treated for breast cancer do not experience long-term emotional distress, 20%–30% experience disruption in their quality of life (Irvine, 1996). Several studies have indicated that general distress can be clinically significant among women newly diagnosed with breast cancer (Northouse, 1992). Clinical and empirical findings have indicated that the diagnostic phase is an extremely stressful time for women, marked by high anxiety and difficulty making decisions (Northouse, 1989). During the immediate postoperative period, women have concerns and worries about whether the pathology report will indicate malignant cells in the lymph nodes and result in the need for more aggressive treatment (Shaw, 1988; Welch-McCaffrey, 1985). Many women worry after surgery that some cancer cells still might be present in their bodies and want to begin treatment as soon as possible (Iocolano, 1994; McIlmoyl, 1998). In the convalescent phase, women need to adjust to changes in family roles, cope with fears about final diagnosis and recurrence, and learn to balance the needs of all family members who are affected by the disease (Northouse, 1992). In various studies, women have recalled experiencing severe levels of anxiety during the time from discovery of the mass to definitive diagnosis (Benedict, Williams, & Baron, 1994; Bleiker, Pouwer, van der Ploeg, Leer, & Ader, 2000). Abent (1998) indicated that, on average, women reported a moderate level of depression eight weeks after surgery. During the same period, Hoskins (1997) and Hughes (1993) also found emotional distress to be a frequent concern among women with breast cancer, regardless of the surgical procedure. Maunsell et al. (1989) reported that, at three months after surgery (N = 205), high levels of psychological distress still were present in 14% of women with no history of depression. The findings indicate that women experience emotional distress during the immediate postoperative period after breast cancer surgery. Emotional distress is associated with several factors, of which symptom experience and management were of interest in the present study. To provide high-quality health care to patients with

breast cancer, nurses need to address the emotional component of the entire surgical experience to help women regulate their emotional responses and be emotionally comfortable or free from emotional distress (Johnson, Fieler, Jones, Wlasowicz, & Mitchell, 1997).

Psychoeducational Interventions Following Outpatient Surgery

The interventions reviewed in this section are those that addressed the needs of women following breast cancer surgery and during adjuvant treatment. Some interventions were carried out by a psychologist or a social worker (Maunsell, Brisson, Deschenes, & Frasure-Smith, 1996). The authors provided no direction for nursing practice or a clear description of the intervention (Marchioro et al., 1996). Although two studies showed that psychoeducational interventions were effective in improving physical and psychological outcomes (McArdle et al., 1996; Mock et al., 1997), some had mixed effects (Marchioro et al.; Sandgren & McCaul, 2003; Sandgren, McCaul, King, O'Donnell, & Foreman, 2000) and others failed to demonstrate significant results (Maunsell et al., 1996). In the context of outpatient surgery, whether women who undergo treatment for primary breast cancer receive adequate continuing care after discharge is unclear. The current study is the first to examine the effects of a psychoeducational nursing intervention provided in the immediate postoperative period following outpatient surgery for breast cancer.

Conceptual Framework

Self-regulation theory guided the development of the Attentional Focus and Symptom Management Intervention (AFSMI) (Allard, 2001), as seen in Figure 1. The emphasis in self-regulation theory is on concrete objective information and regulation of emotional and functional processes to achieve optimal coping (Folkman, Lazarus, Gruen, & DeLongis, 1986). The AFSMI was developed by Allard (2001) based on the work of Dodd (1984) to encourage patients to focus their attention on the symptoms they are experiencing following surgery for breast cancer, on decisions they make in an attempt to alleviate or manage their symptoms (i.e., regulation of their functional response and symptom management), and on attainment of physical and emotional well-being (i.e., functional and emotional outcomes). The AFSMI was designed to help women direct their focus of attention toward the functional pathway of coping. Attentional focus is concerned with whether a person focuses on the source of stress, such as the objective aspects of the event, or on his or her emotional reactions to it (LaMontagne, Johnson, Hepworth, & Johnson, 1997). Redirection can be an effective means of focusing on what can be done about a situation, anxiety, or maintaining life activities. Redirection has received attention from researchers and demonstrated promising healthcare outcomes in regard to cognitive interventions for coping with chronic illnesses (Cote & Pepler, 1999). Instead of focusing on emotional responses such as distress and negative reactions, patients accept and try to deal with the reality of the problems.

The intervention aimed at encouraging women to focus their attention on actual symptom experiences and on concrete decisions they made to manage their symptoms. Because the postoperative period is a very stressful time for most women, the intervener listened empathetically to them to allow some emotional regulation, which was followed by redirection aimed at regulation of functional response. Hence, once the women had expressed their feelings, fears, and hopes, redirection was used to reorient their attention toward developing a cognitive strategy that would facilitate coping.

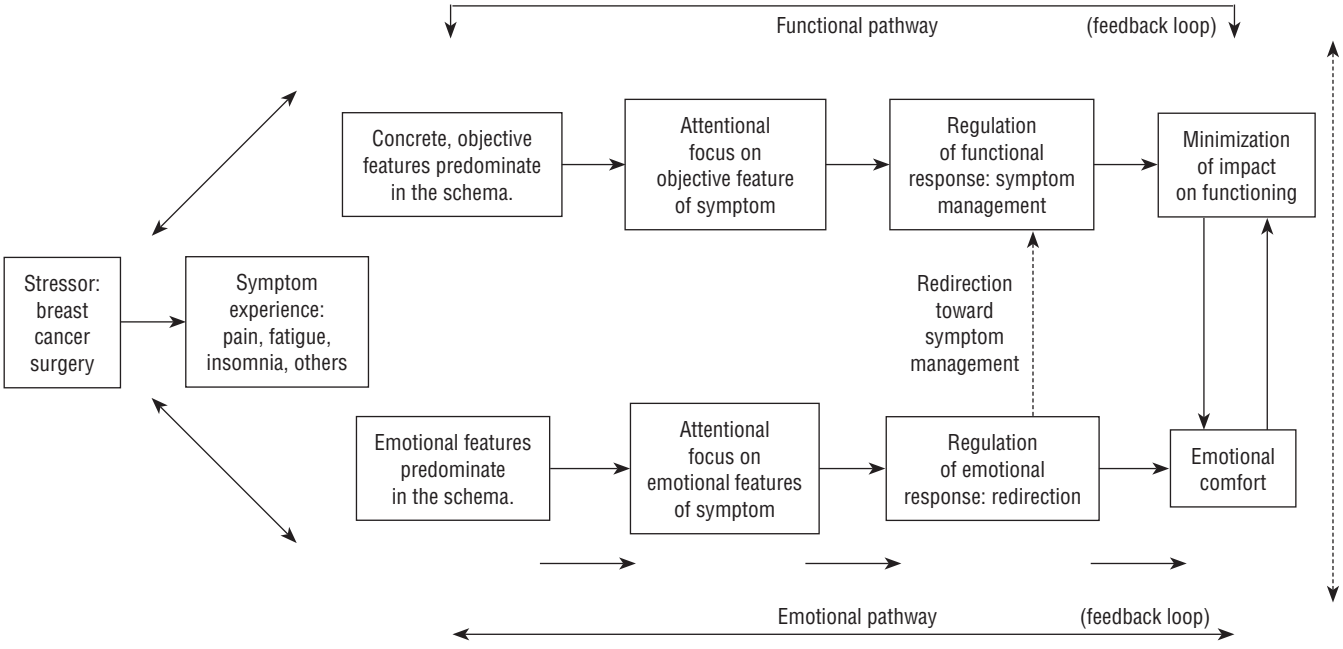

Figure 1. The Attentional Focus and Symptom Management Intervention

Note. Based on information from Allard, 2005; Johnson et al., 1997.

An intervention guide and individualized flow sheet, developed by the principal investigator, were used to ensure consistency and quality assurance of the intervention implementation. The intervener's guide contained questions to ask participants and was organized in a systematic and consistent manner. The flow sheet had seven columns. The first column on the sheet was used to record each symptom experienced. The intensity and the unpleasantness of each symptom were recorded in the third and fourth columns, respectively. The fourth column was for recording the description of each symptom in concrete, objective terms. Actions taken to manage each symptom were recorded in the fifth column, and the effectiveness of the actions in relieving symptoms was recorded in the sixth column using a five-point Likert scale. Additional self-care strategies to manage the symptoms as identified by the women or suggested by the investigator were recorded in the seventh column.

Methods

Sample and Setting

The target population consisted of French-speaking women from Quebec, Canada, who were newly diagnosed with breast cancer. The criteria for inclusion in the study were women who had primary breast cancer or a suspected lesion; were scheduled to undergo their first breast surgery (with or without axillary node dissection) on a day-surgery basis; were able to speak, understand, read, and write French; were older than age 18; had no hearing impairment; and had a phone at home. The rationale for the restrictive inclusion criteria was to render the sample of women homogeneous with respect to surgical procedure, morbidity, and prognosis, which could influence the outcomes of interest in the current study. Women with previous experiences with cancer or major psychiatric diagnoses, such as psychosis, were excluded because such conditions may affect levels of functioning or psychological distress. In addition, one study demonstrated that women with benign breast disorders and those with breast cancer suffered from similar levels of anxiety and psychological distress during the period from first being aware of the issue until receiving a diagnosis (Woodward & Webb, 2001); therefore, women with no final diagnosis of cancer before surgery also were included in the sample even if the final diagnosis was benign disease.

Based on previous findings, the investigator anticipated that the AFSMI would have a moderate effect size on emotional distress and functioning. With a probability of a type I error of 0.05 and to achieve a power of 0.80, a sample of 117 women was required (Cohen, 1992). The convenience sample was drawn from four regional centers. One center had two different geographic locations, so participants from five sites were analyzed in the current study. The centers were located in different urban and rural regions. Over the two-year period of data collection, a total of 182 women were referred to the study. Twenty-seven (15%) of the 182 women did not meet the study eligibility criteria, 31 (17%) refused to participate, and seven (4%) dropped out of the study after signing informed consent. In total, 64% (n = 117) of women approached participated in the study.

Design, Data Collection, and Procedure

A prospective, randomized clinical trial (RCT) with repeated measures was used to determine the effect of the AFSMI on functional status and emotional distress. Because the presence of an axillary node dissection may affect the symptom experience and influence anticipated outcomes (Veronesi et al., 2003), an equal number of women with and without axillary node dissection were included in the control and experimental groups. A stratified sampling method was used, in which the total sample was divided in strata, namely, women with axillary lymph node biopsy and women with no axillary lymph node biopsy, from which a random sample was drawn into the control group and into the experimental group. The study was confined to the first three weeks following outpatient surgery. The intervention took place before women began any adjuvant therapy (excluding hormone therapy), such as chemotherapy and radiation therapy. Authorization to conduct the study at the participating sites was obtained from respective research ethics committees.

A copy of the research protocol was given to the nurse administrators and surgeons at each site to inform them of the planned study. Staff nurses at the surgeons' offices were given a pamphlet that briefly explained the study and was designed to be given to each eligible participant. In addition, staff nurses received a letter reminding them of the study and soliciting them to (a) identify women who met the eligibility criteria, (b) obtain verbal permission from the women to give their phone numbers to the investigator or research assistant, (c) give the women an envelope containing a pamphlet explaining the study and indicating that they would be called soon if they agreed to give their phone numbers to the researcher as well as the signed consent form, (d) give the women the research questionnaires, and (e) transmit the patients' names, phone numbers, names of surgeons, and dates of surgery to the investigator. All patients willing to participate gave nurses verbal permission to give their phone numbers to the research assistant. A prepaid return envelope and the researcher's phone number were given to patients.

The research assistant was a student at the baccalaureate level in social sciences and was trained by the principal investigator. The investigator chose an assistant with no nursing background to avoid any bias. The research assistant called each woman and explained the purpose of the study, the methods of data collection, the nature and extent of participation in the study, the randomization procedure, the rights of a study participant, and the risks and benefits of participation. Each woman was asked to complete a background inventory that assessed demographic, socioeconomic, and medical health status. Then, the research assistant randomly allocated the women with or without axillary node dissection to the experimental or control group at each site using a table of random numbers. Each voluntary participant was asked to sign and mail one copy of the consent form to the investigator in a prepaid return envelope.

The repeated measures aspect of the design involved outcomes measurement at three points in time to examine changes in the outcomes following the implementation of the intervention: time 1 (T1) (pretest), time 2 (T2) (one week following the first intervention session), and time 3 (T3) (one week following the second intervention session). T1 represented the pretest, which provided baseline values on the outcomes measures prior to delivery of the AFSMI. T2 and T3 represented the post-test, providing the values on the outcomes for one and two weeks after patients received the AFSMI. At the time of recruitment, the research assistant telephoned all women

to inform them of the data collection times: 2–3 days after surgery (T1), 9–10 days after surgery (T2), and 17–18 days after surgery (T3). The time points were chosen to ensure that women were in the immediate postoperative period and were not receiving any adjuvant therapy.

Instruments

Functional status was defined as the ability to perform usual daily activities (Bergner, Bobbitt, Pollard, Martin, & Gilson, 1976). The **Symptom Impact Profile (SIP)** is an established measure that can be used to monitor a patient's progress. The "recreation and pastimes" and "home management" sections of the SIP were chosen to reflect functional status. The SIP subscales were translated into French for the current study using the back-translation procedure (Guillemin, 1995). Respondents marked items that applied to them on a given day as a result of breast cancer surgery. The scores were obtained by summing the number of items marked. The higher the score, the higher the disruption in daily functioning (de Bruin, Diederiks, de Witte, Stevens, & Philipsen, 1997; McDowell & Newell, 1996). A percentage score for each subscale was calculated by adding the scale values for each item checked (a positive or yes answer) in the subscale. The internal consistency reliability coefficient for the home management subscale was calculated in the present study and ranged from 0.63–0.77, and the recreation and pastimes subscale ranged from 0.62–0.76 across the three time measurements.

Emotional distress consisted of negative moods and feelings experienced by an individual in response to a stressful situation (Moore, 1996). For the purpose of this study, the short form of the **Profile of Mood States (POMS)** was used to measure emotional distress. The shorter version has 37 items (Schag et al., 1993) and measures anger, depression, confusion, and anxiety. Each item is rated on a Likert-type scale of 1–5; a higher score indicates a higher degree of emotional distress. Fillion and Gagnon (1999) translated the POMS into a French-Canadian version (Shacham, 1983). The internal consistency reliability of the French short version of the POMS total scale and each of its subscales was calculated for this study and ranged from 0.75–0.94, showing internal consistency reliability of the instrument over time.

Study Intervention

The AFSMI consisted of two phone sessions implemented on the same day of the week for two weeks (see Figure 2). The frequency was chosen so that the patient's recovery could be monitored on a regular basis and to facilitate the reliability of data collection and delivery of the intervention. The principal investigator was the only intervener to deliver the AFSMI. She made one phone call per week for a total of two telephone intervention sessions for each woman over a period of two weeks. The interval seemed reasonable, taking into account that the objective was to determine the efficacy of this short-term, low-cost telephone intervention. Appointments to deliver the interventions during the two weeks were made by the research assistant for patients in the experimental group after randomization. Permission to review the participants' charts to gather information about medical status also was obtained in the consent form. The investigator performed chart review at each participating site after data collection was completed.

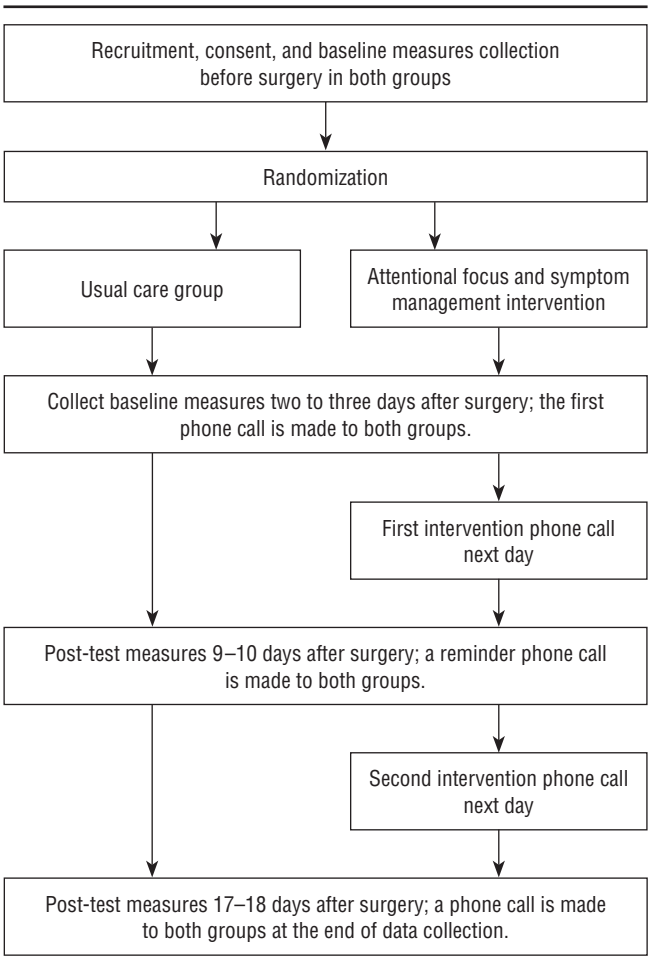

Figure 2. Study Schema

Using the interview guide and a follow-up sheet, the investigator assessed each woman's symptoms by asking her to identify and describe each symptom in concrete, objective terms. The actions taken by each woman to manage each symptom and the effectiveness of her actions in relieving symptoms were rated using a five-point Likert scaled ranging from 1 (not effective) to 5 (very effective). Actions that women felt were effective in managing their symptoms were encouraged by the intervener. If their actions were ineffective, women were encouraged to find other potentially helpful actions. The investigator suggested new or additional self-care strategies when requested. During telephone contact, the intervener acknowledged any feelings or emotions women expressed. The length of the telephone contact was not limited to a predefined number of minutes but rather was individualized based on the number of symptoms experienced or other concerns that the women were willing to discuss.

Usual Care

Women in the control group received usual care in each setting. Usual care generally consisted of perioperative teaching given by nurses to all women before surgery and immediately before discharge from the hospital. Within 24 hours after discharge, women received both a follow-up phone call from the staff nurse of the surgical ward and the standard community nurse in Quebec, who inquired about the women's conditions. In addition, a call was made by the research assistant.

Data Analysis

Descriptive statistics were used to characterize the sample relative to sociodemographic profile and illness variables. Factorial repeated measures of analysis of variance (RM-ANOVA) were used to determine the effects of the AFSMI on functional status and emotional distress. Factorial RM-ANOVA included three between-subject factors (i.e., group, axillary node dissection, and hospitals) and one within-subject factor (i.e., time of data collection). A two-way ANOVA with two independent variables (i.e., group and hospital) was conducted at pretest (T1) to detect any differences between groups and among sites in the sociodemographic variables, medical variables, and main study outcomes variables. Significant differences were found in several variables across hospitals and between groups on the main study outcomes at T1; therefore, pretest scores were entered as covariates in the factorial RM-ANOVA. Significant group effect was followed by post-hoc analysis using independent sample t tests or analysis of covariance (to control for pretest differences), whereas significant time effects were followed by post-hoc comparisons across occasions of measurement using a paired t test. Only significant results are reported.

Results

Sample Characteristics

The mean age of the total sample was 53.6 years (SD = 10.17). Approximately 37% of the women had a secondary-level education, and 46% were married. The women's occupations varied. Women didn't work (22%), were professional (21%), were retired (20%), or indicated other (37%). Most women had stage I (40%) or stage IIA disease (25%). Nine women had a final diagnosis of benign disease and had axillary node dissection. Lumpectomy with axillary node dissection was the most frequent type of surgery performed (74%). Lumpectomy without axillary node dissection was the second most frequent type of surgery (21%), followed by mastectomy with axillary node dissection (4%). Many women had 11–15 (27%) or 6–10 (24%) lymph nodes removed. Many had a surgical drainage system after surgery (63%) and were menopausal (60%). Statistically significant differences were found between the experimental and control groups with regard to medical conditions, namely the presence of current or chronic illnesses ($\chi^2 = 4.55$; p = 0.03). Women in the experimental group reported more illnesses than the control group (37% and 22%, respectively).

Functional Status

Overall, the intervention had a statistically significant effect on home management disruption, meaning that the intervention was effective in achieving a beneficial effect on that particular dimension of functioning. The results of the factorial RM-ANOVA showed a significant time effect (F[1, 98] = 6.85; p = 0.01) for the home management subscale (see Table 1). Post-hoc comparisons using paired sample t tests showed a significant decrease in the level of disruption in home management scores for both groups between T2 and T3 (t[107] = 4.84; p = 0.00), indicating less disruption over time. A significant group effect was found (F[1, 98] = 4.9; p = 0.03) for home management. Post-hoc comparisons between groups using independent sample t tests showed trends toward a significant difference between groups at T2 (t[115] = –1.71; p = 0.09) and at T3 (t[114] = –0.65; p = 0.10). The results of the factorial RM-ANOVA showed a significant time effect (F[1,100] = 17.10; p = 0.00) for the recreations and pastimes dimension. Post-hoc comparisons using paired sample t tests showed a significant decrease in disruption between T1 and T2 (t[116] = 6.41; p = 0.00) and between T2 and T3 (t [116] = 4.93; p = 0.00). No significant group or group-by-time interaction on axillary node dissection effects was found.

Table 1. Home Management Mean Scores[a]

	Experimental Group		Control Group		Total	
Time	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1	45.26	25.30	45.54	30.50	45.39	27.79
2	18.91	18.49	25.87	25.62	22.29	22.38
3	12.12	15.00	17.10	17.51	14.52	16.38

[a] Range = 0–100

Emotional Distress

The results of the factorial RM-ANOVA revealed a significant group effect (F[1, 93] = 3.98; p = 0.05) for the total POMS scale (see Table 2). Post-hoc comparisons showed a significant difference between the experimental and control group at T2 (t [106] = –2.20; p = 0.030) on emotional distress scores. The experimental group had lower value compared to the control group. No significant time or group-by-time effect was found.

A significant time effect (F[2,192] = 5.03; p = 0.01) and a time-by-group interaction effect (F[2, 192] = 4.37; p = 0.01)

Table 2. Total Emotional Distress, Confusion, and Tension Mean Scores

	Experimental Group		Control Group		Total	
Time	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Emotional distress[a]						
Time 1	47.23	15.51	49.96	19.76	48.50	17.59
Time 2	41.20	14.69	47.91	18.12	44.38	16.68
Time 3	41.03	15.87	45.61	16.41	43.18	16.22
POMS confusion[b]						
Time 1	9.79	3.73	9.57	4.13	9.69	3.91
Time 2	7.98	3.58	9.49	3.98	8.70	3.83
Time 3	8.03	3.54	8.82	3.74	8.41	3.64
POMS tension[c]						
Time 1	13.93	5.63	14.19	5.66	14.05	5.62
Time 2	11.15	4.79	12.67	5.52	11.87	5.18
Time 3	11.18	5.05	12.46	4.87	11.78	4.99

[a] Range = 27–135

[b] Range = 5–25

[c] Range = 7–35

POMS—Profile of Mood States

also were found. Post-hoc comparisons using paired sample t tests showed a significant decrease in the mean confusion scores between T1 and T2 ($t[107] = 3.05$; $p = 0.00$). A trend toward significance was found for the group effect ($F[1, 96] = 2.71$; $p = 0.10$) at T2. Between-groups comparison using independent sample t tests indicated a significant difference between the experimental and control groups at T2 ($t[106] = –1.96$; $p = 0.05$) only.

The results of the factorial RM-ANOVA showed a significant group effect ($F[1, 94] = 5.61$; $p = 0.02$). However, between-groups comparison using independent sample t tests indicated no significant difference between the experimental and control groups. No significant time, group-by-time interaction, site, or axillary node dissection effects were found.

A significant time effect ($F[2, 190] = 2.99$; $p = 0.05$) was found for the depression subscale of the POMS. Post-hoc comparisons using a paired t test showed a trend toward significance between T2 and T3 ($t[114] = 1.81$; $p = 0.07$). No significant group, group-by-time interaction, site, or axillary node dissection effects were found. The results revealed no significant time, group, group-by-time interaction, site, or axillary node dissection effects for the anger subscale.

Discussion and Implications

The AFSMI had a statistically significant effect on the home management dimension of functional status and on overall emotional distress, tension, and confusion. The findings are particularly important because physical functioning and emotional distress are salient at that point in time in women's illness trajectory and are the two ultimate outcomes based on self-regulation theory. Women in the experimental group were better able to regulate their emotional states and their levels of functioning based on their own schema because their knowledge of the healthcare situation was increased and, consequently, their confusion decreased.

Functional Status

The AFSMI had a statistically significant effect on the home management dimension of functioning. During the AFSMI sessions, the intervener encouraged participants to focus on what they could do to have a better recovery and reinforced the performance of self-care strategies. The effects of the AFSMI on functioning are similar to those reported in other studies. An intervention study based on concrete, objective information by Johnson, Fieler, Wlasowicz, Mitchell, and Jones (1997) also revealed a significant decrease in the disruption of usual activities in the experimental group compared to the control group in patients with breast and prostate cancer undergoing radiation therapy. Wyatt and Friedman (1998) reported that functional status improved significantly six weeks to three months postsurgery for women who had surgery only.

Emotional Distress

The AFSMI had a statistically significant effect on overall emotional distress. The finding supports the use of nursing interventions among patients whose emotional distress is high (e.g., the sample in the present study). The AFSMI contributed to a faster decrease in emotional distress during the early postsurgical period. The results observed underscore the beneficial effect of a nursing intervention on emotional distress after breast cancer surgery.

The AFSMI had a significant effect on the confusion dimension of emotional distress in that patients who received the intervention reported less confusion compared to those who did not receive it. By informing women about the symptoms, reinforcing self-care strategies, and focusing on the objective aspects of the healthcare experience, the AFSMI assisted them in clarifying their schema. This clarification could have contributed to decreased confusion. The group effect found in the RM-ANOVA indicates that the intervention was effective in reducing the level of tension but does not show at what time its impact was the most effective.

The findings of the current study support the need for individualized nursing interventions directed at relieving confusion, tension, and emotional distress in patients or with patients requesting assistance in dealing with their emotional reactions by helping them to focus on the concrete, objective aspects of their experiences. Some emotional ventilation is beneficial before women are able to focus on problem-solving strategies. Previously, effects of concrete, objective information on emotional response were not strongly supported by empirical findings in clinical settings (Kim, Roscoe, & Morrow, 2002; Moore, 1996; Ward, Donovan, Owen, Grosen, & Serlin, 2000; Weintraub & Hagopian, 1990) except by Rawl et al. (2002). The findings of the studies may be explained by the relatively low baseline level of mood disturbance among the subjects, rendering detecting any effects of the interventions on emotional response difficult. The lack of effects of interventions also may have been the result of a bias in the response or to the measures used. However, the results of the present study support the hypothesis that patients can benefit from nursing interventions based on self-regulation theory after outpatient surgery for breast cancer and that such interventions are effective in reducing emotional distress and enhancing functioning.

Implications

Theory

To further expand the theory of self-regulation, the concept of redirection was added. As mentioned earlier, redirection refers to women's attention, energy, and resources being directed toward the acquisition of a cognitive strategy. Redirection is an effective means for focusing on what can be done about a situation (Cote & Pepler, 1999, 2002). First, the intervener listened empathetically to help women to regulate their emotional reactions, if needed, and then used redirection toward management of symptoms, including anxiety, to orient women's attention toward the objective features of the event in the problem-solving, functional pathway.

Research

The results of the current study raise questions that could be addressed in future studies. What is the optimum frequency, intensity, and duration of the AFSMI? Future research should consider increasing the dose of the AFSMI and evaluating the effect of varying doses on symptom management. The second question relates to the extent to which the AFSMI could be individualized yet be effective in managing the symptoms experienced by women following breast surgery. One limitation of the study relates to the lack of diversity in the sample because it only included French women from Quebec. This could have introduced a bias in terms of cultural background.

Practice

A nursing intervention applied immediately during recovery following surgery for breast cancer can reduce emotional distress and enhance usual functioning, the ultimate outcomes of coping. This indicates a need for a continuity of nursing care. Findings validate the use of the self-regulation model in clinical settings to design individualized nursing interventions immediately after outpatient surgery for breast cancer to reduce emotional distress and enhance functioning. Redirecting patients' attention and focusing on concrete, objective features hold promise in developing other innovative nursing interventions.

Conclusions

The AFSMI represents a different philosophy than typical nursing care. It empowers women to be self-regulating rather than encouraging dependency on healthcare professionals. Nurses can take the lead to ensure that patients effectively evaluate, manage, and understand their symptoms following any type of outpatient surgery. In Quebec, discussions are under way regarding the role of a "nurse navigator" for patients with cancer (de Serres & Beauchesne, 2000). According to Sladek et al. (1999), as the trend for surgical procedures continues to shift from inpatient to outpatient settings, outpatient-focused standardized nursing care processes, namely self-regulative intervention, will become more necessary for ensuring the best possible health outcomes for all patients with cancer undergoing outpatient surgery.

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