Day surgery and recovery in women with a suspicious breast lesion: Evaluation of a psychoeducational nursing intervention

By Nicole Allard

Abstract

The study assessed whether a nursing intervention based on self-regulation theory, the Attentional Focus and Symptom Management Intervention (AFSMI), could help women who underwent day surgery for breast cancer to achieve better pain management and decreased emotional distress. The sample consisted of 117 patients with breast cancer who were outpatients and undergoing surgery as part of the initial treatment for their cancer. All subjects were interviewed at three different occasions. The subjects were randomized into the experimental group (n=61) or the usual care group (control, n=56). The subjects in the experimental group received the intervention in two sessions, 3-4 days and 10-11 days after surgery. The outcomes were the subjects' pain and emotional distress. Results showed significant differences between the experimental and control group at post-test on home management, total mood disturbance, confusion and tension scores implying that the intervention was effective in achieving these outcomes. Clinical significance has illustrated that a nursing intervention applied during immediate recovery of breast cancer surgery is quite clinically relevant to reduce emotional distress. Self-regulation theory could effectively be used as a guide in developing nursing intervention programs in practice for patients with cancer undergoing day surgery as a primary treatment.

Introduction

Breast cancer is the most frequently occurring cancer among women between the ages of 35 and 55 in Quebec, as in Canada; it accounts for 30% of all cancers in women, and 18% of all cancer deaths (National Cancer Institute of Canada, 2004). For the majority of women with primary breast cancer, surgery is the first treatment offered. Most women are now being treated with lumpectomy and radiotherapy. Previously, women remained in the hospital for a few days post surgery, during which nurses gave post-operative care, and self-care instructions. The reasons for keeping women in the hospital after surgery have habitually been for nursing care, physical recovery, and drain catheter management (Bundred et al., 1998; Kambouris, 1996).

However, with the recent restructuring of the health care system, length of hospital stays have been significantly reduced, resulting in shortened contact with health care professionals. The impact of day surgery, while reportedly safe and cost-effective, also implies an increased responsibility of post-operative care and management of symptomatology on the part of patients and their families, and this can be challenging (Sladek, Swenson, Ritz, & Schroeder, 1999).

Literature review

Previous research has demonstrated that numerous expected and unexpected symptoms such as pain, loss of sensitivity in the breast area, fatigue, anxiety, and difficulty sleeping, may appear

immediately following surgery for breast cancer, regardless of the type of surgery (i.e. mastectomy or lumpectomy) (Baron et al., 2002; Baron et al., 2000; Bundred et al., 1998; Hoskins, 1997; Johnson, Fielor, Wlasowicz, Mitchell, & Jones, 1997; Maunsell, Brisson, & Deschenes, 1993). Complications following any type of breast cancer surgery include: chronic pain, hematoma, seroma, wound infection, and/or decreased shoulder mobility (Bonnema et al., 1998; Bundred et al., 1998; Deo, Shukla, Goel, & Kishore, 1997). Pain after breast cancer surgery is presumably a result of surgical injury to the intercostobrachial nerve (a cutaneous branch of T1-2) after an axillary dissection (Wallace & Irving, 1997).

Fatigue can be a concern for people with cancer at different phases of their illness: before diagnosis, or treatment (Cimprich, 1999), during and after treatment (Irvine, Vincent, Bubela, Graydon, Thompson, 1991), and in the later phases of the illness trajectory (Glaus, 1993). Fatigue is the most experienced and most distressing symptom of cancer and cancer treatment (Blesch, Paice, Wickham, Harte, Schnoor, Purl, 1991; Irvine, Vincent, Graydon & Bubela, 1998; Wyatt & Friedman, 1998).

Insomnia is another prevalent symptom among cancer patients. However, because of the scarcity of empirical studies investigating this problem, no firm conclusions can be drawn regarding its prevalence (Yellen & Dyonzak, 1996). Sleep is very sensitive to emotional turmoil or health related factors, which can precipitate acute insomnia (Morin, 1993). Consequences of insomnia include mood disturbances, fatigue, performance impairments, social discomfort, considerable distress, interference with patients' cognitive abilities and daily functioning, and a considerable impact on quality of life (Morin, 1993).

Clinical and empirical findings indicate that the breast cancer diagnostic phase is an extremely stressful time for women, marked by high anxiety, and difficulty making decisions (Northouse, 1989). Post surgery, many women worry that some cancer cells may still be present in their bodies and want to start adjuvant 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, recurrence, and learn to balance the needs of all family members touched by this experience (Northouse, 1992).

Functional status is defined as the ability to perform usual daily activities. In the first month after breast cancer surgery, Ganz, Schag, Polinsky, Heinrich, and Flack (1987) reported that women (n=50) who had either lumpectomy (40%) or mastectomy (60%) reported a wide range of physical problems and disruption in functioning. These problems included difficulty lifting, limited upper extremity mobility, and difficulty with household chores. Schag and colleagues (1993) also reported that women with breast cancer (n=227) had significant impairment in their activities of daily living at one month post-surgery. Bochenek (1996) reported that limitation of vigorous activities such as lifting heavy objects or participating in strenuous sports were the most frequently reported limitations (76.3%) in a sample of 117 women eight weeks after hospital discharge.

Symptoms can prevent women from maintaining previous levels of activity, diminish their interest in attending social gatherings, and negatively affect their quality of life (Baron et al., 2000; Mock et al., 1997; Polinski, 1994). Symptoms can also have a significant impact

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on functioning. Abent (1998) reported that physical functioning ($r = .36, p = .00$) and social functioning ($r = -.30, p = .00$) as measured by the MOS SF-36, were negatively correlated with the experience of fatigue ($n = 144$). In addition, pain could prevent women from performing activities of daily living such as combing one's hair or fastening a bra (Wyatt & Friedman, 1998).

Conceptual framework: Self-regulation theory

The theory of self-regulation, now named self-regulation theory of coping with illness (Johnson, 1999), relies on information processing to explain how patients cope with a stressful healthcare experience. Self-regulation theory represents a schema of coping, in which two fundamental pathways are eligible. These pathways address the specific functions of coping (Lazarus & Folkman, 1984): regulating functional response and achieving functional goals (problem-solving coping), and regulating the emotional response and achieving emotional goals (emotional coping) (Johnson, 1999).

According to the self-regulation theory, concrete objective information of a health care event can influence the interpretation of the experience (Johnson, 1999). Symptoms are characterized as concrete manifestations of illness, which are sensory components of the cognitive processing by the individual experiencing symptoms. Johnson, Fieler, Wlasowicz, Mitchell, and Jones (1997) define coping as the efforts put forth to deal with a stressful experience, and focus of attention is inferred to be an important part in the coping process. By shifting the attentional focus from emotional responses to objective, concrete, functional aspects of the symptom experience, the interpretation of this experience is emphasized by these objective features, and promotes coping directed at achieving functional outcomes (Johnson, 1999).

Research questions

The research questions addressed in this study were:

- What are the effects of the Attentional Focus and Symptom Management Intervention (AFSMI) on the symptom experience (pain, fatigue, and insomnia) of women who had surgery for breast cancer (diagnosed or suspected) on an outpatient basis?
- What are the effects of the AFSMI on the level of functioning reported by women who had surgery for breast cancer (diagnosed or suspected) on an outpatient basis?
- What are the effects of the AFSMI on the level of emotional distress reported by women who had surgery for breast cancer (diagnosed or suspected) on an outpatient basis?

Method

Sample

The target population consisted of women from the province of Quebec, who were newly diagnosed with breast cancer and scheduled to undergo lumpectomy on a day-surgery basis. The criteria for inclusion in the study were women who had primary breast cancer or a suspected lesion; were able to speak, understand, read and write the language; were over the age of 18 years; had no hearing impairment, and had a phone at home. Women with previous experience with cancer and major psychiatric problems such as psychosis were excluded. Women with no final diagnosis of cancer before surgery were also included in the sample because it has been demonstrated that they suffer from similar levels of psychological distress (Woodward & Webb, 2001). It was anticipated that the AFSMI would have a moderate effect size on the outcomes. With a probability of a Type I error of 0.05, and to achieve a power of .80, a total sample of 128 women (64 in each group) was required (Cohen, 1992). However, due to difficulties in recruitment, the final sample was limited to 117 women.

Figure One.

Settings

The convenience sample was drawn from four (4) regional centres with one having two different geographically situated sites, resulting in five (5) sites analyzed in this study. The four centres were located in different urban and rural regions in Quebec. Most women received care in site 4a and 4b (n = 55, 47%) followed by site 1 (n = 25, 21.4%), site 3 (n = 24, 20.5%), and finally, site 2 (n = 13, 11.1%).

Usual care

Women in the control group received the usual care. Usual care in Quebec generally consists of teaching offered by nurses to all women before breast cancer 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 and the standard community nurse in Quebec, who inquired about the woman's condition, if home care was prescribed by the surgeons. The community nurses did not have specialized training in post-operative breast surgery care. Women from the urban centre had to go to the community health centre if they needed nursing care. In addition to receiving usual care, women in the control group repeated the outcomes assessment at T1, T2 and T3 as outlined in the study schema (Figure 1). They had the same opportunities as the experimental group, for referrals if they expressed the need to access further support.

The Attentional Focus and Symptom Management Intervention (AFSMI)

The AFSMI (Figure 2) was developed by the author (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 the symptoms (regulation of their functional response and symptom management), and on attainment of physical and emotional well-being (functional and emotional outcomes). The AFSMI was developed 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 was an effective means of focusing on what could be done about the

situation, about anxiety, about maintaining life activities, and by feedback response, being emotionally comfortable (Cote & Pepler, 2002). As mentioned earlier, the intervener made one phone call a week for a total of two telephone intervention sessions for each woman over a period of two weeks. Using the interview guide and a follow-up sheet (Allard, 2005) each woman's symptoms were assessed, by asking her to identify and describe each symptom in concrete objective terms. The actions taken by the woman to manage each symptom, and the effectiveness of these actions in relieving their symptoms were explored using a 5-point Likert scale ranging from 1-not effective to 5-very effective. Actions that women felt effective to manage their symptoms were encouraged by the intervener. If the actions were ineffective, women were encouraged to find other potentially helpful actions. The investigator suggested new or additional self-care strategies, when requested. During the phone contact, the intervener acknowledged any feelings and emotions the woman expressed. Other symptoms or concerns were closely documented and analysed using content analysis. The length of the telephone contact was a function of the number of symptoms experienced or of any other concerns that the woman was willing to discuss.

Research design

A prospective randomized block clinical trial (RCT) with repeated measures was used to determine the effect of the Attentional Focus and Symptom Management Intervention (AFSMI) on symptom experience, emotional distress and functional status. Participants were randomly assigned to the control or the experimental group within each site. Type of surgery (axillary dissection or no axillary dissection) was introduced as a blocking variable, because of its confounding effect on the outcome variable. Women in the control group received usual care only (which consisted of a follow-up call) while women in the experimental group received usual care and the AFSMI.

Procedure

Authorization to conduct the study at the participating sites was obtained from each Research Ethics Committee. All patients willing to participate gave the staff nurse verbal permission to give their phone number to the Research Assistant (RA). To gather all data, the RA used a pre-elaborated guide. Each voluntary participant was told to sign and

Figure Two.

mail one copy of the consent form to the investigator in order to meet the eligibility criteria in a prepaid return envelope. To minimize the potential influence of site, randomization to the control and experimental groups was done within each site using a table of assigned random numbers (Polit & Beck, 2004). 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 random sample was drawn into the control group and into the experimental group. Women were allocated as follows: 50 with and 11 without axillary dissection in the experimental group and 46 with and 10 without axillary dissection in the control group. Outcome measurements were subsequently taken at the same three points in time for the experimental and control groups with the RA.

Analysis of data

Repeated measures ANOVA were used with four independent variables: the treatment group with two levels, site with four levels, axillary dissection with two levels, and time, with three levels. Analyses of covariance were used when baseline measure scores differed across group and sites at pretest. The assumption of equal variance across occasions of measurement was not met for several variables. The variability in degrees of freedom is due to the lower-bound correction used to handle violation of the sphericity assumption.

Results

Over the two-year period of data collection, 182 women were referred to the study. Twenty-seven (15%) of the 182 women did not meet the study eligibility criteria, thirty-one (17%) refused to participate, and seven (4%) dropped out of the study after signing the consent. In total, 64.28% of women approached participated in the study. The major reasons for non-eligibility were previous experience with cancer, and having had chemotherapy treatments before surgery. The reasons for refusal to participate in the study included high anxiety, tiredness, difficulty in understanding the questionnaires, and the time involved. The final sample consisted of 117 women. There were 61 women allocated to the AFSMI (experimental) group and 56 women allocated to the Usual Care (control) group. The mean time for each phone session was 30 minutes. The dosage of the intervention (i.e., including both sessions) ranged from 2 to 112 minutes.

Characteristics of the sample at baseline

The mean age of the total sample was 53.6 years (SD 10.17). The largest percentage of the women was in the age group 50-59 years old (31.1%) followed by women in the 60-69 years old (26.2%). About 37% of the women had a secondary level education and 46% were married. The women's occupation varied: Women were either at home (21.7%), professional (20.9%), retired (20%) or other (37.4%). There was no statistically significant correlation among the sociodemographics and the outcome variables.

Medical data

More than half of the women had a stage I (39.7%) or stage IIA disease (25.0%). Nine women had a final diagnosis of benign disease and had axillary node dissection. Lumpectomy with axillary dissection (74.4%) was the most frequent type of surgery performed. More than one half of the women had between 11 to 15 lymph nodes removed (26.5%) followed by 6-10 lymph nodes (23.9%). The majority of women (63.2%) had a surgical drainage system after surgery. Most women were menopausal (59.8%).

First research question:

Fatigue and Insomnia

Overall, there were statistical trends observed for a beneficial effect of the AFSM intervention on physical fatigue and reduced motivation subscales of the Multidimensional Fatigue Inventory (MFI), but not on any of the other symptoms measured in this study. Fatigue and

insomnia did not appear to be major concerns for many participants, as few women requested to discuss them during the intervention sessions.

Pain

Pain and numbness and sensitive breast and arm were problematic for many women in the experimental group. The results are presented for pain only considering its prevalence in this sample. Overall, the AFSM intervention did not show statistically significant effects on any dimensions of pain implying that it was not effective in reducing pain in this group of women. The large within-group variance could account for the non-significant effects.

Other symptoms

The women's responses to the open-ended questions were content analysed. The symptoms that were most frequently reported in the first week during the first session of the intervention included: numbness in the arm or in the breast, aching in various body parts such as sore throat, back pain, and sensitive arm or breast. During the second intervention session, numbness in the arm or in the breast was still the most commonly experienced symptom being reported by the women, followed by sensitive arm or breast, and body ache. The incidence of symptoms experienced was lower for all symptoms reported at the second intervention session in the experimental group except for changes of temperature, sensitive arm or breast, dizziness, numbness of breast or arm and frustration or anger, which did not decrease over time (Table 2).

Second research question:

The results are reported for each subscale of the Symptom Impact Profile (SIP), which was used to measure level of functioning. Overall,

Table 1: Measures

	Instruments	Domains	Scoring range
Symptom experience	Multidimensional Fatigue Inventory (MFI) (Smets)(1995) French version by L. Fillion (2003) (Inventaire Multidimensionnel de La Fatigue: IMF)	Fatigue : General Fatigue Physical Fatigue Mental Fatigue Reduced activity Reduced motivation	4-20 for each subscale
	McGill short form French version of the pain questionnaire by Melzack (1987)	Present Pain Intensity (PPI) Sensory pain Affective pain Total pain	0-5 0-33.87 0-23.22 0-57.09
	Severity of Insomnia Index by Morin et al. (1993) French version by Morin	Insomnia	0-28
Functional status	Symptom Impact Profile (1976) Subscales translated in French by Allard & Anctil (2000)	Home management Recreation and pastimes	0-100 for each subscale
Emotional distress	Profile Of Mood State subscales and associated total score (1971) French version by Fillion et al. (1999) Mesures des réactions émotives	Anger Depression Anxiety Confusion Total mood disturbance	7-35 8-40 7-35 5-25 27-135

the intervention had a statistically significant effect on home management disruption, implying that the intervention was effective in achieving a beneficial effect on that particular dimension of functioning. There was no significant effect found on the recreation and pastime dimensions.

Home management

The mean scores on home management for the total sample and the two groups are presented in Table 3. There was high within-group variability on that variable. The level of functioning in home management was statistically different across sites at pre-test ($F(4,117) = 3.89, p = .01$). The results of the factorial RM-ANOVA with the scores at pre-test entered as covariates showed a significant time effect ($F = (1.98) = 6.85, p = .01$) implying that women in both groups experienced less disruption in home management over time. A significant group effect was found ($F(1, 98) = 4.93, p = 0.03$) implying that the AFSMI was effective in reducing disruption in home management. No group by time interaction, site, or axillary dissection effect was found. 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 time 2 and time 3 ($t(107) = 4.84, p = 0.00$) indicating less disruption over time. Post-hoc comparisons between groups using independent sample t-tests showed trends toward a significant difference between groups at time 2 ($t(115) = -1.71, p = 0.09$) and at time 3 ($t(114) = -1.65, p = 0.10$). The experimental group had a lower score at post-test and experienced a quicker recovery. No significant group, group by time interaction, axillary dissection effects were found on the recreation and pastime dimensions.

Third research question:

The results are reported for the overall level of emotional distress as well as for each subscale used from the Profile of Mood State. As postulated by the self-regulative perspective, results supported the effectiveness of the AFSMI in reducing the women's level of total mood disturbance, tension and confusion.

Overall emotional distress

The mean scores on overall emotional distress for the total sample and the two groups are presented in Table 4. The level of overall emotional distress was statistically different between groups and across sites at pre-test ($F(4,114) = 3.36, p = .01$). The results of the factorial RM-ANOVA with the scores at pre-test used as covariates revealed a significant group effect ($F(1,93) = 3.98, p = .05$), implying

that the AFSMI was effective in reducing overall emotional distress. No significant time, group by time interaction, site or axillary dissection effect was found. Post-hoc comparisons between groups using independent sample t-tests showed a significant difference between the experimental and control group at Time 2 ($t(106) = -.20, p = .030$) on emotional distress scores. No significant difference was found at time 3. However, the experimental group had a lower score at time 3.

Confusion

The mean scores on confusion for the total sample and the two groups are presented in Table 5. The results of the factorial RM-ANOVA revealed a significant time effect ($F(2,192) = 5.03, p = .01$) and a time by group interaction effect ($F(2,192) = 4.37, p = .01$). A trend toward significance was found for the group effect ($F(1,96) = 2.71, p = .10$). No significant effect was found for site or axillary dissection. Post-hoc comparisons using paired sample t-tests showed a significant decrease in the mean confusion scores between times 1 and 2 ($t(107) = 3.05, p = .00$) indicating less confusion after the first intervention session. No significant mean difference was found on confusion mean scores between time 2 and time 3 in both groups. Between groups comparison using independent sample t-tests indicated a significant difference between the experimental and control groups at time 2 ($t(106) = -1.96, p = .05$) only.

Depression

The results of the RM ANOVAs revealed a significant time effect ($F(2,190) = 2.99, p = .05$). No significant group, group by time interaction, site or axillary dissection effect was found. Post-hoc comparisons using paired t-test showed a trend toward significance between time 2 and time 3 ($t(114) = 1.81, p = .07$).

Anger

The results of the RM ANOVAs revealed no significant time, group, group by time interaction, site, or axillary dissection effects.

Tension

The mean scores on tension for the total sample and the two groups are presented in Table 6. Because tension at pre-test was different between the control and the experimental groups and across sites ($F(1,115) = 2.70, p = .04$), the scores on tension at time 1 were entered as a covariate in the factorial RM-ANOVA. The results of the factorial RM-ANOVA showed a significant group effect ($F(1,94) =$

Table 2: Incidence of symptoms reported by women in the experimental group

Symptoms reported (N=61)	Intervention session I	Intervention session II
Numbness of breast or arm	48.3%	48.3%
Body aches (back, legs, hips)	36.7%	23.3%
Nervousness, sadness	26.7%	25%
Sensitive breast or arm	26.7%	26.7%
Limited activity or mobility	20%	13.3%
Problems with digestion (diarrhea, constipation)	16.7%	15%
Dizziness	10%	6.7%
Change of temperature: chills, hot flashes	3.3%	10%
Loss of appetite	3.3%	1.7%
Loss of memory	3.3%	1.7%
Frustration, anger	3.3%	3.3%

Table 3: Home management mean scores between groups

	Experimental	Control	Total
(Range: 0-100)	Mean (SD)	Mean (SD)	Mean (SD)
Time 1	45.26 (25.30)	45.54 (30.50)	45.39 (27.79)
Time 2	18.91 (18.49)	25.97 (25.62)	22.29 (22.38)
Time 3	12.12 (15.00)	17.10 (17.51)	14.52 (16.38)

Table 4: Overall emotional distress mean scores

	Experimental	Control	Total
(Range 27-135)	Mean (SD)	Mean (SD)	Mean (SD)
Time 1	47.23 (15.51)	49.96 (19.76)	48.5 (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)

5.61, $p = 0.02$). No significant group by time interaction, site or axillary dissection effect was found. Women in the experimental group reported a lower level of tension than did women in the control group. However, between groups comparison using independent sample t-tests indicated no significant difference between the experimental and control groups. A possible explanation may be due to the lack of power when using post-hoc multiple comparisons such as t-tests, which increases the rate of Type I error (Munro, 2001).

Effect size

Based on Cohen's interpretation, the effect sizes observed for the AFSMI ranged from no effect to a moderate effect. The effect sizes were larger at time 2 than at time 3 indicating that the AFSMI intervention had a stronger impact on the outcomes immediately after the implementation of its first session. In the next section, only significant results will be discussed.

Discussion and implications

As hypothesized, the AFSMI had a statistically significant effect on the home management dimension of functional status and on overall emotional distress, and confusion. These findings are particularly important because physical functioning and emotional distress are salient at this point of the women's illness trajectory. By increasing the women's knowledge of the healthcare situation, and consequently decreasing their confusion, women in the experimental group were better able to regulate their emotional state and their level of functioning based on their own schema.

Symptoms

Three main symptoms were under examination: fatigue, pain and insomnia based on previous literature. In summary, the AFSMI intervention was not effective in reducing pain, fatigue, and insomnia experienced following breast surgery. The objective of the AFSMI was not so much to provide systematic self-care instructions, but rather to promote individual self-regulating abilities toward usual and new ways of dealing with common symptoms such as temporary pain, fatigue and insomnia. Women who received the intervention may have been implementing effective strategies to manage these symptoms, which they acquired through experience or education given prior to discharge. Implementation of effective strategies could have led to successful symptom management as reflected in the rather low levels of symptom severity reported by the women in this study. Successful symptom management could have contributed to the women's perception that the symptom is of no concern as reported during the session, and consequently, to the lack of discussion or suggestion of alternative strategies which could have been more effective than the ones already in use.

The variability in the women's symptom experience contributed to variability in the length of the intervention sessions. The phone sessions with some women lasted only two minutes while others lasted up to 112 minutes. Women with more needs required longer sessions to comprehensively address all their needs. Analyses of medical data revealed that more women in the experimental group reported having more chronic or actual illnesses in the medical questionnaire, compared

to women in the control group (62.7% and 42.86%). Women in the experimental group reported illnesses such as asthma, hypothyroid dysfunction, fibromyalgia, cardiac problems such as hypertension and arrhythmia, depression and burnout. Healthcare professionals need to be aware of the presence of symptom clusters and their possible synergetic adverse effects on women's future morbidity (Dodd, Miaskowski & Paul, 2001). This factor may have limited the effectiveness of the intervention in reducing the severity of the symptoms of interest. During the course of the study, women who underwent surgery at site 4, where most were recruited, received a booklet before surgery that contained concrete, sensory information about the breast surgery experience, which might have introduced a bias. It is also possible that the symptoms of interest in this study were related to the physiological stress of surgery and were resolved rather quickly during the early recovery period.

Functioning

Home management

The AFSM intervention had a statistically significant effect on the home management dimension of functioning, but not on the recreations and pastimes dimensions. Although normative scores are lacking to establish clinical significance, a larger percentage of women in the experimental group showed improvement in their level of functioning in home management as compared to the control group, further supporting the beneficial impact of the AFSMI. During the AFSMI sessions, the intervener encouraged the participants to focus on what they could do for a better recovery and reinforced performance of self-care strategies.

Emotional distress

The AFSM intervention had statistically significant effects on overall emotional distress. This finding gives support for using nursing interventions for patients whose emotional distress cannot be reduced (such as the sample under study). The AFSM intervention contributed to a faster improvement in emotional distress during the post-surgical period. A significant decrease was observed in the emotional distress for both groups after surgery. This is consistent with prior findings (Carver et al., 1993; Hoskins, 1997; Irvine, 1996; Northouse, 1989), showing that emotional distress reaches a peak at the time of diagnosis and surgery in women with primary breast cancer and progressively subsides afterwards.

Confusion

The AFSM intervention had a statistically significant effect on the confusion dimension of emotional distress in which patients who received the intervention reported less confusion as compared to those who did not. By informing the women about the symptoms, reinforcing self-care strategies and by focusing on the objective aspects of the healthcare experience, the AFSMI assisted the women in clarifying their schema. Clarification of schema is intended to "clarify", understand and explain the "picture" in the mind of each woman about the healthcare experience, behaviours during the event, and outcomes desired (Johnson et al., 1997). This clarification could have contributed to the decreased confusion.

Tension

The group effect found in the RM-ANOVAS indicates that the intervention was effective in reducing the level of tension, but without

Table 5: Confusion mean scores

POMS confusion Range 5-25	Experimental	Control	Total
	Mean (SD)	Mean (SD)	Mean (SD)
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)

Table 6: Tension mean scores

(range: 7-35)	Experimental	Control	Total
	Mean (SD)	Mean (SD)	Mean (SD)
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)

distinguishing when its effect was the most effective. Hence, the AFSM intervention had a statistically significant effect on the tension dimension of emotional distress.

To summarize, the AFSM intervention was effective in regulating the emotional part of coping as described by Lazarus and Folkman, (1984). This was achieved by listening emphatically to the woman, allowing for some emotional ventilation, and then focusing mainly on the concrete, objective aspects of this stressful surgical experience, as recommended by Johnson's self-regulation theory (1997). These findings support the need for individualized nursing interventions directed at relieving confusion, tension, and emotional distress for patients who are emotionally distressed or with patients requesting assistance in dealing with their emotional reactions, by helping them to focus on the concrete, objective aspects of the experience (Johnson, Fidler, Jones, Wlasowicz, & Mitchell, 1997) after some emotional ventilation. This would contradict other reports indicating that emotional ventilation might be detrimental as a coping strategy, because it has been associated with further affective distress (Compas et al., 1999). Nevertheless, expression of emotions in response to a breast cancer diagnosis or surgery leads to greater regulation and understanding of emotions and is more likely to be adaptive, and considered emotion focused coping (Johnson, 1997).

Implications for theory

Because women were able to discuss their actual concerns, their anger, frustration, nervousness and sadness, they most probably have used effectively ventilation of emotions as adaptive emotion-focused coping strategies. By describing their symptoms in objective concrete terms they were able to focus on the positive aspect of the situation and engage in problem-solving coping. Emotion-focused strategies prevail when women feel that the situation must be endured and try to reduce or manage the emotional distress that is associated with breast cancer surgery as an outpatient. By shifting the attentional focus from emotional responses to objective, concrete, functional aspects of the symptom experience, coping was promoted and directed at achieving functional outcomes (Johnson, 1999). Redirection was an effective means for focusing on what can be done about the situation (Cote & Pepler, 2002). Moreover, the AFSMI was provided after the healthcare event, indicating a need for a restatement or a second exposure to the concrete sensory information given the day of the surgery, to remind patients what they could expect and increase the effectiveness of the information (Johnson, Fuller, Endress, & Rice, 1978).

Implications for research

The results of this study raise several questions that could be addressed in future studies. The first question is: What is the optimum frequency, the intensity and the duration of the AFSMI? Future

research should consider increasing the dose of the AFSM intervention and evaluating the impact of varying doses on symptom management. Giving patients specific descriptions of what they can expect combined with suggestions for self-care can bolster their confidence in making decisions about coping strategies (Johnson, 1997). Instruments that measure symptoms and demonstrate sensitivity to capture change are needed to detect significant intervention effects on symptoms in future studies. Recently, Baron, Fey, Borgen, & Van Zee, (2004) and Baron and colleagues (2002) developed a measure to assess breast sensations after surgery. This measure may be relevant in accurately reflecting the women's symptom concerns. The influence of participants' characteristics on the effects of the AFSMI should be explored in future research. The needs of women with high anxiety or tiredness should be addressed as this was a fairly high reason for refusal. These women may actually be in more need and benefit from this intervention and careful attention should be given in the recruitment process. Characteristics such as optimism or hyper vigilance could moderate the effects of the intervention on the outcomes (Sidani, & Braden, 1998). Finally, characteristics of the settings from which participants are recruited such as number of qualified and experienced clinical nurses; staff attitudes toward nursing research and pain management policies are also important factors that should be examined.

Implications for practice

Findings from the present research have illustrated that a nursing intervention applied during immediate recovery of breast cancer surgery is quite clinically relevant to reduce emotional distress and enhance usual functioning. Redirecting the attention and focusing on concrete objective features hold promise in developing other innovative nursing interventions. It has been shown that individualizing information to clients' specific situations and cancer type enhances satisfaction with health care services (Dunn et al., 1993). The AFSM intervention empowers women to be self-regulating rather than encouraging dependency upon the healthcare professionals. With some adjustments, such as covering specific content related to symptom experience and management, the intervention protocol could be expanded to support women with more needs for a longer period after surgery. Nurses can take the lead and ensure that patients effectively evaluate, manage and understand their symptoms following any type of day surgery. In Quebec, there are already discussions, literature and presentations on the role of a "nurse navigator" for oncology patients (de Serres & Beauchesne, 2000). Oncology nurses may be the best facilitators of telephone interventions (Sandgren, McCaul, King, O'Donnell, & Foreman, 2000).

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