

The Effect of a Psychosocial Group Intervention on Loneliness and Social Support for Japanese Women With Primary Breast Cancer

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Purpose/Objectives: To examine the effects of a psychosocial group intervention on loneliness and social support in Japanese women with breast cancer.

Design: Secondary analysis of a randomized, controlled trial.

Setting: A breast cancer outpatient area of a National Cancer Center hospital in Japan.

Sample: 50 women who were less than 65 years old, were diagnosed with primary breast cancer, and had undergone surgery within 4–18 months of the start of the study.

Methods: Data were collected as part of a trial of an intervention. The investigators conducted a six-week group intervention consisting of health education, coping skills training, stress management, and psychological support. Subjects completed the revised University of California, Los Angeles, Loneliness Scale and a social support questionnaire at baseline, six weeks, and six months.

Main Research Variables: Loneliness, number of confidants, satisfaction with confidants, and satisfaction with mutual aid.

Findings: Fifty (33%) of the 151 invited patients participated and were randomized to either experimental ($n = 25$) or control ($n = 25$) groups, and 23 (92%) in each group completed the study. The experimental group had significantly lower scores than the control group for loneliness and significantly higher scores for the number of confidants, satisfaction with confidants, and satisfaction with mutual aid over the six-month study period.

Conclusions: This intervention is beneficial for Japanese patients with breast cancer experiencing loneliness and inadequate social support.

Implications for Nursing: The program can be used as an effective support for Japanese patients with cancer to manage their psychosocial concerns associated with illness.

Key Points . . .

- Loneliness is one of the major psychosocial concerns among patients with cancer.
- Loneliness is related negatively to the number of social network members and the degree of satisfaction with them.
- Few studies have been designed to investigate the effect of psychological group intervention in randomized trials on loneliness and social support among patients with cancer.

Trijsburg, Van Knippenberg, & Rijpma, 1992). Despite the recognized presence of various psychosocial concerns, little attention has been paid to demonstrating the effects of improving these concerns as research outcomes.

Loneliness is one of the major psychosocial concerns among patients with cancer. Several investigators have observed that many patients suffer from loneliness associated with illness or illness-related situations (Cuevas-Renaud, Sobrevilla-Calvo, & Almanza, 2000; Fox, Harper, Hyner, & Lyle, 1994; Friedman, Florian, & Zernitsky-Shurka, 1989; Perry, 1990). Researchers have reported that group interventions are important for people who are suffering from loneliness (Keele-Card, Foxall, & Barron, 1993; Kim, 1999; Koopman, Hermanson, Diamond, Angell, & Spiegel, 1998; Prince,

Numerous investigators have reported that patients with cancer have many psychosocial concerns, such as intrapsychic (e.g., anger, fear of dying), interpersonal (e.g., loneliness, communication with family and friends), and social concerns (e.g., isolation, stigma caused by cancer) (Cella & Yellen, 1993). However, most investigators who studied psychosocial group interventions for patients with cancer have focused on improving anxiety, depression, and coping behaviors. Published meta-analyses and review articles express clear evidence that group interventions for patients with cancer are effective in reducing anxiety and depression and enhancing coping behaviors (Bottomly, 1997; Fawzy & Fawzy, 1998; Meyer & Mark, 1995; Sheard & Maguire, 1999; Spiegel, 1995;

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Digital Object Identifier: 10.1188/03.ONF.823-830

Harwood, Blizard, Thomas, & Mann, 1997). Nevertheless, to the current study's investigators' knowledge, only two studies have been conducted to investigate the effect of a psychosocial group intervention on loneliness for patients with cancer and neither has presented the effect (Stewart, Geraldine, et al., 2001; Vries et al., 1997). Loneliness may be more serious in women with breast cancer because women are particularly vulnerable to this emotion (Holmen, Ericsson, Andersson, & Winblad, 1992, 1993; Rokach, 2000) and because patients with breast cancer survive longer than many other patients with cancer (American Cancer Society, 2003).

The literature on loneliness has focused mainly on the associations between loneliness and social support. Investigators have determined that loneliness is related negatively to the number of social network members (e.g., family, friends) and the degree of satisfaction with them (Bondevik & Skogstad, 1998; Jylha & Jokela, 1990; Kim, 1999; Stokes, 1985). Sarason and Sarason (1985) defined social support as individuals' perceived belief that they can obtain help or empathy when needed and their satisfaction with the available support. Social support can be organized into two categories: network size and satisfaction with support (Kim, 1999). Although group intervention is suggested to increase the social support for participants who are lonely (Cella & Yellen, 1993), few studies have been designed to investigate the effect of a group intervention on social support among patients with cancer in a randomized trial.

In Asian countries, group support has not been included in the major support services for patients with cancer nor has the effect of a group support intervention on loneliness, social support, psychological distress, or coping behaviors been assessed in a randomized trial. Therefore, the current study's researchers conducted a psychosocial group intervention for Japanese women with breast cancer and investigated the effect on psychological distress, coping behaviors, loneliness, and social support. The impact of the intervention on psychological distress and coping behaviors has been reported elsewhere (Fukui, Kugaya, et al., 2000). The purpose of this article is to present the effect of an intervention on participants' loneliness and social support.

Conceptual Framework

The conceptual framework underlying this study is one proposed by Stewart, Craig, MacPherson, and Alexander (2001). Their framework focused on variables that affect individuals' reactions to support group intervention. The framework assumes that support group intervention influences their stress (i.e., having cancer), health status (i.e., loneliness), coping behaviors, and social support.

Social support is conceptualized as interactions with family members, friends, healthcare professionals, and peers that communicate information, reliable alliance, aid, and esteem (i.e., informational, emotional, instrumental, and affirmational support) (Stewart, Hart, & Mann, 1995). Social support and coping are mediators of the stress process associated with stressors, such as having cancer (Bloom, 1990). Coping strategies can influence the type and quality of support received and the maintenance of social relationships (Pearlin, 1991). Social support, in turn, can improve coping, moderate the impact of stressors (Heller, 1990), and promote health (Maguire, 1991). Loneliness and psychological distress are common emotional health concerns following a diagnosis of cancer (Massie & Holland, 1989; Perry, 1990). The psychosocial group intervention in this study

has the specific aim to improve health outcomes (loneliness and psychological distress) and social support as well as coping behaviors among patients with cancer (see Figure 1).

Three processes of support group interventions have been proposed by Stewart, Craig, et al. (2001). First, social comparison with peers can normalize the process of life adjustment after having cancer. Second, support groups are bidirectional, offering group members a reciprocal exchange of support (i.e., mutual aid) (Gottlieb, 2000). Third, social-learning theory emphasizes that people's perceptions of their capabilities (self-efficacy) affect their behavior, thinking, and emotional reactions in stressful situations and that personal and situational influences alter coping behavior (Bandura, 1990). According to social-learning theory, people assimilate new knowledge better when it is presented by peers because they can identify with those who share a common experience (Borkman, 1990). Peers, acting as role models, can exchange experimental knowledge in support groups. In this article, these three processes of group intervention are the main focus and the impact on loneliness and social support from peers and healthcare professionals are reported.

Methods

Subjects

Subjects were selected from a group of outpatients with breast cancer who were surgically treated at the National Cancer Center Hospital East in Japan from August 1996 to February 1998. The study protocol was reviewed and approved by the institutional review board and the ethics committee of the National Cancer Center.

Eligibility criteria for the study were patients who (a) were less than 65 years of age, (b) were diagnosed and informed of having primary breast cancer, (c) had surgery within the previous 4–18 months, and (d) had no chemotherapy or had completed chemotherapy. Patients were excluded from participation if they had severe mental disorders, recurrence, or been diagnosed with cancer at another site.

Instruments

Loneliness, social support (the number of confidants and satisfaction with confidants), and satisfaction with mutual aid from other patients with cancer were assessed using the revised University of California, Los Angeles (UCLA), Loneliness Scale; a social support questionnaire; and a visual analog scale, respectively.

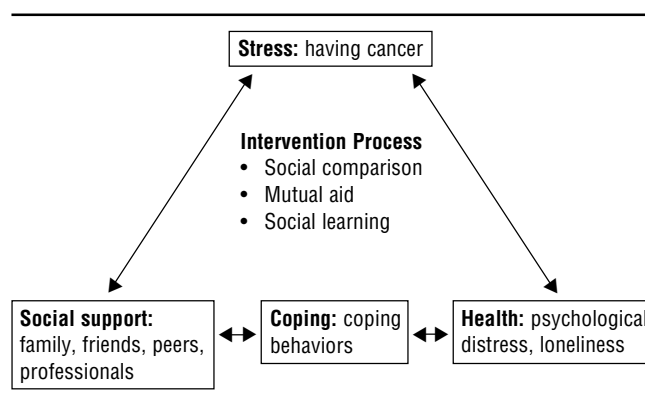


Figure 1. Conceptual Framework for Group Intervention

Loneliness was measured with the 20-item, Revised **UCLA Loneliness Scale** (Russell, Peplau, & Cutrona, 1980), in which subjects were asked to rate each of the 20 statements according to how often they agreed with the description. The item responses range from 4 (often) to 1 (never), with a total possible score of 20–80. Higher scores indicate a greater level of loneliness. This instrument has an internal consistency of alpha equal to 0.94. Concurrent and discriminant validity were confirmed by subjects who reported experiencing emotions theoretically linked to loneliness and not reporting emotions unrelated to loneliness (Russell et al.). The validity and reliability of the Japanese version of the Revised UCLA Loneliness Scale has been confirmed (Kudou & Nishikawa, 1983).

As an indicator of social support, patients' utilization of confidants was analyzed. Maunsell, Brisson, and Deschenes' (1995) questionnaire was used in the current study. In fact, the current study's researchers have used this questionnaire previously to measure social support (Akechi, Okamura, Yamawaki, & Uchitomi, 1998; Kugaya et al., 2000). In this questionnaire, patients are asked whether they had confided in someone since being diagnosed with cancer and, if so, the types and number of confidants. Spouses, children, parents, siblings, friends (e.g., peers), neighbors, colleagues, physicians, nurses, priests, and others were confidants. Patients then were asked how satisfied they were with the interactions with these confidants. If patients had not confided in anyone, they were asked about the degree of satisfaction with that state. Patients' responses ranged from 1–5, with higher scores indicating greater levels of satisfaction.

The level of satisfaction with mutual aid with other cancer survivors was measured using a visual analog scale in which patients were asked how satisfied they were with mutual aid provided by other cancer survivors. When patients were very satisfied with mutual aid, they were asked to check the right end of a 100 mm line. When patients were not at all satisfied with mutual aid, they were asked to mark the left end of a 100 mm line. In addition, subjects in the experimental groups were asked at the six-month assessment whether they had contacted other group members after the group sessions.

Data on demographic characteristics (age, employment status, marital status, children) and clinical variables (time since surgery, type of surgery, treatment, menopausal status, family history of cancer, disease stage) were obtained by reviewing patients' records.

Procedure

Eligible subjects were mailed a description of a psychosocial group intervention study and asked whether they wished to participate. They also were asked to complete a self-rating scale, the Hospital Anxiety and Depression Scale (HADS), to find and exclude patients with severe mental disorders. Major depression was defined as a total score of 20 or more on HADS (Kugaya, Akechi, Okuyama, Okamura, & Uchitomi, 1998). Additionally, to confirm the presence of major depression, patients were assessed using the Diagnostic and Statistical Manual III-R (American Psychiatric Association, 1987) criteria in a telephone interview by one of the investigators. Patients who were diagnosed as having major depression were excluded and referred to mental health professionals for individual psychotherapy.

Patients who met the eligibility criteria and wished to participate in the intervention were assigned randomly to an experimental group or a wait-list control group. Individuals then

were called and invited to participate in the assigned group. All patients provided written informed consent prior to the first assessment.

The data were collected from the experimental group at baseline, six weeks, and six months in the same place in the hospital where the intervention was conducted. The wait-list control group completed the questionnaires at the same intervals as the experimental group in another room in the hospital. The wait-list control patients were offered the same intervention following the collection of six-month data (see Figure 2). A wait-list control design was used to address ethical problems associated with control groups (Bottomly, 1997; Greer et al., 1992) because almost all controls wished to experience the experimental program after all assessments were completed.

Intervention Model

The current study's intervention model is based on the Fawzy et al. (1990) and Fawzy and Fawzy (1994) structured psychosocial group intervention model for patients with cancer. Areas determined to be inappropriate for Japanese patients according to Fukui, Kamiya, et al. (2000) were modified.

These inappropriate areas, which required significant changes, were mainly provision of medical information, communication with the doctor, and family-support style. In Japan, indirect and implicit expression is common (Sagara & Pickett, 1998; Tamura & Lau, 1992) and the more important the topic is, the less it is verbalized (Inoue, 1986). A prior

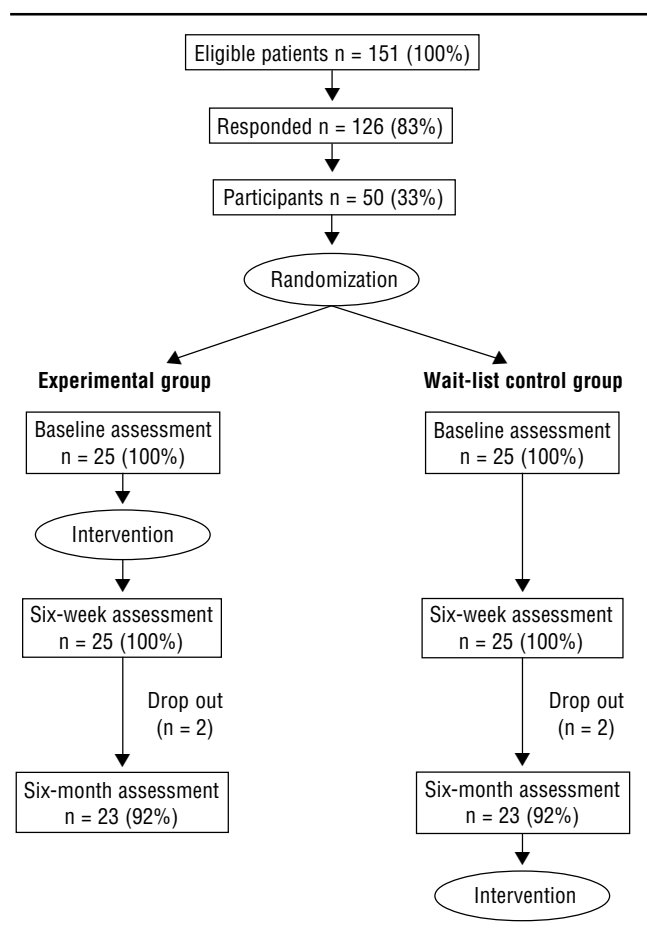


Figure 2. Study Participation Data

study noted that the disclosure of information without considering patients' preferences may lead to serious harm of patients who do not want to be told the truth about their illness (Asai, 1995). Therefore, in the modified intervention, sessions were structured so that medical information was given in a question-and-answer style; participants received only the information that they wanted. Regarding communication with doctors, a prior study reported that doctors' paternalism and patients' passivity are common in Japan. The *omakase* (trusting) patients tend to flatter authority in medical practice and entrust decision making about their treatment to their doctors in keeping with Japanese cultural tradition (Ishiwata & Sakai, 1994). Additionally, the Japanese concept of *shikatanagai* (such is the way things happen) is a consideration (Kagawa-Singer, Wellish, & Durvasula, 1997). With that philosophy, despite their needs, patients may not complain that their doctors are too busy to share more time with them. Therefore, in the modified intervention, the coping skills component that addressed communication with the doctor was changed. Regarding family support, female family members and friends are the main sources of support for Japanese women (Kagawa-Singer et al.). The core relationship is parent-child in Asian families instead of husband-wife as in American families (Nilchaikovit, Hill, & Holland, 1993). Because a cultural difference in support style between Asian families and American families was believed to be present, husbands were refocused to the same-sex family members as the main family supporters in the modified intervention.

The goals of the intervention were to provide within-group support by professionals and peers, lessen the psychological distress associated with having cancer, and assist patients in learning effective coping methods for the concerns related to having cancer (Fawzy, 1995). The intervention consisted of health education, coping skills, and stress management. In the health education component, medical and psychological information specific to breast cancer was presented. Medical information was presented in a question-and-answer format to maximize the available time during the intervention and to ensure that the participants received the information they wanted. To supply basic information to participants, handouts and reading materials related to each session were provided. In the coping skills component, problem-solving techniques were used to highlight the specific problems that patients with cancer typically encounter and participants were taught positive coping strategies as a way of diminishing stress and enhancing coping. Illustrations of eight common problems encountered by patients with primary breast cancer in Japan were presented. These common problems were based on those experienced by patients with breast cancer, identified by Fawzy and Fawzy (1994), and determined through a pilot study. The situations that were illustrated included diagnosis, treatment, body image, family support, communicating with friends and coworkers, communicating with physicians, fear of recurrence, and planning for the future. Each situation was presented in two different illustrations that described short scenarios of ineffective and effective coping methods. Patients were encouraged to apply the effective coping methods to their own situations. In the stress management component, patients were taught relaxation exercises, including progressive muscle relaxation followed by guided imagery. At the end of the first session, each patient was provided with a 20-minute instructional audiotape and a recommendation to prac-

tice progressive muscle relaxation with guided imagery independently using the tape at home twice a day (Fukui, Kugaya, et al., 2000). Specific contents of the intervention in each of the six group sessions can be found in Table 1.

Groups of 6–10 patients met for 1.5 hours weekly for six weeks. The intervention was conducted in three experimental groups and three control groups. To ensure the consistency of the intervention, the same two professionals led each experimental group. In addition, research team members reviewed the interventions weekly, and the consistency of the intervention among each experimental group was confirmed.

Data Analysis

Demographic and clinical characteristics as well as baseline scores of outcomes were evaluated by t test, chi-square, or Mann-Whitney U test to assess comparability between the groups. The effects of an intervention on each of the outcomes were assessed using repeated measures analysis of covariance (ANCOVA) to test whether a difference existed between the experimental group and the wait-list control group over the study period, after adjusting for the baseline scores and patients' having or not having undergone chemotherapy. The p value was set at 0.05, considering that effect sizes of interventions in

Table 1. Psychosocial Group Intervention Content

Component ^a	Session	Modification for Japanese Women With Breast Cancer
Health education	1	Orientation: introduce themselves to each other
	2	Psychological information: stress of having cancer
	3	Psychological information: coping methods for cancer
	4	Psychological information: fear of recurrence
	5	Medical information ^b : breast cancer and treatment
	6	Summary
Coping skills training	1	Orientation
	2	Coping scenario ^c : diagnosis and pre-treatment
	3	Coping scenario: treatment, post-treatment, and body image
	4	Coping scenario: fear of recurrence
	5	Coping scenario: family support ^d , communication with friends, and communication with doctors
	6	Coping scenario: how to have a positive life and plans for the future
Stress management	1	Explain stress management, provide an audiotape of relaxation training, and conduct it.
	2–6	Conduct relaxation training.

^a Psychological support (the fourth component) from the staff was inherent throughout the intervention, and within-group support also was shared among patients.

^b Question-and-answer style

^c Discuss participants' own problems or experiences using the coping scenarios as incentives.

^d Focus on daughters as the main family supporters.

this area are considered small, with typical ranges of 0.20–0.40 (Meyer & Mark, 1995; Sheard & Maguire, 1999). All data analyses were conducted using the SAS/STAT® Version 8.2 statistical software package (SAS Japan Institute, Inc., Tokyo, Japan).

Results

Study Sample

Of the 151 eligible patients, 126 responded (response rate 83%) and 53 (35%) wished to participate in the psychosocial intervention (see Figure 2). Seventy-three patients refused to participate, mainly because of social barriers such as work ($n = 31$), child care ($n = 14$), and geographic distance from the study site ($n = 14$). The subjects who wished to participate in the intervention (\bar{X} age = 53.6 ± 7.0) were significantly older than those who did not ($\bar{X} = 50.5 \pm 8.6$; $t = 2.16$; $p = 0.03$).

Of the 53 patients who wished to participate, three were excluded, two because they had scores higher than 20 on HADS and were assessed as having major depression at the time of recruitment. One person was excluded because her disease recurred before she could be randomized. Accordingly, 50 (33%) patients satisfied all eligibility criteria and were assigned randomly to study groups.

All 50 patients completed the baseline and six-week assessment, but four (8%) patients dropped out during the follow-up period. Two of the four dropouts were in the experimental group. One could not complete the six-month follow-up assessment because of the death of her husband; the other refused further assessment. One of the patients in the wait-list control group could not attend the assessment because she had been admitted for treatment of a newly diagnosed cancer at another site during the waiting period, and the other declined to attend because of recurrence during the waiting period. The dropouts were not significantly different in terms of demographic or clinical variables or dependent measures at the baseline from those who completed all assessments.

Group Characteristics

The mean age of the subjects was 53.5 ± 7.1 years (experimental group = 52.6 ± 6.8 , control = 54.3 ± 7.5), 42 subjects (84%) were married (experimental group = 88%, control = 80%), and 27 (54%) were employed (experimental group = 56%, control = 52%). The mean time since surgery was 9.3 ± 4 months (experimental group = 9.4 ± 4.4 , control = 9.2 ± 3.8), and 40 subjects (80%) were at disease stage II (experimental group = 76%, control = 84%). Table 2 shows that the demographic and clinical variables did not differ significantly between the experimental and wait-list control groups, with the exception of a higher rate of having undergone chemotherapy in the experimental group (68%) than the control group (36%) ($p = 0.02$). Therefore, this was controlled for in the multiple analyses of each of the outcomes.

With regard to confidants as an indicator of social support, the proportion of each type of confidant did not differ significantly between the experimental and control groups at baseline. In addition, those proportions in either group hardly changed over time (see Table 3).

Effect of Intervention on Loneliness

At baseline, no significant differences were reported between the experimental and control groups on the level of loneliness

Table 2. Patient Characteristics

Variable	Experimental Group (n = 25)		Control Group (n = 25)	
	\bar{X}	SD	\bar{X}	SD
Age (years)	52.6	6.8	54.3	7.5
Months since surgery	9.4	4.4	9.2	3.8
	n	%	n	%
Employment status				
Full-time	10	40	11	44
Part-time	4	16	2	8
Unemployed	11	44	12	48
Marital status				
Married	22	88	20	80
Divorced, separated, or widowed	3	12	5	20
Have daughter(s)	16	64	15	60
Have children (< age 20)	3	12	4	16
Postmenopausal	12	48	14	56
Type of surgery				
Mastectomy	18	72	17	68
Lumpectomy	7	28	7	28
Other	—	—	1	4
Type of therapy				
Chemotherapy*	17	68	9	36
Radiation therapy	7	28	8	32
Hormonal therapy (tamoxifen)	8	32	10	40
Has family history of cancer	10	40	16	64
Disease stage				
I	5	20	2	8
II	19	76	21	84
III	1	4	2	8

* $p \leq 0.05$

measured by the Revised UCLA Loneliness Scale (see Table 4). The repeated measures ANCOVA, which controlled having or not having undergone chemotherapy, revealed a significant between-group difference over the study period in the scores ($F = 5.30$, $p = 0.03$) (see Table 4). No group-by-time interaction was found because the baseline scores of the experimental and control groups were adjusted and the experimental group showed consistently lower scores at all subsequent time points.

Effect of Intervention on Social Support and Satisfaction With Mutual Aid

At baseline, no statistically significant difference was found in social support between the groups. That is, both the number of confidants (experimental group = 6.6 ± 6.1 , control = 6.8 ± 3.7) and the level of satisfaction with confidants (experimental group = 3.3 ± 1.0 , control = 3.7 ± 0.6) were not significantly different in the two groups. The level of satisfaction with mutual aid with other patients with cancer, as measured by a visual analog scale, was not significantly different between the groups (experimental group = 71.2 ± 23.2 , control = 67.6 ± 19.4).

Repeated measures ANCOVAs were conducted for social support (the number of confidants and the satisfaction with confidants) and satisfaction with mutual aid. All three analyses revealed a significant between-group difference over the study period ($F = 4.83$, $p = 0.03$; $F = 4.49$, $p = 0.04$; $F = 18.33$, $p = 0.0001$) (see Table 4). No statistically significant group-by-time interactions were observed because the experimental

Table 3. Social Support at Baseline, Six Weeks, and Six Months

Confidant	Experimental Group (n = 25)						Control Group (n = 25)					
	Baseline		Six Weeks		Six Months		Baseline		Six Weeks		Six Months	
	n	%	n	%	n	%	n	%	n	%	n	%
Yes	23	92	24	96	23	92	24	96	24	96	23	92
Type												
Spouse	17	68	19	76	19	76	17	68	17	68	18	72
Children	12	48	15	60	15	60	18	72	18	72	17	68
Parents	5	20	5	20	5	20	6	24	7	28	8	32
Siblings	15	60	19	76	13	52	17	68	18	72	15	60
Friends	15	60	15	60	16	64	16	64	16	64	15	60
Neighbors	12	48	14	56	14	56	12	48	14	56	14	56
Colleagues	7	28	7	28	4	16	2	8	3	12	1	4
Physicians	3	12	5	20	4	16	5	20	5	20	5	20
Nurses	3	12	3	12	2	8	—	—	2	8	1	4
Priests	2	8	2	8	1	4	2	8	2	8	3	12
Other	3	12	2	8	1	4	2	8	—	—	—	—

group showed consistently higher scores at all subsequent time points.

Regarding continuous mutual support within group members, all of the subjects of the experimental group (n = 23) answered that they contacted other group members outside the group sessions after the end of the sessions.

Discussion

This randomized, controlled trial supported the first hypothesis in this study. A short-term group intervention was effective in reducing the level of loneliness in patients with breast cancer at six months postintervention. To the investigators' knowledge, only two studies have demonstrated the effect of group intervention in reducing loneliness. These studies did not examine pa-

tients with cancer; instead, they examined patients with mental health problems (Petryshen, Hawkins, & Fronchak, 2001) or rheumatic disorders (Savelkoul, de Witte, Candel, van der Tempel, & van der Borne, 2001). Moreover, evidence from both studies as presented was not particularly strong. Petryshen et al.'s study was in a noncontrolled setting, and Savelkoul et al. indicated only a short-term effect in their randomized, controlled trial. Therefore, the results of the current study may offer some initial support for this hypothesized effect.

Because some investigators reported that a cultural difference exists regarding strategies for coping with loneliness (Boston, 1992; Rokach, 1999), the results of the current study may be a result of the subjects in the experimental group being able to learn effective coping strategies for loneliness through the culturally appropriate intervention model. For example, interven-

Table 4. Results of Repeated Measures Analysis of Covariance for Loneliness and Social Support

Outcome (Range)	Time ^a						Effects ^b			
	Baseline		Six Weeks		Six Months		Group		Group x Time	
	\bar{X}	%	\bar{X}	%	\bar{X}	%	F	p	F	p
Loneliness (20–80 ^c)										
Experimental group	36.6	7.2	33.9	7.7	33.7	8.5				
Control group	32.8	6.8	32.7	8.2	33.9	8.3	5.30	0.0300	0.05	0.82
Number of confidants (more than 0)										
Experimental group	6.6	6.1	8.9	9.4	8.4	6.3				
Control group	6.8	3.7	7.2	4.6	6.8	3.7	4.83	0.0300	0.11	0.74
Satisfaction with confidants (1–5 ^d)										
Experimental group	3.3	1.0	3.8	1.0	3.7	0.9				
Control group	3.7	0.6	3.4	0.7	3.4	0.9	4.49	0.0400	0.05	0.82
Satisfaction with mutual aid (0–100 ^d)										
Experimental group	71.2	23.2	84.7	16.9	77.3	17.0				
Control group	67.6	19.4	62.2	19.9	61.6	23.3	18.33	0.0001	0.58	0.31

^a None of the differences between groups was statistically significant by t test.

^b F statistic in repeated measures of analysis of covariance with baseline scores and having or not having undergone chemotherapy as covariates

^c Higher scores indicate a greater level of loneliness.

^d Higher scores indicate a greater level of satisfaction.

tion communication with same-sex supporters (e.g., daughters, sisters, peers) was emphasized (Fukui, Kamiya, et al., 2000).

The second hypothesis also was supported; that is, this study demonstrated the effect of a group intervention in improving quantity and quality aspects of social support among Japanese women with breast cancer. Although group support has been included in the major support services for patients with cancer in Western countries (Cella & Yellen, 1993), it has not yet been commonly used in Japan. Because one investigator questioned whether the group intervention developed for European Americans would have the same efficacy in other cultural groups (Meyer & Mark, 1996), the result could be an incentive for applying group intervention as a clinical effective service for patients with cancer.

The findings from this study may have occurred because the subjects in the experimental group had an opportunity for contact with fellow survivors through participation in a group intervention and the contact was sustained outside the group sessions after the end of the sessions. Japanese women might have unmet needs for relief from the damaging consequences of the stigma created by cancer (Vugia, 1991). These needs may result from feelings of isolation from others, particularly others without cancer, as is common with their Western counterparts (Cella & Yellen, 1993). To clarify these interpretations, however, further studies are needed.

Many Japanese cancer survivors experience depression after successful treatment (Uchitomi et al., 2000). Because many studies indicate that a strong relationship exists among depression, loneliness, and social support (Hagerty & Williams, 1999; Keele-Card et al., 1993; Kim, 2001; Prince et al., 1997), the results of the study may point to the possibility that primary breast cancer survivors could prevent long-term depression through short-term group intervention. Moreover, evidence exists that social support reduces the overall risk of mortality (House, Landis, & Umberson, 1988) and the risk of mortality from cancer (Reynolds & Kaplan, 1990). Therefore, increasing social support and improving feelings of loneliness among patients with cancer using psychosocial group interventions are important in reducing their mortality rate as well as reducing depression.

The participation rate in this trial was low, which may be explained by cultural views. First, the results may have been influenced by the attitude of Asian women in not seeking professional assistance for psychosocial problems created by the cancer experience (Kagawa-Singer et al., 1997). Second, the age of the subjects may have been a factor as some women did not participate in the intervention because of childcare concerns. Older subjects were significantly more likely to participate. Third, nonparticipants may have had difficulty accessing the hospital where the intervention was held.

The study had some limitations. First, the sample was small and self-selected from the Japanese patients with primary breast cancer. Second, although the social support questionnaire used in the study was proposed and utilized in previous studies (Akechi et al., 1998; Kugaya et al., 2000; Maunsell et al., 1995), its validity and reliability were not confirmed. In addition, the level of satisfaction with mutual aid among cancer survivors was measured with one visual analog scale item; therefore, generalization from the results might not be possible. Third, the intervention model had plural aims and components. Thus, clarifying which aspect or component was effective on the outcomes was difficult. Nevertheless, these findings provide encouragement to healthcare professionals in the clinical application of group interventions for patients with breast cancer in Asian populations who are suffering from loneliness and in need of increased social support. The intervention program of the study could be used as an effective support for Japanese patients with cancer to manage their psychosocial concerns associated with illness.

The authors thank Dr. Shigeru Imoto, a surgeon in the Division of Breast Surgery at the National Cancer Center Hospital East in Kashiwa, Japan. The authors also thank Ms. Masae Kamiya, a research assistant in the Psycho-Oncology Division at the National Cancer Center Research Institute East in Kashiwa and Dr. Hitoshi Okamura, a professor in the School of Medicine at Hiroshima University in Higashi-Hiroshima, Japan.

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