Original article

Art therapy improves experienced quality of life among women undergoing treatment for breast cancer: a randomized controlled study

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Women with breast cancer are naturally exposed to strain related to diagnosis and treatment, and this influences their experienced quality of life (QoL). The present paper reports the effect, with regard to QoL aspects, of an art therapy intervention among 41 women undergoing radiotherapy treatment for breast cancer. The women were randomized to an intervention group with individual art therapy sessions for 1 h/week ($n = 20$), or to a control group ($n = 21$). The WHOQOL-BREF and EORTC Quality of Life Questionnaire-BR23, were used for QoL assessment, and administrated on three measurement occasions, before the start of radiotherapy and 2 and 6 months later. The results indicate an overall improvement in QoL aspects among women in the intervention group. A significant increase in total health, total QoL, physical health and psychological health was observed in the art therapy group. A significant positive difference within the art therapy group was also seen, concerning future perspectives, body image and systemic therapy side effects. The present study provides strong support for the use of art therapy to improve QoL for women undergoing radiotherapy treatment for breast cancer.

Keywords: breast cancer, quality of life (QoL), art therapy, gender.

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INTRODUCTION

Quality of life (QoL) and breast cancer

Cancer disease often implies demanding experiences that are not always easy to capture in words. Increasingly, art therapy is used to provide non-verbal ways of improving feelings of health and QoL in connection with such

experiences of trauma, illness and treatment (Malchiodi 1999). The World Health Organization (WHO) defines QoL as an 'individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns'. Furthermore, it is a 'broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment' (The WHOQOL Group 1995).

There are several reasons for assessing QoL in cancer research and in clinical settings. Quality of life is an important indicator in measurements of treatment outcome because the treatment can affect the patient's everyday life and can cause serious harm to the patient, which can outweigh the advantages it is supposed to give (Shimozuma 2002). Clinicians have become increasingly aware of the centrality of maintaining and improving the patient's QoL in treatment of cancer (Hakamies-Blomqvist *et al.* 2001).

For most patients, the encounter with a cancer diagnosis and treatment for cancer is associated with many stressors that affect their daily life (Lampic *et al.* 2002). The diagnosis of cancer can produce great fear of pain, of dying, of economic and social changes and of dependence (Moschén *et al.* 2001). Receiving a breast cancer diagnosis has an impact on the affected women's emotional, cognitive and social functioning (Thewes *et al.* 2004). In a study by Schou *et al.* (2005), women with breast cancer reported significantly more insomnia, appetite loss and diarrhoea compared with the general population, at diagnosis and 3 months' follow-up. Compared with a control group, they also scored significantly lower on the aspects of QoL related to emotional, cognitive and social functioning, at the time of diagnosis. One year after operation, they continued to score lower on cognitive and social functioning (Schou *et al.* 2005).

Both the breast cancer disease itself and the treatment of cancer can cause physical disabilities such as loss of hair, loss of a breast, weight problems and other side effects which can make a woman feel alienated from her body. This is so, not least because breast cancer has been culturally associated with visible 'female' aspects of the body (Bassett-Smith 2001). Women with breast cancer often report feelings of fear and of decreased energy, as well as of isolation and aloneness. They relate that other people do not know how to talk to them, and that others cannot truly share their concerns. Worrying about how to spare other people's feelings is a common issue for women with breast cancer (Adamsen & Rasmusen 2003). Breast cancer sometimes causes a woman to isolate herself from her family and friends because of worry that they will be too emotionally involved in her concerns and fears (Serlin *et al.* 2000). These findings suggest that creating an arena for women with breast cancer to express, and especially process, these experiences, feelings and concerns would contribute to enhancing their QoL. This is where art therapy and other complementary treatments may be useful.

Complementary and alternative medicine

Complementary and alternative medicine (CAM) in relation to cancer treatment is widely used. There are a large range of reasons reported for use of CAM among patients with cancer, including the wish to improve general health (Boon *et al.* 1999), an attempt to overcome feelings of hopelessness and to rediscover hope, and a desire to gain control over the situation (Richardson *et al.* 2000). Another reason for use of CAM may be poor perceived QoL (Burstein *et al.* 1999).

Various kinds of CAM are used by patients with cancer and art therapy is one of them. Use of this therapy is often based on the belief that the creative process in the making of art is life enhancing and healing (Predeger 1996), and that it will relieve symptoms associated with cancer. Art-making has been said to enable expression of an individual's deepest emotions (Malchiodi 1999). Women taking part in CAM during treatment of breast cancer have reported increased perceived QoL (Carlsson *et al.* 2004), and among women with breast cancer undergoing radiotherapy treatment, the most cited reason for taking part in CAM was the aim of increasing QoL (Schonekaes *et al.* 2003).

Art therapy

Within the field of CAM, medical art therapy is defined as a mind–body intervention in supporting the 'power of the mind to influence the body in ways which encourage and stimulate health and well-being' (Malchiodi 1999, p. 17). There is now an increasing body of research on the benefits of art therapy, and results provide evidence of positive outcomes despite heterogeneity in samples, settings and art therapy designs. Some of the effects include symptom reductions regarding anxiety and depression, as well as decreased levels of stress, and improved self-esteem and self-assessment of global health (Reynolds *et al.* 2000; Monti *et al.* 2006).

Today, in the Western world, art therapy often forms part of cancer care and rehabilitation, providing imaginative communication through individual sessions and

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Table 1. Subject characteristics

	Intervention group, art therapy ($n = 20$)	Control group, no art therapy ($n = 21$)
Median age	59.5 years	55 years
Married, co-habiting/single household	17/3	15/6
Zero children/one or more children	5/15	1/20
Diagnosis: self-examination/screening	11/8 (missing data on 1)	7/13 (1 other)
Tumour classification: T1, Tcis/T2–T3*	13/7	15/6
Mastectomy/breast conserving surgery	5/15	5/16
Axillary lymph node dissection/sentinel node or no axillary lymph node dissection	15/5	13/6 (Missing data on 2)
Arm morbidity: yes/no	3/17	4/17
Chemotherapy/no chemotherapy	9/11	10/11
Hormone therapy/no hormone therapy	7/13	10/11
Menopausal status: pre-/post-menopausal	6/14	7/14

*Tcis, cancer *in situ*; T1, tumour < 20 mm; T2, tumour 21–50 mm; T3, tumour > 50 mm.

open/closed groups supporting meaning-making processes (Predeger 1996; Malchiodi 1997; Collie *et al.* 2006). Several studies with different designs, including case studies, have been documented (e.g. Pratt & Wood 1998; Malchiodi 1999; Luzzatto & Gabriel 2000; Gabriel *et al.* 2001; Borgmann 2002; Luzzatto *et al.* 2003; Waller & Sibbett 2005). Effects of art therapy in cancer care that have been reported include increased communication, processing of traumatic experiences, reduction of negative symptoms and increased feelings of energy (Luzzatto & Gabriel 2000; Borgmann 2002; Luzzatto *et al.* 2003; Nainis *et al.* 2006).

Art therapy and women with breast cancer

This study forms part of a larger project on art therapy in women with breast cancer. Previously published results of the main project (Öster *et al*. 2006, 2007) demonstrate improved coping resources among women with a breast cancer diagnosis after participation in individual art therapy. In the first paper (Öster *et al*. 2006), improved coping resources were seen to connect to gender aspects in the lives of women with breast cancer. In the second paper (Öster *et al*. 2007), women in the intervention group, considerably more often than the women in the control group, were able to access ideas and practices that gave legitimacy to an active protection of their own boundaries against demands by others. They were able to do this by making use of repertoires of gendered boundaries, in their narratives about life after the diagnosis. These women also improved their total scores on the Coping Resources Inventory after the art therapy intervention. In Öster *et al.* (2007), we define interpretative repertoires as culturally based rhetoric resources of different origin which people use to make sense of their experiences and organize their everyday life. We argue that the focus on the women's own experiences in art therapy created opportunities to elaborate, and in a setting that gave legitimacy to their own interpretations. This is in contrast to a large body of mono-vocal medical discourse, which often makes women's own stories invisible (Öster *et al*. 2007).

The aim of the present study was to evaluate the effect of an art therapy intervention during course of radiotherapy treatment, on self-rated QoL among women diagnosed and treated for breast cancer compared with a control group.

MATERIALS AND METHODS

Participants

The participants were 42 Swedish women with non-metastatic breast cancer referred to the Department of Oncology at Umeå University Hospital, Umeå, Sweden, for post-operative radiotherapy. The selection was consecutive. Women with dementia or severe psychiatric illness were excluded. The median age in the control group was 55 years and in the intervention group, 59.5 years. For detailed subject characteristics, see Table 1.

Procedure

Participants were randomized to either an intervention group, with five individual art therapy sessions once a week, or a control group. The randomization was computer-generated at the Regional Centre of Oncology at Umeå University. Stratification was done according to whether the patient had received adjuvant chemotherapy before radiotherapy treatment or not. In the main project, all 42 women completed questionnaires assessing coping, QoL, symptoms and self-image in connection with three interview occasions: (1) before randomization and start of radiotherapy; (2) 2 months later; and (3) 6 months later.

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The interviews were conducted by an art therapist not leading the art therapy sessions to make the women feel free to express both negative and positive experiences about the participation. The women were also asked to write a weekly diary about their experiences, thoughts and feelings concerning their life situation with breast cancer during their participation in the study.

The present paper focuses on the self-rated QoL assessments (1) before randomization and start of radiotherapy; (2) 2 months later; and (3) 6 months later.

Intervention

The individual art therapy sessions went on for only 5 weeks, because most of the women had to travel long distances and only stayed in Umeå during the 5 weeks of radiotherapy. Each session was led by one of two trained art therapists. The aim of the intervention was to (1) offer time and space for expression and reflection; (2) give support in the process of restoring body image; and (3) reduce stress and supporting agency. During all sessions, the same materials were offered: sheets of paper, a roll of paper, oil pastels in 48 colours and oil paints, tempera fluid, lead pencils, charcoal, adhesive tape, scissors and paintbrushes. All art therapy sessions were inspired by steps similar to the phenomenological method of art therapy, as presented by Betensky (1995, pp. 14–23). The procedure has been described in detail elsewhere (Öster *et al*. 2006).

One of the 42 participants in the control group was excluded because of incomplete data. Data analyses therefore comprise 41 women, 20 women in the intervention group and 21 in the control group. All women signed a written consent form before participation.

The study was approved by the Ethical Committee at the Medical Faculty, Umeå University (archive No. 99–386).

The present paper focuses on the effect, with regard to self-rated QoL, of an intervention with individual art therapy among women diagnosed and treated for breast cancer.

Instruments

In the present study, QoL was assessed using the Swedish version of the WHO instrument WHOQOL-BREF and of the European Organization for Research and Treatment of Cancer instrument, EORTC Quality of Life Questionnaire (QLQ)-BR23, version 1.0.

The WHOQOL-BREF is an instrument developed by the WHO to measure QoL, for use in clinical trials and other research studies. The instrument is available in over 20 different languages and contains 26 items in total. The instrument is divided into four domains (items 3–26), physical health (seven items), psychological health (six items), social relationships (three items) and the environment (eight items). Two further items, overall QoL and general health, are examined separately. The instrument is designed to be self-administered, and a time frame of 2 weeks is indicated in the assessment. Scores are scaled in a positive direction, with higher scores denoting higher QoL. The WHOQOL instruments are developed collaboratively in several centres worldwide. Not only are they widely field tested, but they are also rigorously tested for validity and reliability (Harper & Power 1998).

The QLQ-BR23, version 1.0, the breast cancer module developed by the EORTC-Quality of Life Group, is meant for use among patients with breast cancer, and is designed to assess QoL in breast cancer patients in conjunction with a generic questionnaire. It comprises 23 questions assessing disease symptoms and treatment side effects related to different treatment modalities, body image, sexual functioning and future perspectives. The instrument consists of four functional scales covering body image, sexual functioning, sexual enjoyment and future perspectives (eight items), and four symptom scales covering systemic therapy side effects, breast symptoms, arm symptoms and feelings associated with hair loss (15 items). The scale is self-administered and a time frame of 1 week is indicated for the overall assessment, with 4 weeks given for the assessment of sexual functioning and sexual enjoyment. A higher score for the functional scale indicates a better level of functioning. A higher score for the symptom scale represents a high level of symptoms/problems (Aaronson *et al.* 1993; Sprangers *et al.* 1996). The validity of the module has been investigated among patients with breast cancer in several countries, and the results support the clinical and cross-cultural validity of the QLQ-BR23 for assessing specific items related to patients with breast cancer as a supplementary questionnaire (Sprangers *et al.* 1996).

Data analysis

Results are given as means and standard deviation. Raw scores have been transformed to standard scores ranging from 0 to 100, according to the scoring manuals for the two different instruments, WHOQOL-BREF (The WHOQOL Group 1996) and EORTC QLQ-BR23 (Aaronson *et al.* 1993). Data are presented as domain and scale scores. The Mann–Whitney *U*-test was used to test differences between the intervention group and control group

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on the three measurement occasions. Wilcoxon's signed ranks test was used to test intra-group changes between the first and last measurement occasion. The level of significance was set to 5%. All analyses were performed using the Statistical Package for Social Sciences, version 11.5.

RESULTS

Results for the WHOQOL-BREF instrument indicate that by the third occasion, 6 months after the start of radiotherapy treatment, women who participated in the individual art therapy sessions had significantly improved their overall QoL and general health compared with the control group (Fig. 1). In addition, significant positive scores for the intervention group compared with the control group were shown in the environment domain by the third measurement occasion. A significant positive difference between measurement occasion 1 and measurement occasion 3 was demonstrated within the intervention group in the domains overall QoL, general health, physical health and psychological health. Within the control group, a significant positive difference between measurement occasion 1 and 3 was observed in the domain psychological health. After adjusting for differences in hormone therapy, the differences between the groups still remained. Results for the WHOQOL-BREF instrument are presented in Table 2.

No significant differences could be demonstrated on measurement occasions 1, 2 and 3 between the intervention group and control group based on EORTC QLQ-BR23 assessments. Within the intervention group, a significant positive difference in the domains body image, future perspectives and systematic therapy side effects occurred between measurement occasions 1 and 3. Results for the EORTC QLQ-BR23 instrument are presented in Table 3.

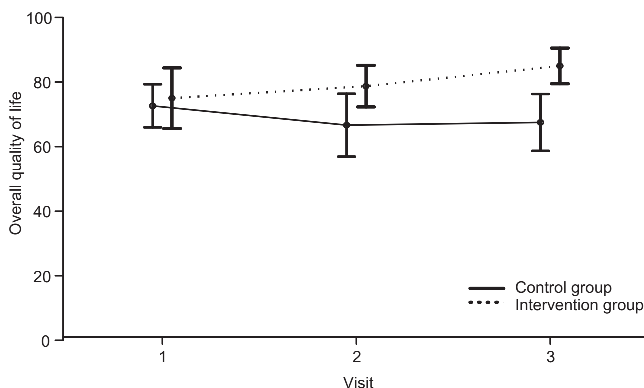

Figure 1. Results in overall quality of life, assessed using the WHOQOL-BREF in the intervention group ($n = 20$) and the control group ($n = 21$), on the first, second and third measurement occasion.

DISCUSSION

The aim of the present study was to investigate whether an intervention with individual art therapy sessions would affect self-rated experienced QoL among women undergoing radiotherapy treatment of breast cancer. The results indicate that among women in this study population, participation in art therapy significantly affected QoL in a positive direction.

An important consideration when choosing instruments to assess QoL is that they should cover the important issues in the study, and that they should have been validated for their psychometric properties. In addition, they should be brief and easy to administer in order to minimize the burden on the patients (Strömgren *et al.* 2002). It has been recommended to use several different instruments to gain an overall picture of the patient's QoL. Also, it is important that the time frame within which the patient is supposed to report should not exceed 1–2 weeks, because changes over time can be difficult for the patient to summarize (Huisman *et al.* 1997). The instruments in the present study were selected according to general recommendations to use a combination of instruments to gain an in-depth understanding of the patients' experienced QoL (Aaronson 1998), although using many different questionnaires can cause the patient much strain and, consequently, may affect the number of dropouts (Sjödén 1997).

Support for art therapy reducing a broad spectrum of symptoms common in oncology patient populations has been demonstrated. Reported benefits include decreased levels of anxiety, depression and stress, significant improvement of social functioning and moreover, improved QoL (Reynolds *et al.* 2000; Monti *et al.* 2006; Nainis *et al.* 2006). Improved communication with family and friends after taking part in art therapy has been demonstrated by Gabriel *et al.* (2001). Our results with the WHOQOL-BREF instrument, indicating that women who participated in art therapy sessions had significantly improved their overall QoL and general health compared with the control group, confirm results from previous studies (Monti *et al.* 2006; Nainis *et al.* 2006). Within the intervention group, the significant positive differences in the domains overall QoL, general health, physical health and psychological health are in agreement with previous research that has shown that art-making may contribute to maintaining a positive identity among patients with

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Table 2. Number (*n*), mean (m) standard scores and standard deviation (SD) for the WHOQOL-BREF instrument administrated in the intervention group and control group on three measurement occasions: (1) before randomization and start of radiotherapy; (2) 2 months later; and (3) 6 months later

Domains	Intervention/ control group (*n*)	Intervention group (m/SD)	Control group (m/SD)	Asymptotic significance (two-tailed)*	Asymptotic significance (two-tailed). Intervention†	Asymptotic significance (two-tailed). Control‡
Overall QoL						
Occasion 1	20/21	75.00/21.46	72.62/15.62	n.s.		
Occasion 2	20/21	78.75/14.68	66.67/22.82	n.s.		
Occasion 3	20/20	85.00/12.57	67.50/20.03	0.003	0.033	n.s.
General health						
Occasion 1	20/21	57.50/24.47	59.52/24.34	n.s.		
Occasion 2	20/21	65.00/26.16	54.76/25.76	n.s.		
Occasion 3	20/20	71.25/20.32	55.00/23.79	0.024	0.008	n.s.
Physical health						
Occasion 1	20/21	69.82/14.91	65.31/17.06	n.s.		
Occasion 2	20/21	68.75/13.51	61.39/19.71	n.s.		
Occasion 3	20/20	74.82 /13.33	63.93/19.80	n.s.	0.042	n.s.
Psychological health						
Occasion 1	20/21	69.17/9.69	64.88/13.08	n.s.		
Occasion 2	20/21	70.83/15.29	63.69/15.87	n.s.		
Occasion 3	20/20	73.96/10.28	69.38/13.13	n.s.	0.045	0.015
Social relationships						
Occasion 1	20/21	78.33/12.80	73.41/14.34	n.s.		
Occasion 2	20/21	74.58/14.43	69.44/15.66	n.s.		
Occasion 3	20/20	77.50/12.99	71.67/16.31	n.s.	n.s.	n.s.
Environment						
Occasion 1	20/21	75.04/7.89	70.68/10.43	n.s.		
Occasion 2	20/21	72.86/13.01	69.20/11.06	n.s.		
Occasion 3	20/20	74.69/8.54	68.59/11.58	0.034	n.s.	n.s.

Results were calculated using the Mann–Whitney *U*-test, a non-parametric test of differences between the intervention group and the control group. Wilcoxon's signed ranks test was used to test for significant intra-group changes between measurement occasions 1 and 3.
*Between the groups at measurement occasion 1, 2 and 3.
†Within the intervention group.
‡Within the control group.
n.s., non-significant; QoL, quality of life; WHOQOL-BREF, World Health Organization QOL-BREF.

cancer (Reynolds & Prior 2006) and provide a way of dealing with pain, improving the sense of well-being. In addition, art therapy could offer an opportunity for women with cancer to interpret their experiences and give these interpretations acceptance and legitimacy. This may translate into a greater sense of control in the new life situation (Heywood 2003). Such issues and their gender dimensions are dealt with in another paper on this project (Öster *et al*. 2007).

Within the intervention group, significant positive differences could be demonstrated in the domains body image and future perspectives, assessed using the EORTC QLQ-BR23. The focus of supportive–expressive therapy includes mourning the losses that the cancer disease brings and adjusting to a changed body image. The confrontation with cancer can make the patient develop greater clarity about personal values and goals in life. Expressive therapy has the potential to enhance QoL concerning future perspectives. It can help patients develop new goals, and discover that they want to live life as fully as possible despite the cancer diagnosis (Serlin *et al.* 2000). Body image has been shown to have an impact on the possibility of expressing negative feelings, as well as on social support and self-efficacy in coping with breast cancer (Pikler & Winterowd 2003). The EORTC QLQ-BR23 instrument demonstrates no significant differences in absolute values between the intervention group and the control group and may suggest that patients can adapt to treatment side effects, and change the meaning of aspects related to QoL as a result of an event such as treatment for cancer. Symptoms commonly reported by patients may become worse over time but have decreased importance for the individual, a phenomenon called 'response shift' (Jansen *et al.* 2001).

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Table 3. Number(*n*), mean (m) standard scores and standard deviation (SD) for the EORTC QLQ-BR23 instrument administrated in the intervention group and control group on the first, second and third measurement occasions: (1) before randomization and start of radiotherapy; (2) 2 months later; and (3) 6 months later

Domains	Intervention/ control group (*n*)	Intervention group (m/SD)	Control group (m/SD)	Asymptotic significance (two-tailed)*	Asymptotic significance (two-tailed). Intervention†	Asymptotic significance (two-tailed). Control‡
Body image						
Occasion 1	20/21	82.08/22.18	74.21/31.28	n.s.		
Occasion 2	20/21	81.67/24.57	80.95/20.77	n.s.		
Occasion 3	20/21	91.25/12.82	83.33/27.64	n.s.	0.027	n.s.
Sexual functioning						
Occasion 1	19/20	25.44/19.54	25.00/21.97	n.s.		
Occasion 2	19/21	38.60/24.88	30.16/28.20	n.s.		
Occasion 3	19/20	34.21/24.52	28.33/26.55	n.s.	n.s.	n.s.
Sexual enjoyment						
Occasion 1	13/10	56.41/25.04	50.00/32.39	n.s.		
Occasion 2	16/13	56.25/26.44	53.85/25.60	n.s.		
Occasion 3	14/12	69.05/24.34	72.22/27.83	n.s.	n.s.	n.s.
Future perspectives						
Occasion 1	20/21	53.33/27.36	57.14/30.08	n.s.		
Occasion 2	20/21	56.67/28.82	63.49/27.70	n.s.		
Occasion 3	20/21	71.67/19.57	60.32/27.12	n.s.	0.016	n.s.
Systematic therapy side effects						
Occasion 1	20/21	16.94/11.36	19.95/16.74	n.s.		
Occasion 2	20/21	14.76/11.13	20.33/12.23	n.s.		
Occasion 3	20/21	10.24/7.61	14.97/12.71	n.s.	0.006	n.s.
Breast symptoms						
Occasion 1	20/21	15.42/12.76	15.48/14.26	n.s.		
Occasion 2	20/21	20.42/16.10	21.03/14.58	n.s.		
Occasion 3	20/21	17.08/11.30	20.63/17.80	n.s.	n.s.	n.s.
Arm symptoms						
Occasion 1	20/21	16.11/20.23	21.16/21.05	n.s.		
Occasion 2	20/21	16.11/21.77	26.46/29.71	n.s.		
Occasion 3	20/21	15.56/20.52	18.52/17.33	n.s.	n.s.	n.s.
Upset by hair loss						
Occasion 1	3/2	44.44/50.92	16.67/23.57	n.s.		
Occasion 2	3/2	11.11/19.25	50.00/23.57	n.s.		
Occasion 3	4/2	25.00/16.67	50.00/70.71	n.s.	n.s.	No valid pairs

Results were calculated using the Mann–Whitney *U*-test, a non-parametric test of differences between the intervention group and the control group. Wilcoxon's signed ranks test was used to test for significant intra-group changes between measurement occasions 1 and 3.
*Between the groups at measurement occasion 1, 2 and 3.
†Within the intervention group.
‡Within the control group.
EORTC, European Organization for Research and Treatment of Cancer; n.s., non-significant; QLQ, Quality of Life Questionnaire; QoL, quality of life.

In studies of women with breast cancer, art therapy has been found to help them confront experiences of loss, bodily changes, social relations affecting their identity, and existential questions (Predeger 1996; Malchiodi 1997; Waller & Sibbett 2005). In our art therapy intervention, the women were given opportunities to explore, process and reflect on both breast cancer-related experiences and experiences regarding their social and marital relations. The results of our studies suggest that the women, through image-making and reflection on their images, were able to give legitimacy to their own interpretations and experiences (Öster *et al.* 2007). Art therapy served as a tool that helped the women recognize and question traditionally gendered limits and boundaries. Such limitations have traditionally been stronger for women than for men, while allowing less boundary protection compared to men (Kaschak 1992).

Support for positive effects of art therapy, including improvement in global health, and decreased stress, anxiety and depression, is presented in a review of the

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literature consisting of 17 studies, even if the non-uniform designs make it difficult to draw specific conclusions about the effects of art therapy interventions in a specific patient population (Reynolds *et al.* 2000).

The results on overall QoL and general health (WHOQOL-BREF), among the women in the present study who participated in the individual art therapy sessions, can be taken as an indicator of experienced wellness and may reflect the success of art therapy interventions; however, it is difficult to express the subjective concept of QoL in a quantitative, objective way (Shimozuma 2002). Since quantitative data cannot give insight into processes underlying assessments in questionnaires, we also included qualitative data in the study (interviews, diary entries and images from the art therapy sessions). For analysis of the qualitative data, see Öster *et al.* (2007).

Because of the entire project's design, with analysis of both qualitative (interviews and diary entries) and quantitative data (questionnaires), it was not possible to include a large patient material in the study. Nor was it possible to perform a multi-centre study using this approach. However, we found it important to use a randomized design since very few studies using art therapy in a randomized design, and none in oncology, had been published at the start of this project. Despite the small study population in the present study, significant differences emerged between the intervention group, who took part in art therapy, and the control group, with regard to several aspects of QoL. These findings are supported by significant positive differences, with higher experienced QoL and general health within the intervention group. The results point to the necessity for further investigation, with larger groups included.

It is important that healthcare professionals as well as art therapists be aware of the complex and contradictory nature of cultural expectations surrounding women with breast cancer, and of the personal consequences of these. Such awareness can equip professionals both to better support women patients' struggles with limiting, culturally gendered discourse, and to acknowledge diversity (Öster *et al*. 2007). Our studies provide a good basis for further research, with similar or different art therapy designs, in various patient populations. Further research will be able to take into account setting, gender, ethnicity, social background, age and other demographic variables.

In conclusion, this study shows that art therapy as a complementary therapy can play an important role in routine practice for women with breast cancer. The results from our studies, taken together, strongly support art therapy as a powerful tool in rehabilitation of patients with breast cancer and, presumably, also in the care of patients with other types of cancer.

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REFERENCES

Aaronson N.K. (1998) Quality of life: what is it? How should it be measured? *Oncology* **2**, 69–74.

Aaronson N.K., Ahmedzai S., Bergman B., Bullinger M., Cull A., Duez N., Filiberti A., Flechtner H., Fleishman S.B., De Haes J.C., Kaasa S., Klee M., Osboa D., Razavi D., Rofe P.B., Schraub S., Sneeuw K., Sullivan M., Takeda F., for the European Organization for Research Treatment of Cancer Study Group on Quality of Life. (1993) The European Organization for Research and Treatment of Cancer QLQ-C30: a quality-of-life instrument for use in international clinical trials in oncology. *Journal of National Cancer Institute* **85**, 365–376.

Adamsen L. & Rasmusen J.M. (2003) Exploring and encouraging through social interaction. *Cancer Nursing* **26**, 28–36.

Bassett-Smith J. (2001) *Women with breast cancer and their living in and through discourses: a feminist post-modern study*. Dissertation for the degree of Doctor of Philosophy in the School of Nursing. University of Victoria, Canada.

Betensky M.G. (1995) *What Do You See? Phenomenology of Therapeutic Art Expression*, 1st edn. Jessica Kingsley Publishers, London, UK.

Boon H., Stewart M. & Kennard M.A. (1999) Use of complementary/alternative medicine by breast cancer survivors in Ontario: prevalence and perceptions. *Journal of Clinical Oncology* **18**, 2515–2521.

Borgmann E. (2002) Art therapy with three women diagnosed with cancer. *The Arts in Psychotherapy* **29**, 245–251.

Burstein H.J., Gelber S. & Guadagnoli E. (1999) Use of alternative medicine by women with early-stage breast cancer. *New England Journal of Medicine* **340**, 1733–1739.

Carlsson M., Arman M., Backman M., Flatters U., Hatschek T. & Hamrin E. (2004) Evaluation of quality of life/life satisfaction in women with breast cancer in complementary and conventional care. *Acta Oncologica* **43**, 27–34.

Collie K., Bottorff J.L. & Long B.C. (2006) A narrative view of art therapy and art making by women with breast cancer. *Journal of Health Psychology* **11**, 761–775.

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Gabriel B., Bromberg E., Vandenbovenkamp J., Walka P., Kornblitz B. & Luzzatto P. (2001) Art therapy with adult bone marrow transplant patients in isolation: a pilot study. *Psycho-Oncology* **10**, 114–123.

Hakamies-Blomqvist L., Louma M.L., Sjöström J., Pluzanska A., Sjödin M., Mouridsen H., Östenstad B., Mjaaland I., Ottosson S., Bergh J., Malmström P.O. & Blomqvist C. (2001) Timing of quality of life (QoL) assessments as a source of error in oncological trials. *Journal of Advanced Nursing* **35**, 709–716.

Harper A. & Power M. (1998) Development of the World Health Organization WHOQOL-BREF Quality of Life assessment. *Psychology Medicine* **28**, 551–558.

Heywood K. (2003) Introducing art therapy into the Christie Hospital Manchester UK 2001–2002. *Complementary Therapies in Nursing and Midwifery* **9**, 125–132.

Huisman S.J., Van Dam F.S.A. & Aaronson N.K. (1997) On measuring complaints of cancer patients: some remarks on the time span of the question. *The Quality of Life of Cancer Patients i Komplekst og varieret*. Studentlitteratur, Lund, Sweden.

Jansen S.J.T., Stiggelbout A.M., Nooij E.M. & Kievit J. (2001) Response shift in quality of life measurement in early-stage breast cancer patients undergoing radiotherapy. *Quality of Life Research* **9**, 603–615.

Kaschak E. (1992) *Engendered Lives. A New Psychology of Women's Experience*. BasicBooks, New York, USA.

Lampic C., Thurfjell E., Bergh J., Carlsson M. & Sjödén P.O. (2002) Life values before versus after a breast cancer diagnosis. *Research in Nursing and Health* **25**, 89–98.

Luzzatto P. & Gabriel B. (2000) The creative journey: a model for short-term group art therapy with posttreatment cancer patients. *Art Therapy: Journal of the American Art Therapy Association* **17**, 265–269.

Luzzatto P., Sereno V. & Capps R. (2003) A communication tool for cancer patients with pain: the art therapy technique of the body outline. *Palliative and Supportive Care* **1**, 135–142.

Malchiodi C.A. (1997) Invasive art: art as empowerment for women with breast cancer. In: *Feminist Approaches to Art Therapy*, 1st edn (ed. Hogan S.), pp. 49–64. Routledge, London, UK.

Malchiodi C.A. (1999) *Medical Art Therapy with Adults*. Jessica Kingsley Publishers, London, UK.

Monti D.A., Peterson C., Shakin Kunkel E.J., Hauck W.W., Pequignot E., Rhodes L. & Brainard G.C. (2006) A randomized controlled trial of mindfulness-based art therapy (MBAT) for women with cancer. *Psycho-Oncology* **15**, 363–373.

Moschén R., Kemmler G., Schweigkofler H., Holzner B., Dunser M., Richter R., Wolfgang Fleischhacker W. & Sperner-Unterweger B. (2001) Use of alternative/complementary therapy in breast cancer patients – a psychological perspective. *Support Care Cancer* **9**, 267–274.

Nainis N., Paice J.A., Ratner J., Wirth J.H., Lai J. & Shott S. (2006) Relieving symptoms in cancer: innovative use of art therapy. *Journal of Pain and Symptom Management* **31**, 162–169.

Pikler V. & Winterowd C. (2003) Racial and body image differences in coping for women diagnosed with breast cancer. *Health Psychology* **6**, 632–637.

Pratt M. & Wood J.M. (1998) *Art Therapy in Palliative Care*. Routledge, London, UK.

Predeger E. (1996) Womanspirit: a journey into healing through art in breast cancer. *Advances in Nursing Science* **18**, 48–58.

Reynolds F. & Prior S. (2006) The role of art-making in identity maintenance: case studies of people living with cancer. *European Journal of Cancer Care* **15**, 333–341.

Reynolds M.W., Nabors L. & Quinlan A. (2000) The effectiveness of art therapy: does it work? *Art Therapy: Journal of the American Art Therapy Association* **17**, 207–213.

Richardson M.A., Sanders T., Palmer J.L., Greisinger A. & Singletary S.E. (2000) Complementary/alternative medicine use in a comprehensive cancer center and the implications for oncology. *Journal of Clinical Oncology* **13**, 2505–2514.

Schonekaes K., Micke O., Mucke R., Buntzel J., Glatzel M., Bruns F. & Kisters K. (2003) Use of complementary/alternative therapy methods by patients with breast cancer. *Forsch Komplementarmed Klass Naturheilkd* **10**, 304–308.

Schou I., Ekeberg Ö., Sandvik L., Hjermstad J.M. & Ruland C.M. (2005) Multiple predictors of health-related quality of life in early stage breast cancer. Data from a year follow-up study compared with the general population. *Quality of Life Research* **14**, 1813–1823.

Serlin I.A., Classen C., Frances B. & Angell K. (2000) Symposium: support groups for women with breast cancer: traditional and alternative expressive approaches. *The Arts in Psychotherapy* **27**, 123–138.

Shimozuma K. (2002) Quality of life assessment. *Breast Cancer* **9**, 100–106.

Sjödén P.O. (1997) Livskvalitetsmätning I onkologisk forskning och vård. In: *Komplekst og Variert* (eds Hansen H.P. & Tishelman C.), pp. 20–32. Studentlitteratur, Lund, Sweden.

Sprangers M.A., Groenvold M., Arraras J.I., Franklin J., Te Velde A., Muller M., Franzini L., Williams A., De Haes H.C., Hopwood P., Cull A. & Aaronson N.K. (1996) The European Organization for Treatment of Cancer breast cancer-specific quality-of-life questionnaire module: first results from a three-country field study. *Journal of Clinical Oncology* **14**, 2756–2768.

Strömgren A.S., Groenvold M., Pedersen L., Olsen A.K. & Sjogren P. (2002) Symptomatology of cancer patients in palliative care: content validation of self-assessment questionnaires against medical records. *European Journal of Cancer* **38**, 788–794.

The WHOQOL Group (1995). The World Health Organization Quality of Life assessment (WHOQOL): position paper from the World Health Organization. *Social Sciences and Medicine* **41**, 1403–1409.

The WHOQOL Group (1996). WHOQOL-BREF manual for introduction, administration and scoring, version December 1996, Geneva, Switzerland.

Thewes B., Butow P., Girgis A. & Pendlebury S. (2004) Assessment of unmet needs among survivors of breast cancer. *Journal of Psychosocial Oncology* **22**, 51–73.

Waller D. & Sibbett C. (2005) *Art Therapy and Cancer Care*. Open University Press, London, UK.

Öster I., Svensk A.C., Magnusson E., Egberg Thyme K., Sjödin M., Åström S. & Lindh J. (2006) Art therapy improves coping resources: a randomized controlled study among women with breast cancer. *Palliative and Supportive Care* **4**, 57–64.

Öster I., Magnusson E., Egberg Thyme K., Lindh J. & Åström S. (2007) Art therapy for women with breast cancer: the therapeutic consequences of boundary strengthening. *The Arts in Psychotherapy* **34**, 277–288.

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