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To cite this article: Johanna Czamanski-Cohen PhD, Joshua F. Wiley PhD, Noga Sela BA, Opher Caspi MD, PhD & Karen Weihs MD (2019): The role of emotional processing in art therapy (REPAT) for breast cancer patients, Journal of Psychosocial Oncology, DOI: [10.1080/07347332.2019.1590491](https://doi.org/10.1080/07347332.2019.1590491)

To link to this article: <https://doi.org/10.1080/07347332.2019.1590491>



Published online: 01 Apr 2019.



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REPORT



The role of emotional processing in art therapy (REPAT) for breast cancer patients

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ABSTRACT

Emotional awareness and acceptance of emotion are associated with improved health in breast cancer (BC) patients. Art therapy (AT) uses visual art-making for expression and communication and has been shown to reduce psychological and physical symptoms in individuals with cancer. A major objective of AT is to encourage increases in emotion processing; however, few studies examine these changes.

Purpose: To examine the effect of an eight-week AT group on emotion processing as a mechanism of symptom reduction in women with BC.

Design: Randomized clinical trial.

Sample: Twenty women diagnosed with breast cancer whom had completed primary treatment.

Methods: Participants were randomized to participate in eight-weeks of AT or sham AT, which was a mandala coloring group. Participants answered questionnaires before and after the intervention. We used a Cohen's D calculator for effect sizes and a t-test to examine group differences.



Findings: Statistically significant between-group differences in emotional awareness and acceptance of emotion were found after the intervention. We found large effect sizes between groups and over time in acceptance of emotion, emotional awareness and depressive symptoms.

Conclusions: We conclude that emotion processing in AT may be a potential mechanism reducing depression and somatic symptoms in cancer patients.

Implications for Psychosocial Providers: Art Therapy is a feasible intervention to increase emotional processing. A larger study is required to further examine its effect on psychological and physical symptoms in breast cancer patients.

KEYWORDS

behavioral health; breast; intervention research; palliative care; quantitative; RCT

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Introduction

Experiencing stress and negative emotion are normative responses to cancer diagnosis and treatment. However, one-third of individuals coping with cancer experience the debilitating consequence of depression.¹⁻⁵

According to the constructed theory of emotion, emotions are made following: (i) interoception (the perception of what is happening inside the body (i.e. heartbeat, lungs, digestion) that produces a general sense of feeling that can range from pleasant to unpleasant and from jittery to calm and (ii) external sensory input.⁶ We cognitively construct estimations of the meaning of the internal and external sensory information based on life experience. Emotional processing is the way in which emotions are actively experienced, interoceptively, and exteroceptively, along with being understood and expressed. Emotional processing is associated with improved health in breast cancer (BC) survivors.^{7,8} Two aspects of emotional processing are emotional awareness and acceptance of emotion. Increased *emotional awareness* occurs when bodily sensations or unconscious knowledge that is experienced somatically is transferred to explicit thought (conscious processing through language or symbolic formations, such as visual art).⁹⁻¹¹ Emotional awareness can be assessed by measuring an individual's ability to describe and label affective experiences. Increased emotional awareness is associated with reduced somatic symptoms (i.e. pain without known medical cause).¹² *Acceptance of emotion* is an emotion regulation strategy in which individuals are accepting and nurturing toward their feelings^{8,13} and has been associated with reduced distress,¹³ sickness symptoms (i.e. nausea, pain and fatigue),⁷ and mortality in breast cancer patients.⁸

Art therapy is a form of psychotherapy that involves the use of visual art-making (drawing, painting, sculpting, collage, etc.) for expression and communication within a safe and supportive relationship, in a therapeutic setting.¹⁴ The Art Therapy session includes (i) an introductory period in which the therapist engages with participants to establish rapport and begins to understand participants' current state of mind, (ii) an art making period which entails much of the time, and (iii) a processing period in which the art made is looked at and discussed. Art Therapy has been well documented in cancer settings to alleviate psychological symptoms and reduce physical complaints.¹⁵⁻¹⁹ In a qualitative study, 17 women with breast cancer were interviewed in depth about how they used art making and art therapy for their psychosocial needs and reported that a primary way in which art making was helpful was to increase their understanding of their emotions and to express those emotions.²⁰ Thus, as part of a larger effort to examine our hypothesis that increased emotion processing is a primary mechanism through which Art Therapy effects psychological and physical symptom reduction in breast cancer patients, we designed a pilot study to examine the effects of an eight-week AT group with women with BC on emotion processing.

Method

Study design

This was a randomized pilot study to compare the effects of Art Therapy (AT) with sham AT on emotional processing and on depression and physical symptoms (outcome variables). While our primary research question in the larger research project will require a mediation analysis to test the mediation of AT effects on the outcome variables by emotion processing, the goal of the pilot study was to assess the feasibility of the intervention protocol and to examine the effect size of the intervention on emotional processing and on the outcome variables.

The study took place in the survivor's clinic of Davidoff Cancer Center in Rabin Medical Center. The Institutional Review Board approved the study (approval number 0304-16-RMC) and participants were informed that they could leave the study without any effect on their treatment. Twenty women who had completed primary treatment for breast cancer were recruited to participate and randomized to (i) standard AT group tailored to increase emotion processing or (ii) sham AT group (SHAM): coloring of prefabricated shapes (mandalas). All participants were without evidence of active illness, based on their oncologist's referral, and received adjuvant and preventative treatment, such as Tamoxifen or aromatase inhibitors for the past 6 months. Participants filled out self-report measures before and after the intervention (Figure 1).

The interventions

Both interventions were comprised of eight weekly sessions conducted by an art therapist and a nurse who is also an art therapist (first and second authors, respectively). The AT sessions were an hour and a half long, whereas the SHAM sessions were one hour long.

Art therapy

The treatment protocol derives its theoretical framework from the Bodymind model of AT²¹ and from the application of Focusing to Art Therapy^{22,23} for the purpose of body awareness and focusing ("being friendly, accepting, non-judgmental and welcoming to one's inner felt sense").²⁴ All sessions started with a ten-minute rapport building discussion and continued with 50 minutes of art making in a calm and supportive environment. Art materials were on the table and after the art therapists provided a brief explanation of the use of the materials (an explanation about the qualities of each material – colored pencils, markers, and oil pastels – and how they can be used on A4 drawing paper), participants were encouraged to explore the diverse materials and use them for expression as

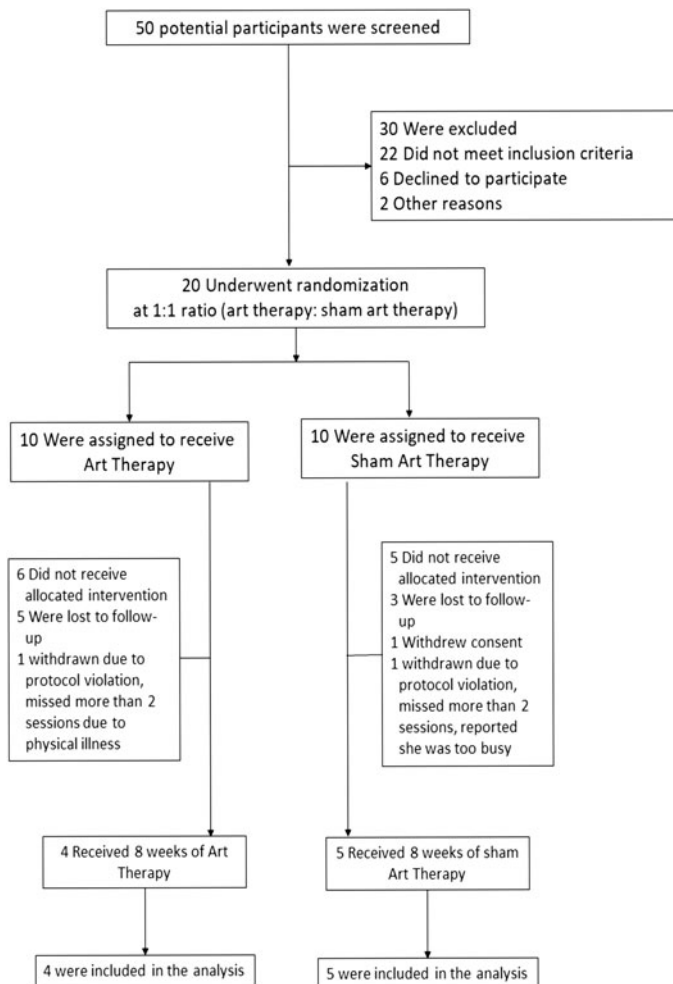


Figure 1. CONSORT chart.

they wished. Each session had a different topic tailored to incrementally increase the level of emotional engagement and exploration. The art therapist encouraged participants to refrain from conversation and instrumental music was played to encourage introspective experiences. The sessions ended with 30 minutes of processing and discussion in which the art therapists requested each participant to share and briefly present their work and group participants responded and/or provided support.

Sham art therapy

The comparison group was designed to control for the impact of the group experience that was not explicitly focused on emotional processing, that is, the time with art materials and focused attention aspects that occur during an artmaking session and the experience of being with a group of women

with similar experience who are receptive to self-care education. These sessions did not have a rapport building component, however the art therapists were generally supportive to participants, who participated in 45 minutes of coloring pre-fabricated shapes (Mandalas - see Figure 6) in a calm environment²⁵⁻²⁷. The coloring was followed by 15 minutes of a self-care lecture (sleep hygiene, dental hygiene, nutrition, etc.) provided by the art therapist who is also an oncology nurse. Participants were encouraged to minimize conversation; instrumental music was played to be comparative to the AT intervention.

Self-report measures

Demographic data (age, birth country, marital status, children, education, employment, religion, and religiosity) were collected at baseline. Participants were asked to write a paragraph about their experience in the AT and sham AT groups when the groups had ended, which we analyzed thematically.²⁸ We also demonstrated participant experience by depicting and describing art created during each of the groups.

Emotion processing

The Levels of Emotional Awareness Scale is a written performance index of ability to express emotion in a differentiated and complex way.²⁹ Subjects write about their anticipated feelings and those of another person in response to 10 short vignettes. Since the only way to measure emotional awareness is through an individual's ability to express that awareness, emotional expression is closely connected to emotional awareness. However, these have been shown in various studies in a variety of cultures to be distinct, albeit related constructs.^{11,12,30-32} The variation in the differentiation and complexity of emotional words used to answer the question "how would you feel and how would the other person feel" are scored on a 1-4 scale (Cronbach $\alpha = .84$; 2-month test-retest reliability = $.75$).⁹

The Acceptance of Emotions (AE) Scale assesses the extent to which subjects are accepting and nurturing toward their feelings.¹³ There are thirteen items with responses from 0 for never/not at all to 100 for always/perfectly (Cronbach $\alpha = .92$; 15-month test-retest reliability is $.58$). Raw scores are divided by 100, and higher scores indicate higher acceptance of emotion.

Depressive symptoms

The Center for Epidemiologic Studies-Depression scale (CES-D)³³ assesses depressive symptoms and comprises 20 items (Cronbach $\alpha = .89$ and a test retest reliability $r = .57$).³⁴

Table 1. Study participant demographics.

		Whole sample N (%)	Art therapy N(%)	Mandala N(%)
Age	36–45	1(7)	1(12.5)	0(0)
	46–70	12(79)	6(75)	6 (86)
	above 70	2(11)	1(12.5)	1(14)
Birth country	Israel	10(67)	7 (88)	3(43)
	Other	5(33)	1(12)	4(57)
Marital Status	Married	12(80)	6(75)	6(86)
	Divorced	2(13)	2(25)	0
	Widow	1(7)	0	1(14)
Children	Yes	14(93)	8(100)	6(86)
	No	1(7)	0	1(14)
Education	High School	4(26)	1(13)	3(43)
	Diploma	2(13)	1(13)	1(14)
	Undergraduate	5(33)	2(25)	3(43)
	Graduate	3(20)	3(36)	0
	Other	1(8)	1(13)	0
Employed	Yes	9	5	4
	No	5	2	3
Religion	Jewish	100	100	100
Religiosity	Secular	6	5	1
	Traditional	6	2	4
	Religious	3	1	2
Art Practice	Yes, as a hobby	8	4	4
	Yes, professionally	4	2	2
	No	3	2	1

Physical symptoms

Physical symptoms were assessed with the Breast Cancer Prevention Trial (BCPT) Symptom Scale which asks patients to rate how much they have been bothered by 23 specific symptoms during the past 4 weeks on a scale ranging from 0 (*not at all*) to 4 (*extremely*). Higher scores indicate greater symptom bother (Cronbach $\alpha = .87$).^{35,36}

Statistical methods

SPSS 21(IBM) was used for descriptive statistics. Between group Cohen's D effect sizes of the changes in emotion processing, depressive symptoms, physical symptoms and mindfulness were calculated between T1 and T2 for the AT versus SHAM groups. We conducted a t-test to compare means of emotion processing measures at T2 between the AT and SHAM groups. Due to the small number of participants, we rely on descriptive statistics, effect sizes, and charts to visualize trends and differences in outcome measures.

Results

There were no differences in demographics between the AT and SHAM groups; however, the AT group was slightly more educated and less religious (Table 1).

The effect sizes of AT vs SHAM on changes in pre-post measures were large for acceptance of emotion, emotional awareness and depressive

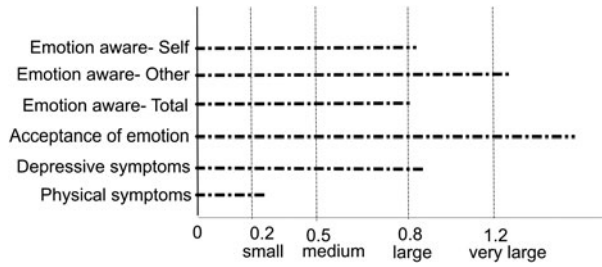


Figure 2. Cohens’s D effect sizes between AT and SHAM, T1 & T2.

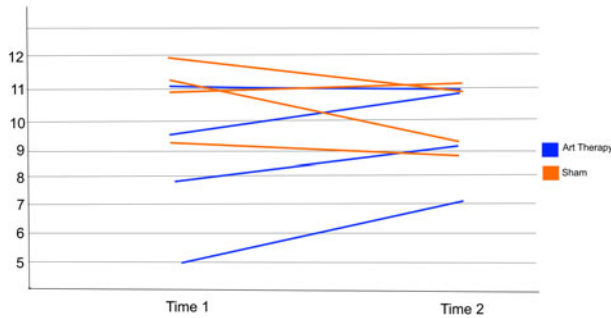


Figure 3. Changes in acceptance of emotion.

symptoms (see Figure 2). A small effect for physical symptoms was also detected. In the AT group mean depressive symptoms at T1 were: 12.3 (± 7.6) and at T2: 8.0 (± 2.9); emotional awareness at T1: 26.00 (± 7.44) and at T2: 30.00 (± 3.37); and acceptance of emotion at T1: 86.71 (± 23.631) and at T2: 95.00 (± 18.10). In contrast, in the Mandala group mean depressive symptoms at T1 were: 13.3 (± 7.5) and at T2: 22.7 (± 15.0); emotional awareness at T1: 23.67 (± 6.53) and at T2: 21.20 (± 6.54); and acceptance of emotion at T1: 110.57 (± 10.39) and at T2: 103.00 (± 12.11). The individual changes in acceptance of emotion are shown in Figure 3. Differences in emotional awareness at time 2 were statistically significant between groups, $t = 2.6 (7), p = 0.039$ and changes in acceptance of emotion were significant with increases in the AT group and minimal decreases in the SHAM group $t = 2.87(7), p = 0.027$ (Figure 4).

Women in the AT and SHAM groups reported benefiting from their participation. One woman in the AT group claimed that participating was helpful in enabling her to discuss things that were previously a barrier for her, that she probably would not have come into contact with except for the group. Another woman spoke about the importance of the group in “opening her eyes” to things that she did not notice before. Furthermore,

“the group provided an opportunity to draw my thoughts and feelings, my present and my past. This was a safe place in which I could express myself, and frequently only later did I really understand what I drew, it’s like magic and healing for the soul”.

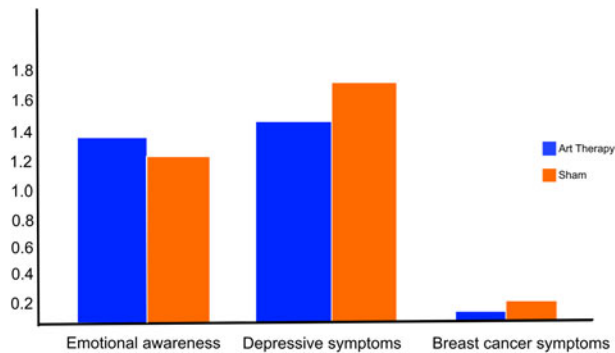


Figure 4. Group differences at T2.

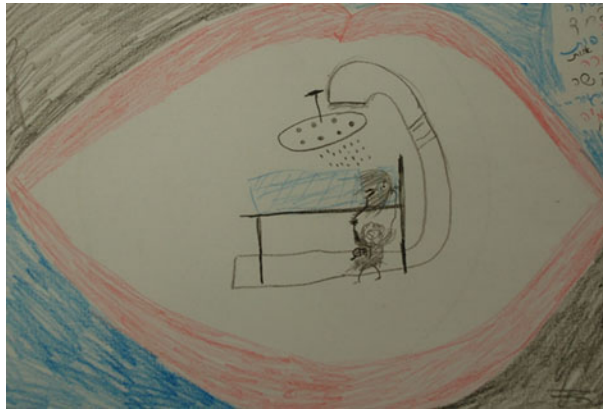


Figure 5. Example of Art AT.

In **Figure 5**, a woman described her experience getting a biopsy. She depicts the scene from inside a mouth, symbolic for her processing this experience, for the first time. The right-hand corner includes words “scream, shout, fear, alone, tired, nurse, hero, not hard, almost over, mammotomy, Mommy”.

Participants in the SHAM group also spoke of a pleasurable experience, many of them stating that they were commuting for over an hour to get to the hospital for the group. **Figure 6** is an example of a mandala colored in the SHAM group.

“The mandala coloring helped me relax at times of stress”;

“It was exciting to be in the group, I got to meet new people and learn things about my disease”; *“The group was a pleasant place to come to and it was strengthening to receive love, attention and camaraderie”.*

Discussion

Emotion processing is a potential mechanism through which reduction of depression and somatic symptoms in cancer patients can occur. Following the bodymind model of mechanisms of AT,²¹ we conducted this pilot

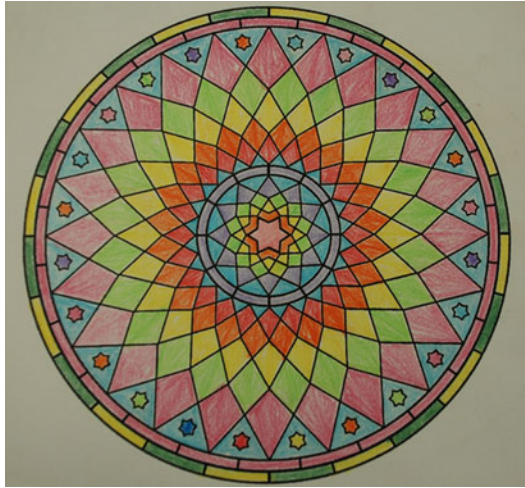


Figure 6. Example of Art SHAM.

study. Women in both groups reported enjoying and gaining benefit from participation. However, only women in the AT group reported getting in touch with difficult emotions and processing their experience with BC. The moderate to large effect sizes of the AT on increased emotion processing, which has been linked to increased mental and physical health following BC.^{4,8,13} The self-report narratives of the participants along with the examples of art made in each of the groups demonstrate the differences in the content of the groups and they indicate the intervention targeted the mechanism intended. It is of note that participants in the SHAM group expressed gratitude and benefit from participating, albeit a different benefit than targeted in the AT intervention.

Studies that examine the mechanisms through which psychotherapeutic interventions create change are difficult to design and implement, and thus are primarily conducted in pharmaceutical or biological research. However, our ability to reach in to the “black box” of interventions and assess which components of interventions are most helpful, can assist clinicians in developing better targeted and efficient interventions. Individuals coping with cancer need targeted interventions that provide resources to cope with the psycho-social challenges that come with diagnosis and treatment. Art making has the potential to address the difficulties cancer patients have in verbalizing emotional experiences related to cancer diagnosis and treatment, which arise from the need to reorganize the self, to revise interpersonal relationships, and to process physical and psychological shifts that occur during and following cancer.^{15,37–46}

The results of this pilot study should be considered along with its drawbacks. While feasibility was a main goal of the intervention, we were able

to demonstrate changes in emotion processing, however with the small number of participants it was impossible to examine if indeed emotion processing is a key mechanism in symptoms reduction of BC patients. There was a built-in time difference in the two interventions compared. AT sessions were 90 minutes long whereas SHAM sessions were 60 minutes long. This was purposefully designed as we were concerned that more than 40–50 minutes of coloring Mandala's would be boring for participants, and thus adding time to the session would be detrimental to the potential benefit of participating in this intervention. Having said that, both groups were engaged with art materials for the same amount of time, give or take five minutes. However, we cannot be entirely certain that session length did not play a role in the effect we observed. Furthermore, recruiting participants for the study was quite a challenge as participation was completely voluntary without time or travel compensation. Further studies, with more participants, are required to assess the role of increasing emotion processing via AT in reducing depression and somatic symptoms in women with BC.

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