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A Pilot Study of a Mindfulness-Based Art Therapy Intervention in Outpatients With Cancer

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Abstract

Background: Patients with cancer frequently experience physical and psychological distress that can worsen their quality of life. **Objectives:** We assessed the outcomes of an 8-week mindfulness-based art therapy (MBAT) intervention, Walkabout: Looking In, Looking Out, on symptoms, sleep quality, health-related quality of life, sense of coherence (SOC), and spirituality in outpatients with cancer. **Methods:** A 1-group, pre–post intervention design with repeated measures at baseline, week 4, and week 8. **Results:** Despite a small pilot sample (n = 18), we found large effect sizes and statistically significant improvements from week 1 to week 8 in depression, the comprehensibility subscale of the SOC, and each subscale of spirituality, that is, peace, meaning, and faith. There were no significant changes in physical functioning, pain, sleep, tiredness, drowsiness, nausea, and appetite. **Conclusions:** The MBAT intervention, Walkabout, seems to meet key palliative care goals including improvement in emotional well-being, comprehensibility, and meaning making among outpatients with cancer.

Keywords

art therapy, mindfulness, cancer, symptoms, distress, spirituality, quality of life

Background

The psychosocial needs of patients diagnosed with cancer are often not met, which may exacerbate distress and worsen health-related quality of life (HRQoL).[1,2] Countering these ill effects of the disease, both mindfulness-based stress reduction (MBSR)[3-7] and art therapy[8-11] can improve physical and mental well-being in people with cancer.

Mindfulness-based art therapy (MBAT) intervention[3,4] is an approach that combines the core elements of MBSR curriculum[5-8] with art therapy approaches. This combined intervention is designed to reduce overidentification or predominantly negative association with illness by providing experiential learning based on teaching attention (mindfulness skills) and hands-on playfulness (art therapy). The MBSR components of the intervention include cultivation of mindful attention with kindness and curiosity, living in and exploring each moment, attitudinal foundations of mindfulness practice, awareness of pleasant and unpleasant experiences, awareness of breathing and loving kindness meditation, and use of guided mindfulness meditations.[4] The art therapy component involves participants mindfully walking outdoors to take digital photographs of what has drawn their attention and then deconstructing and reconstructing these photographs as collages incorporating other art media.[4] This expressive component combined with MBSR offers opportunities for mindful attention, creative expression, synthesis of emotions, and embodied meditative inquiry.[9]

The theoretical basis for this integrative MBAT approach was primarily informed by 2 theories: Antonovsky theory of salutogenic stress response in the context of sense of coherence, as cited

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by Kabat-Zinn,[10] and Rogers' theory of creativity—a primary tenet in art therapy that emphasizes openness to experience and an embodied capacity for inquiry described by Rogers as the ability to play.[11] Previous studies have investigated the outcomes of the MBAT intervention in outpatients with cancer.[12-16] Although art therapy approaches generally vary, a shared principal is that as creative engagement is repeated and grows in complexity, intrapersonal meanings are retained, expanded upon and integrated as adaptive schema resulting in greater self-regulation.[17] A more recent MBAT intervention, Walkabout: Looking In, Looking Out, is developed by the coauthor (C.P.)[3,13,18] integrating essential themes and practices of the MBSR curriculum within an art therapy group program. This program was designed to expand experiential possibilities using mindful photo documentation of experiential awareness in a greener and less contracted cultural space than the confines of an outpatient cancer center.

As an MBAT intervention, Walkabout uses a repeated structure of mixed-media collage construction that is an accessible art form. Collages are problem-solving visual puzzles that participants both create and solve in the making, with the opportunity to actively choose the level of challenge they wish to take on. The Walkabout program was integrated as part of a supportive clinical program within a large health-care system in the mid-Atlantic region for a mixed population of persons with cancer and was consistently rated highly by outpatients with cancer. This clinical experience created a sound basis for conducting a pilot research to investigate the outcomes of the Walkabout intervention and to provide preliminary data for larger studies. The aim of this study was to describe the outcomes of the 8-week Walkabout intervention on symptom burden, sleep, spirituality, sense of coherence, and HRQoL in outpatients with cancer.

Methods

Design and Sample

A 1-group, pre–post intervention design was employed. Participants received weekly Walkabout group sessions conducted by a board-certified art therapist (C.P.),[3,13,18] for 8 weeks (2.5 hours each). Participants were 18 years or older and diagnosed with early or recurrent cancer with any cancer diagnosis, except brain cancer. We excluded patients (1) with cancer in the brain, (2) with brain metastasis, (3) receiving radiation to the brain (patients receiving local radiation were not excluded), (4) with psychiatric or neurological disorders that could affect brain function, (5) receiving active chemotherapy including palliative chemotherapy (with the exception of tamoxifen, arimidex, and femara or comparable chemotherapies used for hormonal cancers or bone metastasis which have no known neurological effects), (6) who could not participate in art making due to physical limitations, or (7) who were unable to walk at a very slow pace for up to 40 minutes.

Study Procedures

The study was approved by the institutional review board at the University of Pennsylvania and conducted at a cancer center within the University of Pennsylvania Health System. Recruitment involved the use of flyers distributed throughout the oncology setting and referrals made by palliative care providers. The initial contact was made by phone. Those eligible and interested met with the art therapist onsite to provide written informed consent. The intervention occurred between July and August 2016.

Walkabout Intervention

The 8-week MBAT Walkabout program begins with the practice of opening to experience with a mindful exploration of a range of artist-grade art media from colored pencils to watercolor.[3] Participants are invited to play with tearing the 2-sided sheet used for this exploration and combined with origami paper, colored tissue, and a diverse selection of high-quality magazine photos to construct a first collage prior to expanding the field of creative practice to photography in session 2. Using digital cameras during mindful walkabouts away from the medical facility in 4 to 5 of the 8 weeks of the program, each participant gains a personal library of photo images, which they choose for printing for collage making in the weeks that follow.[3] This approach is intended to both ease and accelerate the evolution of intrapersonal meaning with nonverbal creative expression and serves as a substantial building block for interest and gains in authorship and autonomy with collage making over time.

Participants set their own level of challenge from one collage to the next. Mindful awareness practices are introduced at the beginning of the program and repeated and referenced throughout the program to encourage mindful attention and embodied presence on the walks and at the art table. An optional audio recording for home meditation practice and brief presentations with accompanying handouts are offered in the first 2 sessions of the program related to defining mindfulness and meditation, mindfulness skills building with practice, the role of perception and appraisal in stress reactivity, mindful responding, and the attitudinal foundations of mindfulness. Each session is closed with loving kindness meditation practice.

Measurement

Repeated-measures data were gathered at baseline (T1), week 4 (T2), and week 8 (T3). The following validated measures were completed at each time point.

Symptoms. The Edmonton Symptom Assessment Scale-R (ESAS-R) is a valid and reliable measure for assessing 9 common symptoms experienced by patients with cancer: pain, tiredness, nausea, depression, anxiety, drowsiness, appetite, well-being, and shortness of breath.[19,20]

Sleep. The Pittsburgh Sleep Quality Index (PSQI)[21] was used to measure sleep quality, latency, duration, efficiency, disturbances, and daytime disturbance. The measure has been shown to be reliable and valid in persons with cancer.[22]

Health-related quality of life. Health-related quality of life was measured by the Short-Form Health Survey (SF-36),[23] one of

the most widely validated HRQoL scales based on 2 principal components (mental health and physical health) and 8 health-related concepts.[23]

Sense of coherence. Antonovsky's Sense of Coherence Orientation to Life Questionnaire 29[24](p. 24) was used to assess how individuals stay well and manage stressful situations, including "making sense of new information" with 3 scales: comprehensibility (11 items), manageability (9 items), and meaning (9 items). It is reliable and valid and has been translated into 33 languages. Cronbach α for the 29-item scale ranges from .70 to .95.[24-26]

Spiritual well-being. Spiritual well-being was assessed using the Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being (FACIT-Sp)[27], a 12-item scale that has been psychometrically validated with those with cancer and other chronic illnesses. Three subscales measure meaning (4 items), peace (4 items), and faith (4 items). The content is not limited to any particular faith or religion. The internal consistency reliability for the total score and subscales ranges from 0.72 to 0.85.

Statistical Analysis

We created change variables for each of the study measures by subtracting the score at week 1 from the score at week 8 for each patient using the formula:

$$\text{Change} = \text{Score at week 8} - \text{Score at week 1}.$$

A paired *t* test was performed to compare the results at week 8 with week 1. The test determined whether the observed change was statistically different from no change at all. For this method of analysis to be valid, it was assumed that the data were symmetrically distributed around the mean. Thus, by generating histograms and box plots and using Shapiro-Wilk tests, we checked for significant violations of the normal assumptions. If assumptions were not met, we performed Wilcoxon signed rank tests, which required no parametric assumption. The analysis was performed using the means procedure in SAS version 9.4 (SAS Institute, Cary, North Carolina).

Results

The sample (n = 18) was predominantly female, white, with college or more than college education (Table 1). About half the sample was married or living with a partner and one in 3 were over the age of 60 years. Most participants had advanced stages of cancer (III-IV) and were not receiving active cancer treatment. There were no adverse events with the intervention. One participant dropped out of the study accounting for an attrition rate of 5.5%. The results of individual outcomes are reported below and presented in Table 2.

Symptoms (ESAS-R)

There was a significant decrease in depression from week 1 to week 8 (effect size [ES] = 0.91, $P \leq .001$). Additionally, there was a moderately significant decrease in anxiety (ES = 0.45; $P = .08$). The changes in all other symptoms including pain, tiredness, drowsiness, nausea, and appetite were not statistically significant.

Table 1. Baseline Demographic and Illness Variables.[a]

Variable	Frequency (%)
Age	
30-49	5 (27.7)
50-59	6 (33.3)
60+	7 (38.8)
Gender	
Female	17 (94.5)
Male	1 (5.5)
Race	
White	14 (77.7)
Black	3 (16.6)
American Indian	1 (5.5)
Education	
High/vocational school	3 (16.6)
Some college	4 (22.2)
College	5 (27.7)
Graduate degree	6 (33.3)
Marital status	
Married/partner	9 (50.0)
Divorced/widowed	5 (27.7)
Never married	4 (22.2)
Type of cancer	
Breast	9 (50.5)
Hematological	3 (16.6)
Gastrointestinal	2 (11.1)
Gynecological	1 (5.5)
Lung	1 (5.5)
Sarcoma	1 (5.5)
Multiple primaries	1 (5.5)
Cancer stage	
I	2 (11.1)
II	4 (22.2)
III	7 (38.8)
IV	3 (16.6)
Unknown	2 (11.1)
Current cancer treatment	
Yes	5 (27.7)
No	13 (72.2)
Self-reported health issues[b]	
Pain and related disorders (migraines, musculoskeletal disorders/arthralgia)	16 (88.8)
Depression	10 (55.5)
Sleep disturbance	10 (55.5)
Anxiety	7 (38.8)

[a]N = 18.
[b]Nonmutually exclusive categories; does not add to 100%.

Sleep (PSQI)

The change in sleep was not statistically significant.

HRQoL (SF-36)

Although there were no significant changes in physical function, physical role, bodily pain, and vitality, we detected

Table 2. Assessing Change From Week 1 (baseline) to Week 8 of the Walkabout Intervention.

Outcome	N	Mean	Standard Deviation	ES[a]	Median	Quartile Range	Lower 95% CL for Mean	Upper 95% CL for Mean	*t* Value	$P > \|t\|$
ESAS-R										
Pain	17	0.53	2.58	0.21	0.00	2.00	−0.80	1.85	0.85	.409
Tiredness	16	−0.56	2.78	0.20	0.00	3.00	−2.04	0.92	−0.81	.431
Drowsiness	17	−0.06	2.88	0.02	0.00	4.00	−1.54	1.42	−0.08	.934
Nausea	17	−0.24	0.97	0.25	0.00	0.00	−0.73	0.26	−1.00	.332
Appetite	17	−0.35	2.06	0.17	0.00	0.00	1.41	0.71	−0.71	.490
Breathlessness	17	−0.35	1.50	0.23	0.00	0.00	1.12	0.42	0.97	.345
Depression	17	−1.18	1.29	0.91	−1.00	2.00	−1.84	−0.52	−3.77	<.001[b]
Anxiety	17	−0.94	2.08	0.45	−1.00	2.00	−2.01	0.13	−1.87	
Well-being	17	−0.76	1.86	0.41	0.00	1.00	−1.72	0.19	−1.70	.080
PSQI										
	12	−0.50	3.73	0.13	−0.50	4.00	−2.87	1.87	−0.46	.651
SF-36										
Mental health	16	7.19	17.22	0.42	5.00	17.50	−1.99	16.36	1.67	.115
Physical function	16	−1.35	16.48	0.08	0.00	10.00	−10.14	7.43	−0.33	.745
Role—physical	16	5.86	24.84	0.24	3.13	34.38	−7.38	19.10	0.94	.360
Role—emotional	16	9.90	20.91	0.47	8.33	25.00	−1.25	21.04	1.89	.077
Bodily pain	16	7.87	24.40	0.32	7.00	19.00	−5.13	20.88	1.29	.216
Vitality	16	-1.25	8.27	0.1	0.00	12.50	−5.65	3.15	−0.60	.554
Social functioning	17	15.4	33.23	0.46	0.00	37.50	−1.64	32.53	1.92	.073
General health		4.41	8.99	0.49	5.00	10.00	−0.21	9.04	2.02	.060
SOC										
Comprehensibility	17	3.75	4.76	0.79	4.00	5.00	1.30	6.20	3.24	.005[b]
Manageability	17	−0.12	4.30	0.03	1.00	4.00	−2.33	2.09	−0.11	.911
Meaning	17	2.29	5.02	0.46	1.00	3.00	−0.29	4.88	1.88	.077
FACIT-Sp										
Meaning	16	0.88	1.59	0.55	0.50	2.00	0.03	1.72	2.21	.043[a]
Peace	16	1.81	2.07	0.87	1.50	3.50	0.71	2.92	3.50	.003[b]
Faith	16	1.56	2.31	0.68	1.50	3.00	0.33	2.79	2.71	.016[a]
Total	16	4.25	3.99	1.07	4.00	8.00	2.12	6.38	4.26	<.001[b]

Abbreviations: CL, confidence limit; ESAS-R, Edmonton Symptom Assessment Scale-R; ES, effect size; FACIT-Sp, Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being; PSQI, Pittsburgh Sleep Quality Index; SD, standard deviation; SF-36, Short-Form Health Survey; SOC, sense of coherence.
[a] $P < .05$.
[b] $P < .01$.
[c] $P < .001$.

moderate effect sizes for emotional role (ES = 0.47; $P = .077$), social functioning (ES = 0.46; $P = .073$), and general health (ES = 0.49, $P = .060$).

Sense of Coherence

There was a highly significant improvement in comprehensibility from week 1 to week 8 (ES = 0.79; $P = .005$). The change in meaning was moderately significant (ES = 0.46, $P = .077$), while the change in manageability was not significant.

Spirituality (FACIT-SP-12)

For each subscale of FACIT-Sp, the change from week 1 to week 8 was statistically significant ($P < .05$). There was a highly significant improvement in peace (ES = 0.87; $P = .003$) and total score (ES = 1.07; $P \leq .001$). Additionally, there was a significant improvement in meaning (ES = 0.55; $P = .043$) and faith (ES = 0.68, $P = .016$).

Discussion

The goal of this study was to describe the role of Walkabout—an MBAT intervention in improving physical, psychological, and spiritual distress and quality of life in outpatients with cancer. Most previous studies of MBAT have been limited to patients with breast cancer.[12,14-16] These studies have found significant reduction in stress, anxiety, and depression and improvements in quality of life among patients with breast cancer.[12,14-16] A recent study also found comparable cost-effectiveness outcomes of MBAT versus breast cancer support groups on HRQoL.[12] Overall, the extant literature points to the beneficial effects of MBAT on psychosocial cancer care.

Our study extends the investigation of MBAT to important palliative care outcomes including spirituality and SOC. Despite a small pilot sample, we found statistically significant and large effect size improvements in depression (ESAS), the comprehensibility subscale of SOC, and each subscale of spirituality (FACIT-Sp) including peace, meaning, and faith. For instance, FACIT-Sp is composed of items such as "I am able to reach deep down inside myself for comfort", "I feel a sense of harmony within myself" and "I feel a sense of purpose in my life." These improvements may be because during the MBAT sessions, the participants learn to reconstruct meanings, minimizing overidentification with illness, and negotiate experiences and life events on their own terms. Walkabout occurs in a supportive group milieu; thus, benefits and intrapersonal gains are posited to accrue as participants share their demonstrable progress in collage making at the end of each session. This process also enhances intrapersonal relatedness, which deepens over time with the shared practical challenges, creative problem-solving, gains in respect for individual creativity, and the way the collage form accommodates both vulnerabilities and yearnings that are held openly and accepted.

The significant salutogenic effect, an underlying mechanism of change, on the comprehensibility scale of the SOC from week 1 to week 8 may relate to order and understanding of life events. The program requires participants to assimilate and accommodate a significant amount of new information and materials toward mindfully attending to learning collage construction. The improvements in comprehensibility in Walkabout may be related to the ordering of elements and understanding their utility for the collage construction as a transferable skill set. As a learning-centered program, the repetition of both creativity practice (photography and collage making) and mindfulness practice (present moment attention without judgment) may encourage openness to new experiences and problem-solving as new situations emerge.

The limitations of this study included a quasi-experimental design and a small pilot sample with a significant majority of women. However, based on the promising preliminary findings, the MBAT program Walkabout: Looking In, Looking Out should be evaluated for its efficacy in randomized controlled trials with larger samples. Future larger studies should also investigate the role of MBAT in improving physical function and symptoms such as pain, sleep, tiredness, drowsiness, nausea, and appetite, which were not sensitive to the MBAT intervention in this study.

Conclusions

Our main finding is that psychological well-being, meaning making, and spirituality appear sensitive to the MBAT intervention. This sensitivity may be because the Walkabout program shifts habits of mind away from a focus on immediate perceptions and allows participants to observe experiences as fluid rather than fixed.[3,4] Distinct from disease-focused care models—the norm in cancer support programs, MBAT does not segregate illness from wellness but views them on a continuum. This perception of wellness and meaning making may encourage palliative care goals of reducing psychological and spiritual distress and reconstruction of the meaning of the illness experience.

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