



Effectiveness of Visual Art Therapy in Improving Psychological Distress in Cancer Patients: A Quasi-Experimental Study



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ABSTRACT

Aims Cancer patients suffer from the physical and mental consequences of its treatment. Despite regular treatment, a non-pharmacological intervention is uncommonly used to alleviate the psychological distress of hospitalized patients in Indonesia. This study aimed to investigate the effectiveness of visual art therapy in decreasing the anxiety and depressive symptoms in cancer patients.

Participants & Methods This quasi-experimental study recruited 121 cancer patients from Dharmas Cancer Hospital Indonesia. The participants were divided into an intervention group (n=43) and the usual care group (n=78). The visual art therapy consisted of 3 sessions such as drawing pictures based on their feeling, drawing pictures inside the circle, and showing and presenting pictures. This intervention was delivered during hospital stays or guided by telephones if they went home in two weeks between April to August 2019 by researchers. The Hospital Anxiety Depression Scale was completed to collect anxiety and depressive symptoms. Independent t-test and Chi-Square test were used to determine the homogeneity of variables. The outcomes of the post-test and pre-test between groups were carried out by analysis of covariance.

Findings At baselines, participants' characteristics were homogenous, except for anxiety and depression levels. The intervention group had higher anxiety and depression levels ($p < 0.001$) compared to the usual care group at the baselines. The post-test scores of anxiety ($p < 0.001$) and depressive symptoms ($p < 0.001$) of the intervention group significantly decreased compared to the usual care group.

Conclusion Visual art therapy improves anxiety and depressive symptoms in cancer patients.

Keywords Anxiety; Art Therapy; Cancer; Depressive symptom

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Introduction

The development of curative, preventive, and rehabilitative programs for cancer is growing. However, the burden of cancer increased rapidly worldwide in 2020 [1]. According to Global Cancer Statistics 2020, the new cases of cancer were approximately 19.3 million cases, and it is projected to increase to 28.4 million cases globally in 2040 [2]. In Indonesia, which has a population of about 270 million people, the incidence of new cancer cases is about 141.1 per 100,000 people, and cancer deaths are about 85.1 deaths per 100,000 people [2]. The most common incidence of cancer was breast cancer (16.7%), followed by cervix uteri (9.3%), colorectal (8.6%), lung (8.6%), and liver cancer (5.3%). Whereas, breast and lung cancer was the highest leading cause of mortality in 2020 [2].

Various treatments, including oral medication, radiotherapy, and neoadjuvant therapy, are commonly prescribed for cancer survivors managed by multidiscipline care [3]. During routine treatment, patients may perceive financial burden depending on the cancer stage [4], lower quality of life, physical and cognitive function change, pain, weight loss, and psychological distress [5, 6]. Despite of development of clinical outcomes related to treatment, maintaining treatment and encouraging patients to not delay the treatment are essential to prevent mortality and achieve better outcomes [3, 7].

Cancer survivors undergoing treatment frequently experience body image distress, fatigue, sleep disturbance, and gastrointestinal and psychological symptoms that negatively affected their mental condition [8–10]. Mehnert *et al.* [9] reported that 1 in 2 cancer patients suffered from high psychological distress. Chemotherapies, as the most often given treatment, significantly contributed to depression, anxiety, and distress among lung cancer patients [11], especially patients with long-term treatment [12]. Approximately 32.2% of breast cancer patients have depression [13]. Consequently, depression and anxiety lead to treatment non-adherence, poorer survival, and mortality [14, 15], indicating that providing intervention to support and help patients to overcome psychological problems among patients undergoing treatment is crucial to increasing treatment adherence and lowering mortality risk.

Art therapy, as one complementary form presented in innovative ways, stimulates visual and cognitive processes [16]. Haiblum-Itskovitch *et al.* reported that parasympathetic and sympathetic were triggered during art-making therapy that stimulates emotional regulation and engagement [17, 18]. Art therapies, including drawing, painting, music, photography, and

theatre, have been applied as alternative medicine in curative and rehabilitative settings to treat depressive disorder [18]. Numerous benefits of art therapy improve mental health and quality of life, as well as assist coping strategy and self-expression among cancer patients [19]. Bell *et al.* observed reduced anxiety and increased hope among patients with gynaecologic cancer while receiving chemotherapy [20]. Therefore, to better serve patients undergoing cancer treatment, this study aimed to evaluate the effectiveness of art therapy in improving patients' anxiety and depression levels.

Materials and Methods

Design

This study was a quasi-experimental study that compared art therapy intervention with usual care for patients with diagnosed cancer while receiving treatment in the hospital.

Samples

This study was run at Dharmais Cancer Hospital in Indonesia from April – August 2019. Initially, the main researcher obtained consent from outpatients and inpatients to participate the study. Outpatients were recruited during their regular visit and contacted personally by telephone, and inpatients were approached directly during their hospital stay. At the time, each participant was screened by the main and the assistant researcher.

Inclusion criteria were cancer diagnosis and chemotherapy or radiotherapy by physicians, age 20 years or older, ability to read and speak Indonesian, and willingness to participate in the study. Participants with pre-existing psychiatric illnesses were excluded from the study. When participants met the criteria, they were invited to join the study.

Out of 265 cancer patients, 121 patients were purposefully included in the study. Out of the patients (n=143) who initially provided their consent to enrol in the study, 22 patients (approximately 15%) withdrew from the study. Of these, 43 patients were assigned to the art therapy intervention group, and 78 patients were assigned to the usual care group. Patients who refused to complete the study were too tired or perceived to be in a worse condition (n=22). The sample size was calculated by G*Power with $\alpha=0.05$, power = 0.8, and effect size = 0.25 [21]. The calculated sample size for both groups was at least 120 participants.

Data collection

All data were collected twice: baseline characteristics and a two-week follow-up. After completing two weeks of visual art therapy, the intervention group completed a post-test. The usual care group also

performed a post-test after two weeks, which was similar to the intervention group.

Intervention

The given intervention was visual art therapy modified in 3 sessions that allowed participants to express their feelings and thoughts through the drawing-making art [22]. This intervention was delivered during patients' hospital stay or guided by telephones if they went home. Applying this intervention triggered participants to communicate their significant experiences of feelings and thoughts while they were receiving cancer treatment. Participants were provided a pencil, watercolour, crayon, pencil colour, and a sheet of paper to draw a picture and were informed that all paintings made would not be scored or judged.

In the first session, the main researcher, assisted by a certified nurse, instructed patients to listen to the words reading various feelings, for example, "shame", "happy", "love", "sad", "anger", "disappointed", or "sad". After listening to those words, the participants were asked to paint a picture that represented their feelings perceived. Participants were free to choose the colour available. Afterward, participants wrote the represented feelings and their names on the drawing sheet. In the second session, the participants were approached again and instructed to draw a picture inside the circle on a sheet of paper. During this time, the participants were allowed to explore and express their creativity in a picture. This session focused on how participants released their distress through their creative drawing-making. In the last session, all paintings made in all sessions were shown. All participants presented their pictures and shared their feelings.

Measurements

Demographic characteristics included age, sex, education levels, cancer types, cancer treatments, and cancer stages. The psychological aspects included anxiety and depression levels.

The Indonesian version of the Hospital Anxiety and Depression Scale (HADS) was used to detect the anxiety and depression levels of the participants. The questions about anxiety in the questionnaire evaluate several feelings such as perceiving tension, frightening, worry, anxiety, panic, and restlessness, while the items of depression asked about enjoyment, laughing, cheerful feeling, slowing down feeling, loss of interest, looking forward to things, and interest of entertainment things such as book or television or others. The total number of items for each subscale of anxiety and depression was seven items, which were scored between 0 and 3 [23]. The higher score was 21 for each subscales, and the scores were categorized

into normal (0-7), mild (8-10), moderate (11-14), and severe (15-21) [24]. The seven items of anxiety and depression were reliable, with the interrater agreement of 0.706 and 0.68, respectively [25].

Data analysis

The Statistical Package for Social Sciences version 21.0 (SPSS) was used to analyze the data. Descriptive analysis (mean, standard deviation, frequency, and percentage), Independent t-test, and Chi-Square were run to see the different characteristics of the participants between the two groups. Analysis of covariance (ANCOVA) was applied to carry out the efficacy of visual art therapy on the psychological indicators of pre-test and post-test in the intervention and control groups. The Homogeneity of variances of the variables was determined by Levenes' test.

Findings

Demographic characteristics of the participants

The total number of patients who completed the study was 121 patients after excluding patients who dropped out of the study. The mean age of the patients was about 50 years old, and the majority of them were female, with junior or senior high school education, and had stage 1 and 2 cancer. Breast cancer was the most prevalent cancer among cancer types. The demographic characteristics, including age, sex, education levels, cancer stage, cancer types, anxiety, and depression levels between the art therapy intervention group and the usual care group, were homogenous (Table 1).

Efficacy of art intervention therapy on study outcomes

For evaluating the efficacy of the intervention on anxiety and depression levels, sex, age, education levels, cancer types, and stages were used as the control variables, and a different test of post-test scores of the intervention group and usual care group was conducted. The homogeneity of variance was held by Levenes' test while testing anxiety ($p=0.068$) and depression ($p=0.33$) along with other control variables.

In the pre-test, even though the anxiety ($p<0.01$) and depression levels ($p<0.01$) of the intervention group were higher than usual care group in the baseline, however, the post-test scores of the anxiety ($p<0.001$) and depression ($p<0.001$) of the intervention group were significantly decreased and remained lower than patients of the usual care group. The results indicated that psychological states improved in the intervention group compared to the control group (Table 2).

Table 1) Comparison of baseline characteristics between art therapy intervention group and usual care group

Variables	Art therapy intervention group	Usual care group	P-value
Age, years (Mean±SD)	50.33±12.34	51.40±14.05	0.65*
Sex, No. (%)			
Female	25 (58.1)	43 (55.1)	0.102**
Male	18 (41.9)	35 (44.9)	
Education levels, No. (%)			
Illiterate/elementary school	9 (20.9)	8 (13.1)	2.72**
Junior/senior high school	23 (53.5)	45 (57.7)	
Graduate or above	11 (25.6)	25 (32.1)	
Cancer stages, No. (%)			
Stages 1 and 2	30 (69.8)	48 (61.5)	0.304**
Stages 3 and 4	13 (30.2)	30 (38.5)	
Cancer types, No. (%)			
Breast	10 (23.2)	19 (24.4)	0.41**
Cervix uteri	3 (6.9)	4 (5.12)	
Nasopharyngeal	10 (23.2)	10 (12.8)	
Pulmonary	7 (16.3)	8 (10.25)	
Lymphoma	6 (13.9)	5 (6.41)	
Others	7 (16.4)	32 (41.02)	
Anxiety (Mean±SD)	11.06±2.45	5.52±3.90	<0.01*
Depression (Mean±SD)	11.00±2.19	7.11±3.05	<0.01*

*Independent t-test; **Chi-Square test

Table 2) Comparison of anxiety and depression scores in pre-test and post-test in different groups

Variables	Pre-test		Post-test		ANCOVA tests		
	Intervention group	Usual care group	Intervention group	Usual care group	F	p	Partial Eta squared
Anxiety	11.06±2.45	5.52±3.90	5.20±2.22	5.48±3.88	11.34	<0.001	0.09
Depression	11.00±2.19	7.11±3.05	5.30±1.77	7.10±3.09	27.102	<0.001	0.19

Discussion

Patients undergoing routine cancer treatment are vulnerable to psychological distress [11, 12]. According to a global review, 32.2% of breast cancer suffer from depression, and the prevalence is higher in developing countries [13]. In this study, the visual art therapy program improved the psychological indicators of cancer patients undergoing cancer treatment. The visual art therapy implemented by nurses could effectively decrease anxiety and depression levels compared to cancer patients with usual care. Nurses can communicate with patients about their feelings to help patients express their experiences during treatment. In addition, after the program ended, patients showed their happiness to be heard and able to share their good or bad experiences while creatively overcoming their treatment.

Art therapy was found to trigger parasympathetic and sympathetic nervous and change emotional and physiological responses that resulted in a positive mood [17]. Art therapy also helped breast cancer patients to express emotional awareness and improve their acceptance of feelings [17]. In addition, art therapy provides significant support and coping resources [26]. According to a qualitative study, many patients declared that art therapy could help them to be calm and entertained to express and release emotions [27]. Therefore, art therapy is a potential creative intervention that can assist cancer patients

facing negative emotions while receiving medical treatment.

A relevant study investigated the advantages of individual brief art therapy in lowering depression, anxiety, and perceived symptoms among breast cancer women [28]. Thyme *et al.* found that in terms of psychologic aspects, individual brief art therapy benefits women with breast cancer undergoing cancer treatment such as chemotherapy, surgery, and hormonal therapy. Similarly, another study showed the benefits of art therapy among patients with various tumour locations, including breast, colorectal, lung, prostate, hematologic, ovary, and bone or soft tissues, and documented that this therapy was very helpful in improving anxiety, depression, distress, and reducing pain [28]. This study is consistent with our study, implemented in general cancer patients with chemotherapy and radiotherapy that significantly reduced depression and anxiety levels. It indicates that visual art therapy is possible to apply to patients undergoing broad cancer types and treatments.

The current study evaluated the short-term effect of the intervention on depression and anxiety levels before and after two weeks of intervention. However, several evidences supported the long-term effects of art therapy in 8 weeks [29], 4 months [30], or even 5 years of follow-up [31]. A previous prospective study reported that five sessions of drawing therapy significantly improved anxiety and hope among

gynaecologic malignancy patients receiving chemotherapy. The majority of the patients used complementary therapy, so patients might be more compliant with art therapy [20]. Conversely, not all patients in our study ever received complementary therapy, which probably affected many patients to be completely unacceptable and excluded from the study.

Our findings support the significant advantages of visual art therapy to help cancer patients' psychological aspects in terms of depression and anxiety. However, this study has several limitations to be considered. According to previous studies, most art therapies were given by art therapists in at least five sessions [20, 22, 27, 31], while visual art therapy in our study was provided by nurses, and the treatment was modified in five sessions. Therefore, it might raise a question about the validity of the intervention. In addition, this study only measured the short-term effect of visual art therapy. It is suggested that the long-term effect of the treatment should be done through a study with a better design and a larger sample.

Conclusion

Visual art therapy significantly improves depression and anxiety levels in patients undergoing cancer treatment. Nursing can help cancer patients to engage in this intervention during their hospital stay or to apply it at home.

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