

Research Article

Art therapy improves mood, and reduces pain and anxiety when offered at bedside during acute hospital treatment[☆]



Tamara A. Shella

Art Therapy Department, Cleveland Clinic, Arts and Medicine Institute, 1950 Richmond Road TR308, Lyndhurst, Cleveland, OH, 44124, United States

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ABSTRACT

Art therapists can engage medical inpatients in the creation of art to encourage emotional and physical healing. Utilizing a chart review, the impact of art therapy sessions at the bedside with patients ($N = 195$) in a large urban teaching hospital was reviewed. The sample was predominantly female ($n = 166$) as more women than men agreed to participate in an art therapy session. As a routine part of regular clinical practice patients were asked to rate their perception of mood, anxiety, and pain using a 5-point faces scale before and after an art therapy session conducted by a registered art therapist. Multiple diagnoses were included in this chart review, making this study more representative of the variety of medical issues leading to hospitalization. Analysis of pre and post results demonstrated significant improvements in pain, mood, and anxiety levels of art therapy sessions for all patients regardless of gender, age, or diagnosis (all $p < 0.001$).

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Introduction

Hospitalization can be a stressful and anxiety producing experience. Whether hospitalized for trauma, sudden illness, planned surgical intervention, or as a readmission for a chronic condition, a patient may experience a myriad of emotions, including but not limited to fear, worry, confusion, and mood disruption (Bar-Sela, Atid, Danos, Gabay, & Epelbaum, 2007; Tully et al., 2011). Comorbid issues of depression and anxiety are a common experience for medically ill hospitalized patients (Gaus, Kiep, Holtkamp, Burkert, & Kendel, 2015; Glinzak, 2016; Maujean, Pepping, & Kendall, 2014; Pederson, Majumdar, Forhan, Johnson, & McAlister, 2016; Sokoreli et al., 2016). Feelings of stress can exacerbate and be exacerbated by issues of pain as well (Angheluta & Lee, 2011). Although the management of pain is a priority, it can be a difficult task that is further complicated by the highly subjective nature of pain. Poorly managed pain not only increases physical stress and compromises healing, but can lead to loss of hope, feelings of helplessness, and a lessening sense of control and personal efficacy (Eytan & Elkis-Abuhoff, 2013). Pederson et al. (2016) noted that poorly managed or unacknowledged symptoms of depression and anxiety may negatively impact 30 day readmission rates. Additionally, hospital

length of stay is often increased when psychosocial needs are not met (Carter et al., 2016). Perhaps most importantly, unmanaged psychosocial stress levels can negatively impact prognosis and survival rates, especially amongst those with a diagnosis of cancer or cardiac disease (Bar-Sela et al., 2007; Ramos, Prata, Bettencourt, Gonçalves, & Coelho, 2016; Sokoreli et al., 2016; Tully et al., 2011). This is unfortunate and very likely unnecessary, since studies have demonstrated that experiences of anxiety and depression can be predicted for most patients, and therefore could be addressed during hospitalization (Basak et al., 2015).

Art therapy (AT) has been shown to help unaddressed psychosocial distress in hospitalized patients and to promote better management of physical symptoms, overall well-being, and socialization (Angheluta & Lee, 2011; Kapitan, 2012). As a psychotherapeutic approach, art therapists can assess and engage patients in the creation of art to encourage emotional and physical healing. Through the creation of art, patients can visually express unconscious emotions which can often be explored through metaphor (Angheluta & Lee, 2011). This approach may also feel less invasive to patients who may not perceive themselves as having psychological issues, yet are in need of supportive care. Furthermore, there is evidence that AT can help reduce distress in people with cancer (Glinzak, 2016; Jang, Kang, Lee, & Lee, 2016; Wood, Low, Molassiotis, & Tookman, 2013); HIV/AIDS (Feldman, Betts, & Blausey, 2014); neurologically based trauma (Hass-Cohen, Clyde Findlay, Carr, & Vanderlan, 2014); and epilepsy (Stafstrom, Havlena, & Krezinski, 2012). This reduction of distress may in turn help

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E-mail address: Shellat@ccf.org

to reduce related symptoms of anxiety (Ali, Gammidge, & Waller, 2014; Bareil-Shoshani & Kreitler, 2017; Safrai, 2013).

Anxiety is not unexpected in acutely ill persons, as it is exacerbated by feelings of insecurity, fear of the unknown, and physiological reactions such as increase adrenaline and cortisol which often accompany a hospital stay. Art therapy can assist in reducing anxiety through not only the mindful and soothing use of art materials, but through the feelings of attachment and comfort created by the triangular relationship between the art, the art process, and the art therapist (Czamanski-Cohen & Weihs, 2016). In a 2014 study of stroke survivors ($n=6$), Khalid et al. found that stroke patients who attended an art therapy group at for at least five sessions had a reduction in anxiety level from borderline normal (8–10) to normal (0–7) range as measured by the Hospital Anxiety and Depression scale. Similarly, a significant decrease in anxiety levels were found via the Geriatric Anxiety Inventory, in a group identified as “anxious adults” ($n=44$) who participated in a four week art therapy program that compared two art therapy approaches (Ezell, 2017). More research is needed on the links between anxiety, inpatient hospitalization, and the efficacy of art therapy as a treatment approach.

Unfortunately there is also paucity of research on the use of art therapy for the management of acute pain within the inpatient setting. Stinley, Norris, and Hinds (2015) found that pain during needle sticks was significantly decreased for pediatric patients who created a digital mandala on an iPad during the procedure. This is meaningful, as procedure related pain is often poorly managed, and amongst the most dreaded part of hospitalization for children. Similar research within the adult population was difficult to locate, as studies of AT and pain were focused on chronic pain issues rather than acute pain associated with inpatient hospitalization (Czamanski-Cohen et al., 2014; Hass-Cohen & Clyde Findlay, 2009). This may point to a need for further study into the use of art therapy as a modality to better manage pain in the inpatient setting.

While evidence regarding the efficacy of AT to address psychosocial issues has continued to grow, most of the studies examined patients in aftercare or during outpatient visits in a group setting. This retrospective chart review study examined the impact of AT sessions at the bedside in a large, urban, teaching hospital with 1000 inpatient beds, located in Cleveland, Ohio. Patients were seen by registered art therapists, and as a part of regular clinical practice, were asked to rate their perception of mood, anxiety, and pain before and after an art therapy session.

Method

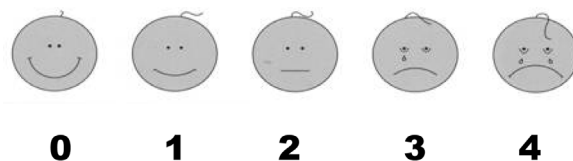
Participants

Patients referred to AT during their hospitalization between April 2011 and December 2015 were considered for inclusion in the chart review. A total of 195 patients were included in the study. Only those who had documented pre and post ratings of mood, anxiety and pain for at least one session were included in the analysis. All sessions took place at the bedside, and were voluntary. The sample was predominantly female ($n=166$) as more women than men agreed to participate in an art therapy session.

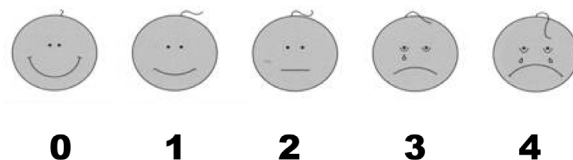
Materials and procedures

This study was approved as a chart review by the Institutional Review Board of the hospital, and a waiver of informed consent was granted. Patients were seen at bedside via referral through the electronic medical record, although patients could refuse the session. Referrals were made through a variety of sources including physi-

Mood



Anxiety



Pain

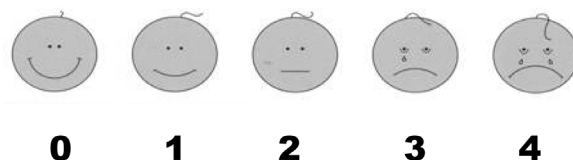


Fig. 1. Rogers' Happy/Sad Face Scale as used during study.

cians, nurses, physician assistants, clinical nurse practitioners, and other therapeutic disciplines such as music therapy. Reasons for referral were varied, but the most common were “need for distraction”, “improved coping skills”, “pain management”, and “anxiety”. We hypothesized that patients who participated in an art therapy session at the bedside of at least 30 and not more than 90 min would report improved mood, decreased anxiety, and decreased pain between the beginning and the end of the session.

At the start of the session, patients were asked to rate their mood, then anxiety, and then pain. The Roger's Happy Sad face scale (see Fig. 1) was used to assess mood, anxiety, and pain on a scale of 0–4, with 0 no symptoms, and 4 worst possible symptoms (Rogers, 1981). Originally designed as a pain scale for use with children, it has been shown to be appropriate for adults, and proved to be an easy to understand tool for the ranking of symptom severity (Gallagher & Steele, 2001; Gallagher, Lagman, Walsh, & LeGrand, 2006).

Patients then participated in an art therapy session averaging about 50 min, and were seen by a therapist from the team of five art therapists/art therapy interns. Type of media included primarily paint, beads, and mixed media. Paint was defined as any media that could be applied fluidly, including acrylic on objects, canvas, or paper; watercolor on paper; and alcohol-based inks on tiles. Bead work was defined as any project in which beads were threaded onto wire or string, and included jewelry, sun-catchers, and chimes. Mixed media included craft work such as papier-mache, wood model making/decorating, and collage. Strong emphasis was placed on patient choice in terms of both materials used and decision to participate. Patients were not required to participate, and could decline or end the session at any time. Women were more likely to agree to a session and to complete the pre and post-tests. During the session and upon completion of the art, patients were encouraged to discuss their art with the therapist as a means of processing. Therapists noted that patients often would begin to discuss their worries or concerns throughout the session, even if the resulting art did not reflect these concerns. At the end of the session, patients were asked to again rate mood, anxiety, and pain.

Table 1

Summary statistics are shown below for the cohort.

Factor	Total (N = 195)
Age/sex [*]	45.2 ± 16.9
Sex	
Female	166(85.1)
Male	29(14.9)
Dx Category	
Epilepsy	23(11.8)
GI	49(25.1)
Cancer	42(21.5)
Other	81(41.5)
Length of session	49.5 ± 15.6
Media Used	
Paint	117(60.0)
Beads	36(18.5)
Mixed Media	42(21.5)
Others present	
No	127(65.1)
Yes	68(34.9)
Pain Pre	1.8 ± 1.4
Mood Pre	1.6 ± 1.01
Anxiety Pre	1.6 ± 1.2

Values presented as Mean ± SD or N (column%).

^{*} Data not available for all subjects. Missing values: Age/sex = 1.

Statistical methods

Categorical variables were described using frequencies and percentages, while continuous variables were described using means and standard deviations. Variables were described univariably and were compared between diagnosis groups. Adhoc comparisons were used to highlight which groups were significantly different, using a Bonferroni adjusted significance level. Overall changes in Pain, Mood and Anxiety were assessed using paired *t*-tests (for continuous change measures) and binomial tests (for the dichotomous variables). The changes were also compared between diagnosis groups using *t*-tests and Pearson chi-square tests. To evaluate the impact of age, gender, diagnosis, and media on change outcomes,

multivariable models were fit. These models were fit for each change outcome, with and without the pre-therapy score for the outcome. Results were presented as estimated beta coefficients with 95% confidence intervals. Analyses were performed using SAS software (version 9.4; Cary, NC). A significance level of 0.05 was assumed significant for all tests.

Results

A total of 195 patients were included in the study. As previously noted, the sample was predominantly female (*n* = 166) as more women were more likely to participate in an art therapy session when it was offered. Diagnoses included various types of cancer, neurological disease, gastrointestinal issues, heart and vascular disease, transplant, post-surgical, and orthopedic procedures. For purposes of analysis, data was grouped into four categories: epilepsy, gastrointestinal, cancer, and “other” which included heart and vascular, orthopedic, and general surgery patients.

The average age of the patients was 45.2 ± 16.9, and 85% (*n* = 166) were female. Patients were significantly younger in the GI group (*p* = 0.003 overall) compared to those in the Cancer and Other groups. Those in the GI group also reported significantly higher pain levels pre-art therapy compared to all other groups (*p* < 0.001 overall). There were no other statistically significant between-group differences in pre-session characteristics.

There were significant improvements in pain, mood and anxiety levels after between the start and the end of art therapy sessions within all patients (all *p* < 0.001) (Table 1). This was true when comparing the mean score change against 0, and the proportion of patients with a successful outcome versus 50%. A comparison of the change in mood, pain, and anxiety by diagnostic group (Table 2) showed that the number of successful outcomes in Mood Score differed significantly between the groups (*p* = 0.037), with the Cancer group showing the lowest success rate, but there were no significant results observed in the pairwise comparisons. Tables 3–5 show the results of the multivariable analysis. For Pain (Table 3), only pre-therapy pain levels were significantly associated with change in pain score, with higher levels of pre-therapy pain showing greater decreases in pain. Even after removing pain level,

Table 2

The relationship between diagnosis group and variables from the cohort is shown below.

Factor	Epilepsy (N = 23)	GI (N = 49)	Cancer (N = 42)	Other (N = 81)	P-value
Age/sex [*]	41.8 ± 17.6	38.4 ± 14.1 ³⁴	48.5 ± 14.6 ²	48.4 ± 18.3 ²	0.003 ^a
Sex					0.72 ^c
Female	18(78.3)	41(83.7)	37(88.1)	70(86.4)	
Male	5(21.7)	8(16.3)	5(11.9)	11(13.6)	
Length of session	53.7 ± 17.5	50.2 ± 14.7	48.3 ± 15.9	48.5 ± 15.5	0.50 ^a
Media Used					0.93 ^c
Paint	15(65.2)	30(61.2)	27(64.3)	45(55.6)	
Beads	3(13.0)	8(16.3)	8(19.0)	17(21.0)	
Mixed Media	5(21.7)	11(22.4)	7(16.7)	19(23.5)	
Others present					0.50 ^c
No	12(52.2)	31(63.3)	28(66.7)	56(69.1)	
Yes	11(47.8)	18(36.7)	14(33.3)	25(30.9)	
Pain Pre	1.2 ± 1.2 ²	2.5 ± 1.2 ¹³⁴	1.4 ± 1.2 ²	1.7 ± 1.4 ²	<0.001 ^a
Mood Pre	1.5 ± 0.89	1.8 ± 0.91	1.5 ± 1.1	1.5 ± 1.04	0.40 ^a
Anxiety Pre	1.6 ± 1.2	1.8 ± 1.1	1.7 ± 1.4	1.5 ± 1.3	0.57 ^a

Values presented as Mean ± SD or N (column%).

p-values: a = ANOVA or c = Pearson's chi-square test.¹: Significantly different from Epilepsy.²: Significantly different from GI.³: Significantly different from Cancer.⁴: Significantly different from Other.

A significance level of 0.008 was used for pairwise ad-hoc comparisons.

^{*} Data not available for all subjects. Missing values: Age/sex = 1.

Table 3

Overall change in pain, mood and anxiety (post–pre) is shown below P-values are from paired *t*-tests.

Factor	Total (N = 195)	P-value
Change in Pain Score (Post–Pre)	–0.59 ± 0.91	<0.001^a
Pain Score–Successful Outcome		<0.001^b
No	66(33.8)	
Yes	129(66.2)	
Change in Mood Score (Post–Pre)	–0.96 ± 0.86	<0.001^a
Mood Score–Successful Outcome		<0.001^b
No	32(16.4)	
Yes	163(83.6)	
Change in Anxiety Score (Post–Pre)	–0.91 ± 1.02	<0.001^a
Anxiety Score–Successful Outcome		<0.001^b
No	35(17.9)	
Yes	160(82.1)	

Values presented as Mean ± SD or N (column%).

p-values: a = Binomial test, b = Paired *t*-tests.

none of the other factors were associated with change in pain score. Table 4 shows the analysis for anxiety. When including pre-therapy anxiety pain in the model, none of the other factors were significant, though there is a trend suggesting that those with epilepsy showed a greater decrease than those with other diagnoses ($p = 0.042$). After excluding pre-therapy anxiety, those with greater age showed a significantly greater decrease (–0.1 point

decrease per 10 year increase in age; $p = 0.003$). No other factors were statistically significant. For Mood (Table 5), pre-therapy mood levels were associated with change in mood in the full model, but no other factors reached significance. After removing this factor, age appeared to be related to mood change, again with older patients showing greater changes, but this factor did not reach statistical significance ($p = 0.057$).

Discussion

The results support the hypothesis that mood would be improved, and anxiety and pain reduced after participation in an art therapy session at bedside (See Table 1). Choice of media, age, sex, or diagnosis did not affect results at a significant level, and race was not included in demographic data. This suggests that art therapy can impact mood, anxiety, and pain regardless of other factors. Previous studies have shown improvements in pain, anxiety, and mood with art therapy, although not within an inpatient environment, and not grouped together (Geue, Richter, Buttstädt, Brähler, & Singer, 2013; Nainis, 2008). To our knowledge however, this is the first study to examine the three factors together in an inpatient, acute-care setting. Previous studies have also tended to focus on individual diagnostic groups often in outpatient settings such as cancer (Nainis, 2008) or HIV (Feldman et al., 2014). Multiple diagnoses were included in our analysis, making this study more

Table 4

The relationship between change in pain, mood and anxiety and dx group is shown below.

Factor	Epilepsy (N = 23)	GI (N = 49)	Cancer (N = 42)	Other (N = 81)	P-value
Change in Pain Score (Post–Pre)	–0.49 ± 0.66	–0.62 ± 0.80	–0.60 ± 1.04	–0.60 ± 0.98	0.95 ^a
Pain Score–Successful Outcome					0.46 ^c
No	5(21.7)	20(40.8)	14(33.3)	27(33.3)	
Yes	18(78.3)	29(59.2)	28(66.7)	54(66.7)	
Change in Mood Score (Post–Pre)	–0.98 ± 0.75	–1.2 ± 0.74	–0.81 ± 1.04	–0.91 ± 0.84	0.23 ^a
Mood Score–Successful Outcome					0.037 ^c
No	3(13.0)	5(10.2)	13(31.0)	11(13.6)	
Yes	20(87.0)	44(89.8)	29(69.0)	70(86.4)	
Change in Anxiety Score (Post–Pre)	–1.09 ± 1.00	–0.99 ± 0.86	–0.93 ± 1.2	–0.79 ± 1.03	0.55 ^a
Anxiety Score–Successful Outcome					0.45 ^c
No	2(8.7)	7(14.3)	9(21.4)	17(21.0)	
Yes	21(91.3)	42(85.7)	33(78.6)	64(79.0)	

Values presented as Mean ± SD or N (column%).

p-values: a = ANOVA or c = Pearson's chi-square test.

¹: Significantly different from Epilepsy.

²: Significantly different from GI.

³: Significantly different from Cancer.

⁴: Significantly different from Other.

A significance level of 0.008 was used for pairwise ad-hoc comparisons.

Table 5

The relationship between change in pain with multiple factors are shown (with and without adjustment for pre-therapy pain).

Parameter	Full Model			Effects Only Model		
	Beta (95% CI)	Effect P-value	Overall P-value	Beta (95% CI)	Effect P-value	Overall P-value
Intercept	–0.02(–0.51,0.46)	0.93	0.93	–0.61(–1.13,–0.09)	0.021	0.021
Pre-therapy Pain	–0.34(–0.43,–0.25)	<0.001	<0.001			
Age	–0.00(–0.01,0.00)	0.46	0.46	–0.00(–0.01,0.00)	0.31	0.31
Patient Sex: Female	0.23(–0.10,0.56)	0.17	0.17	0.29(–0.08,0.66)	0.12	0.12
Diagnosis Group			0.33			0.89
Cancer	–0.10(–0.41,0.20)	0.51		–0.00(–0.35,0.34)	0.98	
Epilepsy	–0.07(–0.46,0.32)	0.72		0.12(–0.32,0.56)	0.59	
GI	0.21(–0.09,0.52)	0.17		–0.07(–0.40,0.27)	0.70	
Media			0.42			0.65
Beads	–0.21(–0.52,0.11)	0.20		–0.16(–0.51,0.20)	0.38	
Mixed Media	–0.10(–0.39,0.20)	0.53		0.01(–0.33,0.34)	0.96	

representative of the variety of medical issues leading to hospitalization.

The large size of our patient sample allowed subgroup analyses, and the identification of factors associated with change in scores using multivariate analysis. Patients with gastrointestinal conditions tended to rate pain higher in the pre-test, but also reported larger decreases in pain post art therapy session. Additionally, patients with epilepsy appeared to have a greater improvement in anxiety scores as compare to the other groups. Older patients appeared to have benefited the most in terms of both reduction in anxiety and improvement of mood. Gender and type of media used did not seem to have an impact on any of the outcomes, with both male and female patients rating improvements in mood, anxiety, and pain. Patients were seen at various times of day, and were located on both older units with shared rooms, and newer units with larger, single patient rooms. Again these differences did not appear to affect the efficacy of the art therapy session, as overall mood, anxiety, and pain levels were significantly improved in all cohorts.

We acknowledge several limitations to our study. The focus on inpatients does not allow generalization of our findings to other settings (home or outpatient). Only patients with ratings on the Rogers Happy/Sad faces scale for all three variables (mood, anxiety, and pain) were included in the chart review, possibly creating a recruitment bias. The study was limited to the use of the Rogers scale as this was the tool used in regular clinical practice at the research site. Although the Rogers Happy/Sad face scale is not as commonly used as other (and better known) face scales such as the Wong-Baker pain scale (Wong & Baker, 1988), and has not been used previously to rate anxiety, it has been shown to be a useful tool for the self-assessment of mood and pain (Gallagher & Steele, 2001; Gallagher et al., 2006; Rogers, 1981). This scale was chosen due to convenience, as permission was already in place for its use as a research tool. Future researchers may want to validate the tool against other validated anxiety measures/scales. The assessment was limited to the immediate effects of art therapy during one session. There may have been some bias due to differences in approach by individual the therapists, although all had access to similar supplies and were familiar with all the patient populations. Finally, because the self-report scales were administered by the therapist, bias is a possibility as patients may have wanted to please the therapist by reporting improvements or changes.

Further research is needed to better understand the impact of art therapy on hospitalized patients. The use of a prospective design, in a larger patient sample, the addition of a control group with randomized group allocation and evaluator blinding would generate higher quality evidence. A larger sample to compare could add to a better understanding of specific psychosocial needs of patients within different diagnostic groups. The results of this chart review study suggest that art therapy had an immediate positive impact on general mood, anxiety, and pain in adult patients in a hospital setting. The efficacy of art therapy addressing these psychosocial issues for patients could potentially decrease length of stay and improve patient satisfaction, and may even reduce the need for pain medications. Art therapy may be a safe and cost effective intervention as an adjunct to traditional medical management.

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