

# The Influence of Art-Making on Negative Mood States in University Students

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**Abstract** This study examined the influence of art-making in a sample of 44 undergraduate students. Participants were randomly assigned to a control group or one of three art-making groups. Students in all groups completed the State-Trait Anxiety Inventory and the Mini-POMS prior to and after a twenty minute participation in one of the four groups. Individuals in the art-making groups were randomly assigned to participate in coloring a pre-drawn mandala, a pre-drawn plaid design, or coloring free form on blank paper. There were significant reductions in negative mood states within each group, but there were no differences between the activities. In all of the groups, state anxiety declined significantly from pre- to post-test ( $p < .05$ ). Participants in the plaid condition also exhibited significant reductions in depression ( $p < .03$ ) and tension ( $p < .005$ ). The findings suggest that coloring pre-drawn patterns may be useful as a stress reduction technique for university students.

**Keywords:** *art therapy, jungian theory, anxiety reduction*

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## 1. Introduction

Many college students experience multiple combinations of stressors such as (and not limited to) grades, social lives, finances and being away from home for the first time. It has been shown that there is a significant reduction in grade point averages (GPAs) of students who are suffering from higher levels of anxiety and stress (Chappell, Blanding, Silverstein, Takahashi, M., Newman, Gubi, & McCann, 2005). Other studies have found that university students report poorer sleep quality as well as higher levels of depression, and loneliness (Zawadki, Graham, & Gerin, 2013). Finding constructive ways to reduce the levels of stress and anxiety can help to improve the students' overall health, quality of education, and provide them with the coping skills necessary to reduce these factors when they are encountered later in life.

Creative activities have the potential to reduce emotional distress (Grossman, 1981). While art making activities have purportedly been useful in anxiety reduction (Grossman, 1981), this technique has not been well-studied. Expressive activities have been found to be useful in reducing anxiety and anger among women with Stage I and II breast cancer. (Puig, Lee, Goodman, & Sharad, 2006) and was associated with reduced stress and increased positive emotion among caregivers of patients with cancer. Studies with non-clinical populations also support the value of art making activities in reducing emotional tension (Chambala, 2008; Sandmire, Gorham,

Rankin, and Grimm Walsh, Chang & Schmidt, 2005). (2012)

A recent study of the effects of art making among college students allowed participants to choose between five types of art activities: 1. Coloring a mandala, 2. drawing a still life; 3. Collage making, 4. Free form painting and 5. Clay. Those choosing an art activity were compared with a control group that did not engage in art making. Both groups (all of the participants choosing any of the art making activities were collapsed into one group) were administered the State-Trait Anxiety Scale (Spielberger, Gorsuch, & Luchene, 1970) before and after a 30 minute period. Compared with the controls, the art-making group exhibited significant declines in both state (current, situational) and trait (a stable predisposition) anxiety.

While art-making appears to have some beneficial effects on anxiety, other investigators, influenced by Jungian art therapy, have raised the possibility that specific forms of art may have greater benefit for reducing unpleasant mood states. Mandalay is a type of symbol typically composed of a circle within a square and a center point within the circle upon which the rest of the pattern may appear to converge. While a spiritual symbol in Hinduism and Buddhism, mandalas are often associated with personality theorist and psychotherapist, Carl Jung who saw these symbols as representing an integration of opposing parts of the personality (Jung, 1961). In the West, meditating upon mandalas may be seen as a way to stabilize and reorganize cognitive-affective experience. It has been suggested that coloring the complex mandala is associated with inducing a meditative-like state (Clarke,

1994). By coloring the symmetrical and repetitive patterns in its circular shape, the individual focuses on the mandala, briefly detaching them from their negative thoughts and emotions (Curry and Kasser, 2005).

While mandalas have been given considerable attention among Jungians and therapists integrating Eastern concepts into Western psychotherapy, actual research on the association between mandalas and emotional well-being is limited. As noted earlier, art making activities appear to have been associated with reduced emotional distress—at least in the short-term. However, the issue of whether art activities involving mandalas have additional benefit has been examined in only two small studies. Curry and Kasser (2005) use an anxiety induction procedure in which they told participants to write about the last time they were frightened and immediately afterward, completed the State portion of the State-Trait Anxiety Scale. Participants were then assigned to one of three conditions—coloring a mandala, coloring a plaid design, and free-form coloring. After 20 minutes of one of these activities they found that those coloring the mandala or the plaid pattern reported greater reductions in anxiety compared with the free form drawing condition.

Replicating the study done by Curry and Kasser (2005), Van der Vennet and Serice (2012) also found that coloring a pre-drawn mandala as opposed to coloring a free form design on blank paper results in significantly lower levels of anxiety in college students. However, these investigators found that there was significantly greater reduction in anxiety associated with drawing the mandala compared with the plaid design.

Given the limited number of studies and the somewhat different findings in the two studies directly comparing the mandala versus the plaid design, the current study was intended as a replication with two differences. In addition to assessing state anxiety, pre=post assessment were also conducted for two other mood states—tension and depression. In addition, there was no deliberate anxiety induction before the participants engaged in art making activity. In the current study, participants were assigned one of three conditions of coloring pre-drawn mandalas, plaid designs, or coloring free form on blank paper. Prior to and upon completion of the art-making activity, participants completed the State section of the State Trait Anxiety Inventory.

## 2. Methods

### 2.1. Participants

Participants for this study were 44 (8 male and 36 female) undergraduate students ages 18 and older, attending a university in the Midwestern United States. Participants were recruited from classes at the university. A recent report of the demographics of the university indicated the following: By gender 52% female; By race/ethnicity: White 80%; Native American 2%; 8%; Hispanic 2%; African-American, 1.6%; Asian <1%.

### 2.2. Instruments

The State Trait Anxiety Inventory (STAI) is a reliable, valid measure for measuring both temporary state anxiety, and longer lasting trait anxiety. It measures feelings of

apprehension, tension, nervousness, and worry by asking participants 20 questions about how they feel “right now, at this moment,” and how they feel “generally.” Higher scores on the STAI are a reflection of psychological stress, while lower scores generally reflect relaxation. Normative groups for the STAI are high school and college students between the ages of 19 and 39 years, as well as adults between the ages of 40 and 69 years. The STAI has been found to be a very reliable and valid measure, and is widely used in assessing emotional states (Spielberger, 1983).

The Mini Profile of Mood States (Mini-POMS) is a shortened version of the Profile of Mood States (POMS). A 5-point Likert scale ranging from “Not at all” to “Extremely” is used to assess an individual’s mood. The Mini-POMS consists of 30 words that describe current emotional states, participants evaluate on how they feel at that moment. Examples of feelings on the Mini-POMS are “anxious,” “energetic,” “tense,” and “angry.” The Mini-POMS has been tested on college students and was found to be both valid and reliable (Guadagnoli & Mor, 1989).

### 2.3. Procedure

Data was collected from students in a setting designed to promote completion of the art making activities. Students were participating in this study on an individual level, and were randomly assigned to either one of three art-making groups. Participants were asked to complete the State Trait Anxiety Inventory (STAI) and the Mini Profile of Mood States (Mini-POMS) at two specific times throughout the procedure: Time 1 ( $T_1$ ) to assess a baseline measure of stress, anxiety and mood responsivity; at Time 2 ( $T_2$ ) following completion of the art making exercises.

Participants were assigned to coloring either the pre-drawn mandala the pre-drawn plaid design or a blank piece of paper. All participants were instructed to color the paper to which they had been assigned for 20 minutes using the 10 different colored pencils that were provided. After completing the 20-minute coloring activity, the participants completed the measures again.

## 3. Results

A One-Way ANOVA indicated that there were no significant differences in reduction of anxiety, tension or depression between the three art-making groups. A paired-samples  $t$  test was conducted to determine if there was a significant reduction in anxiety, tension, and depression within each group before and after the art-making activity (Table 1, Table 2, and Table 3.) The results for the plaid art-making condition indicated a significantly lower level of state anxiety following the art-making activity  $t(15) = 3.61, p = .003$ . The results for the plaid art-making condition also showed significantly lower levels of tension, and depression after task completion (see Table 2). The results indicated that the mean state anxiety for the mandala condition (see Table 1) following the art-making activity was significantly lower than the state anxiety prior to the art-making activity,  $t(10) = 2.93, p = .015$ . The state anxiety for the blank paper condition (see Table 3) was also significantly lower following the art-making activity  $t(6) = 2.72, p = .035$ .

**Table 1. Pre and Post Test Scores for the Mandala Condition (N=11)**

Subtest	Pretest		Post-Test		t-value	p-value
	M	SD	M	SD		
State Anx	39.27	12.67	31.55	7.49	2.928	0.015*
POMS-Dep	4.00	4.69	1.64	3.35	1.887	0.088
POMS-Ten	6.00	5.85	3.27	3.19	1.902	0.086

**Table 2. Pre and Post Test Scores for the Plaid Condition(N=16)**

Subtest	Pretest		Post-Test		t-value	p-value
	M	SD	M	SD		
State Anx	39.69	9.68	32.44	8.98	3.612	0.003*
POMS-Dep	3.00	3.79	1.50	3.22	2.449	0.027*
POMS-Ten	5.63	4.83	2.56	3.95	3.298	0.005*

**Table 3. Pre and Post Test Scores for the Blank Paper Condition (N=7)**

Subtest	Pretest		Post-Test		t-value	p-value
	M	SD	M	SD		
State Anx	42.14	8.09	36.71	11.24	2.716	0.035*
POMS-Dep	3.42	4.28	4.86	7.49	-1.160	0.290
POMS-Ten	5.71	3.81	3.71	4.68	1.620	0.156

## 4. Discussion

There were no significant differences between the three art-making activities in terms of the magnitude of reductions in aversive mood states. However, within each of the art-making groups, there was a significant reduction in state anxiety for pre- to post-testing. Participants in the 20 minute unstructured drawing condition did exhibit a significant reduction in state anxiety from pre- to post- test although no significant reductions in tension or depression. However, contrary to expectations based on previous research, the plaid condition exhibited significant reductions in all three measures of negative mood states while the mandala condition only demonstrated a significant reception in state anxiety.

When taken together, the overall pattern of findings does lend support to the therapeutic value of art-making—even when carried out for a relatively brief period of time. Similar to Curry and Kasser (2005), we found that the plaid drawing condition was associated with a reduction in state anxiety that did not differ significantly from the mandala group. The findings do not support the view that coloring mandalas has a unique and more powerful anxiety reducing effect than coloring other figures.. While only true of the plaid pattern in the current study, but consistent with interpretations offered by Curry and Kasser (2005) that the availability of a structured stimulus for drawing does appear to have more pervasive benefit for negative mood states..

The possible reasons for the greater effect of the plaid condition are not entirely clear it is possible that a significant proportion of the participants had never seen a mandala before. Because of the complexity of interior pattern of the mandala used in the current study, it is possible that while providing some structure the plaid condition provided a more familiar pattern of organization.. Contrary to the findings of Curry and Kasser (2005), there was a significant reduction in state anxiety associated with when coloring the blank paper. It is possible that for the mandala naïve participants, the mandala's complexity had a similar cognitive- emotional effect as the free form condition. The finding of reductions in state anxiety and not for the other two mood measures provides some limited support for this hypothesis.

It has been estimated that 25-30% of college students experience test anxiety to an extent that it functionally interferes with their lives (Brown, Forman, Herbert, Hoffman,, Yuen, &Goetter, 2011). High levels of test anxiety have been associated with a reduced likelihood of college graduation (Culler &Holahan, 1980). A brief, low cost intervention such as art-making may be a practical strategy for reducing debilitating levels of test anxiety. To date, however, this application has not been well studied.\

The current study had several limitations including a small sample size. In addition, in contrast to previous studies, the participants were not subjected to an anxiety induction procedure immediately before the art-making activity; a practical question to be addressed in future research is the duration of the anxiety reduction effect. Furthermore, it is not known whether the reduced level of anxiety associated with art making is, in the absence of an external threat, maintained for extended periods of time. In addition, for drawing tasks to be used as a consistent anxiety reduction technique, it would be necessary to determine if some type of tolerance or habituation to its anxiety reducing effect so that it becomes less effective with practice.

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