

ART THERAPY EFFECTS ON MEDICAL STUDENTS

THE EFFECTS OF ART THERAPY ON THE WELL-BEING  
OF MEDICAL STUDENTS IN EASTERN NORTH CAROLINA

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**Abstract**

This research examines how art-based interventions may improve the well-being, and more specifically, any negative emotions, of medical students. Medical students are a population who are at high-risk for the development of stress based psychological disorders (Dyrbye, 2011) and also have shown to infrequently utilize mental health services (Tija, Givens, & Shea, 2005). As art therapy holds low stigma and yields a tangible creative product, it was deemed that it may be an appropriate therapeutic mechanism for stress coping in the demographic of medical students. Three art sessions were held at the East Carolina University Brody School of Medicine in which students were provided instruction, materials, and meditative purpose for each creative project. Following the completion of the project, students were asked to complete a self-report questionnaire regarding feelings before, during, and after the art sessions. Results mostly supported this hypothesis with significant positive impact on pre-existing negative emotions and high post-session affect reports. However, there was significant induction of anxiety during creative activities correlated with pre-existing negative emotions.

## **Introduction**

Medical students are a population of individuals who are under a high level of stress due to a heavy course load, high expectation of mastery of information being learned, difficulty of material to be learned, financial distress, and deprivation of sleep (Ryan, 2017). Medical students are vulnerable to prolonged stress, which can lead to the development of mental health disorders such as depression, anxiety, and burnout (Dyrbye, 2011). These mental health disorders go untreated in a high number of medical students who report lack of treatment being due to time constraints and stigma around receiving mental health services (Tija, Givens, & Shea, 2005). Untreated mental health disorders can lead to exacerbated symptomology, chronic struggles with mental health, and difficulty coping with daily tasks (Gentile & Roman, 2009).

These problems exemplify the necessity for finding a constructive, low-stigma method of coping with high levels of stress in medical students and potentially improving individuals' overall well-being. Art therapy is a more holistic form of treatment that doesn't necessitate large blocks of time and has low stigma (Gwinner, 2016), which is why this method of treatment condition was chosen to be utilized for our research purposes. This study sought to analyze how art-therapy sessions may improve the well-being of medical students through the specific research questions of "What might the impact be of creative art-making on pre-existing negative emotions," and "How are negative emotions likely to contribute to anxiety around creative art-making?"

## **Background**

The demographic of medical students are vulnerable to higher stress levels than the general population of the same age group. This stress can be attributed to financial distress due to the expense of medical school, the volume and difficulty of medical student workload, the

tendency of medical-career driven individuals to achieve highly, and consistent sleep deprivation (Ryan, 2017). When these elevated stress levels are maintained over prolonged periods of time, students may become increasingly vulnerable to mental health disorders (Dyrbye et al., 2011). Some of the more common disorders expressed among the medical student population include burnout, depressive systems and depression, fatigue, generalized anxiety, and low mental or physical quality of life (Dyrbye, 2011). Many of these disorders tend to arise for individuals during medical school, which suggests that these disorders are a result of increased and sustained stress levels. Predisposition to mental health disorders is also a factor, but it may be deduced that the stress of medical school may cause the evocation of the various aforementioned symptomologies (Tija, Givens & Shea, 2005).

Due to the symptoms and disorders which can arise from prolonged stress, differential aspects of medical students' overall well-being may decrease and eventually become unbalanced. Well-being is a psychological concept which encompasses various aspects of life. Measures of well-being include both mental and physical health, relationships with others, how you occupy your time, and contentedness with your environment. When one has a high sense of well-being, they feel as if all of these aspects of life are in somewhat of a balance (Sointu, 2005). Well-being is traditionally used in a more holistic manner when regarding someone's overall health, but research shows that when the aforementioned aspects of life are out of balance and are regarded as negative or low, the vulnerability to mental health issues is increased (Michalec & Keyes, 2013).

Based upon current research, a large majority of medical students who experience psychological issues often do not seek active treatment for their mental health disorders. In a longitudinal study by Tija, Givens & Shea (2005), 70% of medical students who were diagnosed

with depression were not receiving or seeking treatment, regardless of severity or reports of suicidal ideation. A high volume of students reported that they did not seek services due to time restraints, the stigma of receiving mental health services, and fear that it would affect their academic record so that future employers would not hire them due to past history of mental health issues (Tija, Givens & Shea, 2005). These results are alarming, as it is incredibly important to seek some type of help when experiencing difficulties with mental health to prevent symptoms from intensifying. Exacerbated symptoms can lead to severe consequences, such as chronic mental illness and suicide (Gentile & Roman, 2009).

As students' medical careers continue and they become physicians, the demand of the occupation does not become lessened. High sources of stress outside of medical school often include demanding work schedules, lack of control in the workplace, and low reward frequency. Again – if not given proper treatment and assistance, difficulties with mental health will continue.

Due to lack of treatment and not being provided with appropriate coping mechanisms for stress, medical professionals often exhibit high rates of drug abuse and suicide (Gentile & Roman, 2009). This fact greatly emphasizes the necessity for mental health treatment when symptoms first arise, so that individuals do not struggle with balancing their well-being and mental health after medical school has ended. The challenge that is addressed in this research is finding an option for the treatment and coping of stress-rooted disorders that has low stigma and does not take an excessive amount of time for students to participate.

Art therapy is a broad therapeutic method that can be used with a broad variety of demographics, encompasses therapies including dance, music, and physical art forms, and seeks to bridge the gap between healthcare and the arts (Gwinner, 2016). These therapies use

alternative means of expression in order to help individuals cope with their stressors. A meta-analysis performed by Uttley et al. (2015) yielded results which showed that art-based therapies used by individuals who have non-psychotic mental health disorders have significant positive results compared to controls. In addition, research by Gwinner (2016) shows that art therapy has a lower perceived stigma than typical psychotherapy as it is seen as more of a free-flowing, collaborative, and expressive effort between the patient and therapist. Scope, Uttley and Sutton (2017) performed a review of user perspective of the benefits of art therapy. Individuals felt effects such as personal achievement, freedom of expression, deeper understanding of self, distraction, and relaxation. Data collected by Gwinner (2016) as well as Scope, Uttley, and Sutton (2016) showed that feelings of unity and the development of relationships with their therapist as well as those participating in group art therapy increased individuals' perception of the efficacy and value of the sessions. This data overlaps with the results of Michalec and Keyes' research (2013) which shows that medical students find solidarity in that each of them experience paralleled struggles during their medical training. The data showed that this type of bond provides an aspect of life that improved individuals' levels of well-being. Using this congruency, it can be deduced that the values of the arts and their therapeutic use may provide an outlet that medical students will view as non-stigmatized, stress-relieving, worthy of time, and a way to create positive relationships with others who share similar experiences. This research seeks to view how the effects of art-therapy may improve the overall well-being of medical students at the East Carolina University Brody School of Medicine (ECU BSOM).

### **Methods**

Here, the research methods of the study will be described. This description will include details about the setting, participants, and procedures that were used when gathering

data. Prior to beginning the data collection segment of the study, approval of the research topic, design, and methodology was given by the International Review Board (IRB).

### **Setting**

The participants of this study were recruited from the ECU BSOM in Greenville, North Carolina, an allopathic medical school which emphasizes primary care medicine and healthcare outreach to underserved citizens in eastern North Carolina. Prior to the first art session, students were informed of the dates and times available as well as the experimental and research-based nature of the sessions. Each mini-art session included a reflective theme and post-session purpose, both of which were introduced following the instructions and gathering of materials. The sessions took place in large classrooms on the campus of ECU BSOM, and soft instrumental music was played in the background. Participants were reminded that all aspects suggested were optional and given the disclaimer that there was a voluntary survey to be completed at the end of the mini-art sessions.

### **Participants**

As this research sought to examine the effects of art therapy on the well-being of a potentially vulnerable population, medical students, “mini-art sessions” were developed and marketed to the target demographic. Students were given the opportunity to sign up for classes through a Doodle Poll. Incentives included snacks as well as the opportunity to be entered into a drawing for a \$100 grocery gift card if an individual attended more than one session. The age range of participants was between 22 and 27 years of age; twenty-one females and one male participated.

### **Procedures**

Three mini-art sessions were planned, which took place over a span of three weeks in February 2018. Each session was scheduled to last one hour, and participants were allowed to take home their artwork once completed. At the beginning of each session, students were introduced to the type of art that would be created on that day. Students were shown an example work created by the leader of the art sessions, and encouraged to examine it in order to increase understanding of the task. They were then provided basic instructions as to how to do the art, then given time to gather their materials, which were provided by the session leader. Following instruction of how to perform each project, participants were encouraged to create, reflect, spend time with peers, and discuss the process or ask questions about how to make their art projects.

### **Session 1, Painted grounding stones.**

The first art session was to create painted rocks, which were called “grounding stones.” Participants were provided with multiple colors of paint, could choose a rock, and a tool in order to paint. Various examples were provided to show the different potential patterns and color schemes. Students were also told that these stones could be used in times of stress as a grounding mechanism. A grounding mechanism is often used as a self-treatment method during anxious or dissociative moments in order to deescalate feelings of panic, stress, and dissociation (Wehrenberg, 2012). The reflective theme for this session was for individuals to consider the aspects of their life that help to keep them grounded and maintain balance. The post-session purpose was to keep the stone with them so that if they ever feel the necessity to use it as a grounding mechanism they could hold the stone and breathe deeply.

### **Session 2, Love bugs.**

The second session took place on Valentine’s Day, so we made a craft called love bugs, which are essentially bundles of yarn decorated with googly eyes, hearts, and antennae. Again,



several examples were given in order to show participants different options and provide ideas for the session. The reflective theme for this session was for participants to think of all of the people in their life who they love and who love and support them through the difficulty of school and stressors that present themselves in life. The post-session purpose was to use the *Love Bug* as a desk or table decoration to serve as a reminder of their support systems, loved ones, and the joy that they can bring.

### **Session 3, Dreamcatchers.**

The third session involved the creation of dreamcatchers. Materials supplied included metal rings as the base of the dreamcatcher, multicolored yarn, ribbon, feathers, and beads. Again, multiple examples of various types of dreamcatchers were provided to boost participants' ideas for creating the art. The reflective purpose of this session was for individuals to consider their short and long-term goals and reflect on both the large achievements and small things that they do on a daily basis to create an environment conducive to reaching these goals. The post-session purpose was conveyed as using their dreamcatcher not only as decoration, but to serve as a reminder that seemingly miniscule tasks – like getting sleep, calling your family, or taking just 30 minutes to study on a day off – are just as important for accomplishing their goals as larger activities.

### **Measures**

The questionnaires given to the students included eleven questions that were either forced choice or involved a self-report ranking on a scale from 1-10 (See Appendix A for full questionnaire). The nature of these questions were of students' current perception of their own well-being, affect or mood prior to and following the art task, feelings regarding the project both during and upon completion, how inspired they felt to begin their own creative endeavors, if they

believed that participating over time would improve well-being, and if students would consider attending more projects if offered in the future.

### **Data Analysis**

The specific research questions which were analyzed in this segment of study include “What might be the impact of creative art-making on pre-existing negative emotions,” and “How are negative emotions likely to contribute to anxiety around creative art-making?” Based upon these questions, the following meanings behind questionnaire items were catalogued and put into SPSS for statistical analysis.

Table 1:

*Information Categorized In Questionnaire for Data Analysis*

Item #, Pertinent Options	Underlying Meaning of Pertinent Options
Item 5, Options A, D, E, G, and I	Negative Emotions Present Prior to Art Task
Item 6, Options F, G, I, and J	Anxious Feelings During Art Task
Item 7	General Affect Following Art Task
Item 8, Options A, B, E, and G	Positive Feelings Following Art Task

In order to quantify these items, a ratio score was given based on the number of options of interest within the item. In the questionnaire items listed above (5, 6, 7, and 8), scores were calculated out of 5, 4, 10, and 4 options respectively. For example, if a student only chose one negative emotion out of the five negative options included among all forced choice options, their score would be 1/5, or .20. This data can be referred to in Appendix B, and the descriptive statistics are listed in Table 2. The sample size (N) is 22 for all variables. When analyzing this data, a paired samples t-test was used to compare the means among variables based on the necessity to compare the same population at different time points of the creative art-making intervention (Shier, 2004).

Table 2:

*Descriptive Statistics of Analyzed Questionnaire Items*

Variable (Item #)	Mean	Standard Error	Standard Deviation	Variance	Range	Maximum	Minimum
Negative Emotions (Item 5)	.3545	.06437	.30194	.091	1.00	1.00	.00
Anxious Feelings During Task (Item 6)	.0909	.03507	.16449	.027	.50	.50	.00
General Affect Following Art (Item 7)	.8409	.02247	.10538	.011	.40	1.00	.60
Positive Feelings Following Task (Item 8)	.8864	.05130	.24063	.058	.75	1.00	.25

### Analysis Results

The first research question inquires as to what the impact of creative art-making may be on pre-existing negative emotions. This was addressed using a paired samples t-test to compare pre-existing negative emotions and positive feelings following the task. There was a significant difference among this comparison ( $M = -.5318$ ,  $SD = 0.3557$ );  $t(21) = -7.012$ ,  $p < 0.001$ ). To create an additional dimension to the question regarding self-reported affect impact, a paired-samples t-test was conducted to compare the self-report general affect following the task in which students were asked to rank how they felt after completing their art from 1-10. This comparison was also statistically significant ( $M = -.48636$ ,  $SD = .32848$ );  $t(21) = -6.945$ ,  $p < 0.001$ .

Finally, to address the second question of how negative emotions are likely to contribute to anxiety around creative art-making, another paired samples t-test was conducted to compare pre-existing negative emotions and anxious feelings during the task ( $M = .26364$ ,  $SD = .33101$ );  $t(21) = 3.763$ ,  $p = 0.001$ ).

Percentages of “yes” responses were calculated for items #3 (“Have you ever received or considered receiving services regarding your mental health?”) and #11 (After your experience

today, would you be interested in returning to another session for a different creative project?). The respective results were 72.72% and 100%. The mean ranking was calculated for items #4 (“On a scale of 1-10, how would you rate your current state of well-being?”) and #10 (“On a scale of 1-10, do you think that participating in several brief group art sessions would improve your sense of well-being over time?”). Respectively, the results were 7.2273 (SD = 1.41192) and 8.7273 (SD = 1.48586).

### **Discussion**

The purpose of this research was to view the potential effects of art-therapy intervention on medical students at ECU BSOM. The specific questions addressed during this segment of research were how art-based intervention may affect pre-existing negative emotions and if negative emotions are related to anxiety surrounding creative art-making.

### **Results**

#### **The effect of art-based intervention on negative emotions.**

Statistically significant results were shown for both measures of this question. The first measure compared pre-existing negative emotions to the individuals’ feelings about the art session following its completion. These results imply that even when negative emotions were present before beginning the art-based intervention, positive remarks concerning the enjoyment of the session, connection with fellow students, accomplishment, and the soothing effects of the projects were still present. The second measure involved comparing the pre-existing negative emotions to self-reported affect at the completion of the project. This result suggests that even though negative emotions were present in many students who participated, the post-session affect was still fairly high, with the lowest score being a 6/10.

#### **Negative emotions and their effect on anxious feelings during art intervention.**

Statistically significant results were often found for this measure, which compared the pre-existing negative emotions score to responses that correlate with anxiety regarding feelings that occurred during the art session. This result implies that when students are experiencing negative emotions prior to an art-based intervention, feelings of anxiety may arise when participating in a fairly novel creative activity.

#### **Additional results.**

A high percentage of participants reported that they had previously received or had considered utilizing mental health services prior this research (72.72%). In addition, all participants (100%) reported that they would be interested in attending future sessions. These results respectively suggest that the population of students at the ECU BSOM would likely benefit from periodic art therapy sessions, and that individuals may be willing to come to these sessions and hopefully use these services. The latter may potentially indicate that creative art-making as a coping mechanism or treatment option holds little stigma. Finally, the average participant perception of potential benefits to well-being was high, at 8.7273/10. This data, again, may suggest that students do not feel stigmatized by this means of stress intervention and that overall, the experience was positive.

#### **Limitations**

Major limitations of this study included small participant sample size and a short time-frame available for sessions. Having only three art sessions limited the potential for a longitudinal study across months in which same-students came and progress on self-report well-being measures could be analyzed. In addition, the small sample size of voluntary participants could have caused skewed data that is not representative of the entire population of medical students in the ECU BSOM, or medical student population as a whole.

In addition to participant and time constraints, the questionnaire was limited due to a few factors. First, the questionnaire was not created with specific research questions in mind – rather, the research questions were created following the collection of data from the questionnaires. This made it difficult to procure questions and perform data analyses, as creating the questionnaire toward a specific goal would have allowed for a more thorough and comprehensive view rather than limiting the analysis to a couple of questions that could be answered. Second, students should have been instructed to complete some parts of the questionnaire at specific times during the intervention (before, during, and after). Having the participants complete the form at the completion of the art intervention could have altered their responses to questions regarding affect before the session began. Finally, the options included in the various questions were not specific to the multiple areas of well-being. It may have been more beneficial for the study to have the various measures of well-being as separate questions to view the effects of art therapy on the facets of well-being individually rather than as a whole.

### **Implications for Practice**

Based on the 100% report rate of students being willing to return for other sessions, the structure of the sessions should be maintained. In the future, more sessions should be put into place as periodically offered programming for purposes of stress relief all throughout the year. Various different activities, potentially suggested by students, should be presented so that the sessions don't become repetitive or redundant. It may also be beneficial to hold two-hour weekend sessions for larger projects, such as the structured creation of a painting or collage. Finally, the meditative objectives and post-session purpose should be maintained when implicating future sessions, as these may contribute to students' feelings of benefitting their well-

being and providing positive coping mechanisms for stress during and after the creative art-making intervention.

### **Directions for Future Research**

Future research should explore exactly what aspects of well-being are improved by art-based intervention, in order to look into specific areas that students are struggling with concerning their mental health. By exploring these areas, researchers and art-interventionists will be able to provide creative activities that are most valuable for students' time. Research should also be done to get feedback on what students like and dislike about the sessions, and what they feel helped them cope with their stressors during the creative time the most. This will allow fine-tuning of the activities to streamline the process, and again provide the most effective and efficient art-based intervention for students. Supplemental research in the future could evaluate the effectiveness of creative art-making as either a positive coping mechanism, a more clinically applicable source of therapy, or both. This will allow for fine-tuning of the target demographic and, again, will help to create the best forms of intervention so that participants can most benefit. Finally, expanding this research to medical students across North Carolina and all over the United States will provide insight into a more comprehensive effect, rather than the potential biases that were evident in the small sample size of this study.

### **Conclusion**

This research sought to view how art-based intervention impacts the negative emotions that preexisted prior to creative art-making, as well as how these negative emotions may manifest as anxieties in the art-making process. Results imply that students' negative emotions and affect were improved by the creative art-making intervention, but these negative emotions may interfere with benefits due to anxieties around the creative project. Although this research

was not incredibly in depth, it provides a rough outline for future researchers to follow in order to create a more comprehensive view of the stress-relieving effects of art-based therapy on the vulnerable population of medical students.



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## Appendix A

1. Age:
2. Level of education:
  - a. High school
  - b. Some undergraduate (please state year of study)
  - c. Bachelor's Degree
  - d. Some medical school
  - e. Completion of medical school
3. Have you ever received or considered receiving services regarding your mental health?

YES

NO

4. On a scale of 1-10, with 1 being the lowest, how would you rate your current state of well-being\*?

\*Well-being is defined as having positive relationships with others, personal mastery, autonomy, a feeling of purpose and meaning in life, and personal growth and development.

1      2      3      4      5      6      7      8      9      10

5. Prior to beginning the creative task, how were you feeling? (circle all that apply)
  - a. Anxious
  - b. Joyful
  - c. Content
  - d. Absentminded
  - e. Worried
  - f. Emotionless/Neutral
  - g. Sad

- h. Excited
  - i. Tired
  - j. Energized
6. Please circle all that apply regarding the art session today.
- a. After the task was explained, I was excited to begin.
  - b. I was glad to have the opportunity to engage in a creative task
  - c. I had ideas about what I would like to make
  - d. Working on my project in this environment released tension or distracted me from any tension I was feeling prior to the session
  - e. I enjoyed being surrounded by other students during the session
  - f. I was worried that my project would not be good enough compared to others'
  - g. I felt that I was not going to be good at the activity
  - h. I found my thoughts drifting to my other responsibilities
  - i. Being with other students made me feel uncomfortable
  - j. I was worried about making mistakes
  - k. I was easily able to concentrate on what I was doing
7. On a scale of 1-10, how do you feel after completing the art project?
- 1      2      3      4      5      6      7      8      9      10
8. Please circle all that apply:
- a. I enjoyed making art
  - b. I felt a sense of comradery with the other students in the session
  - c. I feel the need to compare my creative work to others
  - d. The environment felt safe and relaxed

- e. I feel accomplished when looking at what I have created
  - f. I was not satisfied with what I made
  - g. The project and materials had a soothing effect
  - h. I feel more stressed after completing the art session
9. On a scale of 1-10, how inspired do you feel to start or continue a creative endeavor independently during your free time?
- 1      2      3      4      5      6      7      8      9      10
10. On a scale of 1-10 (1 being absolutely not, 10 being absolutely positive), do you think that participating in several brief group art sessions would improve your sense of well-being\* over time?
- 1      2      3      4      5      6      7      8      9      10
11. After your experience today, would you be interested in returning to another session for a different creative project?
- YES              NO              POSSIBLY

## Appendix B

Participant Number	Negative Pre-Existing Emotions Score	Positive Post-Session Emotions Score	During Session Anxieties	Self-Report Post-Session Affect
1	.00	1.00	.00	.90
2	.20	1.00	.00	.80
3	.40	1.00	.00	.80
4	.20	1.00	.00	.80
5	.40	1.00	.00	1.00
6	.00	.75	.00	.70
7	.60	1.00	.25	.80
8	.40	1.00	.25	.90
9	.00	.25	.00	.90
10	.60	.75	.00	.90
11	.00	1.00	.00	.80
12	1.00	.50	.00	.60
13	.40	1.00	.00	1.00
14	.00	.25	.00	.80
15	.00	1.00	.00	.80
16	.60	1.00	.00	1.00
17	.80	1.00	.00	.90
18	.20	1.00	.25	.80
19	.40	1.00	.25	1.00
20	.20	1.00	.50	.80
21	.60	1.00	.50	.80
22	.80	1.00	.00	.70