Art for Healing: Experiencing Art Improves Emotion after a Negative Event

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Abstract

Existing research suggests that making art has benefits for mental health, but can other interactions with art still help people (Henderson et al., 2007)? This project endeavors to address the relationship that individuals have with art, and determine if varied interactions with art can improve one's emotional state—especially for participants primed to recall a negative life experience. Participants in the first study were primed to recall negative memories prior to completing an art rating task, the Discrete Emotions Questionnaire (DEQ; Harmon-Jones et al., 2016), and an art experience questionnaire. The second study primed participants with the same negative writing task prior to their completion of either an art or non-art task. Ultimately, interacting with art evoked more positive emotions in both studies. The results of the research studies and a literature review were used to create works of art for a family services center in Salem, VA.

Art for Healing: Experiencing Art Improves Emotion after a Negative Event

Existing research suggests that creating artwork can have positive influences on the emotions of participants (Henderson et al., 2007), but can there also be benefits from other interactions with artwork? If so, does the art need to be created in a specific manner to elicit a reaction? Based on this, I conducted a literature search to understand how people experience art and determine if there are a few key mechanisms within art that make people respond more positively to it than other methods or stimuli. I was interested in how the domains of stylistic preferences, color, conceptions of beauty, and life experience could influence these emotional states. These findings ultimately informed two research studies that further assessed the viewer's relationship with art, and subsequently the emotions that follow from an interaction especially for people who have experienced a negative life event.

A viewer's stylistic preferences within artwork are highly variable based on life experiences leading up to their time viewing the art. Ultimately, though standardized research points to biological influences for encouraging viewers to lean towards a preference for realistic artwork, there is still a persisting appreciation for craft within work. Several studies have tried to determine the most "beautiful" work of art, sometimes landing on impressionist paintings, but the personal experience of the viewer can augment those findings for each individual viewer and their resulting emotions (Forsythe, 2011; Gallese, 2011; Hayn-Leichsenring et al., 2017).

The same trend is present with preferences for color. Bodies of work have suggested potential color connotations and thematic suggestions for their use in different areas (Ciotti, 2014; Kurt & Osueke, 2014). However, these also are highly dependent on the varied life experiences of the viewer, including culture, stereotypes, and personal associations. While some standards that people enjoy with colors can be accounted for (in having them all go together, be

appropriate for where they are being used, utilizing complementary colors, and more), there are many different personal biases and perceptions that are brought into the mix with any association and this will undoubtedly affect the emotional response to a work of art based on the viewer (Ciotti, 2014; Janssens, 2001; Whitfield & Slatter, 1978).

The perspective that the individual has when they engage with art matters for their perception. Primarily, individuals who have seen artwork before are more likely to engage with it again and rate it more generously and less complex (Forsythe et al., 2008; Mulheren & Sawey, 2008). There are also variable preferences based on cultural perspectives as well as what is available to the viewer to see (Gazzaniga, 2016). Based on this, it is nearly impossible to characterize the emotions an individual will have from work of art without first understanding where they come from, and the customs they will be applying to their experience of the art.

Lastly, the subject matter presented within a work of art is differently interpreted based on experience. There is research on stylistic preferences that suggested an often-seen desire for representativeness is largely rooted in biology, where often people search for and find comfort in environments that make sense (Forsythe, 2011). Simultaneously, there is a natural human interest in visual challenge that makes the viewer yearn for feeling that the art has been crafted, and a possible escape from everyday life (Gallese, 2011). However, suggestions such as these are highly contingent upon the upbringing and exposure that individuals have to art. Finally, the last individual factor of note is intrinsic interest, where individuals are significantly more likely to enjoy a work of art that they have interest in (Arnheim, 1974, pp. 24-25).

Based on this research, components of art that are always appreciated or interpreted a certain way were overshadowed by the importance of individual experience, which has the power to change any suspected emotional response. It is virtually impossible to appease

everyone with what is being displayed and based on that it is ever more important to consider the audience for artwork and visual stimuli.

Based on this, there is existing research on creating artwork being beneficial to the participants, through the rising field of art therapy and other art-as-therapy initiatives that have proven to be incredibly beneficial to participants (Henderson et al., 2007). Even in the continually developing COVID-19 pandemic, art has continued to be a source of release and a way to process life events for many people (Braus, 2020). Creation has also proven to be an effective method of healing for people suffering with PTSD (Foa et al., 2008). Ultimately, research such as this sets a precedent for creating art as being incredibly beneficial to people who are struggling. However, can these same benefits still be seen by participants who engage with art in other ways, such as by viewing or reflecting on art that is in their recovery place? Based on this, we were interested to see if given a negative emotional experience if participants would show different emotions after an interaction with art as compared to interacting with another non-art subject.

Thus, the research described in this paper endeavors to address and understand some of the complexities of individual experiences that people with mental health conditions or other traumas in their life could have and identify how this could influence engagement with art the emotional response from that interaction. From this, we conducted two research studies to further assess and understand how art influences emotion, particularly applied to recovery-type environments. The first study analyzes whether emotionality and the individual experience of participants primed to recall negative memories would exhibit a preference for a subject matter within art. Through this study, we were interested in determining whether art has a positive influence on emotion, and we hypothesized that completing the art task before the emotion

measure would show better emotions than those who did the emotion task first. Additionally, we were interested in studying if there was a preference for a certain style of art. The second study wraps up some unanswered questions from the first study, namely if art is "healing" in nature and improves emotional states more than a benign task. In both studies, random sampling and assignment accounts for the differences in interest and background that participants could bring into the study. We hypothesized that the art task, as compared to the control, would show increased positive and decreased negative emotions upon completion, showing that interacting with art can make a positive difference in the participants' emotional state even when it is not being created by the participants. Additionally, the knowledge gained from the literature review as well as the research studies was used to create artwork for Hopetree Family Services in Salem, Virginia, that was crafted to be understanding of and beneficial to the life experiences and emotional situations that many of their residents have endured.

Study 1

Method

Participants. Participants for the first study were adults recruited from Prolific software. All willing participants with a Prolific account and internet access were eligible to complete this research study. Participants included 226 adults, 106 (46.9%) of which were male, 116 (51.3%) were female, and 4 (1.8%) preferred not to answer. The participants ranged in age from 18 to 58 (M = 26.8, SD = 8.39). Additional demographic information yielded that 78.3% of participants identified as white, and the median income was $23,000 annually. Data was collected on 236 individuals, but 10 were excluded for not following instructions and overall poor data. The sample size chosen was the maximum number of participants possible based on the funds

allotted for the project. The funds requested for the project were based on a power analysis and the number of participants we deemed necessary per condition to have statistical power if there were effects.

Materials and Procedures. The survey was created on Qualtrics survey software and administered entirely online to adults through the Prolific service. It first asked participants to respond to a writing prompt about an emotional experience. Then, participants were broken into two groups to complete the remainder of the survey, which involved rating how much they like certain works of art, responding to the Discrete Emotions Questionnaire (DEQ; Harmon-Jones et al., 2016), responding to an art experience questionnaire, and finally completing simple demographic questions. Half of the participants completed the DEQ before the art rating task, and the other half completed the DEQ after.

The first study began with a reflection prime where the participants were in one of three conditions: *Anxiety*, *Powerlessness*, or *Control*. Anxiety and Powerlessness were chosen as primes because clinicians at Hopetree Family Services and Roanoke College attested to their validity as descriptive emotion terms that children in foster care, transition homes, and those enduring housing issues are likely to have experienced/be experiencing. Because of the use of this research to create artwork for Hopetree Family Services, we were concerned with the study being as accurate and sensitive to the emotions that the residents often feel. Through these primes, we were intending to put the participants in a similar emotional state to the residents at Hopetree to see what would benefit them the most. The anxiety prime was taken directly from the DEQ, and the powerless and control primes were created to mimic the style in which the anxiety and other primes were written on the DEQ. Participants in the *Anxiety* condition were asked to “Please remember a SPECIFIC time when you anticipated something negative

happening in the future. You very much wanted something NOT to happen, but you believed that this unpleasant outcome was going to occur soon. Please think of a negative situation, when you were expecting something bad to happen, in which you experienced an extremely intense emotional response" (Harmon-Jones et al., 2016). For the *Powerless* condition, participants were asked to "Please remember a SPECIFIC time when you felt that you could not control something in your life. You very much wanted to control this situation, but you always felt there was nothing you could do, or you repeatedly failed/were hurt in trying to gain control. Please think of a negative situation, when you could not control something happening in your life, in which you experienced an extremely intense emotional response." The *Control* condition asked participants to "Please remember a SPECIFIC book you have read. Take some time to introduce the book to a reader who is unfamiliar with the subject. Try not to bias the reader with your beliefs on the book. Please think of a book you have read and construct a synopsis." For all of the prompts, participants responded for three minutes, and then were allowed to continue to the rest of the study.

After this, participants completed an art rating task. Stimuli for this section of the survey were comprised of famous works of art that were designated as less recognizable by the research team. Art chosen as stimuli were eight images each from four different categories of subject matter: nature scenes, portraits, still-life paintings, and abstract work. The nature scenes, portraits, and still-life works were created in the impressionist style, and the abstract works were chosen from the early 1900s and looked stylistically and in age the most similar to the impressionist works from the other categories. Impressionism was most popular as a movement in the late 1800s and early 1900s. Most of the works chosen as stimuli are from this period because of literature on artistic preference, where participants rated Impressionist paintings as

"most beautiful" as well as other supporting studies suggesting an overwhelming preference for a combination of reality and artistic innovation, which impressionism does well (Hayn-Leichsenring et al., 2017). Stimuli were selected if they fell into this category, did not have subject matter that showed a clear combination of the four categories (for example, a person fishing in a nature scene), exhibited a range of colors, geographic locations, genders of people, level of detail, orientation, and how zoomed in the subject is (see Appendix 1). Additionally, the research team eliminated any pieces that were directly recognizable as having been created by a certain artist or were particularly famous in general. Once selected, all works were edited to remove artist signatures to prevent potential bias and were cropped to make all images squares of the same size. Stimuli were randomized, and all participants rated how much they liked each image on a seven-point Likert scale from "dislike a great deal" (1) to "like a great deal" (7) (Harmon-Jones et al., 2016).

The third section of the survey was a pared-down version of the DEQ (Harmon-Jones et al., 2016). Half of the participants completed the DEQ prior to the art rating task, and the remaining half completed it after the art rating task. Of the original 32 items on the DEQ in categories of Anger, Disgust, Fear, Anxiety, Sadness, Desire, Relaxation, and Happiness, this study utilized 15 terms from the categories of Anger ($\alpha = 0.87$), Anxiety ($\alpha = 0.85$), Sadness ($\alpha = 0.74$), Relaxation ($\alpha = 0.82$), Happiness ($\alpha = 0.86$), and Fear ($\alpha = 0.82$). Disgust and Desire terms were removed entirely from the survey because of their lack of relevance to the current study, and the rest of the DEQ was shortened proportionally to keep the overall survey as short as possible. Terms were selected from the DEQ that appeared to show the spectrum of the category as determined by the research team, which included "nervous," "dread," "easygoing," "satisfaction," and "grief." Participants indicated on the DEQ how much they had experienced

the emotion when completing the study on a Likert scale from "does not describe my feelings" (1) to "clearly describes my feelings" (5) (Harmon-Jones et al., 2016).

Participants finished the survey by completing a brief art experience questionnaire and a few demographic questions. The art experience questionnaire was created to gauge the participant's experience with art, how much they like art in general, and how much they would enjoy participating in various art activities (ex: visiting an art museum). This was important to gather because many previous studies recognized art experience as an indicator for artistic taste and some reactions to artwork (Furnham & Walker, 2001; Hekkert et al., 2003). Individual differences in art experience could serve as a moderator to other effects. Participants indicated their answer to the art experience questions utilizing Likert scales of knowledge and how much they would like to do certain things. For the demographic section, participants were asked to report their age in years, select their ethnicity from a standardized multiple-choice list, select their gender, and report an estimate of household income. To finish the survey, participants had the option to watch a short video about dogs to increase their mood and lessen any potential psychological effects that could have emerged from completing the initial prime (Barnes, 2016).

Results

Negative Emotional Prime on Art Ratings. Prior to conducting analyses, I created dependent variables for different subject matters in art (person, nature, still life, and abstract). To do this, I averaged the scores reported for the eight paintings of each subject matter type, and then utilized the variables in the following analyses. In order to determine if a participant being in a negative emotional state changed their artistic preferences, I conducted four separate two-way ANOVAs examining the effects of Order (DEQ first vs. Art Rating first) and Prime (Control vs. Anxiety vs. Powerless) as between-subjects factors on each art-rating composite variable. I

predicted that participants primed with either the Powerless or Anxiety prime would have different preferences for subject matters (abstract, people, nature, or still life) when compared to participants who were in the control condition. However, there was not a significant main effect of the prime for any of the art types (all *p*s > 0.462). There was also no interaction between the prime and the order of the DEQ (all *p*s > 0.285). Ultimately, the negative primes did not impact the art ratings. As a general demographic average not related to prime, nature works did seem to elicit slightly higher means than the other categories (scoring around 5 instead of around 4: see Table 1).

DEQ Subscales. Prior to conducting analyses, I created composite variables from the DEQ subscales. To do this, I averaged the scores provided on the DEQ into variables for each of the subscales measured in this study (Anger, Anxiety, Sadness, Relaxation, Happiness, Fear), ultimately turning 15 questions into 6 variables (all αs > 0.844). The variables are used in the following analyses.

I first examined the overall effectiveness of the priming manipulation on DEQ scores before testing whether this was impacted by the order in which participants did the art-rating task and the DEQ. I conducted six two-way ANOVAs examining the effects of Order (DEQ first vs. Art Rating first) and Prime (Control vs. Anxiety vs. Powerless) as between-subjects factors on each subscale of the DEQ. I predicted a main effect of priming condition, such that participants who were primed in the Powerlessness and Anxiety conditions would report higher levels of negative emotions (Anger, Anxiety, Sadness, Fear), and lower levels of positive emotions (Relaxation, Happiness) when completing the DEQ as compared to the participants who completed the control task. This hypothesis was confirmed. In each case, the main effect was highly significant (all *p*s < 0.017). Tukey post hoc analyses revealed that Powerlessness and

Anxiety primed participants showed higher Anger, Anxiety, and Sadness DEQ composite scores than participants who received the control prime (all *p*s < 0.001). Fear was significant for Anxiety versus Control due to the Tukey adjustment ($p = 0.016$) but not for Powerless versus Control ($p = 0.114$). Additionally, participants primed with Powerlessness and Anxiety showed lower scores of Relaxation and Happiness than participants who received the control prime (all *p*s < 0.001).

Next, I examined whether the main effect of emotions was different for the participants that completed the art-rating task before the DEQ. In other words, is the main effect of Prime reported above qualified by an interaction with DEQ Order? I predicted an interaction between DEQ Order and Prime such that participants who completed the DEQ before the art rating task would report more severe emotional responses on the DEQ than participants who completed it after. This hypothesis was confirmed; in each analysis, the DEQ Order × Prime interaction was significant (all *p*s < 0.017). Participants who completed the art-rating task before the DEQ reported less extreme emotions than those who completed the DEQ immediately after completing the prime task. For all of the "negative" subscales of the DEQ (Anger, Anxiety, Sadness, Fear) there was the same pattern of results across the subscales, where participants in the powerless and anxious priming conditions had significantly higher levels of negative emotions and inversely lower levels of positive emotions than participants in the control condition, but did not differ from each other in all but a few exceptions (see Table 2). The exception for this is Fear, where the results for Anxiety were significant ($p = 0.016$) but Powerless was not, after the Tukey correction for multiple comparisons ($p = 0.114$). However, participants who completed the art-rating task first did not show any effects of the prime on any of the DEQ subscales (for post-hoc comparisons, all *p*s > 0.075). In these analyses, we also

tested to see if art experience moderated any of these findings by making a composite variable for art experience. In running descriptive information on the variable, it seemed that it was presented normally and did not moderate any of these effects.

Discussion

Ultimately, this study found that participants in various emotional states do not have a distinct preference for a style of art. Unrelated to the prime, the means across conditions for nature themed works were higher than the other categories. However, participants did show significant changes in their emotional state before and after completing an art rating questionnaire. Participants also showed very different emotions on this questionnaire depending on if they had the *Powerlessness, Anxiety,* or *Control* prime. Participants in the Powerlessness and Anxiety conditions reported experiencing more negative emotions and less positive emotions than those in the control condition when they took the DEQ before the art rating task. For participants who completed the art-rating task first, there were no significant results of reported emotion and the previous effect was not displayed. This goes to show that participants felt much more intense emotions after recalling an emotional prime, and either recovered after the second task or were helped in some way by completing the art-rating task. Because the effect was significant, the second study has been conducted to identify if an art related task is the reason behind the better emotions after completion, or if it was due solely to dissipation of emotion.

Study 2

This study is intended to assess the effect of the art rating task on the participants in Study 1 and determine why the emotional responses differed before and after the art task. We believed that an art-focused task, more than a non-art or otherwise benign task, would cause

participants to feel better (experience reduced negative emotions and more positive emotions) after experiencing an emotional prime. For this study, all participants were primed with the same Powerlessness prime as Study 1, and then completed either an art task or a control task, followed by the Discrete Emotions Questionnaire, the art experience questionnaire, and some demographic questions all the same as used in Study 1. The sample size for the study was dictated by the remaining funds available for the project and a power analysis giving an indication of the number of participants needed to justify an effect. Due to more limitations financially for this study, some of our methodologies were simplified in order to ensure statistical power.

Method

Participants. Participants in the second study were also adults recruited from Prolific software. All willing participants with a Prolific account and internet access were eligible to complete this research study. Participants included 118 males (60.8%) and 76 females (39.2%), ranging in age from 18 to 64 (M = 25.9, SD = 8.17). Participants were 82.5% white, with other popular categories as “choose not to report” at 14.4%, 2.1% Asian and 1% Black. Additional information also yielded that participants reported an average income of $55,756 annually. 26 participants of the original 144 were excluded from the analyses either for not completing a large portion of the study or for doing the task poorly.

Materials and Procedures. The second survey was also created on Qualtrics survey software and was completed entirely online by a population of adults utilizing Prolific software. Participants began by all completing the same Powerlessness prime utilized in the first survey, which involved reflecting on the prime for three minutes, and then participants were randomly assigned to two conditions where half reflected on a piece of artwork of their choosing and the

remaining half completed our control task, rewriting paragraphs, for two minutes. Following this, all participants completed the DEQ, the art experience questionnaire, and some demographic questions.

The Powerlessness prime, DEQ, art experience questionnaire, and demographic questions utilized in this survey were the same as in the first survey. The different tasks were the art reflection task and the rewriting paragraphs control condition. Participants who completed the art reflection task first chose an image that they wanted to write about from eight works of art. The options of art chosen for this were the two highest rated works of art from each category (person, nature, still life, and abstract) of Study 1. Once an image was chosen, participants then spent two minutes reflecting on the image. They were provided instructions that encouraged them to think about why they chose the image, something unique about how it was created, what they like about it, and what it makes them think about. The goal of this task was to get the participants to engage with the art more than they would have if just asked to glance at certain works of art or rate it quickly as they did in the first study. Participants in the control condition completed a task of similar cognitive intensity for the same time of two minutes, which in this case was rewriting paragraphs of information completely irrelevant to art. Participants were presented with a few paragraphs about oceans and continental shelves and were asked to rewrite them exactly as they were presented. After two minutes, the participants were allowed to continue with the study. To ensure the participants actually rewrote the paragraphs and did not copy them or search for it online, the paragraphs chosen were presented as an image in the study to prevent copying, and the passage was intentionally chosen to be hard to search on the internet. All participants completed the tasks in the same order, and then all completed the same survey tasks from the first study.

Results

For the following analyses, I utilized the same composite variables I created for the first study involving the DEQ variables categorized by subscale (all αs > 0.844). I first examined the overall difference in reported emotion scores on the DEQ for participants who were in the art condition versus the control condition. To do this, I conducted an Independent Samples *t*-test examining the effects of Task (Control or Art Task) on each subscale of the DEQ (Anger, Anxiety, Sadness, Relaxation, Happiness, Fear). I predicted that participants who completed the art task would report higher levels of positive emotions (Relaxation, Happiness) and lower levels of negative emotions (Anger, Anxiety, Sadness, Fear) on the DEQ following the task than participants who completed the control. This hypothesis was partially confirmed. For positive emotions (Happiness and Relaxation), there were significantly higher positive emotions reported for individuals that completed the art rating task (all *p*s < 0.036) as compared to those who were in the control condition. The same relationship was not present for the negative emotions (Anger, Anxiety, Sadness, Fear; all *p*s > 0.326, where participants did not report significantly more or less negative emotions than those in the control (see Table 3).

In addition to these findings, we conducted a review of the images of fine art that each participant chose to reflect on in the art condition. Of the 95 participants in this condition, the top-chosen image was number 2, “La Corniche by Monaco” by Claude Monet, which was selected by 35 (36.8%) participants. Additionally, an additional 23 (24.2%) participants chose the other nature scene, “Storm at Belle-Ile” also by Claude Monet (number 6), the second most often chosen image. This shows that 61.1% of participants chose to reflect on a nature scene in their negatively primed state. While categorized as abstract, additionally, the third most chosen piece of art to reflect on was Piet Mondrian’s “Gray Tree,” which was selected by 18

participants. Taken altogether, 80% of participants in the art condition chose to reflect on a scene of nature or one that resembled nature in some way, even when vague. Ultimately, this could be an indication that while participants are primed to feel powerless, they show an inclination for works of art that resemble nature. This should be experimentally studied in future work.

Discussion

Ultimately, this study found that participants who were in the art condition reported significantly more positive (Happiness, Relaxation) emotions than the participants who were in the control condition after all having been exposed to the same negative prime. The same effect was not present for the negative (Anger, Anxiety, Sadness, Fear) emotions. This is important because it reinforces the idea of the first study that the art task is the most plausible reason behind the increased positive emotions and eliminate poor effects of the primes. From the second study, it definitely seems that the interaction with art did lead participants to have a better recovery than those who did a non-art task.

General Discussion

Previous work has indicated that one's experience of art is heavily based on their life experiences. By imposing a negative emotional state on our participants, we were able to determine that given an experience of anxiety or powerlessness, the presence of art has some positive effects on viewers, more than just being something to distract the viewer from any emotional duress. A lot of work has been done on the healing nature of art as a process (Henderson et al., 2007), but there is less of a precedent for determining if other engagement with art aside from actively creating it can still have some positive impacts on the participant. From these studies, we can answer yes. Ultimately, while the psychological theories behind why

art has a deeper emotional impact than a non-art task of the same cognitive intensity was not determined from these studies, we can note that there was a noticeable difference in positive emotions reported across the participants who completed the DEQ before or after the art task.

The results of the first study indicated that participants in various emotional states do not have a distinct preference for a subject matter in art, but there were significant changes in their emotional states after completing an art rating questionnaire. Participants in the Powerlessness and Anxiety conditions reported experiencing more negative emotions and less positive emotions than those in the control condition when they took the DEQ before the art rating task, but the same trend was not present for those who took the art-rating task first.

The results of the first study are consistent with the findings of existing literature. In such work, there was not a direct relationship between any differences from the prime and a preference for a specific subject matter within art. Melcher and Cavanagh (2011) suggested that viewers can be biologically drawn to images of people and threatening environments because of rapid visual categorization and picking up on these things quicker because of their deep-rooted relationship to survival. This also helps people notice certain visual stimuli faster (people and animals) than others (shapes, et cetera). However, potentially because of the fact that the artwork is crafted and not a real threat the effect could be minimal, and possibly with the impressionist style chosen for the stimuli the participants may experience less of a reaction knowing that it is art. Based on this, it could have been possible for viewers to have a preference for paintings of things that made them feel safe or would aid in survival in some way, but based on the stimuli provided it would have been difficult to distinguish which images would aid or inhibit survival, and thus the relationship we saw (minimal) was expected. Some of the literature also discussed individuals being drawn to good Gestalt and curves over corners, but this was not something

entirely significant in the stimuli chosen. Based on this, I believe that participants' listed reactions to the art were based highly on personality and an individual reaction that they had with the work. This could be based on life experiences that may have encouraged them to prefer a certain work, intrinsic interest, snap judgments, or some complexity, peculiarity, or intricacy that otherwise made it stand out to them (Arnheim, 1974).

Based on the results that we found, it can be determined that the personal experiences of the viewer matter more in their subjective evaluation of artwork than some of the trends and tendencies that can be determined about preferences based on demographic information or probabilities. It is important to note that certain demographic interests and considerations are undoubtedly helpful to make something that would not trigger a vulnerable population, or in determining what would be "suitable" for the setting it is created for. But the personal relationship a viewer may or may not form with a work of art is not something that can be anticipated entirely. While some experiences can be accounted for, for example a trauma, the downstream effects and associations of that are not always things that make sense, or even the person alone can anticipate. Determining appropriate art for a setting is still crucial and many heuristics can simplify this for the commissioned artist, but other characteristics will continue to necessitate a case-by-case or undeterminable reaction.

The results for the emotions were all significant. This aligns significantly with the work done by Harmon-Jones and colleagues (2018) where participants in both studies saw high impacts of the emotional prime on emotions directly after responding to the prime. In the initial study, the researchers did not test the prolonged impact of the prime, but the initial high influence of the prime was as-expected when compared to Harmon-Jones and colleagues (2018). It is important that this relationship was present because it indicates that the primes utilized put

participants in the emotional state we were intending for the survey, and that ultimately the artwork made based on the research was reflective of the residents at Hopetree Family Services knowing that the participants in our study experienced similar emotions. Additionally, the difference in emotion before and after the art rating task is interesting and as we hypothesized. While we hoped the relationship could be due to some positive impact from the art (which we tested in the second study) it is also reasonable to believe that the effect could be due to the greater time elapsed from completing the priming task and completing the emotion questionnaire, where participants could recover, and their emotions could return to normal levels. If it turns out that the art measure does have a positive impact on the participants, this could set a foundation to justify the use of art for mental health as well as explain that it has more benefits beyond just being something nice to look at.

For the second study, participants who were in the art condition reported significantly more positive (Happiness, Relaxation) emotions compared to those who did a neutral task, but there was no difference for negative emotions. Additionally, when we analyzed the image options chosen most frequently in the second study, there was a preference for nature-related works of art. The findings of the significant number of participants that chose to reflect on scenes of nature also could potentially be important, because this is something that can be applied both in the creation of and selecting of art. This also is consistent with the trend we noticed in the first study, where it seemed like outside of the primes people generally ranked nature works more favorable (see Table 1; Figure 3). This could be prevalent for people feeling powerless or strong negative emotions when the desire is to create something that will be pleasing or not triggering to individuals with that life experience and should be further analyzed in future research.

These findings are significant because it justifies the use and advocacy for art and creative resources in many settings. Knowing that engaging with art leads to more positive emotions, especially for those in poor emotional states, there can be significant passive therapeutic movements that could emerge from this, as well as a large-scale intervention to continue pushing for art in all public and private settings due to its positive psychological effects regardless of subject matter and if those engaging with it make or simply view the art. This could also be significant for populations that often have predictable negative emotional states, where the presence of art and its use in therapeutic practice could add an additional layer of healing to the patient's process or other affected parties.

From these studies, a few things have been made clear about the relationship of art and emotions. First, there is not a "perfect" subject matter in art that will always make viewers feel better. Often, the presence of art in and of itself is enough to add an additional layer of positivity to a downtrodden individual. This is significant because it adds merit to the efforts of introducing art into healthcare facilities in more sweeping motions. Also, this is good news for artists because there is not some magic solution for making the best art. Ultimately, providing some sort of art appears better emotionally than no art at all, as all subject matters were effective in providing the positive emotional reaction. There are other methods out there that can guide work to appeal to more people based on certain characteristics, but this varies in importance depending on the setting that the art will reside.

Second, participants primed negatively in the first study reported more positive emotions after the art task when it was done before the DEQ as compared to the control. Based on this and the results of the second study affirming there were more positive emotions for participants in the art condition, we can determine that art has a significant impact on emotions. This is relevant

for its implications in mental healthcare, where for people who are feeling distress in some way there is a clear benefit of spending time working on a creative task. Through the second study, it seems like of the possible explanations for the change being emotion dissipation and an influence of the art task, the art task is more probable. All of this comes to show that individuals seem to feel better when they are sad if they do an art-related task instead of something non-art related. This could be partially explained by the ability of the participant to really invest themselves in something other than what may be causing them stress. More than looking at something that is definite, art has a layer of ambiguity that could offer a deeper experience than a photograph or poster.

Additionally, the general observation in the second study that many participants chose to reflect on a nature themed work of art could be relevant to effects of lived and experienced nature on mental health. Prior research has suggested the power of nature to help improve aspects of mood and general functioning, and future research could be directed on other chosen works of art to see if there really is some significance to what we observed on that in the second study. In the first study, the means of ratings of art per category (not related to prime) did seem to be slightly higher for nature, but this needs further research to substantiate. Future research based on the present studies should also address the difference between what happened with the negative emotions in the first and second study – that is, why there was a difference in the first study but not the second. This could be related to tasks utilized in each study and should be studied further.

Potential limitations from this study include its completion during the COVID-19 pandemic. While we are unsure if the general emotional differences experienced by people during this pandemic could influence the results of the study, it is important to note that this

study was conducted in a time that people in general are feeling more vulnerable, more likely to complete hobbies, and are experiencing more intense emotional reactions than many may have experienced before this time. Additionally, both studies were composed of mostly ethnically white samples using an internet recruitment source. While this likely will not impact the data, future studies could seek a slightly more ethnically balanced sample to see if any of the differences seen were specific to a certain demographic. Finally, all of the art utilized in this research study was impressionist in style and judged by the research team to be images that were less recognizable by famous artists. Should participants have recognized the artist or the piece there could have been a different experience with something that they have seen before, which was prevalent in other research studies (Hayn-Leichsenring et al., 2017). While we believe this to not be the case, it is important to note that this may have been a factor in some of their decision making.

This is important to psychological literature as well as society because treatment facilities should begin looking into more ways to provide artistic outlets to individuals, especially those in negative emotional states, to add an additional layer of positivity to their healing process. Will art cure cancer? No. But can it help make people feel better? Yes. Additionally, this is something to keep in mind to further justify therapeutic practices that use artistic intervention in their process, including art therapy, play therapy, and other practices that often rely on creativity. Building on other work, this study also recognizes that interacting with art in ways that are not specifically creating the art still have positive emotional benefits. This work can also serve as a template of how to apply science as a guide for artistic work. Art and science are often two things that rarely communicate, particularly in the realm of applied science in order to make art, not just study it. This could be an important and unique additional method that artists could

follow for creating art with a specific audience that it is intended to please, particularly if that audience is in a clinical environment or has special considerations that should be attended to before making a final product.

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Tables

Table 1.

Study 1 Descriptives: Ratings of Art by Subject Matter Type

	Abstract	**Nature**	**Still Life**	**Person**
N	226	226	226	226
Descriptives	4.09 (1.13)	4.93 (1.00)	4.47 (1.00)	3.75 (1.09)

Note: scale from dislike a great deal (1) to like a great deal (7).

Table 2.

Study 1: Descriptive Statistics of Mean and Standard Deviation by DEQ Subscale and Prime

Prime/Order	**Negative emotions**				**Positive Emotions**	
	Anger	**Anxiety**	**Sadness**	**Fear**	**Happiness**	**Relaxation**
Control						
DEQ First	1.44 (0.856)	1.82 (0.94)	1.60 (0.74)	1.60 (0.96)	2.90 (0.95)	3.06 (1.08)
Art-rating first	1.25 (0.472)	1.36 (0.51)	1.52 (0.71)	1.33 (0.81)	3.10 (0.65)	3.55 (0.85)
Anxiety						
DEQ First	2.49 (1.17)	3.16 (1.21)	2.52 (0.99)	2.51 (1.40)	1.64 (0.95)	1.80 (1.10)
Art-rating first	1.50 (1.04)	1.81 (1.04)	1.85 (0.94)	1.33 (0.64)	2.67 (1.16)	3.06 (1.15)
Powerlessness						
DEQ First	2.74 (1.41)	2.92 (0.96)	3.21 (0.96)	2.23 (1.13)	1.42 (0.80)	1.67 (1.06)
Art-rating first	1.42 (0.70)	1.72 (0.94)	2.06 (1.06)	1.34 (0.56)	2.95 (0.84)	3.29 (0.97)

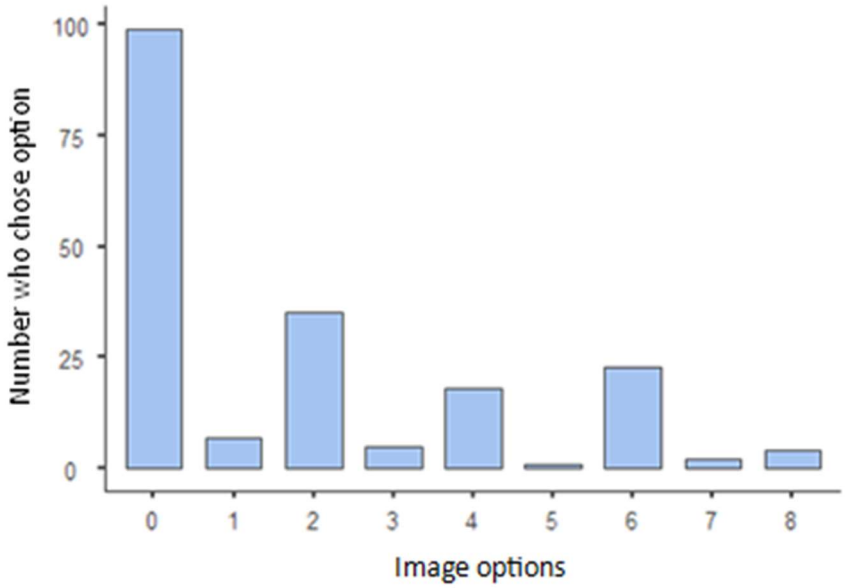
Table 3:

Study 2 Independent Samples T-Test by DEQ Subscale

							95% Confidence Interval		
		statistic	**df**	**p**	**Mean difference**	**SE difference**	**Lower**	**Upper**	**Cohen's d**
Anger	Student's t	0.5600	192	0.576	0.0852	0.152	-0.215	0.3855	0.0804
Anxiety	Student's t	-0.0885	192	0.930	-0.0134	0.151	-0.312	0.2851	-0.0127
Sadness	Student's t	-0.9857	192	0.326	-0.1514	0.154	-0.454	0.1515	-0.1415
Relaxation	Student's t	-2.1155	192	0.036	-0.3070	0.145	-0.593	-0.0208	-0.3038
Happiness	Student's t	-3.1096	192	0.002	-0.4386	0.141	-0.717	-0.1604	-0.4465
Fear	Student's t	-0.9007	192	0.369	-0.1150	0.128	-0.367	0.1369	-0.1293

Figures

Figure 1. Choice of Painting for Reflection.



Note: Choice 0: Control Condition (did not choose an image). Choice 1: Renoir, At the Theater. Choice 2: Monet, La Corniche near Monaco. Choice 3: Pissarro, Portrait of Cezanne. Choice 4: Mondrian, Gray Tree. Choice 5: Manet, Flowers in a Crystal Vase. Choice 6: Monet, Storm at Belle-Ile. Choice 7: Kandinsky, Composition IV. Choice 8: Caillebotte, Fruit Displayed on a Stand.

Figure 2: Ratings of Relaxation after Control or Art Reflection Task

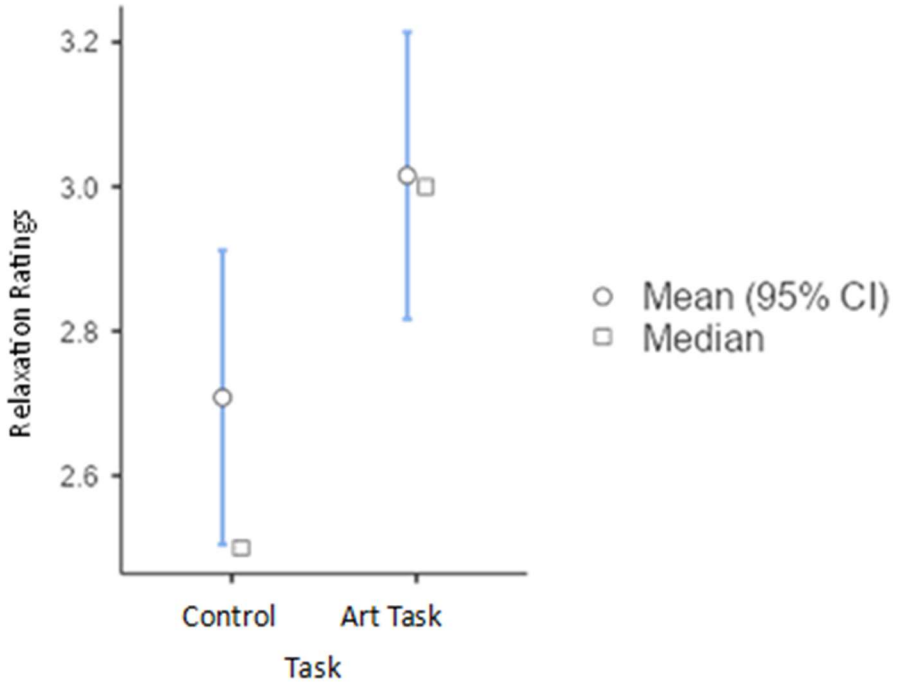
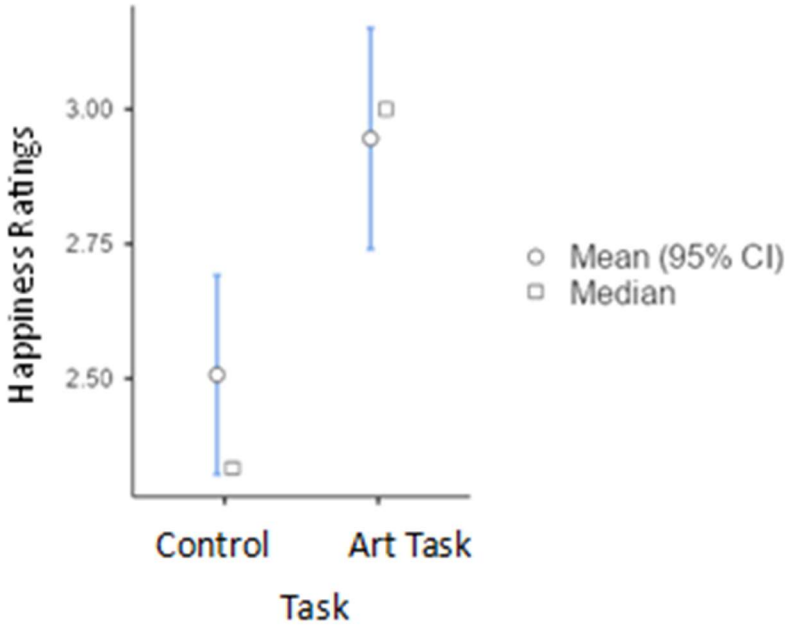


Figure 3: Ratings of Happiness after Control or Art Reflection Task



Appendices

A. Stimuli utilized for the art rating task in Study 1, separated by category

Portraits/Paintings of people

Abstract

Still Life

Nature Scene

B. Stimuli used for the art reflection task in Study 2

C*: (Art Experience Questionnaire) Participants answer the following questions about their experience with art and their general preferences.*

Please rate how much you like the impressionist art style

Please rate how much you like the abstract art style

Please indicate how knowledgeable you are with art/art history

Please indicate how likely you are to do the following:

Visiting an Art Museum

Taking an Art Class

Engage in a creative activity (ex: coloring, drawing, painting) in your free time

Watching an art-themed TV show or movie

Making a DIY home project

Purchasing artwork

Part 4: (DEQ Revised Scale)

Participants rate the extent to which they had experienced emotions presented in a random order.

Anger (DEQ1) Ag

Dread (DEQ2) Ax

Sad (DEQ3) S

Easygoing (DEQ4) R

Happy (DEQ5) H

Terror (DEQ6) F

Pissed Off (DEQ7) Ag

Empty (DEQ8) S

Relaxed (DEQ9) R

Nervous (DEQ10) Ax

Scared (DEQ11) F

Satisfaction (DEQ12) H

Liking (DEQ13) H

Anxiety (DEQ14) Ax

Grief (DEQ15) S