

Art and Wellbeing, Amidst the COVID-19 Pandemic, Through the Lens of College Students: A Quantitative Perspective

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Received: 04 Mar 2023; Accepted: 07 Apr 2023; Published: 11 Apr 2023

Citation: Rebekah A. Lassiter, Jennifer Finkel. Art and Wellbeing, Amidst the COVID-19 Pandemic, Through the Lens of College Students: A Quantitative Perspective. J Med - Clin Res & Rev. 2023; 1(1): 1-14.

ABSTRACT

COVID-19 has had profound mental health effects for young adults and college students. While individuals endure crisis situations through various management protocols, art viewing is a common coping mechanism. Some universities have public art displays, in highly trafficked areas. We examined perceptions and acknowledgments of on-campus art, as well as how these displays affect the coping, comfort, and wellbeing of students, particularly in the height of the pandemic. On a scale of one (art is never a form of comfort) to seven (art is always a form of comfort), 95.92% students felt that art was a four or above. Amidst the COVID-19 pandemic, 95.83% of students indicated a four or above (on a scale of one (strong negative effect) to seven (strong positive affect)), with most students selecting five or seven. More positively than negatively, students feel art is a form of comfort and affected their wellbeing during COVID-19.

Keywords

COVID-19, Visual art, Wellbeing, Therapy, Coping strategies.

Introduction

Neuroaesthetics is an expanding field at the intersection of neuroscience and the arts. This discipline centralizes around bridging the gap and connecting one's highly aesthetic and visual experiences with brain and neuroscience tendencies [1]. However, its novelty is not indicative of lacking data: its findings have been investigated by neurophysical technologies like functional magnetic resonance (fMRI), magnetoencephalography (MEG), and electroencephalography (EEG) results, and have indicated that the viewing of aesthetic and visual art experiences activates essential networks, like reward and emotional centers [2]. This emerging field is reflective of the increased awareness around visual objects and their connection to one's mental behavior and even wellbeing. As this connection between the arts and health becomes increasingly more pronounced, it is even present on the world stage, as national and even international organizations emphasize its importance. This connection has been highlighted, historically, in large spheres such as the World Health Organization's initiative in 2021: the Healing Arts Symposium [3]. The connection between

health and the arts cannot be understated.

Considering the arts' neuroscientific connection, some academic institutions have begun adopting practices to introduce students and scholars, alike, directly to visual art. Wake Forest University, in North Carolina, is one of these pioneering institutions that have invited students to take a more hands-on connection with art and its presence on campus. Through the Mark H. Reece Collection of Student-Acquired Contemporary Art (Henceforth Reece Collection), the "student art buying" program began in 1963 and since then every four years a small group of students has traveled to New York City, with University funds, to purchase art for Wake Forest's Student Union Art Collection- works that reflect the times. These acquisitions are displayed around the university where students, faculty, staff, visitors, and facilities employees get an up-close glimpse at some of the world's most famous works of art (Wake Forest University, n.d.a). A program like this, where students are given agency to select works of art that will be on display for years to come and visible to campus community members, is a program like no other. This direct, hands-on connection is unparalleled and, for a while, was the only one of its kind. While a few other institutions have modeled

a similar program on a smaller scale, where students help select the art, like Dartmouth/The Hood Museum, Amherst College, University of San Diego, University of Nebraska at Omaha, and Dickinson College, no other is as robust as the program at Wake Forest. Perhaps this program is something other institutions will continue to model once the cognizance of and understanding of the program's benefits are more well known. Additionally, some peer institutions also have public art displays that are on display in highly trafficked spaces, such as MIT's public art collection and murals in a Harvard dining room [4]. Thus, a better understanding of students' responses to these pieces are especially relevant and essential to the existing literature.

In addition to the student-led and inclusive nature of immersive art programs that get at the heart of neuroaesthetics, the Reece Collection, like many other elements of academic institutions, responded to the COVID-19 pandemic. The COVID-19 pandemic has had a profound ripple effect as it changed the lives of individuals all throughout the world. Not only did the pandemic have direct physical health implications, but it also resulted in mental health implications. Fear of a ravaging disease, in addition to the health and safety of friends and family, spiked an increase in mental health incidence and resulted in increased stress and fear [5]. These implications are highly transferable across age and life experiences; however, students also face unique stressors as they juggle the responsibilities of school and additional familial and vocational responsibilities that may arise as well. The prevalence and fear of a spreading disease and pandemic has generated significant stress and adverse psychological impacts for individuals throughout the globe, especially college students [6]. Mental health issues rage among youth, and coping solutions and resources are desperately needed [7].

Evidence expresses that the stress and changing environment of the COVID-19 pandemic, propelled by periods of isolation and lack of university resources, caused students to develop strategies and tactics to cope with changing life conditions and events [8]. Additionally, research supports the idea that exploring more creative pursuits amidst COVID-19 isolation (and its associated negative mental health results) provide opportunities to positively support one's mind; in fact, exploring creative pursuits, such as the arts, was as beneficial to one's well-being as staying physically fit [9]. This further emphasizes that new coping strategies were used and needed. However, among college students, how many used visual arts as a coping strategy? This is one question our study explores, at Wake Forest University.

Research has shown that museums can generate change, through pedagogic strategies [10]. Thus, a museum or space that holds artistic works, nestled among a dense academic space, just as a university, filled with pedagogical strategies, provides the ideal space for change. Additionally, previous research has indicated that art and art museums cannot only be used as a strategy for change, but also an aid for negative mental health factors [11]. Specific studies have further corroborated these claims that the arts can positively contribute to community wellbeing, even in a more

stratified lens: in the United States of America [12]. Not only do the arts, in general, support wellbeing, but solely viewing visual arts has also been associated with positive outcomes on stress [13].

When stress ensues, evidence indicates that environments associated with reward growth resilience to stress [14]. Visual art can provide such a strategy in its correlation to psychological resilience [15], and has been proved to lower stress and cortisol levels [16] and even decrease blood pressure [17]. Not only has viewing art been shown to cause positive health benefits, and improve wellbeing, but some countries, such as Belgium, are even prescribing museum visits to reduce the mental health burden of COVID-19 patients [18]. These environments serve as spaces for patients to escape and discover novel spaces, through visual museum acquisitions. Visual art has even been shown to reduce pain levels [19].

Students' responses to a single art therapy session, on a small, isolated scale have been measured and show that after art therapy, students develop better ways to externalize problems [20]. Additionally, some studies have examined children's responses to art therapy, in a long-term program, and expressed that such sessions provided were well received and feasible; however, significant data lacks on the long-term effects of such interventions [21].

Researchers suggest that the worldwide pandemic generated intense settings of isolation and fear, and thus, with a changing social and mental landscape, new forms of mental health resilience may be necessary. Visual art is a great strategy [22].

Additionally, while the positive implications of visual art, such as lower stress, anxiety, and mood changes, are highly supported by literature, comprehensive literature reviews indicate that little data has been collected in non-hospital settings, thus our study: examining university students' response, at Wake Forest University, to long term exposure to visual art and its aid in coping, comfort, and wellbeing, during COVID-19, is especially important and fills a gap in existing literature [23]. Substantial research is present surrounding the visual arts as a solution or aid for adverse mental health episodes and issues; however, no literature provides direct survey responses from college students who have reflected on art, as a coping, comfort, and wellbeing support strategy. This paper intends to fill that gap and contribute to existing literature that bolsters the importance of visual art as a support system for populations, specifically those of college students and young adults (in science and non-science majors as well as differing number of years in college) during crisis situations. We predict art students will respond more positively and that visual art will aid students coping, comfort, and wellbeing during COVID. While COVID may be decreasing and many are easing fears about the illness, the resources and aids used to help students from a wide array of backgrounds during COVID, may also be transferred to other students in crisis situations. Reflecting on visual art's intersection and support during stressful times, such as the COVID pandemic, can better prepare academic institutions, the public, and individuals alike to better support those around them.

Method

Our study was conducted using a multiple-choice survey and distributed through an online platform (Qualtrics XM). For questions that gauged responses using a scalar quantity, a scale from one to seven was used. This scale was useful in that it provided an odd number so that a clear middle of the scale could be detected. Additionally, this provided three values on either side of the middle to give ample space for students to share the degree of their responses, without too many options that are overwhelming. A scale of one to seven is highly cited as an effective tool to generate quality responses [24,25]. The survey consisted of both demographic questions and inquiries surrounding students' response to art on campus.

The survey was distributed through electronic means, through email listservs of various university departments, including, but not limited to the arts, humanities, and sciences departments. Additionally, the survey was forwarded to students and departments outside of the initial distribution network. All survey respondents engaged in the survey were participating in a voluntary manner, were permitted to stop and resume progress on the survey as they pleased and exit or stop the survey if they felt uncomfortable. All students were allowed to skip questions that they did not feel comfortable or desire answering. The survey did not have a time limit and students were able to complete it at their own pace. Survey responses were collected in a five-week period.

The first survey question asked students, "Did you know that there is visual/fine art in Benson?" Benson is the campus university center that houses much of the Mark H. Reece Collection (Wake Forest University (n.d.a)). It is a highly trafficked space that includes the food court, the student activity center, Office of student engagement, Women's Center, LGBTQ Center, Hillel Offices, Multicultural Center, other associated student organizations, and meeting spaces (Wake Forest University (n.d.b)). By referencing a highly trafficked space, in our study, we intend to highlight a campus location, with high visibility. This survey used a branched form of survey distribution, where a student's response to one question determines what successive inquiries will proceed. Thus, each survey respondent may not receive the exact same questions or same sequence; however, all questions distributed to students are from the same bank of survey questions [26]. If a respondent marked "yes" to the first question, they would be brought to question #2 about their reactions, specifically, to the art in Benson. If the respondent marked "no" they were directly brought to question seven, which solely asks about art responses in general, and not those that apply to Benson or campus specific settings.

Students brought to question number two, were asked: "Do you closely examine the art (i.e., spend time examining the details of the art-more than just glancing at the works) in Benson?" We aimed to learn how attentive students were to the art and if the pieces were attracting their attention. We wanted to learn if students were simply brushing past the works or actively engaging with the space and the art on the wall. Is the art becoming wallpaper or truly meaningful and engaging to students? After

drawing students' attention and thought specifically to the art on campus, students were asked to think intentionally about the art on campus by indicating how strongly the art displays in Benson affect their wellbeing: 1- No effect at all to 7- Greatly affects wellbeing. "Benson" was typed in bold (and the following questions regarding the Benson University Center) to emphasize a key component of the question we were aiming to uncover: how does university campus artwork affect the survey respondent. We hope to emphasize this point and ensure that the data we are receiving correlates to Benson artwork [27]. Asking these in-depth questions about the art present in Benson provides the avenue for more introspective thought about art works commonly passed around campus. By slowly narrowing our scope of questioning, from general knowledge of art in Benson, to attentiveness toward the art, to finally asking students about their interaction with art, as it related to wellbeing, this study gradually engaged students directly with one of the dominant questions we are posing.

Next, students were asked "Do the displays in Benson affect you negatively or positively?", to learn if the artworks are stirring generally positive and optimistic emotions. Following this inquiry, the survey resumed with specific questions regarding students' emotional responses to the work by asking, "How is your mood affected by the art displays in Benson?" and "How are your comfort levels affected by the art displays in Benson?" Wellbeing, mood, and comfort levels were not defined or contrasted for students in the survey response, intentionally, to generate an authentic response from students about their reaction to the art on display. What does a student define as their personal wellbeing? Is it a feeling of joy or positive physical endurance? By leaving these questions without a definition, we hope to gain a broader understanding of how art affects people, from their personal perspective. However, wellbeing is defined as "a state of happiness and contentment, with low levels of distress, overall good physical and mental health and outlook, or good quality of life" mood is defined as "any short-lived emotional state, usually of low intensity" and comfort is defined as "contented well-being" and the addition of the word "level" indicates that the survey question is desiring the student to rate or gauge their "contented well-being" on "a position in a scale or rank" [28-31]. Thus, mood is more indicative of a temporary state of being than comfort levels and wellbeing, which examine a student's more holistic or long-term emotional status. As a result, these questions follow a similar trend, as the first few questions of examining questions from a broad to specific topic of questioning.

After these questions specifically about Benson and on-campus art, all survey respondents received the same questions. To compensate for the fact that the students who responded "yes" to the first question may be conditioned to thinking about art's potential connection to wellbeing, students who responded both "yes" and "no" to the first question are presented explicitly with a question about art and comfort status. Respondents were asked "Do you use visual art as a form of comfort?" (Question seven) As opposed to the previous questions, "Benson" was absent from the questioning and the inquiry was posed in broad terms. This question assessed students' responses to visual art in general. Considering

the proximity these two questions have to each other on the survey, it is practical for students to logically make a distinction between Benson and general art, if they feel it is appropriate, considering the structure and orientation of the questions.

Next, respondents were asked “Do you use visual art as a coping mechanism or strategy?” However, unlike the previous stream of questions, “coping mechanism or strategy” is defined, as to ensure that students were aware of the definition and responding to the question in a way that is appropriate for the context of this study. It is important that the word, coping mechanisms, is defined as this is a key term in published and peer-reviewed literature, across disciplines. Having a clear understanding of this word is important to ensure that the data collected can be appropriately compared to existing literature-generated themes. This ensures that the data we collect corresponds appropriately to the exact question we had in mind [32]. Coping mechanism, according to the American Psychological Association, is defined as “an action, a series of action, or a thought process used in meeting a stressful or unpleasant situation or in modifying one’s reaction to such a situation.” [33]. Next, the survey shifted to the final qualifier: COVID. This examined how art affects one’s emotional response, particularly during the pandemic, when many experienced hardships. To gauge the degree to which individuals were affected by the COVID-19 pandemic, students were posed with a scalar question: “Has COVID affected your wellbeing negatively?” Finally, respondents were asked “How has art affected your wellbeing during COVID?” This can be similarly compared to the previous question and question number three (“Please indicate how strongly the art displays in Benson affect your well-being”). By comparing these questions, it is possible to gain insight into how students’ wellbeing has been affected by COVID, the role of art, and the role of art on a university campus, in wellbeing (Table #1).

Next, students were asked a series of demographic questions (Table #2). Respondents were asked to indicate their year, mark their gender identity (with the following options: female, male,

or other), their major or intended major (students were permitted to select multiple categories). All questions were multiple-choice, except for the demographics multiple choice questions that contained an “Other” option, with associated free text. To collect the highest amount of completed responses, the survey only consisted of thirteen multiple-choice questions. Students could complete this survey on the go, on mobile devices, or from the comfort of their own home.

Results

For this study, we collected 88 responses. With significant outliers removed, the average time to complete the survey was 67 seconds. Thus, it took most survey respondents about a minute to complete this survey (comprehensive graphical results are displayed in Table #3). For the first question, 80.72% percent of participants noted that they were aware that there is fine art in Benson, indicating that most students are aware that there is art in this highly trafficked space. Of those that responded “yes” to the previous question, 62.75% indicated that they closely examine the art in Benson. For students that are aware of the works in Benson, most take a close look.

For question number three, a scalar quantity was used. A response of one meant that the art displays in Benson have no effect at all on wellbeing and a response of seven indicated that the art displays in Benson greatly affect well-being. The most popular answer among students (33.33% selected this answer) was option four, indicating that the art displays in Benson have a moderate or medium effect on their wellbeing. 41.18 % of participants marked a response between five through seven, indicating a greater than moderate effect on wellbeing, and 25.49% of participants marked a response below three, indicating that art had a less than moderate effect on wellbeing. Thus, most students indicate that the art in Benson has a moderate or generally great effect on their wellbeing. The mean response was 4.20 standard deviation was 1.76, variance was 3.10. Next, students were asked to assess if the art displays in Benson affected them negatively or positively. A response of one indicated a strong negative impact and seven indicated a strong positive

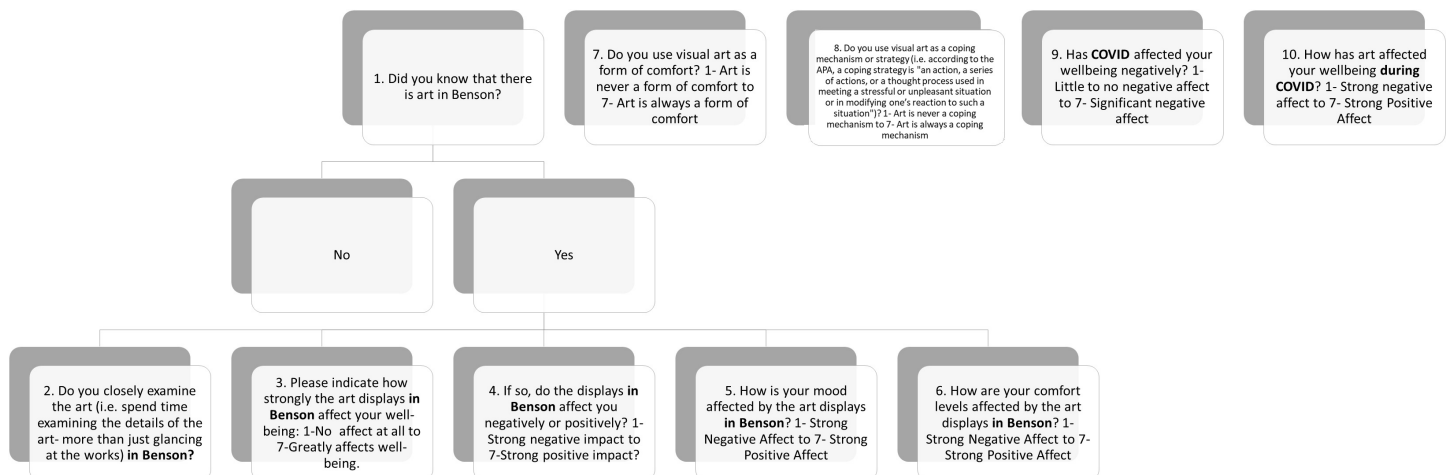


Table 1: Survey Questions with associated branching.

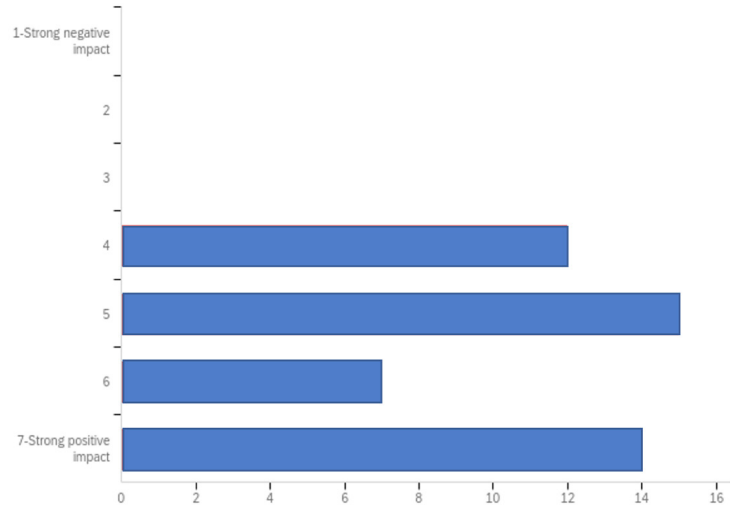
Table 2: Survey Demographic Questions

Question	Response Options
What year are you?	1. Freshman 2. Sophomore 3. Junior 4. Senior 5. Other _____
Gender	1. Female 2. Male 3. Other _____
What is your major or intended major? Select all that apply.	1. Division I (History, Philosophy, Religion, WGS) 2. Division II (Literatures/English) 3. Division III (Art, Music, Theatre, Dance) 4. Division IV (Anthropology, Communication, Economics, Education, Politics, Psychology, Sociology) 5. Division V (Biology, Chemistry, Computer Science, Math, Statistics, Physics) 6. Business School 7. Other _____

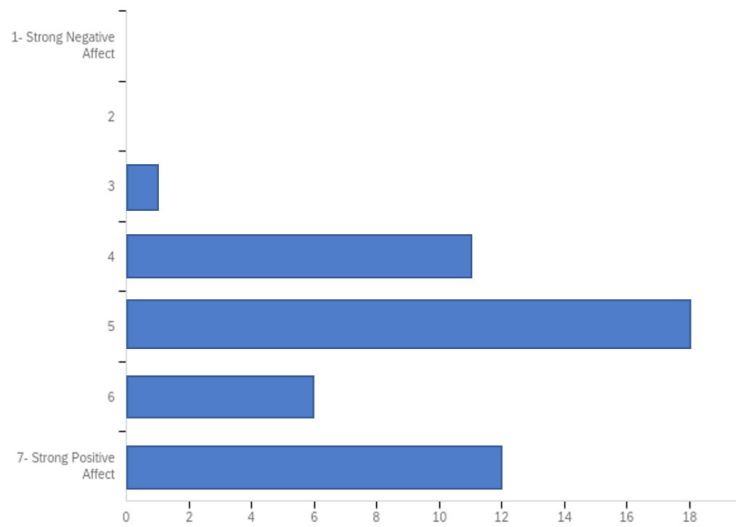
Table 3: Survey Questions and Associated Graphical Results.

Survey Question	Associated Graphical Results																
Q1 - Did you know that there is visual/fine art in Benson?	<table border="1"> <caption>Data for Q1: Did you know that there is visual/fine art in Benson?</caption> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>68</td> </tr> <tr> <td>No</td> <td>15</td> </tr> </tbody> </table>	Response	Percentage	Yes	68	No	15										
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Yes	68																
No	15																
Q2 - Do you closely examine the art (i.e. spend time examining the details of the art- more than just glancing at the works) in Benson?	<table border="1"> <caption>Data for Q2: Do you closely examine the art (i.e. spend time examining the details of the art- more than just glancing at the works) in Benson?</caption> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>32</td> </tr> <tr> <td>No</td> <td>19</td> </tr> </tbody> </table>	Response	Percentage	Yes	32	No	19										
Response	Percentage																
Yes	32																
No	19																
Q3 - Please indicate how strongly the art displays in Benson affect your well-being: 1-No affect at all to 7-Greatly affects well-being.	<table border="1"> <caption>Data for Q3: Please indicate how strongly the art displays in Benson affect your well-being: 1-No affect at all to 7-Greatly affects well-being.</caption> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>1-No affect at all</td> <td>6</td> </tr> <tr> <td>2</td> <td>4</td> </tr> <tr> <td>3</td> <td>3</td> </tr> <tr> <td>4</td> <td>17</td> </tr> <tr> <td>5</td> <td>9</td> </tr> <tr> <td>6</td> <td>6</td> </tr> <tr> <td>7-Greatly affects well-being</td> <td>6</td> </tr> </tbody> </table>	Response	Percentage	1-No affect at all	6	2	4	3	3	4	17	5	9	6	6	7-Greatly affects well-being	6
Response	Percentage																
1-No affect at all	6																
2	4																
3	3																
4	17																
5	9																
6	6																
7-Greatly affects well-being	6																

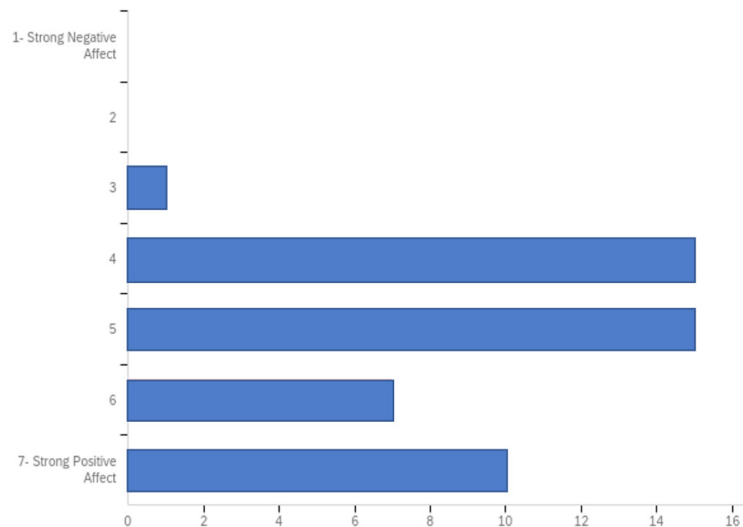
Q4 - If so, do the displays in Benson affect you negatively or positively? 1-Strong negative impact to 7-Strong positive impact.



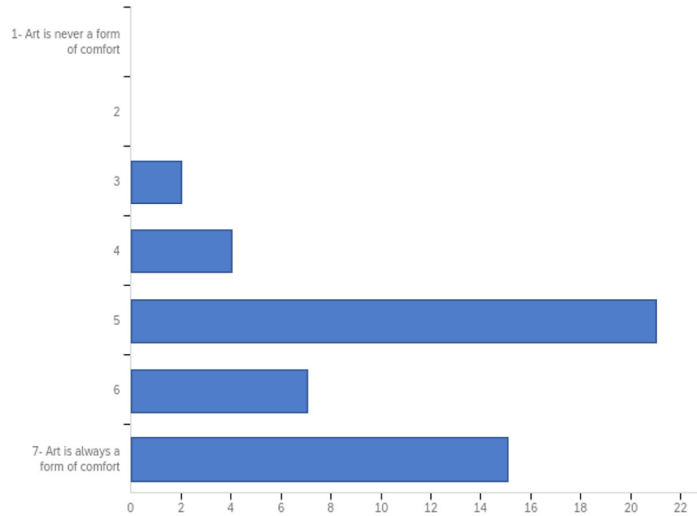
Q5 - How is your mood affected by the art displays in Benson? 1- Strong Negative Affect to 7- Strong Positive Affect



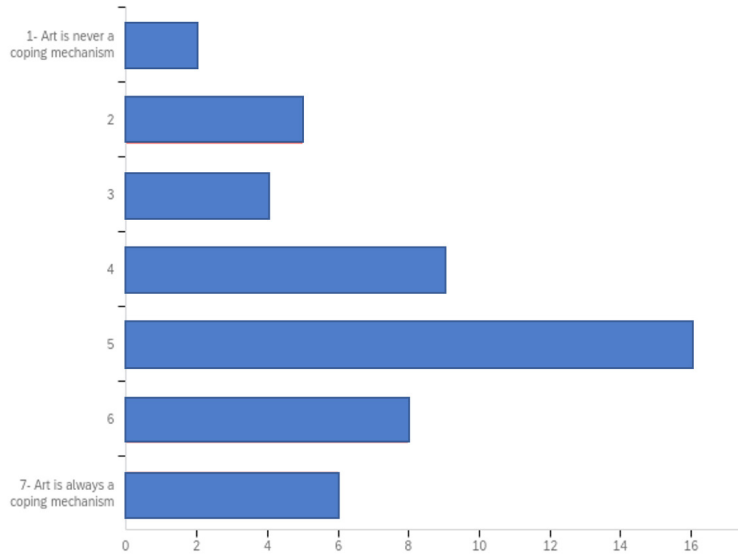
Q6 - How are your comfort levels affected by the art displays in Benson? 1- Strong Negative Affect to 7- Strong Positive Affect



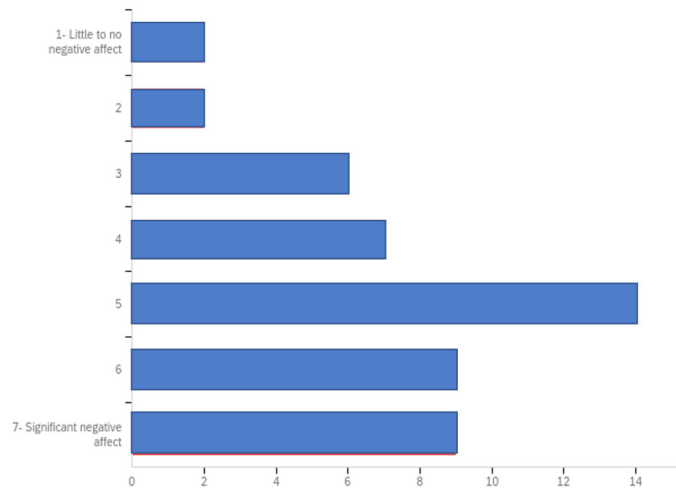
Q7 - Do you use visual art as a form of comfort? 1- Art is never a form of comfort to 7- Art is always a form of comfort



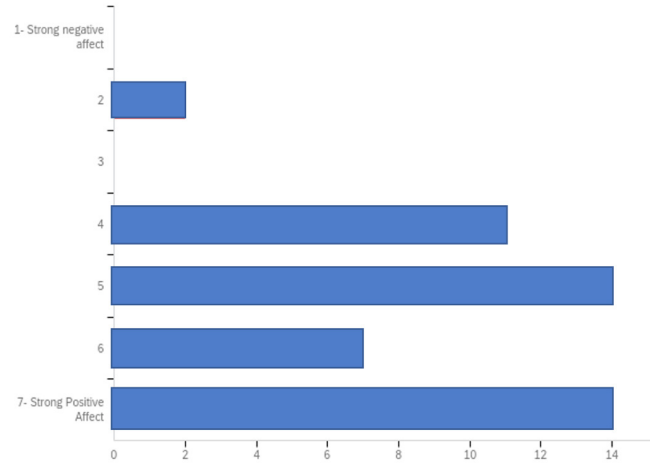
Q8 - Do you use visual art as a coping mechanism or strategy (i.e. according to the APA, a coping strategy is "an action, a series of actions, or a thought process used in meeting a stressful or unpleasant situation or in modifying one's reaction to such a situation")? 1- Art is never a coping mechanism to 7- Art is always a coping mechanism



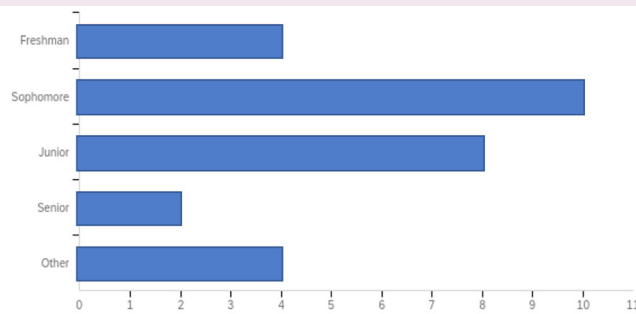
Q9 - Has COVID affected your wellbeing negatively? 1- Little to no negative affect to 7- Significant negative affect



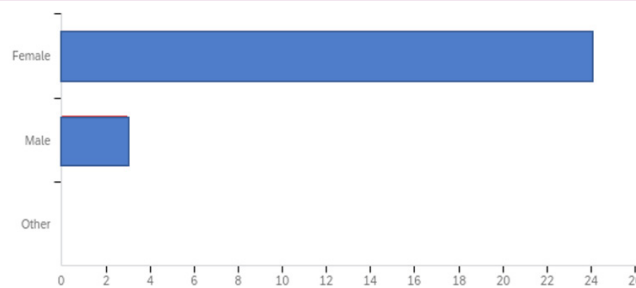
Q10 - How has art affected your wellbeing during COVID? 1- Strong negative affect to 7- Strong Positive Affect



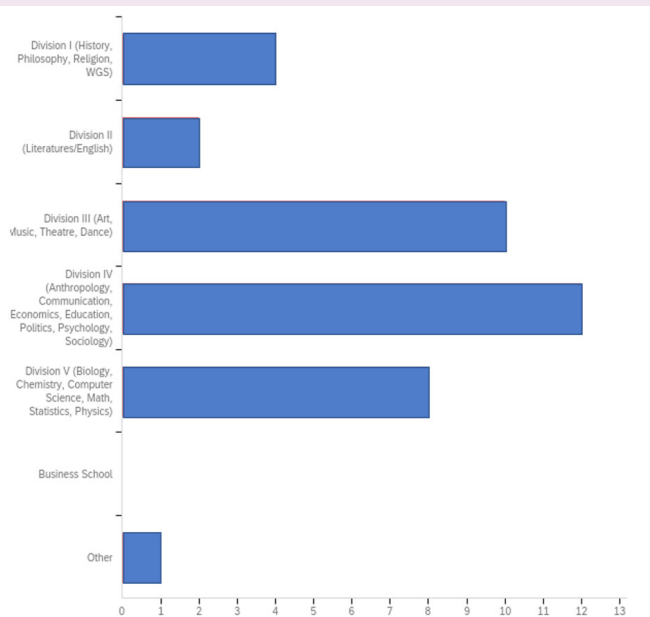
Q11 - What year are you?



Q12 - Gender



Q13 - What is your major or intended major? Select all that apply?



impact. No students selected a response between one and three, and the most popular answer was number five, which was selected by 31.25% of the respondents. Close behind was option seven, which received 29.17% percent of the responses. The mean response was 5.48, standard deviation was 1.15 and variance was 1.33. Next, students were asked about the art displays in Benson connected to mood. A response of one indicated a strong negative effect and seven indicated a strong positive effect. The most popular answer was five (37.50% of respondents selected this answer) indicating that most popular answer correlated with students that felt a more positive affect than negative affect when assessing their mood in relation to the art in Benson. Only one student (2.08%) selected a response below four indicating that very few students are affected negatively by the art in Benson; in addition, the individual that selected a number below four indicated a response of three, expressing that the negative effect experienced was slight. The mean response was 5.35, standard deviation was 1.15 variance was 1.31.

Next, students were asked to provide insight on their comfort levels and its relation to the art displays on campus. Like the previous response, only one student selected a response below four (three was selected) and the most popular response was a tie between four and five, which both received 31.25% of the votes. When comparing the responses of the mood question (question five) and comfort levels question (question six), the same number of students selected a response below three, but those that selected a response above four was greater for question five than six. In addition, for question five, seven was selected 25.00% of the time and for question six, seven was selected 20.83% of the time, indicating that many students felt that the art on campus had a strong positive effect, but more so for one's mood than comfort levels. Additionally, of note, the same number of students responded to question five and six, so the sample size is the same and an accurate comparison can be made. The mean was 5.21, standard deviation was 1.15 and variance was 1.33.

For question seven, art was assessed as a form of comfort. A response of one indicated that art is never a form of comfort and a response of seven indicated that art is always a form of comfort. The most popular answer was a five, which indicated it is more likely than not a form of comfort; this response was selected by 42.86% percent of respondents. The second most popular answer was a response of seven, which was selected by 30.61% of participants; this indicates that almost one of every three-survey respondents feels that art is always a form of comfort. In addition, most responses (95.92% of responses) indicated a response of 4 or above, with only 4.08% of respondents indicating a response of 3. No students selected a response of two or one. The mean response was 5.39, standard deviation was 1.12 and variance was 1.26. Question 8 asked respondents to share if visual art is used as a coping mechanism or strategy. A response of one indicated that art is never a coping mechanism and a response of seven indicated that art is always a coping mechanism. Five was the most popular response garnering 32.00% percent of the responses. 60.00% indicated a score above four and 22.00% percent indicated a score below four. The mean response was 4.60, standard deviation was

1.59, and variance was 2.52. This question experienced more variance than some of the previous responses indicating that the responses were not clustered around one response as closely as they were with the others; the respondents' answers were more diversified than in previous questions. Question nine asked respondents to indicate how COVID has affected their wellbeing. A score of one indicated little to no negative effect and a seven indicated a significant negative effect. The most selected answer was five indicating that most students felt a stronger than not negative effect due to COVID. 20.40% of students selected an answer below 4 and 65.31% of students selected an answer above 4. The mean score was 4.88 and standard deviation was 1.60. Finally, the last question asked students how art has affected their wellbeing during COVID. A score of one indicated a strong negative effect and a score of seven indicated a strong positive effect. Only 4.17% of students selected a response below four and 72.92% of students selected a response above four. The most popular response was a tie between option five of seven; both categories received 29.17% of the responses, each. This indicated that most students felt that art had a positive effect on wellbeing during COVID. The mean score was 5.38, standard deviation was 1.33 and variance was 1.78.

Next, students were asked a series of demographic questions. The first being: "What year are you?" 14.29% of the respondents were freshmen, 35.71% were sophomores, 28.57% were juniors, 7.14% were seniors and 14.29% indicated a response of "other." For those that selected "other" all specified that they were alumni. The most selected response was sophomore, and the least was senior. 88.89% of participants identified as female, and 11.11% identified as male. Finally, students were requested to mark their major or intended major and could check multiple options. 10.81% of respondents fell under the Division I category, 5.41% under the Division II category, 27.03% were in the Division III category, 32.43% in the Division IV category, 21.62% in the Division V category and 2.70% in "Other." Thus, most respondents came from the Division IV category, and the second most was the Division III category, which consists of art, music, theatre, and dance. The least number of responses came from "other" and Division II.

The following stratifications are only based on data that students voluntarily presented; some students decided not to respond to the demographic questions. Nine students marked that they study under multiple academic divisions. Of those nine students, seven students were studying in division four and another discipline. Division three is also a common answer, making up about 66% of the combined results. For those that had selected multiple disciplines, many participants found that art positively affected their wellbeing during COVID. The average response was a 6.125 (on a one to seven scale). Additionally, seven of the nine respondents selected a six or seven. For this group of students, the average response was a 5.875 for art's use as a form of visual comfort and 4.75 for art's use as a coping mechanism. For students that study under a division three major, which consists of the arts, an average score of 6.00 was found for how arts affect one's wellbeing during COVID. Additionally, seven of the nine respondents

selected a six or seven. For this group of students, the average response was 5.667 for art's use as a form of comfort and 4.44 for art's use as a coping mechanism.

For students that study under a division five major, which consists of the sciences, some students found that art positively affected their wellbeing during COVID, with the average score to question ten being 4.8. For this group of students, the average response was a 5.00 for art's use as a form of comfort and 4.6 for art's use as a coping mechanism. For all other students outside division five, which consists of all non-science majors, some students found that art positively affected their wellbeing during COVID, with the average score to question ten being 5.425. For this group of students, the average response was 5.65 for art's use as a form of comfort and 4.561 for art's use as a coping mechanism.

Many freshman students found that art positively affected their wellbeing during COVID (question #10). For this group of students, the average response was a 6.00 for art's use as a form of comfort and 5.00 for art's use as a coping mechanism. For sophomores, some students found that art positively affected their wellbeing during COVID, with the average score to question ten being 5.40. For this group of students, the average response was a 6.00 for art's use as a form of comfort and 5.40 for art's use as a coping mechanism. Regarding juniors, some students found that art positively affected their wellbeing, with an average score of 5.25. For this group of students, the average response was a 5.75 for art's use as a form of comfort and 4.375 for art's use as a coping mechanism. For seniors, many students found that art positively affected their wellbeing, with an average score of 6.00. For this group of students, the average response was a 5.50 for art's use as a form of comfort and 6.00 for art's use as a coping mechanism. As for those that marked "other," students found that art positively affected their wellbeing, with an average score of 5.75. For this group of students, the average response was a 4.75 for art's use as a form of comfort and 3.75 for art's use as a coping mechanism. An ANOVA test was run and indicated an f-ratio of 12.57195 with a p-value of 0.000605, indicating that the data is statistically significant.

Question six and seven both gauge students' responses to art and comfort. In this comparison, the responses of question seven are stratified to include only student responses that also answered question six. This is done to ensure that both the responses can be respectively compared among the same student pool. The results are very similar with the average for question six being 5.46 and the average for question seven being 5.59.

Many students felt that their wellbeing was negatively affected by COVID, with an average of 4.78 (on a scale of one to seven), when examining this significant negative effect, through the lens of the following questions (number ten), where the average response was a 5.38 for art positively affecting wellbeing, the contrast is striking. Additionally, when examining question ten, in comparison to three (and confining the responses of question ten only to those that also answered question three), the average for question three was 4.39

on a scale of one to seven (where one indicated Benson art had no affect at all on wellbeing and seven indicated that Benson art greatly affected wellbeing), which is slightly above the middle of the range. This indicates that the average student felt Benson art affected them about halfway between a neutral and strong positive emotion. Among this survey sample, for question ten, the average response was a 5.375 on a scale of one to seven (where one indicates a strong negative effect and seven indicates a strong positive effect).

When comparing the results for questions seven and eight, the average student was more likely to use art as a form of comfort more frequently (the average score was a 5.59) than frequently use art as a coping mechanism (the average score was a 4.60). A paired t-test, with a 95% confidence interval indicated that a p-value of less than 0.0001, indicating that this mean is extremely statistically significant. The t-score is 5.1946, supporting further reliability. Of those that see art as a comfort more frequently than not (a five or above), 65.90% also saw it more frequently as a coping mechanism more than not (a five or above). For those that selected a five or above for comfort, the average for the coping mechanism question is 4.86. Of those that see art as a comfort more frequently than not (a five or above), 16.27% saw art as a coping mechanism less than not (a three or below). Of those that see art as a comfort less frequently than not (a three or below), no respondents also saw it more frequently as a coping mechanism more than not (a five or above). Of those that see art as a comfort less frequently than not (a three or below), all respondents saw art as a coping mechanism less than not (a three or below).

Of those that see art as a coping mechanism more frequently than not (a five or above), all respondents also saw it more frequently as a comfort more than not (a five or above). For those that selected a five or above as a coping mechanism, the average for the comfort question is 6.00. Of those that see art as a coping mechanism more frequently than not (a five or above), no respondents saw art as a comfort less than not (a three or below). Of those that see art as a coping mechanism less frequently than not (a three or below), 70.00% of respondents also saw it more frequently as a comfort more than not (a five or above). Of those that see art as a coping mechanism less frequently than not (a three or below), 20.00% respondents saw art as a comfort less than not (a three or below).

Our data presents the dimensions of a diverse community, across ages and disciplines, to provide insight into how university students respond to art.

Discussions and Conclusions

Considering the large percent of students negatively affected by COVID and the fact that many indicated that art strongly affected wellbeing, during COVID, it can be concluded that viewing art played an important role in wellbeing during COVID. Additionally with the presence of art on campus that is widely viewed, it can be concluded that this work had positive effects on students, in regard to multiple factors, such as mood, wellbeing, and comfort levels.

With the average response, time at just about a minute, one of our goals was achieved. Our survey tool effectively provided a relatively quick means of sharing significant insight into student's opinions on campus. Most students indicated that they were aware of the artwork present in Benson. Additionally, these students indicated that the public art displays in Benson are not quickly overlooked, by the majority of those that pass by the pieces; it is not becoming just wallpaper, but pieces and objects are closely examined by students. In fact, one student noted that before this survey, she had not considered examining the artwork closely, but after completing, the survey was more attuned to the presence of the artwork in Benson. This indicates that even after the completion of the study, some respondents may have more long-term interactions and acknowledgement of the art. Most students indicated that the art in Benson had a positive impact on their wellbeing, which reflects the fact that art in public spaces that is widely visible and accessible improves the average student's wellbeing. The fact that the average score for this question was above a median score (of four) indicates that these art pieces had, on average, a greater effect on students. However, gauging this question to the successive where, the average student indicated even higher degrees of positive interactions with art expresses that art positively impacted students and even more so than just a general positive or negative degree. Specifically, mood and comfort levels received high, above average scores indicating a high degree of relevance and significance for art's interaction with the viewer, on average.

Our data suggests that most students, on average, feel that the art in Benson affects their wellbeing in a moderate or positive way and no students indicate that the art in Benson affects them in a negative way. This is significant as it indicates that the placement of art in public spaces, like Benson, did not affect any student in a negative fashion, and more likely than not affected them in a positive way. When specifically addressing mood, it is evident that very few students felt their mood was negatively impacted (a score below four), in fact, only one respondent indicated a negative impact, and it was slight. This expresses that most students find the art in Benson affects their mood in a positive sense and may be an effective means of addressing negative moods experienced by students. Students responded similarly to the question about comfort levels in that only one respondent indicated a negative effect (a score below four). This further contributes to the theme that art can and does have important, positive impacts on students and their emotions and states of being.

Our study further indicated that no students never use art viewing as a form of comfort, and very few feel that the effects of art on their comfort are uncommon. Most students feel that art viewing is frequently or always a form of comfort. Thus, not only does viewing art have a positive impact, but its frequency and usage are high, further contributing to its significance in a student's life. Regarding coping strategies, the answers were more varied, perhaps due to a coping mechanism's role as a more specific response and its need for proactivity. The previous questions, before the one about coping mechanisms, asked about students' impulses and responses and this question asks about students'

response to a tool (coping strategies) that require activation energy. Perhaps one of the reasons that the average student was more likely to use art viewing as a form of comfort more frequently than use art as a coping mechanism can also be attributed to this fact. However, the theme of art's importance persists. More art viewing, on average, is at least sometimes used as a coping strategy for most survey respondents, and about a third of the respondents felt that art viewing was not as frequently or never used as a coping mechanism. Thus, most students had a positive interaction with art viewing and its use as a coping mechanism. Question eight and nine, both had a significant amount of variance and standard deviation indicating that the responses for these questions were more varied and the responses were not as clustered around a smaller range of responses, as compared to the earlier questions. However, fewer students felt smaller negative effects due to COVID and most students felt greater negative effects due to the COVID. Thus, COVID had a profound effect on students and can be used as a comparable metric to crisis or difficult situations, considering the high degree of negative effects COVID had on students. Most students felt that art had a positive impact on wellbeing and considering this through the lens of the immense negative and devastating impacts of this period (COVID), art and its visual appeal are essential.

The demographic questions are essential in that the data suggests that most respondents were sophomores; however, responses were received from all student years (freshman to post-graduates). Additionally, the number of responses from each category are somewhat similar and respondents were highly diversified in this area. Many survey responses coming from each category. Most respondents were female, which is reflective of the gender make-up of the university; however, the exact percentages of female and male do not mirror those of Wake Forest [34]. Like the class year data, the degree type and academic divisions are highly diversified. Responses were received from each discipline and many students came from division three and four. Division four accounted for less than a third of the respondents, and the most recent data from Wake Forest suggests that almost a quarter of degrees are distributed from this discipline [34]. Thus, while the numbers are not identical, there is some resemblance. Division three is the arts, so the fact that many responses came from this discipline could be due, in part, to the fact that students majoring in the arts are more inclined to complete a voluntary study about art. This may be the case considering their expressed interest in the study, as a major. While the demographic data indicates some similarities to the campus population, it is important to address that these study results do not necessarily reflect the opinions of all individual university students. Thus, while it is likely that this study, and its respective results, are more inclined to represent a significant portion or the average of student opinions they do not necessarily represent the whole student body.

Question six and seven both indicate that comfort levels are high around viewing art, with a slightly higher average in comfort levels for art in general, not specifically in Benson. Additionally, question six asks the effect of art on a positive to negative scale,

while question seven asks how frequently art is used as a form of comfort. Examining question six and seven indicate that art (in Benson), to the average student, has a positive effect and more than frequently than not is used as a comfort level. When looking at question ten and nine, it is apparent that there was significant distress and a negative effect on wellbeing amidst COVID (which is further largely corroborated by published literature). During COVID, art served as a strong mechanism for comfort, on many occasions, for the majority of survey respondents. When comparing students' wellbeing response to art in general and in Benson, students had a greater inclination of art generating positive effects, rather than negative. Both question three and ten indicate that art, in general, and in Benson had more positive results on students.

For multidisciplinary students (those that selected multiple majors), division three (the arts) was a response among two thirds of the respondents. Thus, many students studying under multiple disciplines, for our study, are majoring, or intend to major, in the arts. The results from this subset of the survey population are astounding: the average student selected an extremely high degree of wellbeing, associated with art, during COVID (above six on a scale of one to seven). This indicates that for students studying under multiple disciplines, most found that art positively affected their wellbeing. In fact, the average was even higher than the data from those that selected just division three. This same trend (of the interdisciplinary students rating art's effect more highly, on average) is also seen in the effect that art has on one's comfort level and its use as a coping mechanism.

Data shows that science versus nonscience majors' interaction with art as a strategy for coping, comfort, and wellbeing is similarly insightful. The average score for all three variables (coping mechanism, comfort, and wellbeing) were lower for the sciences than non-science majors. Perhaps this is the case because science majors are more left-brain dependent for their studies, than non-science majors, and thus may not use art (a right brain dominance) for coping, comfort, and wellbeing [35]. When examining the relationship between science and arts majors, science majors, on average, did not have as positive of an effect on their wellbeing, due to art, then the art majors. This may be attributed to their choices and values. Those that value art and chose to major in this discipline may also seek more comfort and look to this discipline for their wellbeing, more than a science major would, who is not majoring in this discipline [36]. However, it is meaningful to note that both sectors of the study population found art to be significantly meaningful for these three factors. This area deserves further research.

The stratified, class related data, provides unique insight into how art and wellbeing are connected over various age and stage groups. Freshman indicated the highest average for arts connection to wellbeing amidst COVID, with the seniors following next and then the sophomores, post-graduates, and then juniors. This trend does not follow a chronological trend; however, it is interesting to note that freshman's wellbeing was, on average, more positively affected by art during COVID than the other categories. So much

that the average score of the sophomores, compared to juniors, is more than one point greater. For the use of art as a comfort, a chronological trend can be drawn with freshman drawing the highest average score and post-grads generating the lowest. Perhaps this is since freshmen have great degrees of stress as they make the transition to college, and thus look to more outlets, such as art, for comfort [37]. However, it is important to note that freshman had the highest score, on average, for both, and thus indicate a high value on art in connection to various elements of their livelihood. For art's role as a coping mechanism, a chronological order does not emerge; however, freshmen do not have the highest average and instead the seniors do. Perhaps, as one reaches senior year and begins contemplating life beyond college, more coping strategies are needed, with increased stress, and thus art may be used more frequently to fill the desired gap [38].

The data for the questions about coping and comfort generate an interesting comparison. For those that frequently see art as comfort, the majority also saw it as a common coping mechanism, and a very small percentage saw art less than not as a coping mechanism. Of particular interest is that for those that see art as a comfort less than not, all saw art as a coping mechanism less than not. Thus, if one does not see art as a strong comfort, they are unlikely to see it as a coping mechanism. For those that see art as a coping mechanism more frequently than not, no respondents saw art as a comfort less than not. So, for students that see art as a strong coping mechanism, they also see art as a form of comfort. For those that did not see art as a coping mechanism as frequently, the majority saw it as a comfort mechanism. Thus, even for those that did not use art to cope as much, the majority did find much value in it for comfort, on average. Perhaps if a tool or resources are viewed as comfortable, students are more likely to malleably adjust that tool as a coping strategy [39].

Our data has provided significant insight into an important and ever-emerging field at the intersection of science and art. Art plays an important role in student's lives and their wellbeing. When times are tough, and crisis situations arise, like the COVID-19 pandemic, some students look to art as a coping mechanism and even more so, on average, to art as a form of comfort. Thus, it is important that colleges prioritize the public display of art on campus. Students from all backgrounds, disciplines, and interests appreciate the arts and thus it is important for universities to recognize this and take proactive action. Not only does public art provide beauty, levity, and inspiration in campus spaces, but if curated thoughtfully in an environment it can positively increase students' wellbeing. Thus, schools should not only consider displaying public art, but also ensure that the art is present in highly trafficked places so that it can be encountered by the most students as possible and frequently visited and seen. Providing students, the opportunity to take leadership and hand-select the works on display, like with the Reece Collection, is an added mechanism to provide student-led opportunities in the arts. These opportunities provide opportunities for peer engagement with arts that can lead to effective outcomes to improve peers' wellbeing. It may be beneficial for other institutions to entertain similar programs and models, considering

the high degree of positive impact that art has on young adults. Perhaps student-selected art also provides a unique perspective of the collection in that the works have appealed to the young adults that selected the art, and as such may appeal to their peers [41]. Students' active engagement in the arts has been proven to play a positive role, and this public display of these art pieces, has been shown, by this study, to generate an even more specific positive impact during COVID [41]. Considering that other colleges, like William and Mary, Harvard, and MIT have public art displays on campus, providing more student involvement in the selection of the works and ensuring access to the art (in highly trafficked areas), may be a highly practical method to improve student wellbeing [4].

Additionally, perhaps the use of art as a comfort mechanism and coping strategy should be analyzed further in other academic and nonacademic settings, post-COVID. Hospitals, counseling centers, and similar spaces of high stress are prime locations to place and prioritize public art. Providing public access is an important part of the display [42]. Future research should be done on how helpful public art is in university wellness or counseling centers as well, considering that these spaces may be sought by students seeking help amid crisis or stressful circumstances [43].

Acknowledgements

The authors would like to acknowledge the editorial assistance and support provided by Christina Soriano, MFA, during the preparation of this manuscript.

The authors received no financial support for the research, authorship, and/or publication of this article.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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