

**The Value of Integrating Visual Arts (VIVA): Evaluating the Benefits of Hospital Room
Artwork on Inpatient Wellbeing**

(working paper)

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Abstract

Background: Healthcare institutions have embraced arts programs as a means of improving the patient experience. While some evidence demonstrates that integrating artwork into clinical settings can improve aspects of patient satisfaction, few randomized controlled trials (RCTs) have linked specific design features or interventions directly to health care outcomes.

Methods: We designed a RCT to examine (1) whether placing a painting by a local artist in the line-of-vision of a hospitalized patient improves clinical outcomes and patient satisfaction, and (2) whether having patients choose their own painting offers even greater benefit. From 2014-2016, we enrolled 186 inpatients with a cancer diagnosis from Penn State Cancer Institute and randomly assigned them to one of three groups: (1) those who chose the painting displayed in their rooms (n=74); (2) those whose painting was randomly selected (n=69); and (3) those with no painting in their rooms, only white boards in their line of vision (n=43). We assessed anxiety, mood, depression, QOL, perceptions of hospital environment, sense of control/influence, self-reported pain, and length of stay, and comparisons were made between patients with paintings versus those without paintings, as well as between those with a choice versus those with no choice regarding the artwork in their rooms. At the conclusion of the study, we held focus groups and one-on-one interviews with participants and used thematic analysis to identify qualitative themes.

Results: There were no statistically significant differences in anxiety, mood, depression, QOL, perceptions of hospital environment, sense of control/influence, self-reported pain, and length of stay across the three groups. However, patients in the two groups with paintings did report significantly improved perceptions of the hospital environment compared to those without paintings, specifically that their rooms were more interesting (p=0.002), colorful (p=0.026),

tasteful ($p=0.016$), ornate ($p=0.007$), attractive ($p=0.005$), and pleasant ($p=0.044$). Qualitative themes reinforced the value of having artwork, particularly with regard to offsetting the medical aspects of the room, 'transporting' patients from their suffering, humanizing the healthcare environment, and giving people a degree of control. Participants also identified areas for programmatic improvement.

Conclusions: Given that healthcare administrators are under strong pressures to control or reduce costs and yet increase care quality and patient satisfaction, integrating artwork into inpatient rooms may represent one way to systematically improve perceptions of the institution and the patient experience.

“The effect in sickness of beautiful objects, of variety of objects, and especially of brilliancy of colour, is hardly at all appreciated ... People say the effect is only on the mind. It is no such thing. The effect is on the body, too.”

~ Florence Nightingale, *Notes on Nursing* (1859)

Introduction

The arts have long played a role in health and healing dating back to the 14th century when paintings ushered patients to a good death or immortalized patrons for charitable activities (Baron, 1996). Today, about half of all hospitals have dedicated art programs ranging from permanent displays of art throughout their buildings to art therapies at the bedside and performances in public spaces such as waiting areas (Hathorn, 2008; Sonke, 2009). Offered to patients with a range of conditions, their families and visitors, those programs aim to “improve patients’ overall health outcomes, treatment compliance and quality of life” (“State of the field report: Arts in healthcare”, 2009). Yet, while patient surveys indicate interior design features such as artwork can make hospital environments less institutionalized and more emotionally pleasing (Harris, 2002), “few randomized controlled trials [have] linked specific design features or interventions directly to impacts on healthcare outcomes” (Ulrich et al., 2008). Our study adds significantly to those data.

In planning our project, we believed that the physical environment of the inpatient hospital room essentially provided a blank canvas on which to study the impact of visual arts on patient outcomes. Studies show that patients care about their physical surroundings (Caspari, 2007; Harris, 2002; Swan, 2003), and while efforts in recent years have aimed to make hospital

rooms less austere, in most cases, they remain institutional environments. The Pick-a-Pic Program at the Penn State Milton S. Hershey Medical Center addresses this problem by allowing patients to modify one aspect of their physical environment through the personal selection of an art print by a local, professional artist to be displayed in their rooms during their hospitalization (see inset). Placed in frames mounted on the walls directly in patients' line of vision from their hospital beds, these prints can help to create a supportive and comforting environment. Their efficacy is predicated on the capacity of visual arts to provide positive distractions for patients and family members coping with the stress of illness by adding a personal touch to the hospital environment and "...making the spaces as familiar and homelike as possible" (McKahan, 1993).

This project drew upon distraction theory, which posits that patients who become engrossed in or open to a positive distraction attend less to their pain and even experience reduced or altered perceptions of pain (McCaul, 1984; Ulrich, 2009). Changing even one environmental factor—such as introducing a visual stimulus—can provide that distraction. Burn patients, for instance, who watch videos of nature scenes with accompanying music during burn dressing changes were found to experience less pain and report less anxiety (Miller, 1992). Similar findings were reported for those patients who viewed a nature scene and heard nature sounds while undergoing a painful flexible bronchoscopy (Diette, 2003). In studies involving healthy volunteers, participants shown videos of nature scenes—some with music and some without—had higher pain thresholds and pain tolerance than volunteers who stared at blank or black screens (Tse, 2002; Vincent, 2010). Positive distractions as part of the healthcare physical environment also have been found to be effective in diminishing feelings of stress and its accompanying psychological and physiological impacts (Staricoff, 2006; Ulrich, 1992). When videos, still art, and window film of nature images were introduced into two emergency

departments, researchers noted reductions in behaviors indicative of stress and anxiety (Nanda et al., 2012). Artwork has been found to have a positive effect on patients' moods as well (Hathorn, 2008; Suter, 2007).

Our study – *The Value of Integrating Visual Arts (VIVA): Evaluating the Benefits of Hospital Room Artwork on Inpatient Wellbeing* – builds on these findings and advances them in novel and significant ways. First, this is a rare three-arm randomized controlled trial (RCT) with large participant numbers designed to quantitatively assess the benefit of visual arts to individuals. The participants in our study represented a specific subgroup—i.e., patients—with a discrete disease diagnosis of cancer who underwent treatment in the Cancer Institute at the Penn State Hershey Medical Center. According to the Center for Disease Control (CDC), more than 19 million adults, or almost one in ten Americans, have been diagnosed with cancer. Widely known as one of the most disruptive illnesses affecting human beings, cancer treatment is painful and invasive, and patients and their families must cope with feelings of anxiety, vulnerability, and uncertainty – feelings that can be exacerbated by the stark medicalized environment.

Positive visual stimulus in the form of artwork has the capacity to provide biopsychosocial respite that can be captured in measurable patient outcomes from this physical and psychological trauma. While this research study is particularly relevant for cancer patients, findings of this project holds promise for all hospital inpatients who are subject to the same sorts of environmental stimuli as they undergo institutional treatment. According to the CDC, there are a reported 35.1 million inpatients annually receiving care in U.S. hospitals, and the average length of stay is 4.8 days (<http://www.cdc.gov/nchs/fastats/hospital.htm>). As clinical and economic data have traditionally carried the greatest weight in decisions by hospital administrators, this study was designed to produce strong scientific data establishing the visual

arts as an environmental modification with clear and persuasive benefits for a hospital and its patients that deserves investment.

This study was also innovative in linking measurable patient outcomes to patient control of one aspect of the hospital physical environment—namely, artwork for inpatient rooms. Studies that have examined artwork and physiological outcomes have largely involved views of nature from windows or representational nature scenes, both of which have been provided to rather than chosen by patients (Staricoff, 2006; Ulrich, 1984; Vincent, 2010). In studies involving patient choice, the focus often has been to determine patients' preferences for different kinds of artwork—e.g., representational nature scenes vs. abstract, rural scenes vs. urban—with an eye to developing guidelines for art selection and placement (Hathorn, 2008; Nanda, Hathorn, & Newmann, 2007; Ulrich, 2009). While qualitative data exist that show patients who are able to influence their physical environment report increased feelings of emotional and physical comfort (Williams, 2005) as well as improved moods (Suter, 2007), few studies have used rigorous designs to measure the benefit of choice of artwork on medical outcomes (Ulrich, 2009).

Finally, this study was innovative in using a single lens—visual arts—to examine the benefits of the arts in hospital rooms on patient satisfaction, a key parameter to healthcare providers in today's competitive market. Other examinations of the physical environment have included architectural features such as size and shape of hospital rooms, ambient features such as lighting and temperature, and colors (Caspari, 2007; Fowler, 1999; Harris, 2002; Swan, 2003). With hospital reimbursement increasingly being linked to patient satisfaction, hospitals are increasingly embracing arts programs as a means of improving the patient experience; as mentioned above, there is some evidence that integrating such programs into clinical settings is associated with such markers of patient satisfaction as: less pain, stress, and anxiety, improved

mood, greater levels of interaction, and feelings of being less institutionalized. However, it has been observed that existing studies have been undertaken with variable methodological rigor (Moss, 2012), and few RCTs have linked specific design features or interventions directly to health care outcomes. We designed a mixed methods RCT to examine (1) whether placing a painting by a local artist in the line-of-vision of a hospitalized patient improves clinical outcomes and patient satisfaction, and (2) whether having patients choose their own painting offers even greater benefit.

Methods

From 2014-2016, we enrolled 186 inpatients with a cancer diagnosis from Penn State Cancer Institute and randomly assigned them to one of three groups: (1) those who chose the painting displayed in their rooms (n=74); (2) those whose painting was randomly selected (n=69); and (3) those with no painting in their rooms, only white boards in their line of vision (n=43) (see Figure 1). All paintings were created by artists in central Pennsylvania (see Figures 2-4). Patients in the designated rooms were visited twice during their stay by members of the research team—shortly after they were admitted and before they were discharged. Each visit lasted between 5 and 10 minutes.

Using the validated State Trait Anxiety Index (STAI) (Corsini & Ozaki, 1994), Emotional Thermometer Instrument (ETI), Room Assessment (RA) survey (Lohr & Pearson-Mims, 2000), a self-designed instrument measuring one's sense of control and influence over the environment, and data extracted from the electronic medical record, we assessed anxiety, mood, depression, QOL, perceptions of hospital environment, sense of control/influence, self-reported pain, and length of stay. At baseline, we measured state/trait, emotional state and control/influence; every 1-2 days, we measured emotional state; and, at discharge, we measured

state/trait, emotional state and sense of control/influence, perceptions of the room and overall patient experience. Our study hypotheses were as follows:

Hypothesis 1: Patients who select fine arts prints from the Pick-a-Pic catalog and patients in rooms where art has been selected for them will experience less anxiety than patients in rooms with white boards and no art.

Hypothesis 2: Patients who select fine arts prints from the Pick-a-Pic catalog will experience less anxiety than patients in rooms where art has been selected for them.

Hypothesis 3: Patients who have visual arts in their rooms (who have selected and not selected artwork) will report less pain, and greater sense of control/influence, and have shorter length of stay overall than patients who have only white boards.

Hypothesis 4: Patients who choose visual arts for their rooms will report less pain, and greater sense of control/influence, and have shorter length of stay overall than patients who have art selected for them.

Hypothesis 5: Patients who choose artwork for their rooms will report more favorable perceptions of their physical environment who do not chose artwork for their rooms, and patients with no artwork in their rooms report less favorable perceptions of their physical environment than each of the other groups.

Hypothesis 6: Patients who have visual arts in their rooms (who have selected and not selected artwork) report greater satisfaction with their overall hospital experience and with their room décor than patients with white boards.

Hypothesis 7: Patients who choose visual arts for their rooms report greater satisfaction with their overall hospital experience and with their room décor than patients who have art selected for them.

Comparisons were made between patients with paintings versus those without paintings, as well as between those with a choice versus those with no choice regarding the artwork in their rooms. Two-sample t-test and Wilcoxon rank sum test were used to compare measures collected at a single time point; analysis of covariance was used to compare measures collected pre-post; and repeated measures analysis of covariance for measures collected pre-mid-post.

At the study's conclusion, we organized three focus groups—two with patients who had chosen artwork and one with patients who had received it randomly. All participants received an invitation to the focus groups, which were scheduled on a first-come, first-serve basis. Focus groups lasted an average of one hour and were recorded using a digital device and later transcribed, with attention paid to pauses and interruptions. Since some participants were unable to join us in person for focus groups but still wished to contribute their reflections, we interviewed three patients by phone, and recorded and transcribed the conversations.

Three researchers (DG, CD, JH) read over all the transcripts independently to identify themes and sub-themes. After coding independently, we compared sets of codes and established an inter-rater reliability score of .90. The remaining 10% of the data were discussed with a colleague (MG) from an alternative disciplinary background in medicine until there was 100% consensus.

Once the major themes were agreed upon, we identified representative quotations. The results are reported below.

All data were entered into REDCap (Research Electronic Data Capture), a secure, web-based application designed to support data capture for research studies. REDCap provides the capability of removing the 18 pieces of information that are considered identifiers for the purposes of HIPAA (Health Insurance Portability and Accountability Act) compliance.

Additionally, data were stored on a secure server and encrypted. Access to the database required authentication (a unique username and password) and every interaction with the data was logged, creating an audit trail. All facets of this study were approved by the Penn State College of Medicine IRB.

Results

Statistical results

There were no differences in anxiety, mood, depression, QOL, perceptions of hospital environment, sense of control/influence, self-reported pain, and length of stay across the three groups. However, patients in the two groups with paintings did report improved perceptions of the hospital environment compared to those without paintings, specifically that their rooms were more interesting ($p=0.002$), colorful ($p=0.026$), tasteful ($p=0.016$), ornate ($p=0.007$), attractive ($p=0.005$), and pleasant ($p=0.044$) (see Figure 5).

Qualitative results

(1) Criticism of white boards

Participants tended to hold the whiteboards in a negative light, at times describing them as “overwhelming” and “confusing” fixtures in the room. For those in the “art intervention” groups, receiving a print—whether chosen or not—served as a valued aesthetic counterpoint. As one patient told us, “It was pleasant to have something to see that was more like home instead of the [white]board and all the machines and IV stands and stuff. It just made me feel a little cheerier.” Even if patients didn’t find the white board aversive, they gave voice to the fact that it was largely unmemorable to their experience in the hospital, particularly relative to the artwork in their room. For instance, one participant said, “I can’t tell you what was on that whiteboard ... but if there was some artwork there, at least I could focus on it, you know?”

(2) Images as 'transportive'

Other patients talked about their paintings not merely as pleasant distractions from the medical paraphernalia in the room, but rather as objects that transported them. For instance, landscapes of Pennsylvania Dutch farmhouses, log cabins in the Poconos, backyard gardens, and sunsets along the Susquehanna River evoked thoughts of returning home to loved ones; wooded Appalachian hillsides and realist portraits of native freshwater fish from local streams invited reverie of recent vacations and symbolized the promise of returning to the outdoors after treatment. As one participant who had chosen a nature painting remarked: "That landscape is where I'd like to be." Another participant had struggled with a particularly aggressive cancer offered poignant reflection on how her chosen watercolor of the sea turtles had become a powerful symbol that fixed her mind around themes of peacefulness, longevity, and survival during chemotherapy infusions. She said: "Turtles are just these really cool creatures; very peaceful ... and it's fascinating how long some of them have lived.... [I]t was a way to bring peace to my mind, calm me down.... I'd just, like, look at it and feel better about life and really everything."

(3) Humanizing the healthcare environment

From our patients' perspectives, the paintings also humanized the health care environment. Participants spoke about how their prints would often generate conversation among visiting family, friends, and members of the health care team. Rooms with artwork felt less sterile, stark, and lonely and spoke to "the soul-oriented aspects" of medicine that patients felt were too often systematically ignored. As one participant expressed, "There's very little time to deal with what I will call the 'personal soul.' I don't only mean that just from a religious standpoint, I mean that just from the mental part of what goes on. So anything that can help

address that, and [the painting] does, is hugely important because while [it] can't cure cancer alone, it certainly can't hurt ... and it's cheaper than a prescription for [named prescription drug]!" Another patient stated in response to choosing a picture: "It shows that rather than a regular hospital, this university really cares."

(4) The value of control

Beyond the aesthetic and symbolic value of the artwork, patients in our "choice" group expressed a simple appreciation for being empowered to maintain control of *one* aspect of their environment during an otherwise miserable, incapacitating stretch of their lives. As one patient said:

"I lost control because of the illness and then basically the medical part is largely outside control. You're not deciding on your blood set- or your blood test, you're not deciding you go for a CT scan, you aren't deciding on time for your chemo treatment. And so... kind of feel like geez, my whole life is kinda in some ways my voluntary part of my life's been taken away from me. Yeah, so it's nice to have somebody come in the room and say 'would you' instead of 'I'm here to'. Well, there's a big difference in those two phrases."

Relatedly, some patients who were assigned artwork told us that encountering the "wrong painting" in their room could be upsetting, underscoring the value of empowering people with choice. As one patient candidly remarked: "When I went into the room, it was a cowboy and Indian picture and I thought 'Well, ugh.'" Another told us that her painting of an orchid "Used to make me mad.... I wish I could've said to somebody, 'Can you take that painting down?'"

(5) Suggested programmatic improvements

Participants provided considerable feedback to improve the quality of the program in supporting the patient experience. One frequent piece of feedback was that patients would have valued being able to choose multiple paintings throughout their stay, since the natural vacillations in mood and morale inherent to the cancer treatment process could be expressed through the particular iconography and color schemes of different paintings. As one patient said: “People's selection or interest or lack thereof is gonna be largely dependent on what has happened to them at that moment of time.” Patients who made this comment also frequently alluded to wanting to have more time to select artwork on their own time rather than being forced to make a snap decision when a member of the arts in health team visited them in their rooms. In addition to requesting greater access to the artistic catalogue during the duration of their stay, multiple patients also expressed a desire to include photography; greater imagery appealing to both genders (particularly for men); more imagery reflecting regional/ethnic heritage; more colorful and upbeat artwork; more artwork that told a story; and more education about the artwork and artist who created it. Some participants also requested that prints be larger, and that they be positioned directly in front of the bed rather than off to the side, as was the case in some rooms due to space limitations.

Discussion

While having paintings in cancer inpatient rooms did not affect clinical outcomes from a statistical standpoint, it significantly improved participants’ perceptions of the hospital environment—a finding also emergent from our qualitative data. Indeed, our results suggest that there is great potential benefit in building rich aesthetics around patients and giving them a degree of control over the environments in which they are healing, and an opportunity to engage artwork as a therapeutic resource during the physical, emotional, and spiritual challenges that

arise during inpatient treatment. Given that healthcare administrators are under strong pressures to control or reduce costs and yet increase care quality and patient satisfaction, integrating artwork into inpatient rooms may represent one way to systematically improve perceptions of the institution. Indeed, this study supplies strong scientific data in support of the therapeutic value of visual arts prints (costing about \$90 each) as a highly efficacious and cost-effective feature of a hospital's physical environment that deserves investment.

Further, the power of this study lies not only in its scientific rigor and capacity to speak to the emergent needs and concerns of hospital administrators, but also in its applicability to inpatients with other illnesses. Given that nearly 40 million Americans are annually admitted to institutional care and thus subjected to environments that may, in many cases, be stark and medicalized, the health and satisfaction outcomes measured in our study are abundantly applicable to patients undergoing any inpatient treatment.

Moreover, another major strength of the study is its use of mixed methods. While the randomized control design produced robust scientific data on health outcomes and patient satisfaction, complementary focus groups with patients and local artists captured the human, experiential aspects of the intervention. In addition to providing a unique opportunity for dialogue between patients and local, professional artists who supply artwork for our medical center, these data identified other unforeseen variables that can inform future hypothesis about the value of the visual arts in improving health outcomes.

This study was limited by difficulty enrolling patients who were fatigued, incomplete data for some patients, and logistical challenges of placing paintings in the same location in every hospital room. Such limitations may have led to selection bias in the sample and could affect the generalizability of our findings. Future studies would be useful to compare our results

to different inpatient populations, develop strategies to more rigorously evaluate clinical outcomes, and assess other non-pharmacological, arts-based interventions in inpatient settings (e.g. music, creation of artwork, etc.). Another suggestion is to develop “coaching” to healthcare providers on how to engage with patients regarding the artwork they have chosen. Art can forge powerful connections between people, and—if thoughtfully constructed—even brief discussions about artwork may make significant positive impact on provider-patient understanding as well as on patient mood. Such inquiry might also examine the value of giving patients control over multiple opportunities to influence the aesthetics in their room versus a single opportunity during the course of their stay. Future attempts to replicate arts programming similar to what was implemented in this study should pay particular attention to the suggestions for programmatic improvement identified by our participants.

Summary of presentations/publications

Publications

1. George DR, De Boer C, Green M. (2017). “That Landscape is Where I’d Like To Be...”.
Journal of the American Medical Association 317(9): 890-892.

Presentations

1. George DR, de Boer, C, King TS, Hopkins M, Hammer J, Green M. (2017). 2017 Health Humanities Annual Conference. Presented in Houston, TX. March 9, 2017. “The Value of Integrating Visual Arts (VIVA): Evaluating the Benefits of Hospital Room Artwork on Inpatient Wellbeing.”

Figure 1. Participant randomization into 3 study groups

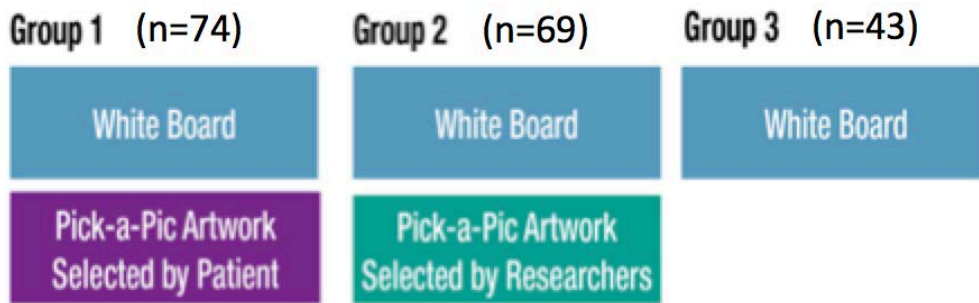


Figure 2. Drifters by Sharon Lennox Woelfling, Hershey, Pennsylvania. Watercolor. 33 × 41 cm.



Figure 3. Hospital room. Photograph by Betsy Blyler.



Figure 4. Hide and Seek by Erica Harney, Philadelphia, Pennsylvania. Oil, acrylic, pastel, silver leaf, graphite on canvas. 61 × 91 cm.



Figure 5. Autumn Morning by Brienne Brown, Julian, Pennsylvania. Watercolor. 14 × 16 in.



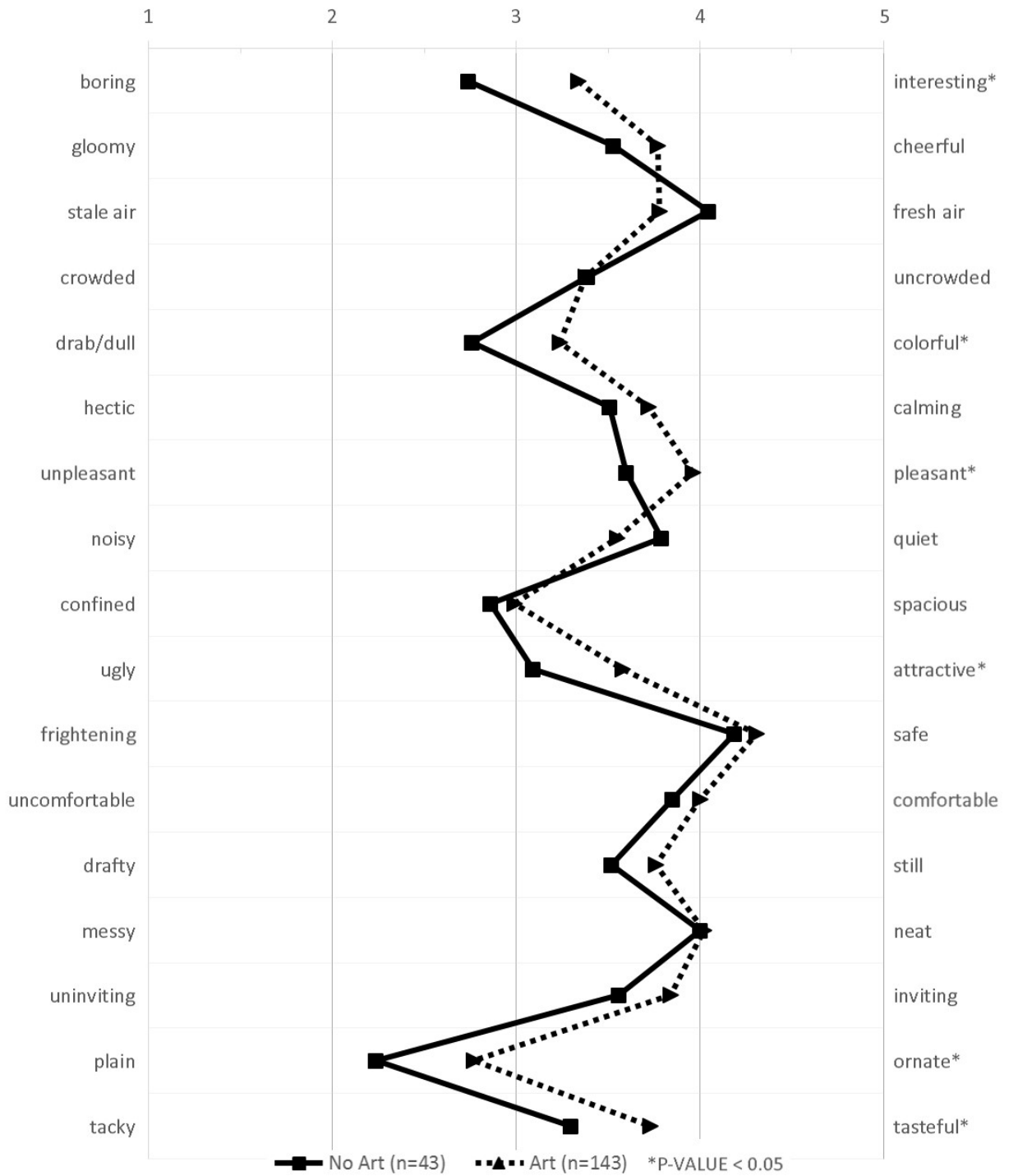
**Figure 6. Evening at the Capital by Brienne Brown, Julian, Pennsylvania. Watercolor. 10
× 12 in.**



Figure 7. Living Water by Meaghan Troup, Mifflinburg, Pennsylvania. Oil. 20 × 16 in.



Figure 8. Room Assessment Survey Results on Semantic Differential Scale



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