

Patient Experience Grant Program Series  
**RESEARCH REPORT**

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**Impact of Art on the Human Experience in  
the Pediatric Emergency Department**

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# THE BERYL INSTITUTE

## About The Beryl Institute

*The Beryl Institute is a global community of over 55,000 healthcare professionals and experience champions committed to transforming the human experience in healthcare. As a pioneer and leader of the experience movement and patient experience profession for more than a decade, the Institute offers unparalleled access to unbiased research and proven practices, networking and professional development opportunities and a safe, neutral space to exchange ideas and learn from others.*

*We define the patient experience as the sum of all interactions, shaped by an organization's culture, that influence patient perceptions across the continuum of care. We believe human experience is grounded in the experiences of patients & families, members of the healthcare workforce and the communities they serve.*

## Disclosure

This project was supported by a grant from The Beryl Institute. In partnership with Patient Experience Institute to support the growing conversation on the importance of the patient experience in healthcare and in the interest of framing and expanding the body of knowledge on this topic, The Beryl Institute established the Patient Experience Grant Program in 2010.

## INTRODUCTION

Imagine yourself as a six-year-old child experiencing an asthma attack and feeling scared while being brought to the emergency room. Or imagine being a parent who is anxious as their ten-year-old child is being treated in the emergency room for a leg fracture after a fall during their soccer game or as a nurse working in an emergency room on a busy hectic shift during the flu season. Now picture yourself as the above child, parent and nurse in an emergency room which has barren walls and an emergency room which has walls filled with images that bring you joy. How would your experience differ among these two emergency rooms? Would having artwork displayed in the emergency room be important to you? And if so, what type of artwork would you prefer?

This brief exercise emphasizes a growing discipline known as *Arts in Healthcare*, defined as a diverse, multidisciplinary field dedicated to transforming the healthcare experience by connecting people with the power of the arts at key moments in their lives.<sup>1</sup> The arts, including music, dance, theatre, literature, visual art, architecture, and interior design are being integrated into the clinical setting to enhance health and well-being.<sup>2</sup> A recent report from the World Health Organization, which examined the effect of different forms of arts on health, concluded the overall evidence base showed arts interventions having positive effects on psychological and physiological outcomes on patients in a hospital environment.<sup>3</sup>

Although there is a growing body of literature that recognizes the impact of arts in healthcare on patients and service users, it is also well acknowledged, as seen in a critical review of pertinent studies from 2011 to 2016 by Boyce and others who concluded the evidence base continued to remain narrow in relation to both methodological approach and healthcare setting. The review findings suggested that now is the time for different voices and art forms to be considered and represented in the research on arts in healthcare. Additionally, further research is also required to strengthen the existing evidence base.<sup>4</sup>

This research study seeks to provide insights on the experiences of patients, families, and staff in the Pediatric Emergency Department at NYC Health + Hospitals/ Harlem with two art installations through a collaboration with the organization RxART.

From its inception in 1887, NYC Health + Hospitals/ Harlem has dedicated itself to being the pre-eminent safety-net provider in the Harlem community. The hospital provides care to the medically underserved, low-income, and minority populations of New York City. NYC Health + Hospitals/ Harlem, a 272-bed acute care facility, is the largest hospital in Central Harlem, capable of treating the most seriously ill.

In 2014, a state-of-the-art Adult and Pediatric Emergency Department (PED) and Level 1 Trauma Center was opened at NYC Health + Hospitals/ Harlem. The new Pediatric Emergency Department tripled in size from its former space but did not include any representation which depicted it as a space dedicated to caring for children. In early 2017, efforts were initiated to improve both the patient and employee experience in the PED. One way of achieving this goal would be the addition of visual art to the blank walls of the Pediatric Emergency Department.

In late 2017, a collaboration was formed with the Pediatric Emergency Department and RxART, a nonprofit organization whose mission is to help children heal through the extraordinary power of visual art. RxART commissions exceptional contemporary artists to transform sterile healthcare facilities into engaging and inspiring environments full of beauty, humor, and comfort at no cost to the hospital.<sup>5</sup>

This collaboration resulted with a project culminating in December of 2018 with the Keith Haring Foundation and an installation of a detailed drawing by the late artist, Keith Haring which was enlarged and reproduced as a wall decal for the main wall of the Pediatric Emergency Department Waiting Room.<sup>6</sup> Figure 1 depicts the old and new Waiting Room of the Pediatric Emergency Department.

The collaboration between NYC Health + Hospitals/ Harlem and RxART continued with an additional project which was completed in September of 2020 with the artist Derrick Adams whose detailed design was translated into wall coverings for the six private Patient Treatment Rooms in the Pediatric Emergency Department.<sup>7</sup> Figure 2 depicts the old and new Patient Treatment Rooms in the Pediatric Emergency Department.

For this study, it was of interest to investigate if the recent art installations in our Pediatric Emergency Department had an effect and whether that effect

Figure 1. Old Waiting Room vs New Waiting Room of the Pediatric Emergency Department



was one we had hoped for. This knowledge is vital as we develop, improve, and respond effectively to the needs of those who are at the heart of such work: our patients, families, staff, community, and our partners.

Our research study is a testament of our commitment to The Beryl Institute's Declaration for Human Experience, whose aim is to elevate the experiences of patients and families, those who work in healthcare and the communities which are served.<sup>8</sup> We have pledged to transform the human experience in healthcare and to help create a human-centered, effective, and equitable healthcare system.

This research was conducted in the form of a survey, providing both quantitative and qualitative data to address the following study objectives:

**Objective 1:** To evaluate patients, families, and staff preferences to recent art installations in the waiting room and patient treatment rooms of the Pediatric Emergency Department.

**Objective 2:** To assess the impact of recent art installations to distraction, stress, anxiety, and happiness with patients, families, and staff in the Pediatric Emergency Department.

**Objective 3:** To explore patients, families, and staff attitudes and viewpoints to color and different types of art in the Pediatric Emergency Department.

Figure 2. Old Patient Room vs New Patient Room of the Pediatric Emergency Department



## BACKGROUND

In 1859, nursing pioneer Florence Nightingale recognized the importance of art in healthcare and wrote in her *Notes on Nursing*, "The effect on sickness of beautiful objects, of variety of objects and especially of brilliancy of color 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. Little as we know about the way in which we are affected by form, by color and light, we do know this, they have an actual physical effect. Variety of form and brilliancy of color in the objects presented to patients are actual means of recovery."<sup>9</sup>

It was not until the 1970s a movement to incorporate art in healthcare environments was formed in the United States. Since then, there has been a growing international interest with arts in healthcare and the positive impacts it has on health, well-being, and healthcare.

A prominent study examining the visual environment and health outcomes is Ulrich's retrospective analysis of comparative recovery times of cholecystectomy surgery patients in a suburban Pennsylvania hospital between 1972 and 1981. Patients with a view of trees and shrubs were compared to those with a view of a brick wall. Twenty-three surgical patients assigned to rooms with windows looking out on a natural scene had shorter postoperative hospital stays, received fewer negative evaluative comments in nurses' notes, and took fewer potent analgesics than 23 matched patients in similar rooms with windows facing a brick building wall.<sup>10</sup>

In 2017, a critical review of the literature from 2011-2016 examined the impact of the arts in healthcare on patients and service users. A total of 69 studies were reviewed with the majority of studies examining the effect of music listening on patients and service users (76.8%). The most common clinical setting evaluated was surgical where the main aims of the studies were to examine impact of music listening on reducing stress, anxiety and with pain management. The findings from these studies were overwhelming positive and added to the value of arts in healthcare. The review also concluded most studies used quantitative analysis and with limited use of multi-method and qualitative design, which prevented gaining important perspectives from a variety of stakeholders. Additionally, patients/service users'

voices were identified as missing in several of the different art form studies.<sup>4</sup>

Another important review focused on healthcare professionals' perceptions of the value of the arts in healthcare settings and the impact of the arts on healthcare professionals with studies from 2004-2014. A total of 27 articles were reviewed with arts interventions which included music listening, visual arts, reading and creative writing, and dance. The researchers concluded despite some methodological limitations of the studies, the majority of reported staff outcomes were positive, with arts activities in healthcare settings found to decrease stress, improve mood, improve job performance, reduce burnout, improve patient/staff relationships, improve the working environment, and improve well-being.<sup>11</sup>

There has been a number of recent studies which have assessed evidence-based design, specifically visual art, impacting a person's experience in healthcare settings. In 2009, the Dumfries Renal Unit in Scotland asked participating patients which elements of the waiting area were most important to their outpatient experience. The study participants gave 'paintings on the wall' a 3.4 average rating on a 1 (not at all important) to 5 (very important) scale. The study also assessed artwork preferences: landscape and nature (84%), abstract art (27%) and portraiture (24%).<sup>12</sup>

A study from 2012 analyzed the effect of visual art depicting nature (still and video) on patients' and visitors' behavior in the emergency department. A pre-post research design was used with systematic behavioral observation of patients and visitors in the emergency department waiting room of two hospitals over a period of four months. The study concluded that visual art had positive effects on the emergency department waiting experience with findings which included significant reduction in restlessness, noise levels, and people staring at other people in the room at both sites.<sup>13</sup>

Another study from Denmark in 2017 looked at how patients experience and use art in healthcare waiting room settings. An important finding from the study included when artwork is present, patients are more likely to speak to each other and to staff, "engendering a mood of togetherness, ease and relatedness."<sup>14</sup>

A recent review from March 2021 analyzed 79 publications from 2000 to 2019 related to the

use of visual arts in pediatric hospitals. One group of studies analyzed were classified as "environmental," with the aim to inquire how visual art affected pediatric patients, their families and health workers. The results of this group of studies indicated that visual art (paintings, drawings, photographs, murals, or comics) could have a positive impact on some physiological results, the level of anxiety experienced and the parents' satisfaction.<sup>15</sup> Another group of studies analyzed were organized as "exploratory," which sought to understand the children's perspective of the hospital, their needs, or preferences. It was concluded pediatric patients value the aesthetic dimension of the hospital environment, the distraction that art can provide and its positive effect on their mood.<sup>15</sup>

Our research study is poised to add to the limited number of arts in healthcare research with pediatric healthcare environments. Additionally, we seek to add the unique voices of our pediatric patients, their families and our staff working in an inner-city community Pediatric Emergency Department to the evidence base of arts in healthcare.

## METHODS

Survey research design was the study approach utilized for the project. Both quantitative and qualitative data were collected in a 10-item questionnaire. Three versions of the questionnaire were created for the following groups: pediatric patient, parent or guardian and staff member. The 10-item questionnaire focused specifically on eliciting data to meet the objectives of the study.

The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the BRANY Institutional Review Board (IM2021324 – Date: 03242021) and the NYC Health + Hospitals/ Harlem's Research Committee. All participants gave their informed consent for inclusion before they joined the study.

Participation in the research study was voluntary and there were no risk or benefits associated in completing or not completing the questionnaire. No patient identifiers were collected and answers to the questionnaire remained confidential.

### Location

The research study was conducted in the Pediatric Emergency Department at NYC Health

+ Hospitals/ Harlem, one of the 11 acute care facilities of NYC Health + Hospitals, the largest public health system in the United States. The PED is a Pediatric Trauma Center and typically cares for an annual volume of 15,000 patients as seen in 2019. With the COVID-19 pandemic beginning in 2020, the PED saw a 50% reduction in its patient visits which has slowly increased to near pre-pandemic levels in 2021.

The PED is a separate zone from the Adult Emergency Department and includes a separate waiting room, a triage room, six private patient treatment rooms, a two-bed critical trauma resuscitation bay and an observation room. Pediatric patients, newborn to 20 years of age, are evaluated and treated by a dedicated team of nurses and physicians. The Pediatric Emergency Department is open daily, 24 hours a day.

### Participants

Participants of the research project included pediatric patients, their parents or guardians and staff working in the Pediatric Emergency Department. Participants were recruited over a four-month period from April 2021 to July 2021 with a goal of 500 completed questionnaires.

The pediatric patient version of the questionnaire was written at a 4th grade level. On average, children are usually 9 years of age when they begin the 4th grade and 10 years of age when they complete 4th grade. Pediatric patients meeting inclusion criteria and ages 10 years and above were offered to complete the pediatric patient version of the questionnaire.

The accompanying adult for any pediatric patient meeting inclusion criteria was offered to complete the parent or guardian version of the questionnaire. It was expected to have approximately 400 patients and parents, or guardians participate in the research project.

Staff members working in the PED included nurses, patient care techs, behavioral health assistants, medical students, physician assistant students, nurse practitioners, physician assistants, resident physicians, attending physicians, respiratory care therapists, hospital police officers, patient navigators, registration clerks, social workers, environmental care workers and administrative staff.

Staff members spanning all three tours of shifts in a day were offered to participate in the research

study. Approximately 100 staff members were expected to complete the staff member version of the questionnaire.

Sample sizes were determined based on annual patient census and employee staff numbers with a 95% confidence interval and a 5% margin of error.

## Materials

The 10-item questionnaire created was offered only in English. Participants with limited English proficiency were excluded from the study.

The three versions of the survey (pediatric patient, parent or guardian and staff member) designed were based on questionnaires used in previous studies conducted by RxART.

The questionnaire consisted of 10 items with both open and close-ended questions. The survey contained seven quantitative questions including multiple choice questions, 5-item Likert scale (strongly agree, agree, neutral, disagree, strongly disagree) questions and pictorial questions. Three qualitative questions elicited input from participants which allowed for detailed responses and the opportunity to hear the voice of each participant.

The items from the questionnaire were designed to meet the study objectives. Table 1 shows the item breakdown for the three versions of questionnaires based on the objectives of our study.

At the end of the 10-item questionnaire, respondents were asked to complete three demographic questions. This was followed by an opportunity to add any additional comments before submitting their completed survey.

The questionnaire was administered via the use of an iPad which supported good infection control practices especially with the ongoing COVID-19 pandemic versus traditional paper questionnaires. A plastic sleeve to cover the iPad and a plastic film to protect the screen were used as protection barriers. The iPad was cleaned with disinfectant wipes between each use. Additionally, each participant who completed the questionnaire received a new individually wrapped rubber-tipped stylus pen to use.

The online survey software SurveyMonkey was used to create and run the questionnaire for use on the iPad. This program allowed for features including design of several versions of the questionnaire, easy access and with analysis of data collected.

**Table 1. Questionnaire items for the 3 versions of surveys based on study objectives**

<p><b>Study Objective 1:</b></p> <p>To evaluate patients, families, and staff preferences to recent art installations in the waiting room and patient rooms of the Pediatric Emergency Department.</p>	Q. 1,2,3,6	Q. 3,4	Q. 1,2
<p><b>Study Objective 2:</b></p> <p>To assess the impact of recent art installations to distraction, stress, anxiety, and happiness with patients, families, and staff in the Pediatric Emergency Department.</p>	Q. 4,5	Q. 1,2,8,9	Q. 3,4,5,6,7
<p><b>Study Objective 3:</b></p> <p>To explore patients, families, and staff attitudes and viewpoints to color and different types of art in the Pediatric Emergency Department.</p>	Q. 7,8,9,10	Q. 5,6,7,10	Q. 8,9,10

## Procedure

Research project team members which included nurses and physicians offered participants meeting inclusion criteria to participate in the study. Participants were recruited when a research project team member was clinically working and if time permitted given the volume of patients in the PED.

Patients arriving to the PED are initially triaged and assigned an Emergency Severity Index (ESI) number based on their chief complaint and the expected care which may be required, ranging from 1 (acute) to 5 (least acute). Figure 3 depicts the algorithm which is used by the triage nurse to determine an ESI number for a patient.

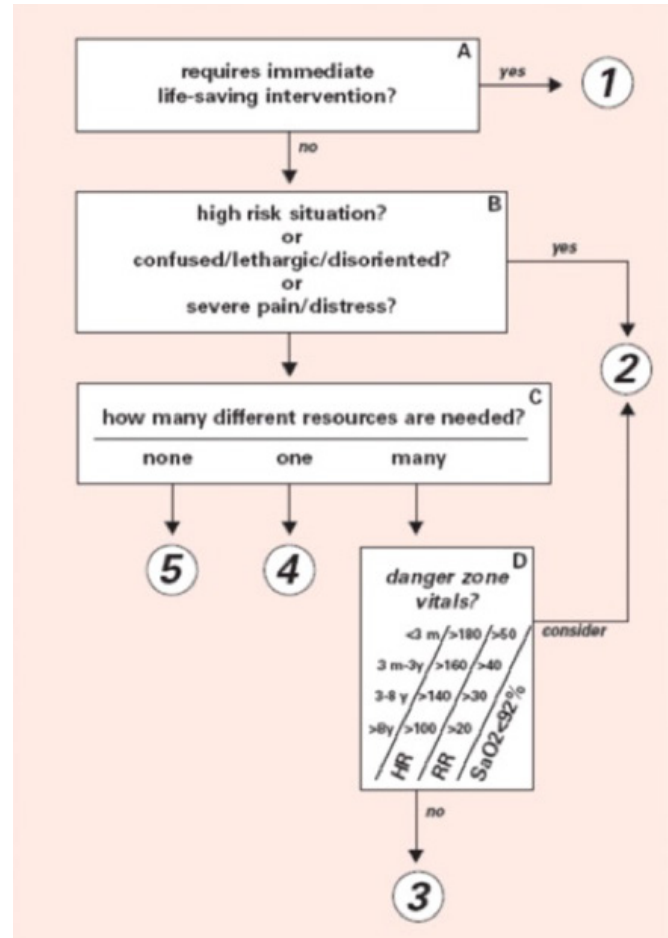
Patients who receive an ESI of 1 or 2 were excluded from the research study as these patients were the most critical requiring focused attention. Patients who received an ESI classification of either 3, 4 or 5 were offered to participate in the study.

After triage, the patient is placed in a patient treatment room. Once the patient has completed their medical evaluation and treatment and is ready for discharge or awaiting test completion or test results, the pediatric patient and/or their parent or guardian were offered to participate in the research study.

Staff members were recruited by research team members. Additionally, all nurses and physicians assigned to work in the PED received an email and follow-up email to complete the survey. This was done to ensure inclusion of the majority type of staff members working in the PED in the study.

On average, participants completed the surveys within 5 minutes. Participants were thanked for their time and effort.

Figure 3. Emergency Severity Index (ESI) Triage Algorithm, v. 4 (Five Levels)





## RESULTS

A total of 500 surveys were completed as shown in Table 2 among the three groups studied: pediatric patient, parent or guardian and staff member.

Each survey contained three questions which captured demographic data. In the pediatric patient and parent or guardian surveys, gender, age, and race/ethnicity were assessed. The staff member survey queried gender, age, and years of employment at NYC Health + Hospitals/ Harlem.

The following data (Table 3) from the questionnaires is presented according to each study objective and for each of the three respondent groups.

Table 2. Survey participants

Group	Surveys
Pediatric Patient	174
Parent or Guardian	214
Staff Member	112
<b>Total</b>	<b>500</b>

Table 3. Study Objectives

### Study Objective 1:

To evaluate patients, families, and staff preferences to recent art installations in the waiting room and patient rooms of the Pediatric Emergency Department.

### Study Objective 2:

To assess the impact of recent art installations to distraction, stress, anxiety, and happiness with patients, families, and staff in the Pediatric Emergency Department.

### Study Objective 3:

To explore patients, families, and staff attitudes and viewpoints to color and different types of art in the Pediatric Emergency Department.

## Study Objective 1

### Pediatric Patient

The majority of the pediatric patients surveyed preferred the new waiting room and the new patient treatment rooms. Pediatric patients surveyed were asked to describe the old and new patient rooms using one word. The top 3 words used to describe the old patient treatment rooms were: Plain (21.84%), Boring (18.39%) and Bland (8.62%). The top 3 words used to describe the new patient treatment rooms were: Colorful (14.37%), Fun (12.64%) and Creative (9.77%).

### Parent or Guardian

Parents and guardians surveyed were asked to describe the old and new patient rooms using one word. The top 3 words used to describe the old patient treatment rooms were: Plain (25.35%), Boring (16.43%) and Bland (7.04%). The top 3 words used to describe the new patient treatment rooms were: Colorful (13.62%), Fun (8.92%) and Beautiful (6.15%).

### Staff Member

Nearly 100% of the staff members surveyed preferred the new waiting room and the new patient treatment rooms.

## Study Objective 2

### Pediatric Patient

A majority of pediatric patients surveyed felt the new patient treatment rooms provided distraction to why they came to the Pediatric Emergency Department and made them feel happy also.

### Parent or Guardian

Parents and guardians were asked to rate how strongly they agreed if the old and new waiting room was welcoming/inviting, caring/compassionate and child-friendly. The results showed a higher percentage of parents or guardians surveyed who agreed or strongly agreed the new waiting room was welcoming/inviting, caring/compassionate and child-friendly than the old waiting room.

Parents and guardians were asked to rate the likelihood of recommending the PED with the old waiting room/patient room and the new waiting room/patient room from a scale of 1-10 (not at all likely to extremely likely). The parents or guardians

surveyed were more likely to recommend a PED with the new waiting and patient rooms than the old waiting and patient rooms.

### Staff Member

Staff members were asked to rate how strongly they agreed the new art installations increased pride in our facility instilled happiness in our department, improved stress levels, reduced anxiety and provided distraction to patients. A majority of staff members either agreed or strongly agreed to all the above areas with the highest level of agreement in increased pride in our facility.

## Study Objective 3

### Pediatric Patient, Parent or Guardian, Staff Member

To ascertain the preferred color for artwork in the Pediatric Emergency Department, all survey participants were asked to select one owl among six different colored owls. The blue colored owl was selected as the majority owl among the three groups surveyed.

To assess art preferences, each study participant was asked to select one image among six images they would prefer to see in the Pediatric Emergency Department (Figure 4). The image which had the highest votes for preferred art was different among the three groups of respondents surveyed. The most preferred image for each group was:

Pediatric Patient – Martin Luther King, Jr.

Parent or Guardian – Reading Aspiration

Staff Member – Abstract Art

Following respondents' selection of an image, they were asked to share why they preferred their chosen image as artwork for the Pediatric Emergency Department. Below is a selection of responses for each group surveyed for the image which received the most votes.

### Why do you prefer the selected image?

#### Pediatric Patient - Martin Luther King, Jr.

*Because I have a big dream.*

*Because we both have the same dream.*

*It inspires me.*

*Because Martin Luther King had a huge impact to the black community.*

*It is a piece of art that is very important to the world, and it has a lot of meaning to it.*

### Parent or Guardian - Reading Aspiration

*Equality for all.*

*First because theme is child in the picture and second because of the message in the picture.*

*Books represent knowledge. When you have knowledge, it can help you reach success. And the star is success for me.*

*To show children that they can achieve anything and reach for the stars.*

*It shows the importance of reading, it shows how far reading can take one.*

### Staff Member - Britto Abstract Art

*Colorful, has various objects that we can point to in order to distract the children.*

*It's colorful and stimulating for the kids.*

*This art was selected because this is more geared towards children. Children tend to be more drawn to bright colors and animals.*

*Has more detail and colorful for kids to bring happiness.*

*I love Britto artwork.*

The final question each participant was asked in the questionnaire was to select their level of agreement to the statement, *It is important to have artwork in the Pediatric Emergency Department*. 83% of pediatric patients, 91% of parents or guardians and 97% of staff members surveyed either agreed or strongly agreed that it is important to have artwork in the Pediatric Emergency Department.

Figure 4. Images presented to participants for the Pediatric Emergency Department



## DISCUSSION

Art in a healthcare facility is most effective by the value it provides and if it meets the needs of its patients, visitors, and employees. This study assessed the experiences and preferences of patients, families, and staff in the Pediatric Emergency Department at NYC Health + Hospitals/ Harlem with two recent art installations in the waiting room and patient treatment rooms through a collaboration with the organization, RxART. A 10-item questionnaire, providing both quantitative and qualitative data, were administered to a total of 500 pediatric patients, parents or guardians and staff members. 83% of pediatric patients, 91% of parents or guardians and 97% of staff members surveyed either agreed or strongly agreed that it is important to have artwork in the Pediatric Emergency Department. The majority of each of the 3 groups surveyed overwhelmingly preferred the waiting room and patient treatment rooms which featured the added artwork. The new artwork in the PED had positive impacts on distraction, happiness, stress, and anxiety with a majority of the survey participants in each of the three groups studied. The 500 voices from this study will strengthen the existing evidence base of arts in healthcare providing positive benefits to health and well-being and ensure the different stakeholders needs are heard.

### Art installations preferences

In retrospect, the decision in 2017 to add visual art in the Pediatric Emergency Department was a correct one given the words shared by survey participants and their overwhelming preference to a PED that includes visual art. The voices of the pediatric patients, family members and staff surveyed were clearly heard with over 90% of respondents preferring the waiting room and patient treatment rooms with the added artwork. It is interesting to note that 7.47% of the pediatric patients preferred the old waiting room with no artwork. A possible explanation for this might be that the image of the old waiting room used in the survey had a television screen displayed on the main wall and the image of the new waiting room used in the survey showcased the artwork which was added. Having a television on the wall was possibly the reason why the old waiting room was selected by these children. It should be noted the television screen was moved to an adjacent side wall in the PED waiting room after the addition of the artwork to the main wall of our waiting room.

### Impact of art installations

Consistent with the literature, our research demonstrated the visual art installed in our PED

functioned as positive distractions to our pediatric patients. Patients and visitors often experience stress and anxiety when present in any healthcare setting. Positive distraction is defined as any "environmental feature that elicits positive feelings and holds attention without taxing or stressing the individual, thereby blocking worrisome thoughts."<sup>16</sup> Artwork displayed in waiting areas, patient rooms or corridors has been shown to be effective as positive distraction. A study by Pati et al. in 2011 studied two children's waiting rooms to determine whether showing various television slideshows of images (with and without music) would provide positive distraction for children. The study concluded that the silent slideshow with images of nature were effective as positive distractions by inducing calm behavior and reducing overall noise and chaos.<sup>17</sup> 96.5% of the children surveyed in our study felt the added artwork provided a distraction as to why they came to the PED. The addition of murals to existing wall space in facilities may be a great option in improving the patient experience and they can be easily adapted to the existing environment.

A major goal of the initiative adding visual art in the Pediatric Emergency Department was to change the sentiment of the waiting room environment from cold, scary, and uncaring to one which was warm, friendly, and compassionate. The waiting room is the first area patients and families encounter in the PED. A waiting room which reduces stress and provides joy is vital for a positive experience for both children and families. The results of our study indicate we were able to achieve this goal. There was a higher percentage of parents or guardians surveyed who agreed or strongly agreed the new waiting room was welcoming/inviting, caring/compassionate and child-friendly than the old waiting room.

Healthcare institutions are now focused on providing patient-centered care and must assess their performance with patient-satisfaction surveys (HCAHPS scores). In 2008, a study examined whether the physical attractiveness of an outpatient practice influences patients' perceptions of healthcare quality. The study concluded that "the physical environment of health care facilities influences patients' waiting experience and their perception of quality of care."<sup>18</sup> The results from our study are consistent with such previous studies in where the parents or guardians surveyed were more likely to recommend a PED with the new waiting and patient rooms than the old waiting and patient rooms.

In this study, it is significant to note that the impact of the art installations in the Pediatric Emergency Department was not only assessed for the patients

and their families but also for the staff working in the PED. Prior research studies have proven that integrating the arts into healthcare settings helps to cultivate a healing environment and foster a positive environment for caregivers that reduces stress and improves workplace satisfaction and employee retention.<sup>19</sup> Overall, our findings are in accordance with these previous studies with our staff surveyed reporting positive effects of the added art on improving stress levels, reducing anxiety, and instilling happiness in the department. Among the several topics assessing the impact of art on staff, the theme of increased pride in our facility had the highest number of staff agreeing or strongly agreeing with this effect. This finding may have implications on staff retention, and it could be an area for future research.

## Color preferences

Color psychology is the study of how colors affect perceptions and behaviors. Color can be a positive communication tool which evokes emotions and creates certain moods. Color can play a vital part in the healing process in healthcare design with the use of colors which decrease stress and encourage happiness. While perceptions of color are somewhat subjective, there are some color effects that have universal meaning. Warm colors which include red, orange, and yellow can produce feelings of warmth or aggressiveness. Cool colors which include blue, purple, and green are often described as having a calming or relaxing influence.

There have been a few studies which explored color preferences of children. One such study investigated the value of color as a component of a healing environment for pediatric patient rooms by assessing color preferences from pediatric inpatient, pediatric outpatient, and healthy children groups. The study concluded regardless of gender effects, healthy children and pediatric patients preferred blue and green the most and white the least.<sup>20</sup>

As part of the design process for the project involving the main wall of our Pediatric Emergency Department waiting room, once the design of the art was selected, there was an option for which color could be used. With consideration of color theory and the impact of color on children, Pantone color 300 U was chosen, which is a medium dark shade of cyan-blue.

To evaluate color preferences among our pediatric patients, their families and our staff, each survey participant was asked to select an owl they would prefer as artwork for the pediatric treatment rooms.

They had 6 colors of the owl to choose from: orange, yellow, pink, green, blue, and purple. The blue colored owl received the highest votes among each of the three groups surveyed. Our findings are consistent with previous studies and supports the choice of selecting Pantone color 300 U as the color used for the wall covering in our waiting room. Understanding the different color preferences of the users in our PED will be helpful with any future projects.

## Art image preferences

A study from the Cleveland Clinic in 2016 challenged the design principle of nature images as preferred artwork in hospitals. Cleveland Clinic has an impressive contemporary art collection with an eclectic mix of 6,200-plus pieces ranging from paintings, photographs, sculptures, videos, and other media on themes including the human condition, global diversity, innovation, collaboration, and pop culture. The study surveyed 1000 former patients about the health system's art program and found improvement with patient mood, stress, and comfort. The study concluded that its diverse art collection can benefit patients as opposed to solely nature art.<sup>21</sup>

Considering the concept that diversity of artwork can impact the patient experience, all 500 survey participants were asked to choose their preferred image to be used as potential artwork in the PED. There were six different images to select from (Abstract Art, Reading Aspirations, Dr. Martin Luther King, Jr., Pastel Balloons, Tropical Fish and Harlem Renaissance). The image which received the highest number of votes in each of the 3 groups surveyed was different.

40% of pediatric patients chose the image of Dr. Martin Luther King, Jr. This finding was unexpected as it did not seem likely that the children's favorite image would be of a historical figure. Common themes of Dr. Martin Luther King, Jr. being inspirational, his impact on American history and to the black community and with the rise of the Black Lives Matter movement emerged as the reasoning given by respondent's for choosing this image. This finding highlights the importance of considering cultural diversity in local communities when selecting art.

35% of parents or guardians chose the Reading Inspiration image as their most favorite. This image portrays two diverse boy and girl equally achieving their dreams through education. This finding is not surprising given the love families have for their children and with their reasons for choosing this image centered on equality, the value of education

and to never give up on pursuing your dream. Similarly, as seen with the pediatric patient group, the image receiving the highest votes was not selected for their color or design aesthetic, but instead for the message which the image portrays. Here we are reminded of the power of visual art and how it can communicate with the public.

27% of the staff members surveyed selected the Abstract Art image as their top choice. Most staff who selected the Britto artwork stated the use of colors, bright colors, and the potential for distraction to patients as their reasoning for selecting this image. It is important to recognize the staff did not select the image based upon their needs but rather on the needs of their patients. The different findings from the 3 groups surveyed with their preferred image adds support to the concept of having a diverse collection of art. If one had the space, they could potentially have the most popular image of each group displayed.

## Limitations

This study was limited by the absence of limited English proficiency and nonliterate participants. Although this occurred in limited numbers in our study, future studies with additional funding can include questionnaires in other languages besides English. Additionally, pediatric patients who were less than 10 years of age were not included and could be a future area of research with the development of age-appropriate questionnaires. An apparent limitation of the study could be the exclusion of ESI 1 and ESI 2 triaged patients, the most critically ill children evaluated and treated in our PED. Regarding this potential limitation, it should be noted that these patients usually arrive through our Ambulance Bay Entrance and are managed in our Pediatric Critical Trauma Resuscitation Bay. These patients do not have the opportunity of experiencing the added artwork, as they do not spend time in our Waiting Area. Further, our Pediatric Critical Trauma Resuscitation Bay is absent of artwork, as the walls have attached emergency protocols and equipment. It was not possible to recruit every potential participant who met inclusion criteria given that participants were only recruited if a research project team member was clinically working and if time allowed given how busy the PED was at that time. However, we are confident with the generalizability of our data given our large sample size of 500 and the recruitment of participants occurring on all days of the week and all hours in the day.

## CONCLUSION

There has been worldwide increased awareness with the use of arts to support health and well-being. As with any health intervention, arts should be evaluated to determine if it has met its objectives and goals, to evaluate the impact it has on participants, and to help provide guidance for future decisions. 500 pediatric patients, family members and staff of the Pediatric Emergency Department at NYC Health + Hospitals/ Harlem were surveyed and shared their experiences with two recent art installations in the waiting room and patient treatment rooms through a collaboration with the organization, RxART. Overall, our qualitative and quantitative results demonstrated the added visual art positively impacting both the patient and employee experience, and thus overall, the human experience.

As we elevate the human experience in healthcare, it is important to consider arts as a medium to humanize the healthcare environment. The arts can be incorporated to reduce the level of stress and increase the well-being of all health system users. Visual art can transform cold, stark clinical environments into warm, compassionate spaces filled with inspiration and joy.

Our study adds to the limited body of research on arts in pediatric healthcare environments and is among the few studies with a comprehensive evaluation of all users within the defined healthcare space. Importantly, our research adds 500 voices to the arts in healthcare evidence base and ensures a diversity of insights and viewpoints are heard. Additional research is needed to strengthen the efficacy of arts in healthcare and to show the value it can have. As a result, this will hopefully lead to increased investments to the arts in healthcare and to help ensure art remains diverse and equitable for all.

Remember our six-year-old child experiencing an asthma attack, our parent with their ten-year-old child who has a leg fracture and our nurse who is working on a busy shift during the flu season. Let's not forget about them as we elevate the human experience in healthcare.

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