

Visual Arts in Children's Hospitals: Scoping Review

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Abstract

Purpose: The purpose of this work was to review scientific publications related to the use of visual arts in pediatric hospitals. **Background:** Visual arts, particularly painting, have historically played an important role in the design and atmosphere of healthcare spaces, especially hospitals. **Methods:** From 2000 to 2019, 79 publications located in relevant databases and manual searches were identified and analyzed. **Results:** Sixty of these publications include empirical studies and 19 theoretical models, comments, or reflections on the use of art in children's hospitals. Their analysis allows us to differentiate four groups of works: (a) "environmental" includes works whose purpose is to know how visual artistic interventions in the hospital can affect the people who see them, mainly pediatric patients, families, and health workers; (b) "participatory" includes studies aimed at knowing the effect of developing visual arts activities in the hospital; (c) "exploratory" includes works whose purpose was to know more about the children's perspective using their artistic expressions; and (d) "diagnostic" includes those that use children's drawings as a tool to diagnose diverse processes related to the pediatric patients' experience. **Conclusions:** Taken together, the works we analyzed in our study support the use of visual arts in hospitals as a resource to enhance the well-being of children and families and their experience in the hospital. We indicate two particularly relevant aspects in this sense: the importance of the visual arts in improving the symbolic quality of hospitalization settings and the communication processes that occur in these environments.

Keywords

hospital, art, design, children, adolescent, well-being, communication

The purpose of this review is to collect and assess the available evidence about the role of the visual arts in children's hospitals. We wish to know how the visual arts are used in pediatric hospitals in a twofold sense. On the one hand, we wished to know the use of the visual arts in pediatric hospitals as an element of the atmosphere of spaces in order to improve the aesthetic quality of these spaces (art in the environment). We intend to review the evidence about the possibility of improving the experience of children and their families in the hospital through the presence of visual works of art. We

want to know whether this presence of physical artwork can lead to a more positive engagement

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of the patient or hospitalized child with the space. But, we also want to know what evidence there is about the visual arts as a resource to occupy children's hospitalization time (the participation of hospitalized children in artistic activities). Based on the research available in the scientific literature, this review seeks to determine the extent to which the visual arts can contribute to promoting the psychological well-being of hospitalized children and adolescents in the two senses that we have mentioned, art in the environment and participation of hospitalized children in artistic activities.

Visual arts, particularly painting, have historically played an important role in the design and atmosphere of healthcare spaces, especially hospitals. Large hospital institutions had collections of works of art, usually religious themes, that were used to set the mood of their spaces and to try to provide comfort and spiritual support to people suffering from health-related problems (Cork, 2012; Gates, 2008). The shift to a biohealth model of healthcare not only changed medical practices but also the symbolic aspects of health institutions. Religious images that had set the scene in hospitals lost ground to other symbols that referred to a new concept of health and care. Since the early 20th century, hospital environments have been designed to convey an idea of asepsis, hygiene, and health technology. Some of the symbols of this new culture of healthcare, however, ended up becoming frightening elements for pediatric patients. Observation of children's reactions to symbolic elements of the hospital environment, both negative reactions of fear or rejection and positive ones, has led to new approaches in this regard. The setting of pediatric hospitals is not considered a superficial aspect of their design but a dimension (Belver & Ullán, 2010) that can positively affect the psychological state of the patients, distracting them, encouraging them, and improving their mood.

Visual arts, particularly painting, have historically played an important role in the design and atmosphere of healthcare spaces, especially hospitals.

The consideration of the symbolic dimensions of healthcare institutions, particularly the

symbolic dimensions of hospital spaces, can provide a perspective that contributes to the processes of their improvement. In this sense, a review of the evidence available in the scientific literature is needed, which can support the use of visual arts to improve hospitals and the care provided to patients. Art, as a vehicle of social meanings and a means to express emotional experiences associated with health and disease, becomes a protagonist in the health sphere (Camic, 2008; Stuckey & Nobel, 2010). The joint work of artists, clinical staff, and patients and their families has led to innovating experiences that link art and health. This multidisciplinary collaboration allows diverse specialists to exchange perspectives, with the common goal of promoting children's and adolescents' well-being in healthcare settings. In these experiences, artistic resources have been established as essential elements to humanize children's healthcare settings (Belver, 2019). These resources are conceived as a privileged strategy to promote a culture of healthcare for pediatric patients, which pays special attention to the emotional needs of the children and their families during the processes of disease and healing. Visual arts have become a potential resource for improving hospitals (Lankston et al., 2010). Two papers (Archibald et al., 2014; Norton-Westwood, 2012) reviewed research related to the subject. The analysis of Norton-Westwood (2012) considered 20 papers, published between 1980 and 2010, that sought to assess the ability of the healthcare environment to affect the level of anxiety of pediatric patients. According to this author, there was a link between the design of the health environment and the anxiety experienced by pediatric patients. The importance of attractive, well-designed environments was highlighted because they help children and adolescents psychologically. Archibald et al. (2014) conducted a scoping review to examine the use of visual arts in health contexts. His goal was to identify and categorize visual arts uses in pediatric populations, identify gaps in the current use of art in these populations, and identify results in the use of art in pediatric populations for children, professions, and families. In this review, the authors considered 16 studies published between 2001

Table 1. Databases Consulted, Search Criteria, and Recovered Works.

Databases Consulted	Search Criteria Used	Number of Works Recovered	Number of Works Considered Potentially Relevant After Examining Title and Abstract
PsycINFO, CINAHL, ERIC, and MEDLINE	In Subject Terms: art, hospital, children or adolescent or youth or child or teenager	163	85
Scopus	In key: art, hospital, children or adolescent or youth or teenager	315	65
Web of Science	In topic: hospital, children or adolescents or teenagers or youth; refined by research area: psychology	510	64

and 2011, of which 11 had been developed in a hospital. The purpose of artistic interventions was either to foster children's understanding, using the visual arts to evaluate them or communicate with them, or to improve or reduce aspects like coping or anxiety. In general, there were no details in the studies on artistic interventions. The purpose of these interventions was either to foster children's understanding, using the visual arts to evaluate them or communicate with them, or to improve or reduce aspects such as coping or anxiety. The results of these interventions referred mostly to anxiety, fear, and stress.

The time interval since the completion of these two mentioned reviews and the need to deepen the analysis of the role of the visual arts in pediatric hospitals justify this work. Its purpose is to collect and review the international publications dealing with this issue related with visual arts in children's hospitals so that we can have an idea of the available evidence about the role of the visual arts in the care of hospitalized pediatric patients.

Search Strategy

The search strategy for identifying published studies on the use of visual arts in pediatric hospitals was developed as follows. A search was carried out in the databases on June 2020 in PsycINFO, MEDLINE, CINAHL, ERIC, Scopus, and Web of Science. In the first, four databases (PsycINFO, MEDLINE, CINAHL, ERIC) were searched for indexed articles that included "art," "hospital," and "children or adolescent" or "youth" or "child" or "teenager" in the Subject

Terms field. We recovered 163 works with these criteria in these databases. The Scopus database was also reviewed, using the same search criteria and recovering 315 documents. In the database of the Web of Science, using as search criteria the topic art, and hospital and children or adolescent or teenagers or youth, and refining the results by topic "Psychol," we located 510 works (see Table 1). Fifty-nine references were also identified after consulting various bibliographic repertoires. In total (see Figure 1), 886 works were identified. Once the duplicates were removed (185), 701 were evaluated by title and abstract, of which 181 were considered potentially relevant. Of these 181 references, the full text of 119 was located, but 62 could not be located in full text. We reviewed these 119 works, and we consider it relevant to include 79 in the study. Forty works of those located in full text were excluded from the review for the following reasons: the reference population was not children or adolescents (11), they did not address aspects related to the visual arts (three), there were problems with the language (four: one in Italian, two in Portuguese, and one in French), they dealt with art history (three), the context did not refer to hospitals (five), and they had been published before 2000 (14).

Extracting Data From the Works Included in the Review

The following information was collected from each of the 79 works included in the review: (a) their complete bibliographic data, which were

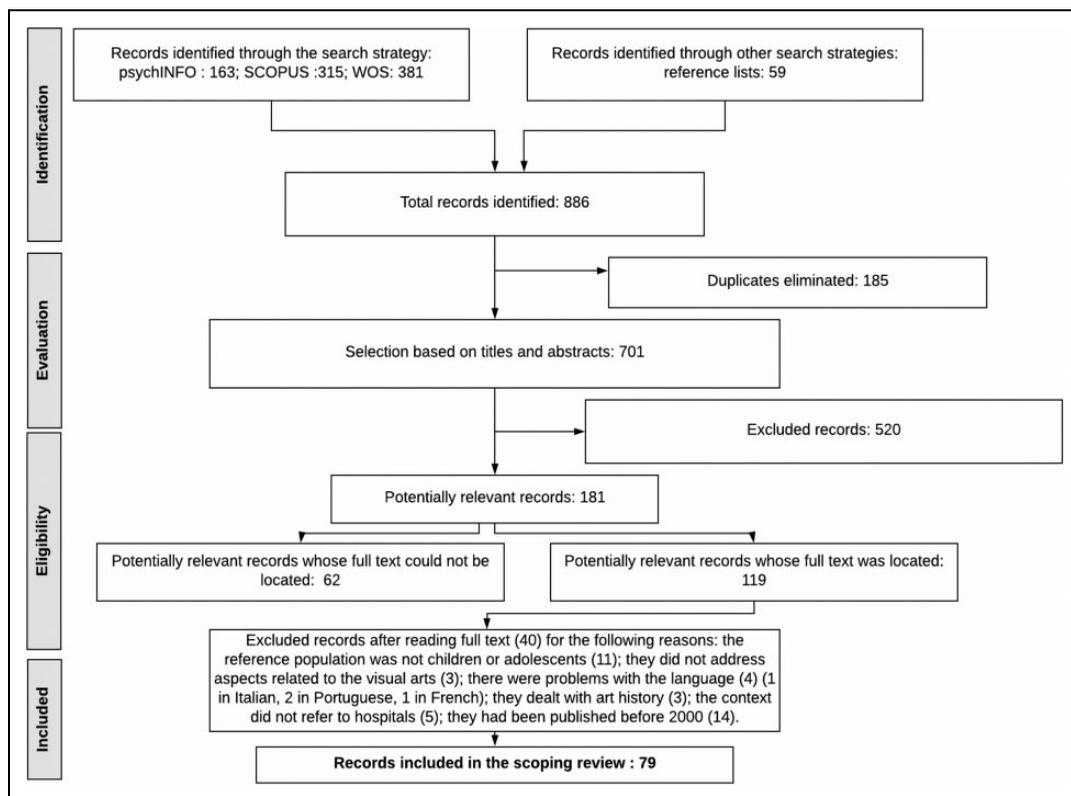


Figure 1. Process of identifying and selecting the works included in the review.

incorporated into the Zotero bibliography manager, (b) whether the visual arts were considered as part of the hospital environment or as a type of activity involving patients and/or their families, and (c) whether the type of work was empirical or, on the contrary, it was a reflection, a theoretical model, or a commentary. In the case of empirical studies, the following aspects were taken into account: (a) its purpose, (b) its approach (quantitative, qualitative, or mixed), (c) its typology (analytical/descriptive, cross-sectional/longitudinal, experimental/observational, and prospective/retrospective), (d) its design, (e) the data assessment and analysis procedure, (f) sample characteristics (size, age, gender), (g) its results and conclusions, and, finally, (h) whether or not the publication included graphic information. In the case of reflections, theoretical models, or comments, the information that was extracted from them mentioned: (a) their general or specific nature, (b) the context to which they referred,

(c) their proposals and conclusions, and (d) whether they included graphic information.

Results

Countries Where the Works Were Carried Out

The available data showed the country where the investigations had been carried out or where the lead author of the article practiced professionally. The results can be seen in Figure 2. We note that the United States is by far the leading country in the published works in this field, followed by Australia and the United Kingdom.

Temporal Pattern of the Publications

The temporal distribution of the publications can be seen in Figure 3, which shows the number of works included in the review according to their year of publication. It shows sustained growth

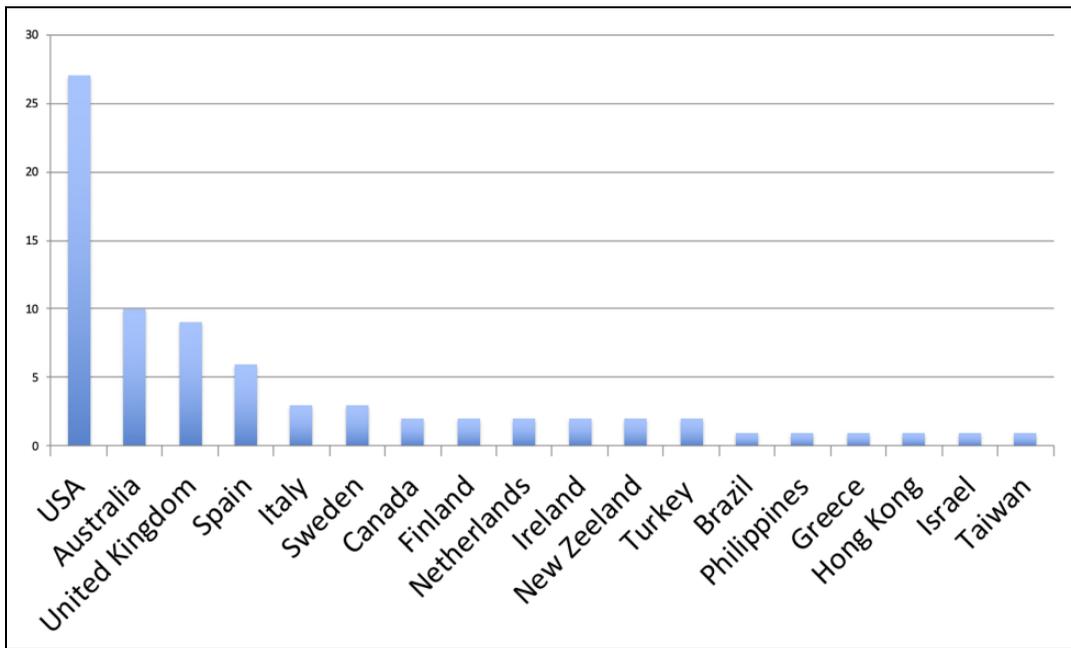


Figure 2. Distribution by country of the number of publications included in the review.

over the past 2 decades of the frequency of publications on the subject of visual arts in hospitals.

It shows sustained growth over the past 2 decades of the frequency of publications on the subject of visual arts in hospitals.

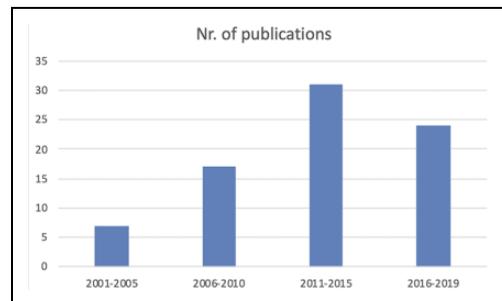


Figure 3. Number of works included in the review according to their publication date.

Consideration of the Visual Arts in the Works Included in the Review

In each of the reviewed works, we considered whether the visual arts in pediatric hospitals were understood as part of the hospital environment or as a resource for the children to occupy their hospitalization time (participation of children in artistic activities). The first perspective is called passive and the second one participatory. Of the 79 reviewed works, 28 correspond to the first perspective because they treat the visual arts as part of the environment, and 46 correspond to the second, that is, art as a resource for the children to occupy their hospitalization time. Five works were considered to fit in both perspectives.

Distribution of Reviewed Articles in Empirical Works Versus Works About Theoretical Models/Reflections or Comments

Of the 79 works incorporated into the review, 60 were empirical, and the rest, 19, were theoretical models, reflections, or comments on experiences related to the use of visual arts in pediatric hospitals. Tables 2, 3, and 4 present information extracted from the reviewed empirical work. The complete information on each of these works can be found in Supplemental Table S1 Full information About Reviewed Empirical Works. Table 5

Table 2. Selected Information About Reviewed Empirical Works Published Between 2015 and 2019.

Nr.	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Purpose of the Work	Work Approach	Work Typology
1	Wyder (2019)	United Kingdom	The House as Symbolic Representation of the Self: Drawings and Paintings From an Art Therapy Fieldwork Study of a Closed Inpatient Adolescents' Focus Group on Pediatric Patients	Active	Investigate whether the home, as a representation, could be used as a metaphor for the self in art therapy treatments with adolescent populations	Mixed	Descriptive, cross-sectional, observational, and prospective
2	Pearson et al. (2019)	United States	The Physiological Impact of Window Murals on Pediatric Patients	Passive	Compare physiological measurements of hospitalized children admitted to two types of rooms: standard or with murals on the windows, representing a tree or an aquarium	Quantitative	Analytical, cross-sectional, experimental, and retrospective
3	F. Nielsen et al. (2019)	Australia	Evaluating the Use of Responsive Art Therapy in an Inpatient Child and Adolescent Mental Health Services Unit	Active	Describe the use of sensitive therapy art in a mental health unit for hospitalized children and adolescents	Mixed	Descriptive, cross-sectional, observational, and prospective
4	Manlapaz (2019)	Philippines	Clay Handbuilding Among Children With Spinal Cord Injuries: Towards Educational Protocol Development	Active	To better understand the experience of children with spinal injuries	Qualitative	Descriptive, cross-sectional, observational, and prospective
5	Clark et al. (2019)	United States	Children's Drawings With Narratives in the Hospital Setting: Insights Into the Patient Experience	Active	Explore the experience of pediatric patients admitted to ICUs and their perceptions through their drawings and narratives	Mixed	Descriptive, cross-sectional, observational, and prospective
6	Wajcman (2018)	United States	Developing an Art Therapy Program in a Children's Hospital	Active	Describe the experience of launching an art therapy program for children in a hospital	Qualitative	Descriptive, cross-sectional, observational, and prospective
7	Linder et al. (2018)	—	Symptoms and Self-Management Strategies Identified by School-Age Children With Cancer Using Draw-and-Tell Interviews	Active	Exploring how schoolchildren with cancer represent their symptoms and associated characteristics through interviews and drawings	Mixed	Descriptive, cross-sectional, observational, and prospective
8	Ciucci & Heffner-Solimeo (2018)	United States	The Next Chapter: Altered Bookmaking Art Therapy for Caregivers in Pediatric Oncology/Bone Marrow Transplant	United States	The Next Chapter: Altered Bookmaking Art Therapy for Caregivers in Pediatric Oncology/Bone Marrow Transplant	Active	Descriptive, cross-sectional, observational, and prospective
9	Cartland et al. (2018)	United States	The Role of Hospital Design in Reducing Anxiety for Pediatric Patients	Passive	Discuss an artistic work experience involving parents and caregivers of children hospitalized for cancer treatment	Qualitative	Descriptive, cross-sectional, observational, and prospective
10	Calbayram et al. (2018)	Turkey	Investigating Children's Perception of Nurses Through Their Drawings	Active	Explore the relationship between hospital design and children's anxiety levels	Mixed with quantitative comparative surveys and qualitative interviews over the phone	Analytical, cross-sectional, experimental, and prospective

(continued)

Table 2. (continued)

Nr.	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Purpose of the Work	Work Approach	Work Typology
11	Barrera et al. (2018)	Canada	"It's Just for Us!" Perceived Benefits of Participation in a Group Intervention for Siblings of Children With Cancer	Active	Investigate the results of group interventions for siblings of children with cancer from the perspective of the participants (siblings) and their caregivers	Qualitative	Descriptive, cross-sectional, observational, and prospective
12	Water et al. (2017)	New Zealand	Participatory Art-Based Research With Children to Gain Their Perspectives on Designing Healthcare Environments	Active	Knowing the perception of children in the hospital environment and their assessment of it	Qualitative	Descriptive, cross-sectional, observational, and prospective
13	Kometiani (2017)	United States	Creating a Vital Healing Community: A Pilot Study of an Art Therapy Employee Support Group at a Pediatric Hospital	Active	Interview health workers at a pediatric hospital participating in an art therapy program and rate their sense of well-being in their workplace	Mixed	Descriptive, cross-sectional, observational, and prospective
14	Hanson et al. (2017)	United States	The Feasibility of Utilizing a Comic for Education in the Emergency Department Setting	Passive + active	Assess the effectiveness of using a comic format to instruct children and their parents when the children are discharged from an emergency department	Quantitative	Descriptive, cross-sectional, observational, and retrospective
15	Dionigi & Gremigni (2017)	Italy	A Combined Intervention of Art Therapy and Clown Visits to Reduce Preoperative Anxiety in Children	Active	Determining whether a combined intervention of art therapy and clown visits would improve the effectiveness of oral medication to reduce children's anxiety about separation from their parents prior to the induction of anesthesia	Mixed	Analytical, cross-sectional, experimental, and prospective
16	Burns-Nader (2017)	United States	Examining Children's Healthcare Experiences through Drawings	Active	Assess the anxiety of children who were hospitalized or who were in a medical consultation without being hospitalized through The Child Drawing: Hospital (Clatworthy et al., 1999)	Quantitative	Analytical, cross-sectional, observational, and prospective
17	Bretler et al. (2017)	Israel	Parents Reported Higher Satisfaction Rates When Children Recognized Hospital Staff From Photographs Placed in Prominent Locations	Passive	Know the effect of an environmental intervention in the hospital consisting of placing photographs of the health workers who cared for the children with their name and professional role	Quantitative	Descriptive, cross-sectional, observational, and prospective
18	Altay et al. (2017)	Turkey	The Effect of Drawing and Writing Technique on the Anxiety Level of Children Undergoing Cancer Treatment	Active	Determine the effect of a drawing and writing technique on the anxiety level of children in cancer treatment	Quantitative	Analytical, cross-sectional, experimental, and prospective
19	Sposito et al. (2016)	Brazil	Puppets as a Strategy for Communication With Brazilian Children With Cancer	Active	Describe the technique of making and using finger puppets as an auxiliary communication tool for hospitalized children with cancer	Qualitative	Descriptive, cross-sectional, observational, and prospective

(continued)

Table 2. (continued)

Nr.	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Purpose of the Work	Work Approach	Work Typology
20	Siegel et al. (2016)	United States	Expressive Arts Therapy With Hospitalized Children: A Pilot Study of Co-Creating Healing Sock Creatures [©]	Active	Evaluate the effect of expressive artistic therapy of doll creation aimed at reducing children's stress during hospitalization	Mixed	Analytical, cross-sectional, experimental, and prospective
21	Ho et al. (2015)	Hong Kong	Art Viewing Directives in Hospital Settings: Effect on Mood	Passive	Determine the effect of the guidelines provided to the viewer of a work of art in a hospital	Mixed	Analytical, cross-sectional, experimental, and prospective
22	George & Kasinathan (2015)	Australia	Mural Art Therapy for Young Offenders Hospitalized With a Mental Illness	Active + Passive	Assess the possibility of young offenders with psychiatric problems taking part in the creation of a mural in the detention center	Qualitative	Descriptive, cross-sectional, observational, and prospective

Note: ICU = intensive care unit.

Table 3. Selected Information About Reviewed Empirical Works Published Between 2010 and 2014.

Nr.	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Purpose of the Work	Work Approach	Work Typology
1	Lambert et al. (2014a)	Ireland	Social Spaces for Young Children in Hospital	Active	Investigate children's perspective of social spaces in the hospital to take this into account in the design of the built environment of a new pediatric hospital. In this context, social spaces and the children's opportunities to interact with family members, friends, and others while in the hospital are the built environment.	Qualitative	Descriptive, cross-sectional, observational, and prospective
2	Lambert et al. (2014b)	Ireland	Young Children's Perspectives of Ideal Physical Design Features for Hospital-Built Environments	Active	Present the physical and design characteristics of an ideal hospital, according to the children.	Qualitative	Descriptive, cross-sectional, observational, and prospective
3	Burns-Nader et al. (2014)	United States	The Relationship Between Mothers' Coping Patterns and Children's Anxiety About Their Hospitalization as Reflected in Drawings	Active	Assess the relationship between parents' satisfaction with children's hospitalization experience, the use of parents' coping strategies, and the level of anxiety of the children, assessed through their drawings.	Quantitative	Descriptive, cross-sectional, observational, and prospective
4	Archibald (2014)	Canada	Mapping the Waters: A Scoping Review of the Use of Visual Arts in Pediatric Populations With Health Conditions	Active + passive	Identify and categorize visual arts uses in pediatric populations, identify gaps in the current use of art in these populations, and identify results in the use of art in pediatric populations for children, professions, and families.	Mixed	Scoping review of works on visual arts use in pediatric populations
5	Yount et al. (2013)	United States	Expressive Arts Therapy for Hospitalized Children: A Pilot Study Measuring Cortisol Levels	Active	Considers the use of physiological evidence of stress reduction in hospitalized children after expressive arts therapy.	Quantitative	Analytical, cross-sectional, experimental, and prospective
6	Wennström et al. (2013)	Sweden	Child Drawings and Salivary Cortisol in Children Undergoing Preoperative Procedures Associated With Day Surgery	Active	Determines the children's degree of anxiety and stress before surgery and explores the association between objective stress measures (concentration of cortisol in saliva) and subjective measures of anxiety, such as children's drawings as interpreted in the Swedish version of the Child Drawing: Hospital Manual.	Quantitative	Descriptive, cross-sectional, observational, and prospective
7	Park & Park (2013)	United States	Color Perception in Pediatric Patient Room Design: American Versus Korean Pediatric Patients	Passive	Investigates cultural differences in environmental color preferences between American and Korean pediatric patients, identifies these preferences, and examines gender differences in color perception.	Quantitative	Descriptive, cross-sectional, observational, and prospective

(continued)

Table 3. (continued)

Nr.	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Purpose of the Work	Work Approach	Work Typology
8	Mouradian et al. (2013)	United States	Art-Based Occupation Group Reduces Parent Anxiety in the Neonatal Intensive Care Unit: A Mixed-Methods Study	Active	Examines whether participation in art activities to create a group of cutouts in a neonatal intensive care unit could reduce parental stress and, secondarily, explores the parents' experience in this situation.	Mixed	Analytical, cross-sectional, experimental, and prospective
9	Esseveld et al. (2013)	Netherlands	Drawings During Neuropsychiatric Recovery From Anti-NMDA Receptor Encephalitis	Active	Describes a series of drawings by a 15-year-old girl during an episode of neuropsychiatric disease.	Qualitative	Descriptive, longitudinal, observational, and prospective
10	Corsano et al. (2013)	Italy	Hospitalized Children's Representations of Their Relationship With Nurses And Doctors	Active	Investigates, through the analysis of drawings of hospitalized children, their perception of their relationship with the health workers who care for them.	Mixed	Descriptive, cross-sectional, observational, and prospective
11	Tijam et al. (2012)	Netherlands	An Educational Cartoon Accelerates Amblyopia Therapy And Improves Compliance, Especially Among Children of Immigrants	Active	Determining the effect of a comic on monitoring the treatment of children with amblyopia.	Quantitative	Analytical, longitudinal, experimental, and prospective
12	Norton-Westwood (2012)	Australia	The Health-Care Environment Through the Eyes of a Child—Does it Soothe or Provoke Anxiety?	Passive	Review works that sought to assess the ability of the healthcare environment to affect the anxiety level of pediatric patients. The review focused on the following key aspects: positive distractions, elimination of environmental stressors, access to social support, and connection with nature.	Mixed	Systematic review of published articles on the subject of interest, that is, the impact of healthcare settings on pediatric patients' anxiety
13	Downey & Zun (2012)	United States	The Impact of Watching Cartoons for Distraction During Painful Procedures in the Emergency Department	Passive	Determining whether watching cartoons in an acute care unit reduces the perception of pediatric patients' pain.	Quantitative	Analytical, cross-sectional, experimental, and prospective

(continued)

Table 3. (continued)

Nr.	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Purpose of the Work	Work Approach	Work Typology
14	Crawford et al. (2012)	New Zealand	Does Children's Color Use Reflect the Emotional Content of Their Drawings?	Active	The overall purpose of the work was to evaluate the relationship between the children's choice of color in their drawings and the drawings' emotional content. Specifically, it replicated previous findings, examining the relationship between children's color preferences and their use of colors in drawing tasks similar to those used in clinical contexts in which children are asked to draw self-nominated personal experiences that were associated with positive and negative emotions. The relationship between color preferences and color use was examined in a sample of children who had experienced clinical levels of distress due to hospitalization. These children were asked to draw positive and negative experiences that were associated with being in the hospital. Understanding what constitutes a pediatric supportive environment from the perspective of children and young people, describing the role of the physical environment in children's feelings of well-being, and illustrating the value of participatory research in health design.	Quantitative	Analytical, cross-sectional, experimental, and prospective
15	Bishop (2012)	Australia	The Role of Art in a Paediatric Healthcare Environment From Children's and Young People's Perspectives	Passive	Testing the psychometric properties of the Swedish version of the Child Drawing test: Hospital Manual.	Qualitative	Descriptive, cross-sectional, observational, and prospective
16	Wennström et al. (2011)	Sweden	Evaluation of the Swedish Version of the Child Drawing: Hospital Manual	Active	Describe and analyze an experience of humanization through artistic interventions of a pediatric hospital space.	Quantitative	Descriptive, cross-sectional, observational, and prospective
17	Ullán et al. (2011)	Spain	Humanization Through the Art of Environment of Children's Emergency in a Hospital	Active	Study the appropriateness of the results and possible applications of workshops on creating video games with hospitalized children and adolescents.	Qualitative	Descriptive, cross-sectional, observational, and prospective
18	Perandones (2011)	Spain	Hospitalized Minors: Workshop "Adventure in the Hospital"	Active		Qualitative	Descriptive, cross-sectional, observational, and prospective

(continued)

Table 3. (continued)

Nr.	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work			Purpose of the Work	Work Approach	Work Typology
				Influence of Positive Distractions on Children in Two Clinic Waiting Areas	Passive	Active			
19	Pati & Nanda (2011)	United States	Influence of Positive Distractions on Children in Two Clinic Waiting Areas	Passive		Determine whether the integration of positive distractions in the design of healthcare environments, specifically in waiting rooms, could improve the experience of the patients and their family members.	Quantitative	Analytical, cross-sectional, experimental, and prospective	
20	Ford (2011)	Australia	"I Didn't Really Like It, But It Sounded Exciting"; Admission to Hospital for Surgery From the Perspectives of Children	Active		Improve the understanding of children's experience when they need to be hospitalized for surgery.	Qualitative	Descriptive, cross-sectional, observational, and prospective	
21	Belver & Ullán (2011)	Spain	Art in a Spanish Children's Hospital	Passive		Present and discuss a humanization case study through art in a hospital space.	Qualitative	Descriptive, cross-sectional, observational, and prospective	
22	Ante et al. (2011)	Spain	A Bit More Color: Hospital Room Therapy	Active		Place contemporary artistic manifestations at the service of hospitalized children and their families.	Qualitative	Descriptive, cross-sectional, observational, and prospective	

Table 4. Selected Information About Reviewed Empirical Works Published Between 2000 and 2009.

Nr.	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Purpose of the Work	Work Approach	Work Typology
1	Park (2009)	United States	Color Perception in Pediatric Patient Room Design: Healthy Children vs. Pediatric Patients	Passive	Investigate preferences of the color of pediatric patients' room walls and compare them to healthy children's preferences	Quantitative	Descriptive, cross-sectional, observational, and prospective
2	Nanda et al. (2009)	United States	Pediatric Art Preferences: Countering the "One-Size-Fits-All" Approach	Passive	Determine pediatric patients' preferences through an art survey and whether the preferences vary based on age and stage of development, assess whether pediatric patients of different age groups have similar artistic preferences, and determine whether style or content influence pediatric artistic preferences	Mixed	Descriptive, cross-sectional, observational, and prospective
3	Jordens et al. (2009)	Australia	Decoration or Communication? A Qualitative Study of Images Displayed Around the Bed-sides of Hospitalized Children	Active (first) + passive	Describe the photographs that hospitalized children and adolescents placed around their bed and understand how and why patients are aesthetically involved in the hospital environment	Qualitative	Descriptive, cross-sectional, observational, and prospective
4	Brady (2009)	United Kingdom	Hospitalized Children's Views of the Good Nurse	Active	Explore children's perspective of a good nurse in the hospital	Qualitative	Descriptive, cross-sectional, observational, and prospective
5	Stefanatou (2008)	Greece	Use of Drawings in Children With Pervasive Developmental Disorder During Hospitalization: A Developmental Perspective	Active	Explore the level and nature of the emotional experience of hospitalized children diagnosed with generalized developmental disorder by asking them to draw a person in a hospital and evaluating their drawings	Mixed	Descriptive, cross-sectional, observational, and prospective
6	Eisen et al. (2008)	United States	The Stress-Reducing Effects of Art in Pediatric Healthcare: Art Preferences of Healthy Children and Hospitalized Children	Passive	Investigate what kind of artistic images children prefer and what kind of images have potentially stress-reducing effects on hospitalized children	Mixed	Analytical, cross-sectional, experimental, and prospective
7	Coad & Coad (2008)	United Kingdom	Children and Young People's Preference of Thematic Design and Color for Their Hospital Environment	Passive	Explore children's and young people's view of the thematic design and color preferences for their new hospital unit	Mixed	Descriptive, cross-sectional, observational, and prospective
8	Pelander et al. (2007)	Finland	Children in the Hospital: Elements of Quality in Drawings	Active	Describe the quality elements of an ideal hospital from children's perspective by analyzing their drawings	Qualitative	Descriptive, cross-sectional, observational, and prospective
9	Birch et al. (2007)	—	Sense and Sensibilities: In Search of the Child-Friendly Hospital	Passive	Explore the viewpoint of children and young people about the physical environment of the hospital	Qualitative	Descriptive, cross-sectional, observational, and prospective
10	Massimo & Zarri (2006)	Italy	In Tribute to Luigi Castagnetta—Drawings: A Narrative Approach for Children With Cancer	Active	Collect and evaluate drawings of children affected by serious diseases, particularly cancer, so that the cultural, intellectual, and emotional status of each child can be assessed through these means	Qualitative	Descriptive, longitudinal, observational, and prospective

(continued)

Table 4. (continued)

Authors Nr. (Year)	Country	Title	Consideration of the Visual Arts in the Work	Purpose of the Work	Work Approach	Work Typology
11 Wikström (2005)	Sweden	Communicating via Expressive Arts: The Natural Medium of Self-Expression for Hospitalized Children	Active	Investigate what occurs during play therapy when children are given the opportunity to use expressive arts such as modeling, painting, or textile art and the meanings children assign to artistic objects	Qualitative	Descriptive, longitudinal, observational, and prospective
12 Smith & Gallery (2005)	United Kingdom	Children's Accounts of Their Preoperative Information Needs	Active	Explore the information needs of children between ages 7 and 11 related to their admission to the hospital for surgery	Qualitative	Descriptive, cross-sectional, observational, and prospective
13 Puura et al. (2005)	Finland	Children's Drawings as a Measure of Anxiety Level: A Clinical Pilot Study	Active	Detect children's preoperative anxiety level through their drawings	Quantitative	Descriptive, cross-sectional, observational, prospective
14 Driessnack (2005)	United States	Children's Drawings as Facilitators of Communication: A Meta-Analysis	Active	Conduct a meta-analysis of the effect of offering the child the opportunity to draw as part of an interview process and determine whether there is sufficient evidence to include drawing in clinical and research protocols and use it as a method to facilitate communication with the children	Quantitative	Review (meta-analysis)
15 Wallace et al. (2004)	United States	The Use of Art Therapy to Detect Depression and Post-Traumatic Stress Disorder in Pediatric and Young Adult Renal Transplant Recipients	Active	Determine the prevalence of depression and emotional trauma in children and young people undergoing kidney transplant and evaluate the usefulness of a specific scale of art elements therapy to evaluate these patients	Quantitative	Analytical, cross-sectional, observational, and retrospective
16 Chapman et al. (2001)	United States	The Effectiveness of Art Therapy Interventions in Reducing Post-Traumatic Stress Disorder (PTSD) Symptoms in Pediatric Trauma Patients	Active	Describe the effect on post-traumatic stress disorders of an art therapy project carried out in a trauma center in a hospital	Quantitative	Analytical, longitudinal, experimental, and prospective

presents information extracted from theoretical models, comments, or reflections.

If we consider the empirical, theoretical, or reflectional nature of the works conjointly and, at the same time, the way they consider the visual arts, whether as part of the environment (passive perspective) or as a resource for the occupation of children's hospitalization time (participatory perspective), an interesting pattern is observed in the results. In the empirical works ($n = 60$), 41 (68% of the total) visual arts are considered from a participatory perspective, as a resource for the occupation of children's hospitalization time. Compared to them, 15 (25% of the total) consider them from a passive perspective, as part of the environment. Four (7%) could be considered mixed, as they share both perspectives. In the case of the theoretical models, reflections, or comments on experiences, the proportions are practically reversed. Five of them (26% of the total) consider visual arts in the hospital from a participatory perspective, whereas 11 (58% of the total) consider them as part of the environment, which we have called passive perspective. Three (19% of the total) represent both perspectives. The visual arts as part of the environment are more theorized and reflected on, but empirical publications are more inclined to consider artistic activities as part of the proposals for the recreation of inpatient pediatric patients.

On Empirical Works

The 60 empirical studies included in the review were classified according to their methodological approach (quantitative, qualitative, or mixed) with the following results. Twenty-four use a qualitative methodology, 19 a quantitative methodology, and 17 a mixed methodological approach. These studies were also classified according to the following criteria: their purpose, differentiating between analytical and descriptive; their temporal sequence, distinguishing between cross-sectional and longitudinal; control in the allocation of study factors, distinguishing between experimental and observational; and according to the beginning of the study concerning the chronology of the facts, differentiating prospective and retrospective. The distribution

of the empirical works included in the review according to these four criteria is as follows: 16 analytical and 41 descriptive, 52 cross-sectional and five longitudinal, 14 experimental and 43 observational, and finally, 54 prospective and three retrospective. It can be seen that descriptive versus analytical, cross-sectional versus longitudinal, observational versus experimental, and prospective versus retrospective works predominate. To these works, we should add three more, which are reviews (Archibald et al., 2014; Driessnack, 2005; Norton-Westwood, 2012).

Although sometimes the authors do not specify the sample sizes of the study, in general, they do so, and the sizes are very varied and range from single case studies ($n = 1$; Esseveld et al., 2013) to samples of more than 200 subjects (Birch et al., 2007; Coad & Coad, 2008; Tjiam et al., 2012). The characteristics of the samples of all the works, including their size, have been summarized in the Supplemental Table S1 "Full information About Reviewed Empirical Works."

With regard to the purpose of the empirical works included in the review, Tables 2, 3, and 4 include the purpose in each study, as stated by the authors. Their analysis allows us to differentiate four groups of works: the first one, which we might call "environmental," includes empirical works whose purpose is to know how visual artistic interventions in the hospital can affect the people who see them, mainly pediatric patients, but also their families and health workers. In this block are the following works: Belver and Ullán (2011), Bretler et al. (2017), Cartland et al. (2018), Ciucci and Heffner-Solimeo (2018), Ho et al. (2015), Pati and Nanda (2011), Pearson et al. (2019), and Ullán et al. (2011). The results of these studies indicated that visual artistic interventions (mainly paintings and drawings but also photographs, murals, or comics) could have a positive impact on some physiological results (Pearson et al., 2019), the level of anxiety experienced (Cartland et al., 2018; Pati & Nanda, 2011), and the parents' satisfaction (Belver & Ullán, 2011; Bretler et al., 2017; Ullán et al., 2011). Adding explanations to the works of art exhibited in the hospital (Ho et al., 2015) can increase their therapeutic effect. Art physically present in the hospital space improves the patient's experience.

Table 5. Information Extracted from the Theoretical Works, Reflections, and Commentaries Included in the Review.

Nr	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Nature of the Model	Model Context	Proposal and/or Conclusions for Theoretical Models	Is Graphic Information Included?
1	Morgan (2018)	—	Putting the Child Into the Children's Hospital	Passive	General	The role of art in pediatric hospitals and its evolution over time.	The need to work together from an artistic and a scientific perspective.	Yes
2	McLaughlan & Pert (2018)	Australia	Evidence and Speculation: Reimagining Approaches to Architecture and Research Within the Paediatric Hospital	Passive	General	Designs of hospital spaces for children that are alternative to the evidence-based design model.	A working model is proposed of alternative, imaginative designs and not limited by the conditions imposed by the effective practice of the actual construction of hospital spaces.	Yes
3	Samarasekera (2017)	—	The Healing Power of Art	Active + passive	General	The article is a presentation of four drawings of children hospitalized at the Boston Children's Hospital to be used as illustrations of four issue covers of the journal <i>The Lancet Child and Adolescent Health</i> .	A reflection is made on the role that art can play in promoting the well-being of children in hospitals.	Yes
4	Rubio Arauna Studio & Rai Pinto Studio (2017)	Spain	Ambientación de espacios en el Hospital de Sant Joan de Deu [Environmental design in Sant Joan de Deu Hospital]. Barcelona, Spain [2012-2017]	Passive	General	The general approaches to graphic design applied to the Sant Joan de Déu pediatric hospital in Barcelona are described.	The name "the animals' hideout" describes the graphic interventions carried out in the hospital, its logic, and its objectives.	Yes
5	Talking Point: Decor Designed to Calm Younger Patients (2015).	United Kingdom	Talking Point: Decor Designed to Calm Younger Patients	Passive	General	Reflection on experiences of improving pediatric hospitalization environments through artistic resources.	Brief commentary on the importance of the infantile setting in the hospital, pointing out how it contributes to improving the work of the health staff by facilitating communication with patients.	Yes
6	Artwork and Splash of Color Transform Wards (2015)	United Kingdom	Artwork and Splash of Color Transform Wards	Passive	General	Reflection on the experience of using artistic resources to improve a pediatric hospital.	Brief commentary on the importance of infantile settings in the hospital, pointing out how it contributes to improving children's moods.	Yes
7	Artiah (2013)	United States	A Piece of My Mind: Treat Me Like a Child	Passive	General	Reflection on the importance of the quality of the environment in the experience of hospital patients.	It is suggested to use the experiences of children's hospitals much more sensitive than adult hospitals to the impact that the environment can have on patients' quality of life and well-being.	No

(continued)

Table 5. (continued)

Nr	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Nature of the Model	Model Context	Proposal and/or Conclusions for Theoretical Models	Is Graphic Information Included?
8	Ting et al. (2012)	Taiwan	Using Hospital Art in Medical Student Reflection	Passive	Specific (for medical students)	Commentary on an experience of using works of art in the context of a medical student training experience.	Proposing that students select works of art to be part of a hospital environment was an activity they enjoyed and through which they learned to be more aware of the importance of the environment and, according to the participants, improved their empathy towards hospitalized children and their families.	No
9	Isaacs (2012)	Australia	Art in Children's Hospitals	Passive + active	General	Reflection on the role of art in contemporary pediatric hospitals.	Considering art as a way to improve hospitals for children, commenting on examples of current programs in that regard.	Yes
10	Capon (2012)	Australia	Art at the Children's Hospital at Westmead	Passive	General	Reflection on the experience of creating an art collection at an Australian pediatric hospital displayed on the hospital premises.	It indicates criteria to consider in the selection of the works.	Yes
11	Rollins (2011)	United States	Arousing Curiosity: When Hospital Art Transcends	Passive	General	Analysis of the work of three artists who have worked in hospital contexts.	The works of three artists that have been created for three different hospital contexts are discussed and commented on. Several theoretical concepts and frameworks are explored to account for the effect of these works of art on the experience of patients, families, and healthcare personnel.	Yes
12	Belver & Ullán (2010)	Spain	Symbolic Environmental Mediators in Health Settings: The Role of Art in the Humanization of Children's Hospitals	Passive	General	Model analysis of child hospitalization contexts based on the symbolic dimension of these health spaces.	It was observed that the model allowed a coherent description of the actual hospitalization environments and the proposed dimensions of their improvement. The proposed model is considered to contribute to developing shared languages in the spheres of art and health.	Yes

(continued)

Table 5. (continued)

Nr	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work		Nature of the Model	Model Context	Proposal and/or Conclusions for Theoretical Models	Is Graphic Information Included?
				Passive	Active				
13	Hathorn & Nanda (2008)	United States	A Guide to Evidence-Based Art: The Center for Health Design	General	General	Using visual arts in hospitals to improve the experience of patients, their families, and health workers.	Several aspects related to the use of art in hospitals must be taken into account, such as the location of works of art so they are more effective in improving the hospital atmosphere, the needs of special patient populations, for example, pediatric patients, and the role of demographic factors (ethnicity, gender, or age). There is robust evidence and solid theoretical frameworks that explain the benefits of figurative images of nature over other more ambiguous images, but aspects such as the role of different types of abstract art, or the form and composition of these artistic creations, are not yet clear.	Yes	
14	Robinson (2007)	United Kingdom	Holistic Health Promotion: Putting the Art Into Nurse Education	Active + passive	Specific	Art training proposals for healthcare staff.	It details the organization of the course, how students come into contact with different artistic initiatives developed in hospitals, and how the students themselves evaluate the training proposal, both in relation to the contents and to the active teaching methodology.	No	
15	Coad (2007)	United Kingdom	Using Art-Based Techniques in Engaging Children and Young People in Health Care Consultations and/or Research	Active	Specific	Art-based research techniques.	Three art-based research techniques are discussed that are particularly relevant for involving children and adolescents: (a) photography; (b) drawings, posters, and collages; and (c) mapping. These techniques are discussed, and it is emphasized that their flexible use can promote the active participation of children and adolescents so that adults better understand their desires and views.	No	

(continued)

Table 5. (continued)

Nr	Authors (Year)	Country	Title	Consideration of the Visual Arts in the Work	Nature of the Model	Model Context	Proposal and/or Conclusions for Theoretical Models	Is Graphic Information Included?
16	Brown (2007)	United States	Facilitating Therapeutic Expression and Communication Through Play	Active	Specific	The importance of play, including games with creative activities, is proposed for the well-being of hospitalized children. Several cases of children in difficult situations regarding the hospital are reported.	Play, including artistic play, should be part of children's activities in hospitals.	No
17	Devlin (2006)	United Kingdom	The Art of Healing and Knowing in Cancer and Palliative Care	Active	Specific	It describes cases illustrating the value of art in palliative care to help patients, both children and adults, express conscious and unconscious feelings.	Particular emphasis is placed on the importance of the creation process, rather than the artistic skills, and the need for the environment to support the needs of participants in nondirective art sessions.	Yes
18	Council (2003)	—	Medical Art Therapy With Children	Active	General	The use of art in terms of its diagnostic and therapeutic value in the contexts of the health of children.	Artistic activities in medical contexts offer a potential for humanization of care, giving children hope and the possibility of expressing themselves and being better understood.	Yes
19	Wexler (2002)	United States	Painting Their Way Out: Profiles of Adolescent Art Practice at the Harlem Hospital Horizon Art Studio	Active	Specific	Specific.	Reflection on artistic practice in the Harlem Horizon Art Studio, which helps young people with disabilities to overcome the physical, emotional, and social obstacles they face. Emotional and physical health is promoted through art by providing opportunities for self-expression and socialization.	No

The second group of works regarding the stated purpose, which we can call “participatory,” includes studies aimed at knowing the effect of developing visual arts activities in the hospital on children and families. In this block, we consider the following: Altay et al. (2017), Ante et al. (2011), Chapman et al. (2001), Dionigi and Gremigni (2017), Downey and Zun (2012), George and Kasinathan (2015), Hanson et al. (2017), Kometiani (2017), Mouradian et al. (2013), F. Nielsen et al. (2019), Perandones (2011), Siegel et al. (2016), Sposito et al. (2016), Tjiam et al. (2012), Wajcman (2018), and Yount et al. (2013). The most prominent results of these have to do with the confirmation that participation in visual arts activities in the hospital can contribute to the reduction of anxiety in hospitalized children (but also to the reduction of parental anxiety (Altay et al., 2017; Dionigi & Gremigni, 2017; Mouradian et al., 2013; Yount et al., 2013) and better coping with stress, and they also increase the equilibrium of health workers (Kometiani, 2017). Children’s participation in visual arts activities can improve their motivation (Perandones, 2011), communication with others (Sposito et al., 2016), or mood (Siegel et al., 2016). According to hospitalized adolescents, participation in visual arts activities could help them identify and express their emotions (F. Nielsen et al., 2019). Participation in these activities has also shown effects on pain reduction (Downey & Zun, 2012), more positive acceptance of treatment (Tjiam et al., 2012), improved physiological outcomes (Siegel et al., 2016; Yount et al., 2013), and better transmission of information (Hanson et al., 2017). No significant differences in post-traumatic stress scores were found in a study between participants in artistic activities and those who received regular hospital care (Chapman et al., 2001). Other results (Wajcman, 2018) highlight the importance of training health workers in the field of visual arts. From this point of view, the visual arts can be considered a resource for occupying hospital time to distract the patients and even for pain relief.

... participation in visual arts activities in the hospital can contribute to the reduction of anxiety in hospitalized children (but also to the reduction of parental anxiety.

The third block of studies regarding the stated purpose of the studies, which we call “exploratory,” includes works whose purpose was to know more about the children’s perspective and to approach their vision of the hospital, their mood, their needs, or preferences, using their artistic expressions. This block includes Barrera et al. (2018), Birch et al. (2007), Bishop (2012), Brady (2009), Burns-Nader (2017), Calbayram et al. (2018), Clark et al. (2019), Coad and Coad (2008), Corsano et al. (2013), Eisen et al. (2008), Esseveld et al. (2013), Ford (2011), Jordens et al. (2009), Lambert et al. (2014a), Lambert et al. (2014b), Linder et al. (2018), Manlapaz (2019), Massimo and Zarri (2006), Nanda et al. (2009), Park and Park (2013), Pelander et al. (2007), Smith and Callery (2005), Stefanatou (2008), Wallace et al. (2004), and Wikström (2005), and Wyder (2019). The possibility of making children’s voices heard through artistic manifestations is a particularly relevant aspect. Children can express themselves through artistic activities (Manlapaz, 2019). It uses the technique of drawing and writing or responding to interviews in a large number of studies (Calbayram et al., 2018; Ford, 2011; Lambert et al., 2014b; Linder et al., 2018; Massimo & Zarri, 2006; Stefanatou, 2008, among others). Through this technique, they try to better understand how children experience the disease and their hospitalization and the emotional experiences associated with these circumstances (Burns-Nader, 2017; Clark et al., 2019; Smith & Callery, 2005; Wikström, 2005) and also how children perceive the health workers who care for them in the hospitals (Brady, 2009; Corsano et al., 2013). Some authors have tried to know the experience of the siblings of hospitalized children through artistic activities (Barrera et al., 2018). Pediatric patients value (Bishop, 2012) the aesthetic dimension of the hospital environment, the distraction that art can provide, and its positive effect on their mood. It is also observed that children evaluate the environment of the hospital very differently from adults’ expectations (Coad & Coad, 2008; Lambert et al., 2014b), and as we have noted, their artistic expressions allow us to approach these assessments. Differences in children’s preferences related to gender and cultural factors emerge

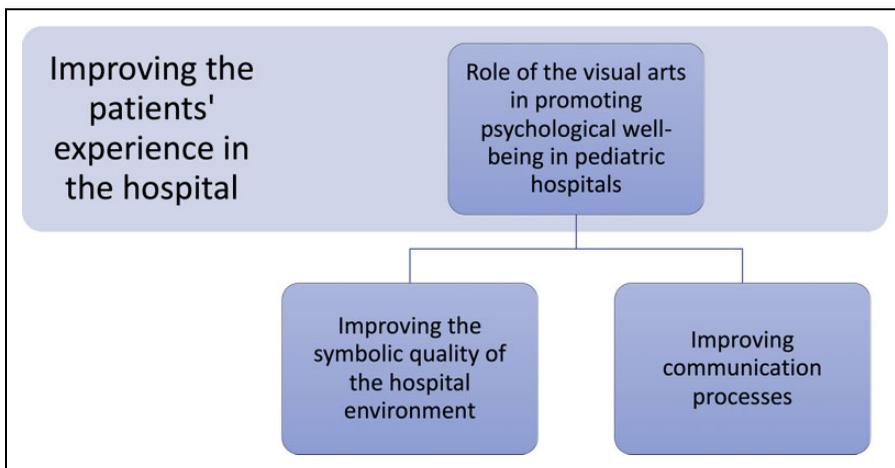


Figure 4. Contributions of the visual arts to the improvement of hospitals.

(Nanda et al., 2009; Park & Park, 2013), and we note that certain interventions by children and adolescents in the hospital setting have important functions to facilitate communication with their caregivers (Jordens et al., 2009).

Children can express themselves through artistic activities.

The fourth set of works on the stated purpose which we call “diagnostic” includes those that use children’s drawings as a tool to diagnose diverse processes related to the pediatric patients’ experience. The following are included in this group Burns-Nader (2017), Burns-Nader et al. (2014), Crawford et al. (2012), Esseveld et al. (2013), Pelander et al. (2007), Puura et al. (2005), Stefanatou (2008), and Wennström et al. (2011, 2013). Children’s drawings have also been used to better understand their experience of the hospital environment (Pelander et al., 2007; Stefanatou, 2008) and as a diagnostic test (Wennström et al., 2011). Several studies use children’s drawings as indicators of anxiety in health situations (Burns-Nader, 2017; Puura et al., 2005), and drawings have also been related to issues such as parents’ coping style (Burns-Nader et al., 2014). However, no significant correlations have been found between the characteristics of children’s drawings and physiological indicators of anxiety such as the

cortisol level in saliva (Wennström et al., 2013). Nor can the use of color (Crawford et al., 2012) be considered an emotional indicator in itself. Drawings are considered an important source of information about children that should be used in conjunction with recording children’s verbal communications and analyzing their behaviors.

Overall, the results of these four blocks of studies, summarized in Supplemental Table S1 “Full information About Reviewed Empirical Works,” highlight the importance of the visual arts for the well-being of children in hospitals. Taken together, the results of these four groups of works reinforce the idea of the significant role of the visual arts in the well-being of hospitalized children, their families, and the health workers. Participating in visual arts activities organized in the hospital, such as drawing, painting, modeling, photography, and comics workshops, and so on can make the hospitalization experience of children and adolescents more positive and increase the satisfaction of the parents with the services received. In addition, visual arts can be a source of positive distraction for the children and families in hospitals, and their presence in hospital spaces is highly valued by the different users of these spaces. The reviewed empirical works support this perspective of the visual arts as an important component to improve the quality of children’s hospitals.

On Theoretical Models, Reflections, or Comments

Nineteen of the 79 works included in this review are not empirical works but instead articles that present reflections, theoretical models, or comments. As mentioned, 14 of these works analyze the visual arts as part of the hospital environment (11 exclusively and three also concerning the artistic activities of hospitalized children). In this category of articles, it is much more common to consider art as part of the hospital environment than as activities for the occupation of children's hospitalization time, the participatory approach, in contrast to the empirical works.

Three topics emerge from the analysis of this set of documents and summarize their approach. The first refers to the need to carry out a conjoint work of artistic and scientific/health perspectives. We have grouped the following works under this heading: Belver and Ullán (2011), Capon (2012), and Morgan (2018), those that stress the importance of enhancing multidisciplinary approaches that join health perspectives and artistic perspectives in the design of healthcare spaces. The second topic refers to the description of artistic interventions or experiences in pediatric hospitals. We include the following works under this heading: Brown (2007), Capon (2012), Coad (2007), Devlin (2006), Hathorn and Nanda (2008), Isaacs (2012), Robinson (2007), Rollins (2011), Rubio Arauna Studio and Rai Pinto Studio (2017), Ting et al. (2012), and Wexler (2002). In some cases, for example (Rubio Arauna Studio & Rai Pinto Studio, 2017), the interventions and narratives that articulate them are described graphically, and in others, the description is not so detailed, but it accounts for the content of the interventions. In the third group are the works that propose models of analysis of hospitalization environments. In this block, we could consider the following: "Artwork and splash of colour transform wards," 2015, Attiah (2013), Belver and Ullán (2010), Councill (2003), Isaacs (2012), McLaughlan and Pert (2018), Morgan (2018), Samarasekera (2017), and "Talking point:

Decor designed to calm younger patients," 2015). In this block, the authors usually propose outlines to analyze the environment of the hospital, integrating the artistic aspects into this analysis, or developing proposals based on experiences. In general, they emphasize that the symbolic and aesthetic dimension of the environment of pediatric hospitals should be taken into account as one more dimension of the quality of service provided to children and their families.

Discussion and Conclusions

The objective of this work was to review scientific publications related to the use of visual arts in pediatric hospitals. From 2000 to 2019, 79 publications located in relevant databases, and manual searches were identified and analyzed. Sixty of these publications include empirical studies and 19 theoretical models, comments, or reflections on the use of art in children's hospitals.

Our review differs from the previous two mentioned (Archibald et al., 2014; Norton-Westwood, 2012) in some respects. The first, most obvious, is the time interval considered, which, in our review, goes back to 2019. The second, in our view the most relevant, is that the criteria for including studies used in our case have allowed us to select a considerably broader and more diverse sample of works, with different methodologies and even to consider publications that were not only empirical studies but also theoretical models, reflections, or comments of professionals and/or researchers. Taken together, as in the two abovementioned reviews, the works we analyzed in our study support the use of visual arts in hospitals as a resource to enhance the well-being of children and families. To sum up, we indicate two particularly relevant aspects of the role of the visual arts in the well-being of children and families in hospitals. Both can significantly affect the patient's experience in the hospital. These aspects refer to the importance of the visual arts in improving the symbolic quality of hospitalization settings and the communication processes that occur in these environments (Figure 4).

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Some authors (van den Berg & Foundation 200 years University Hospital Groningen, 2006) stress the need for a more exhaustive review of the benefits of physical settings on healthcare, which should be based on a consensus about the taxonomy of the relevant physical dimensions. Among these dimensions, it has been proposed (Belver & Ullán, 2010) to include the *symbolic dimension of space* and its impact on the psychosocial well-being of pediatric patients and their families. A new perspective would thereby be taken into account when making decisions about the design of health settings. This perspective is related to users' interpretations and meanings of these settings and the consequences of these interpretations and meanings for people's health and well-being. How the hospital is perceived by children and their families and the meaning they attribute to it can condition the effect of hospital stressors on pediatric patients' well-being. The physical space—in this case, the hospital—can be understood as a space of meanings for those who inhabit it. The meaning of an environment is the set of contents through which a person understands what a place signifies for them. These meanings are constructed from the interpretation of the signals that are present in the environment. For the patients and their families, the hospital—as a physical and social space—has emotionally negative meanings associated with it. It is a setting that is associated with disease and its consequences, and part of its intrinsically aversive nature has to do with this. Works of visual art in hospitals can provide experiences

to improve the patients' perceived quality of care and satisfaction (S. L. Nielsen et al., 2017), and we can consider them as a particularly relevant symbolic environmental mediator in the humanization of hospital spaces. The symbolic environmental mediators are stimulating signals of communicative and informative value, which, through the children's own experience or through vicarious experience, end up being associated with emotional experiences (Belver & Ullán, 2010). These stimulating signals associated with emotional experiences explain the emotional meaning of the environment, that is, its ability to provoke emotional experiences of various kinds in people. The analysis of the symbolic environmental mediators in healthcare institutions provides us with a particularly relevant conceptual framework when referring to the humanization of hospitals, that is, to improve their adaptation to the psychosocial needs of their users, particularly pediatric patients (Ullán & Belver, 2019), and the role of the visual arts in this process of humanization. When we mention "more humane health settings," we are referring to the characteristics of the design that healthcare settings should have in order to reduce the level of stress, both of the patients and the health workers, and to promote and increase the well-being and quality of life of the health system users (Nagasawa, 2000). The humanization of the hospital includes organizational, relational, and therapeutic aspects as well as environmental and social issues (Fornara et al., 2006) and must be understood as part of the culture of patient care. When the patients are children, this care culture should start by acknowledging the particular needs of children and their families as they deal with the process of disease and hospitalization, and children's way of interpreting and attributing meaning to the surrounding environment. Humanizing a pediatric hospital basically means addressing the integral needs of the children and families, not only physical care but also psychological and social care, which guarantees the highest level of well-being. The humanization of care refers to the process in which the patient is at the center of healthcare (Tripodi, et al., 2017), taking into account the complete reality of these people, their feelings, knowledge, and beliefs about their health. From this point of view, the humanization

of children's hospitals seeks to respond to the psychosocial needs of children and families, offering a hospitalization environment that minimizes their psychological discomfort and the stress associated with the disease and its treatment and that promotes the resilience and post-traumatic growth of the children and their families. In this sense, as we have seen in the works included in this review, visual arts can improve hospitals by favoring their adaptation to the patients and, therefore, supporting the humanization processes of pediatric hospitals.

In addition to improving the symbolic quality of the hospital environment, visual artistic creations in the hospital can facilitate communication processes that are of paramount importance in patient care. Addressing communication with children in hospitals is part of a culture of respect for children's rights. Article 13 of the United Nations Convention on the Rights of the Child expressly recognizes that children have the right to express their opinion freely in all matters affecting them and that these views should be taken into account, depending on their age and maturity. Through artistic creations, active participation in the healthcare, both of the children and their parents, can be promoted. Thus, visual arts not only convey a certain conception of hospital space, but when children and/or families are creators, they can provide a more complex perspective of the hospitalization experience that can improve the health services.

Pediatric hospitals are becoming very innovative environments in relation to the incorporation of art into the provision of hospital care so that it becomes an element that sustains the well-being of the hospital user. In this sense, it highlights the consideration of art as an aspect of healthcare provision that can enhance the viewer/user's well-being. It is increasingly more frequent to find proposals of well-known visual artistic creators forming part of the "landscape" of the most advanced hospitals. In the last 2 decades, in many countries, organizations and associations have emerged that promote the incorporation of art to healthcare environments. This addition has undergone a considerable boom, for reasons that involve both the proven effect of the quality of the healthcare environment on patients' and medical staff's outcomes, and with the increasingly competitive

nature of the health market. This requires addressing image-related aspects, seeking differentiators in the services offered to consumers, including a positive image of the facilities and environments, which can benefit from the use of artistic resources. This has led to an increase in the last few years of health organizations that introduce artistic proposals as a strategy to improve their results, both those of users' health indicators and their public image. Health authorities, hospitals, patients' associations, museums, and foundations of various types organize events and interventions to incorporate the artistic and aesthetic dimension into healthcare contexts.

The evaluated experiences indicate that the results derived from the artistic projects developed in hospitals are worthwhile but also that it is necessary to continue working to better understand how art can be incorporated as a resource for improving the quality of hospitals, making them more pleasant and positive places for pediatric patients, their families, and those who work in them.

Our study presents some limitations. First, we have only taken into account published and localized works through searches in databases and/or in reference lists but under no circumstances have we incorporated unreleased documents—"gray literature" or hospital reports—into the analysis, which could be relevant in this topic. The difficulty in systematically locating such gray literature justifies that it was not incorporated into the review. A second limitation is that for the works to appear in database searches, they had to include the term "hospital" as a key word. Some publications that might have been relevant did not include this term and, consequently, we could not locate them unless they appeared in manual searches, which are much less systematic. Third, we are also aware that the visual arts are used in hospitals to a greater extent than what is published in this regard. All hospitals, of course, also children's hospitals, allow an analysis of their symbolic elements among which the visual arts would have to be considered. In other words, we have reviewed what has been published on the subject of visual arts in pediatric hospitals, which is obviously an indicator of the work being carried out in this area. But not everything that is done is published, and, therefore, the publications we have collected are not a reflection of the use that

is made in hospitals of the elements of visual arts but of what is investigated and published in this regard. Another limitation of this work is that it cannot be considered as a review of the use of art therapy in children's hospitals. Although, as we have seen, significant therapeutic effects of the visual arts have been shown in pediatric populations, a review of specific art therapy programs would require different approaches to the inclusion criteria of the works from the one we used and which we have previously described. Finally, another limitation refers to the languages that have been considered in the selection, English and Spanish. Leaving out other languages involves losing information from other cultural contexts that could contribute more knowledge to the analysis.

Despite these limitations, we think that the review carried out improves our understanding of the use of the visual arts in pediatric hospitals. Hospitals are public spaces whose complex design should consider the effect of the physical environment on the well-being of the people who use them, patients, families, and medical staff. Within the physical environment of hospitals, artistic resources can improve their symbolic quality and communication processes if they can convey positive meanings of support to the users. When it comes to children, these artistic resources can promote humor, play, distraction, and imagination and become allies to promote a more positive experience of going to the hospital, as has been seen in many of the works incorporated in this review.

Implications for Practice

- The visual arts can be a valuable resource in enhancing the experiences of children and their families in hospitals.
- Artistic resources can improve the symbolic quality of hospitals and convey a more positive meaning to them.
- Visual arts facilitate communication processes in hospitals.

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Supplemental Material

The supplemental material for this article is available online.

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Full information about reviewed empirical works												
Nr.	Authors, Year	Country	Title	Consideration of the visual arts in the work	Purpose of the work	Work Approach	Work typology	Study design	Data evaluation and analysis procedure	Sample characteristics	Results and Discussion	Is graphic information included?
1	Wyder, 2019	United Kingdom	The house as symbolic representation of the self: Drawings and paintings from an art therapy fieldwork study of a closed inpatient adolescents' focus group	Active	Investigate whether the home, as a representation, could be used as a metaphor for the self in art-therapy treatments with adolescent populations.	Mixed	descriptive; cross-sectional; observational; prospective	Weekly art workshops on drawing and painting were held in an adolescent psychiatric admission unit. Participants were given instructions to create representations of a house that, depending on their interest, they might or might not follow.	The patients' creations, the meaning they had for them, the use of space and materials, the participants' narratives, the researcher's observations on the creation process, and the results of a semi-structured questionnaire completed by the children at the end of the workshops are described. Their psychiatric diagnoses were also recorded.	6 girls and 3 boys aged 16, all of them patients admitted to an adolescent psychiatry unit	The results of the study supported the usefulness of the topic of the house in adolescent clinical population. For this population, drawing the house allowed them to express both past and present painful experiences aesthetically.	yes
2	Pearson et al., 2019	USA	The Physiological Impact of Window Murals on Pediatric Patients.	Passive	Compare physiological measurements of hospitalized children admitted to two types of rooms: standard or with murals on the windows, representing a tree or an aquarium	Quantitative	analytical; cross-sectional; experimental; retrospective	Retrospective study with semi-random assignment of subjects to each of the three conditions defined by the hospital-room type	Blood pressure and heart rate assessment and analysis of variance of these scores in each group	90 hospitalized children between ages 2 and 18	The results indicated a relationship between the presence of the murals on the windows and a significant change in heart rate, $F(1, 88) = 5.11, p = .03$, on day 2 (24–48 hr). The relationship between the presence of the murals and systolic pressure was nonsignificant. It is concluded that the installation of the murals on the windows can mimic the effects of views of nature scenes, improving pediatric patients' physiological markers, such as heart rate.	yes
3	Nielsen et al., 2019	Australia	Evaluating the use of responsive art therapy in an inpatient child and adolescent mental health services unit.	Active	Describe the use of sensitive therapy art in a mental health unit for hospitalized children and adolescents	Mixed	descriptive; cross-sectional; observational; prospective	Evaluation of patients' perspective of the experience of art therapy through a questionnaire and analysis of the works created	Questionnaire with closed and open questions. Frequency analysis of questionnaire responses and content analysis of participants' plastic creations	Adolescents admitted to a psychiatry unit	Adolescents participating in art therapy sessions found them useful because, according to them, they helped them identify and express emotions safely and feel more confident. According to the authors, such activities would facilitate the use of verbal therapies	yes
4	Manlapaz, 2019	Philippines	Clay handbuilding among children with spinal cord injuries: Towards educational protocol development.	Active	To better understand the experience of children with spinal injuries	Qualitative	descriptive; cross-sectional; observational; prospective	Qualitative design of hermeneutic phenomenological research.	Interviews with participating children and thematic analysis of their artistic creations and conversations with them about their experience.	8 participants between ages 10 and 13, with spinal injuries	Modeling activities can be a resource for nurses to propose fun/entertaining therapies for children with spinal injuries. It allows children to express themselves and to be better known	no
5	Clark et al., 2019	USA	Children's Drawings With Narratives in the Hospital Setting: Insights into the Patient Experience.	Active	Explore the experience of pediatric patients admitted to ICUs and their perceptions through their drawings and narratives	Mixed	descriptive; cross-sectional; observational; prospective	Patients who had been admitted to the ICU were asked to identify the best and worst aspects of this experience and to draw a picture of it and comment on it.	The drawings were analyzed regarding their content, the persons represented, the medical technology drawn, other technological devices such as TVs, etc., the color used, and words or phrases included. The narratives that accompanied the drawings and the explanations the children gave of their drawings about the experience of being admitted to the ICU were also discussed.	40 patients between ages 6 and 17 who had been admitted in the ICU	Most of the drawings represented the patients themselves, followed by hospital monitors and intravenous channels. Patients mentioned staff as the best of the ICU and the treatments as the worst. It was clear from the patients' narratives that their drawings could be misunderstood if their explanations of them were not taken into account. It was concluded that drawings, as a means of communication, allow ICU patients to provide information about their experience that they may not otherwise have been able to express.	yes
6	Wajcman, 2018	USA	Developing an Art Therapy Program in a Children's Hospital.	Active	Describe the experience of launching an art-therapy program for children in a hospital	Qualitative	descriptive; cross-sectional; observational; prospective	It describes the process of launching an art therapy program for children in a hospital, detailing the type of materials used and the process of working with children and families.	-	-	It highlights the importance of training health workers so that the art-therapy program is optimally developed, identifying patients who could benefit from it and improving the offer of different alternatives to support children and adolescents in the hospital.	yes
7	Linder et al., 2018	-	Symptoms and Self-Management Strategies Identified by School-Age Children with Cancer Using Draw-and-Tell Interviews.	Active	Exploring how schoolchildren with cancer represent their symptoms and associated characteristics through interviews and drawings	Mixed	descriptive; cross-sectional; observational; prospective	Participating children were interviewed while they drew a good day at the hospital and a day when they felt unwell.	Qualitative analysis of children's drawings and what the children said in the interviews	27 children with a mean age of 9	The results of the study demonstrate the role of an arts-based and evolutionarily sensitive approach - drawing and responding to an interview - to support children in expressing their views on their symptoms and the strategies they use to manage them. This perspective allows for a better understanding of children's personal experience of their health problems.	yes
8	Ciucci & Heffner-Solimeo, 2018	USA	The Next Chapter: Altered Bookmaking Art Therapy for Caregivers in Pediatric Oncology/Bone Marrow Transplant	Active	Discuss an artistic work experience involving parents and caregivers of children hospitalized for cancer treatment.	Qualitative	descriptive; cross-sectional; observational; prospective	It describes the proposed artistic activities program and discusses the reactions of parents and other caregivers who participated in it.	There are brief comments made by the participants	They are not specified	The observations gathered reinforced the idea of the benefits of providing parents and caregivers of pediatric patients with support through creative activities such as that contained in this work.	no
9	Cartland et al., 2018	USA	The Role of Hospital Design in Reducing Anxiety for Pediatric Patients	Passive	Explore the relationship between hospital design and children's anxiety levels	Mixed with quantitative comparative surveys and qualitative interviews over the phone	analytical; cross-sectional; experimental; prospective	A natural experiment in which the change of a hospital building was used to compare the impact of the new hospital's design on patients' anxiety levels and their experience of psychological consequences after hospitalization.	Two post-test and follow-up groups were used to compare the experience of parents and children admitted to the new hospital with that of parents and children who had been admitted to the former one	195 children between ages 3 and 17 who had been admitted to the hospital for at least 6 days. Their parents were also interviewed by telephone between 4 and 6 weeks after hospital discharge.	When controlling for the reasons for hospitalization, patient demographic characteristics, and the typical level of anxiety of the children, the patients experienced less anxiety in the new facilities than in the old ones. No differences were found in psychological consequences after being discharged.	no
10	Calbayram et al., 2018	Turkey	Investigating Children's Perception of Nurses Through Their Drawings	Active	Investigate how children with acute or chronic health problems perceive the nursing staff through their drawings.	Mixed	descriptive; cross-sectional; observational; prospective	Participating children were asked to draw a nurse with the material provided to them (a blank sheet and markers). They had to also respond to a brief questionnaire.	A content analysis of the questionnaire responses was carried out and the drawings were analyzed on a standardized scale	26 six-year-olds admitted to a hospital with acute or chronic health problems	Drawings of the children inform about their perception of the nursing staff and their roles.	yes
11	Barrera et al., 2018	Canada	"It's Just for Us!" Perceived Benefits of Participation in a Group Intervention for Siblings of Children With Cancer	Active	Investigate the results of group interventions for siblings of children with cancer from the perspective of the participants (siblings) and their caregivers	Qualitative	descriptive; cross-sectional; observational; prospective	Siblings and caregivers of children with cancer who participated in a program that included artistic activities in the hospital were interviewed.	Analysis of iterative content of interviews conducted after the intervention. An open coding process was used in topics and subtopics until saturation was reached	18 siblings between ages 12, 18 children with cancer, and 12 caregivers	The siblings valued their participation in the proposed activities because it helped them feel better and facilitated communication with their parents.	no
12	Water et al., 2017	New Zealand	Participatory art-based research with children to gain their perspectives on designing healthcare environments.	Active	Knowing the perception of children in the hospital environment and their assessment of it	Qualitative	descriptive; cross-sectional; observational; prospective	Participating children had to draw or write about their perception of the physical environment of the hospital, what they thought about the itineraries to move around in the hospital, the sounds they heard in the hospital, and the uniforms of the health workers. The children responded to an interview in which they were asked about what they had drawn and/or written. The children's drawings and writings were photographed for thematic analysis.	Thematic analysis of children's drawings and writings	175 children between ages 5 and 16	The children valued creative, colorful, friendly, and welcoming environments. The children in this study expressed their ability to comment and participate in the research and decision-making about their environment and the health care they receive.	yes

13	Kometiani, 2017	USA	Creating a vital healing community: A pilot study of an art therapy employee support group at a pediatric hospital.	Active	Interview health workers at a pediatric hospital participating in an art therapy program and rate their sense of well-being in their workplace.	Mixed	descriptive; cross-sectional; observational; prospective	Participants were interviewed and completed a quality of life questionnaire at the beginning of the program and at the end of the program, and three months later.	Standardized job-quality questionnaires and semi-structured interviews with participants, which were analyzed from a qualitative perspective. Works of art created by participants were also analyzed	12 participating professionals between ages 40 and 49	Participants highlighted the positive results of their participation in art therapy activities regarding stress management, rest, becoming more positive, becoming more creative, and improving the work-home balance. Of their participation in these activities, they highlighted enjoyment, balance, and relaxation.	yes
14	Hanson et al., 2017	USA	The Feasibility of Utilizing a Comic for Education in the Emergency Department Setting.	Passive + Active	Assess the effectiveness of using a comic format to instruct children and their parents when the children are discharged from an emergency department	Quantitative	descriptive; cross-sectional; observational; retrospective	A sample of children admitted to the ICU was provided with a comic specially designed to inform them about pain-related issues and their relief in the hospital.	Questionnaires on the usefulness of the comic used to communicate information. A frequency analysis of questionnaire responses was used. The time the children needed to read the comic was also recorded. A 3-day follow-up was made after discharge to assess the caregivers' recall of the aspects that the comic was trying to teach.	50 children with a mean age of 11 years	The comic was useful as a means of transmitting pain-related information to children and parents	yes
15	Dionigi & Gremigni, 2017	Italy	A combined intervention of art therapy and clown visits to reduce preoperative anxiety in children.	Active	Determining whether a combined intervention of art therapy and clown visits would improve the effectiveness of oral medication to reduce children's anxiety about separation from their parents prior to the induction of anesthesia.	Mixed	analytical; cross-sectional; experimental; prospective	A study with two groups of children, one with standard care and one with art therapy and clowns	Assess the anxiety scores of the children in both groups with standardized tests (mYPAS) and through interviews. Analysis of variance was used for the quantitative data, and thematic analysis for the interviews.	78 children between ages 3 and 11 years	The intervention of art therapy and clowns proved effective in reducing children's pre-operative anxiety	no
16	Burns-Nader, 2017	USA	Examining Children's Healthcare Experiences through Drawings.	Active	Assess the anxiety of children who were hospitalized or who were in a medical consultation without being hospitalized through <i>The Child Drawing: Hospital</i> (Clatworthy et al., 1999)	Quantitative	analytical; cross-sectional; observational; prospective	Comparison between the scores obtained when analyzing the drawings of the sample of children who were hospitalized and those who were waiting in a medical consultation	Ask the children to draw a person in a hospital and rate their drawings by following the instructions in the test manual (Clatworthy et al., 1999b). The scores of the two groups of children were compared	50 children between ages 5 and 12 years	The scores of the hospitalized children in this test were indicators of higher levels of anxiety than those of the children who were in the doctor's office	yes
17	Bretler et al., 2017	Israel	Parents reported higher satisfaction rates when children recognised hospital staff from photographs placed in prominent locations.	Passive	Know the effect of an environmental intervention in the hospital consisting of placing photographs of the health workers who cared for the children with their name and professional role.	Quantitative	descriptive; cross-sectional; observational; prospective	During the first part of the study, no photographs were exhibited. In the second part of the study, the photographs were exhibited in prominent places of the pediatric unit. In both phases, parents completed satisfaction questionnaires after discharge, and both children and parents were asked to say how many health workers' names they could remember.	The scores in the parent satisfaction questionnaire, and recognition of staff names by parents and children in the two groups were compared.	199 children aged 7.5 in phase 1 of the study (no staff photographs) and 5.4 in phase 2 (with staff photographs)	The intervention made it easier for the children to identify the staff and, although this effect was not observed in the parents, an improvement in satisfaction with the care the children received was observed when the photographs of the staff that cared for the children were exhibited. It is concluded that exhibiting staff photographs was a simple way to improve parents' satisfaction with the care their children received	no
18	Altay et al., 2017	Turkey	The effect of drawing and writing technique on the anxiety level of children undergoing cancer treatment.	Active	Determine the effect of a drawing and writing technique on the anxiety level of children in cancer treatment.	Quantitative	analytical; cross-sectional; experimental; prospective	Quasi-experimental design with a pre-post evaluation with a single group	Children's anxiety scores were compared before the program and after it had been conducted	30 children with a mean age of 12 years, 76% girls, all diagnosed with cancer.	Children's anxiety scores after their participation in the program were lower than before the program. It is concluded that drawing and storytelling techniques can be used to reduce anxiety levels for children undergoing cancer treatments in a hospital.	no
19	Sposito et al., 2016	Brazil	Puppets as a strategy for communication with Brazilian children with cancer.	Active	Describe the technique of making and using finger puppets as an auxiliary communication tool for hospitalized children with cancer.	Qualitative	descriptive; cross-sectional; observational; prospective	The process was developed in two phases: first, the puppets were created with the children and then, the children were interviewed using the puppets	A thematic analysis of the interviews with the children was carried out	10 hospitalized children between ages 7 and 12	The puppets allowed the children to express themselves and improved their communication. The children found it fun and that their autonomy was respected.	yes
20	Siegel et al., 2016	USA	Expressive arts therapy with hospitalized children: A pilot study of co-creating healing sock creatures.	Active	Evaluate the effect of expressive artistic therapy of doll creation aimed at reducing children's stress during hospitalization.	Mixed	analytical; cross-sectional; experimental; prospective	Quasi-experimental design with two groups, one treatment and one waiting-list control group, which received the intervention after the same measures had been taken as in the experimental group.	Measurements of the experimental group and the waiting-list control group were compared in questionnaire responses and saliva cortisol levels. There was also a telephone interview with the parents after the children had been discharged	25 patients with a mean age of 8 years	Children's mood improved with this artistic activity, reducing their physiological stress indicators (cortisol). Hospital staff also thought the children were better off playing with the dolls they had created with the therapist.	yes
21	Ho et al., 2015	Hong Kong	Art viewing directives in hospital settings effect on mood.	Passive	Determine the effect of the guidelines provided to the viewer of a work of art in a hospital.	Mixed	analytical; cross-sectional; experimental; prospective	Subjects were assigned to one of three experimental conditions. In the first condition, visitors to the exhibition received a pamphlet that directed their attention towards the exhibition, stimulating their interest and making them participate actively in the work of art. In the second one, the booklet was similar to the previous one but included additional indications, asking viewers to choose a work of art that was especially meaningful and create a poem or drawing inspired by the feelings it had provoked. In the third condition, no indications of any kind were given to the spectators.	The results of the subjects in the three conditions were compared on a mood scale before and after viewing the exhibition of the works.	Incidental sample of 97 people among patients, hospital staff, and visitors.	Spectators of the exhibition of artworks in the hospital who received indications about them showed a greater therapeutic effect, improving their mood. It is concluded that guidelines can improve the effect of exhibition of artworks in the hospital on the spectators' mood.	yes
22	George & Kasinathan, 2015	Australia	Mural art therapy for young offenders hospitalized with a mental illness.	Active + Passive	Assess the possibility of young offenders with psychiatric problems taking part in the creation of a mural in the detention center	Qualitative	descriptive; cross-sectional; observational; prospective	Through 10 working sessions, participants created a mural on the walls of the internment center, with the support of artist monitors.	Observation of participants' reactions and their opinions about the experience	11 males between the age of 15 and 20 diagnosed with mental illness	The participation of young people in the artistic project provided them with positive aspects such as greater confidence, sense of achievement, a team feeling, and improved the aesthetic quality of the environment	yes
23	Lambert et al., 2014	Ireland	Social spaces for young children in hospital	Active	Investigate children's perspective of social spaces in the hospital to take this into account in the design of the built environment of a new pediatric hospital. In this context, social spaces and the children's opportunities to interact with family members, friends, and others while in the hospital are the built environment.	Qualitative	descriptive; cross-sectional; observational; prospective	Qualitative exploratory study based on dialogue with children about the characteristics that they think a hospital should have.	In-depth individual and group interviews were conducted with children while they performed artistic activities	55 children between ages 5 and 8 cared for in three different hospitals	The hospital environment must respond to the leisure, entertainment, and social activity needs of hospitalized children. Children's artistic creations on the subject can complete the information they provide verbally.	yes
24	Lambert et al., 2014	Ireland	Young children's perspectives of ideal physical design features for hospital-built environments.	Active	Present the physical and design characteristics of an ideal hospital, according to the children.	Qualitative	descriptive; cross-sectional; observational; prospective	Exploratory study based on semi-structured interviews about the hospital environment. During interviews, children could draw or make artistic creations to stimulate the discussion	Both the children's interviews and artistic creations were subjected to thematic analysis to identify common emerging themes and patterns.	55 children between ages 5 and 8 cared for in three different hospitals	Three topics emerged related to the physical environment of the hospital: environment, access, and personal space. The results of the analyses of these topics revealed that children want a hospitable environment that is bright, friendly, warm, colorful, and comfortable, spacious creative, imaginative, and contemporary.	yes
25	Burns-Nader et al., 2014	USA	The relationship between mothers' coping patterns and children's anxiety about their hospitalization as reflected in drawings	Active	Assess the relationship between parents' satisfaction with children's hospitalization experience, the use of parents' coping strategies, and the level of anxiety of the children, assessed through their drawings	Quantitative	descriptive; cross-sectional; observational; prospective	Children were asked to draw a person in the hospital while their parents completed coping and satisfaction questionnaires.	The children's drawings were interpreted using the Child Drawing: Hospital Manual	24 mothers and 24 children	Children's anxiety, as reflected in the drawings, was negatively correlated with the mothers' use of coping strategies. Children's anxiety was positively related to the number of procedures the child had experienced.	yes

26	Archibald 2014	Canada	Mapping the waters: A scoping review of the use of visual arts in pediatric populations with health conditions	Active+Passive	Identify and categorize visual arts uses in pediatric populations, identify gaps in the current use of art in these populations, and identify results in the use of art in pediatric populations for children, professions, and families.	Mixed	scoping review of works on visual arts use in pediatric populations	The search strategy followed was as follows. The CINAHL, Scopus, and PubMed databases were searched for publications between 2001 and 2011 that referred to children between ages 4 and 17, with medical or psychiatric health conditions of any severity, and describing the use of visual arts in these children. Art should be used as a therapeutic intervention, as a means of evaluating symptoms or experiences and to obtain information. Children should be directly involved in the visual arts by producing or viewing them. Works were required to discuss the results of the interventions as a function of their objectives, allowing different evaluative approaches.	A form was standardized for extracting data from each work that collected the following aspects: design of research, context, purpose of the artistic intervention, method to obtain data, demographic characteristics of the participants, type and characteristics of the artistic intervention, and reported results. The data were analyzed descriptively according to the purpose of the artistic intervention and the children's health condition. Studies were classified and mapped according to these characteristics, and the emerging subcategories based on their frequency of occurrence.	1767 articles were recovered from which, after eliminating duplicates, 295 had titles or keywords applicable to the investigation. Of these, 16 of them were considered eligible, 11 had been developed in a hospital.	Drawing was the primary method of visual arts used (in 10 of the 16 articles) either alone or in conjunction with other artistic modalities. In general, details about the artistic interventions were lacking. The results of the artistic interventions referred mostly to anxiety, fear, and stress. Of the 16 studies included, 11 explicitly qualified the use of art as art-therapy. The purpose of the artistic interventions was either to promote children's understanding, using visual arts to evaluate them or communicate with them, or to improve or reduce aspects like coping or anxiety.	no
27	Yount et al., 2013	USA	Expressive arts therapy for hospitalized children: A pilot study measuring cortisol levels.	Active	Considers the use of physiological evidence of stress reduction in hospitalized children after expressive arts therapy.	Quantitative	analytical; cross-sectional; experimental; prospective	Randomized study with two groups of children, an experimental group involved in artistic creation activities, and a waiting-list control group	The saliva cortisol levels of all the children were analyzed before participation in an artistic activity and subsequently, those in the experimental group and, in a similar time interval, the waiting-list control group. Health workers' impressions of children's participation in the artistic creation experience were also obtained.	25 hospitalized children,	A tendency to decrease the level of cortisol in saliva was observed after children's participation in expressive art therapy sessions, and it was concluded that it was possible to evaluate the effect of expressive artistic therapies through the assessment of cortisol or other biomarkers.	no
28	Wennström et al., 2013	Sweden	Child Drawings and Salivary Cortisol in Children Undergoing Preoperative Procedures Associated With Day Surgery.	Active	Determines the children's degree of anxiety and stress before surgery, and explores the association between objective stress measures (concentration of cortisol in saliva) and subjective measures of anxiety, such as children's drawings as interpreted in the Swedish version of the Child Drawing: Hospital (CD:H) Manual.	Quantitative	descriptive; cross-sectional; observational; prospective	Saliva samples from the children were collected during the preoperative period to analyze their degree of cortisol concentration. During the same period, children were asked to draw a person in a hospital.	The children's drawings were analyzed following the instructions in the CD:H test, and the correlation between the scores in this test of the drawings and the level of cortisol obtained in the saliva samples of the children was calculated	93 children aged 5 to 11 years with scheduled surgery	No association was observed between the concentration of cortisol in saliva and the score on CD:H, concluding that both measures reflect different components of the conditions of fear, anxiety, or stress in the analyzed situations	no
29	Park & Park, 2013)	USA	Color perception in pediatric patient room design: American versus Korean pediatric patients	Passive	Investigates cultural differences in environmental color preferences between American and Korean pediatric patients, identifies these preferences, and examines gender differences in color perception.	Quantitative	descriptive; cross-sectional; observational; prospective	Children were presented with a simulation of a hospital room in which the color of the walls varied. Children had to indicate their preferences for 6 different colors on a scale.	American and Korean children's color preferences were compared. In addition to these cultural differences, gender differences in color preferences were assessed.	92 children, 42 American, 21 boys and 21 girls, mean age of 8.6 years, and 50 Korean, 30 boys and 20 girls, mean age 9.3 years, participated.	Both American and Korean pediatric patients showed similar color preferences: green and blue were the most preferred and white the least. Gender differences were particularly observed in violet, marked as preferred by girls significantly more than by boys	yes
30	Mouradian et al., 2013	USA	Art-Based Occupation Group Reduces Parent Anxiety in the Neonatal Intensive Care Unit: A Mixed-Methods Study.	Active	Examines whether participation in art activities to create a group of cutouts in a neonatal intensive care unit could reduce parental stress and, secondarily, explores the parents' experience in this situation.	Mixed	analytical; cross-sectional; experimental; prospective	Pretest-posttest design with a post-activity interview	Parents' anxiety was evaluated with the State-Trait Anxiety Inventory before and after participating in a group arts activity	40 parents of children admitted to a Pediatric Intensive Care Unit	Parents' anxiety decreased significantly after participating in the artistic activity. Qualitative analysis of interviews suggests that parents were distracted by participation in this activity, which allowed them to distance from worries and be more relaxed and calm. In addition, the activity allowed parents to connect with others in similar situations and, in this sense, constituted a source of support.	no
31	Esseveld et al., 2013	Netherlands	Drawings during neuropsychiatric recovery from anti-NMDA receptor encephalitis.	Active	Describes a series of drawings by a 15-year-old girl during an episode of neuropsychiatric disease	Qualitative	descriptive; longitudinal; observational; prospective	Case study	It describes the clinical situation of the patient and her pharmacological treatment and includes four drawings of it made at four different times of her illness (at the beginning, in its most acute phase and as she recovered, until medical discharge)	A 15-year-old adolescent girl	The patient's drawings changed as her clinical situation changed.	yes
32	Corsano et al., 2013	Italy	Hospitalized children's representations of their relationship with nurses and doctors.	Active	Investigates, through the analysis of drawings of hospitalized children, their perception of their relationship with the health workers who care for them.	Mixed	descriptive; cross-sectional; observational; prospective	Descriptive study of the drawings made by hospitalized children when asked to draw doing something together with the hospital staff.	Each participating child was asked to draw him/herself with a doctor or nurse or in the hospital unit while doing something. The drawings were encoded using the PAIR system, consisting of six evaluation scales (cohesion, distance, similarity, value, emotions, and conflict). Subsequently, a qualitative analysis of the drawings (who had been drawn, posture, context, and details) was carried out	27 children (55% girls) between ages 6 and 15 admitted to a hematology-oncology pediatric hospital.	The findings of the work suggest, according to the authors, that children hospitalized in the hematology-oncology unit developed, during their frequent periods of hospitalization, intimate, close, and cohesive relationships with the health professionals who cared for them, especially with the nurses. These relationships helped the patients cope with painful and uncomfortable medical procedures. It is also confirmed that hospitalized children can express thoughts, opinions, and attitudes about their hospitalization experience, and that their drawings, in particular, allow them to communicate thoughts and feelings that are difficult to verbalize.	yes
33	Tjiam et al., 2012	Netherlands	An educational cartoon accelerates amblyopia therapy and improves compliance, especially among children of immigrants	Active	Determining the effect of a comic on monitoring the treatment of children with amblyopia	Quantitative	analytical; longitudinal; experimental; prospective	During the pre-implantation of the program, the children received standard orthoptic treatment. In the post-implementation phase, the children also received an educational comic and a calendar with stickers developed by two artists.	Data on children's orthoptic evolution and speed of recovery were recorded before and after the introduction of the comic.	359 children in orthoptic treatment	The use of the comic improved adherence to treatment, especially in low socioeconomic-level children, and the duration of treatment was shortened by the use of the comic.	no
34	Norton-Westwood, 2012	Australia	The health-care environment through the eyes of a child—Does it soothe or provoke anxiety?	passive	Review works that sought to assess the ability of the health care environment to affect the anxiety level of pediatric patients. The review focused on the following key aspects: positive distractions, elimination of environmental stressors, access to social support, and connection with nature.	Mixed	Systematic review of published articles on the subject of interest, i.e., the impact of health care settings on pediatric patients' anxiety.	The most relevant bibliographic databases in the field of health, medicine, nursing, psychology, architecture, and design were examined to locate works on the subject of interest published between 1980 and 2010.	The works included in the review were evaluated by two independent reviewers with the SUMARI system for the literature review of the Joanna Briggs Institute	129 papers were located, of which 20 were considered relevant to be included in the review	The results showed that there was a link between the design of the health environment and the anxiety experienced by pediatric patients. We highlight the importance, among others, of the following aspects: well-designed attractive environments help children and adolescents psychologically; adolescents need to be taken into account in relation to their particular needs in the use of spaces; children and adolescents both express the need for their parents or family caregivers to be close to them in the hospital;	no
35	Downey & Zun, 2012	USA	The impact of watching cartoons for distraction during painful procedures in the emergency department.	Passive	Determining whether watching cartoons in an acute care unit reduces the perception of pediatric patients' pain	Quantitative	analytical; cross-sectional; experimental; prospective	Experimental study in which patients were randomly assigned either to a group that would watch cartoons while in the unit or to a group that would not see them.	The pain scores of the children in the two groups were compared at three moments: before, during, and after the medical procedure.	44 children watched cartoons while in the hospital's acute unit and 55 did not. The children's ages were 3 to 18 years.	Cartoons had a significant impact on reducing pain in younger children prior to medical procedures, indicating that the use of cartoons can be an effective distraction technique for treating pain before a medical procedure.	no

36	Crawford et al., 2012	New Zealand	Does children's color use reflect the emotional content of their drawings?	Active	The overall purpose of the work was to evaluate the relationship between the children's choice of color in their drawings and the drawings' emotional content. Specifically, it replicated previous findings, examining the relationship between children's color preferences and their use of colors in drawing tasks similar to those used in clinical contexts in which children are asked to draw self-nominated personal experiences that were associated with positive and negative emotions. The relationship between color preferences and color use was examined in a sample of children who had experienced clinical levels of distress due to hospitalization. These children were asked to draw positive and negative experiences that were associated with being in the hospital.	Quantitative	analytical; cross-sectional; experimental; prospective	The study was conducted in two phases. The first assessed children's color preferences and then asked them to color a drawing offered to them, telling them that the silhouettes to be colored were of a nice person, in one case and, in another case, of an unpleasant person. Each child was asked for personal accounts of positive emotional experiences of happiness and negative ones of sadness. They were then asked to draw a picture of when they had felt happy or when they had felt sad. The second phase, of an exploratory nature, examined the use of color by children who had experienced clinically significant levels of distress, all of them briefly hospitalized for illnesses or accidents.	Children's color preferences and their use of more or less preferred colors in the drawing tasks proposed to them were recorded. Both when coloring a silhouette of pleasant and unpleasant people and when drawing positive experiences of happiness or negative ones of sadness, the children's use of colors was recorded depending on whether these colors were more or less preferred by them.	60 children aged 3 to 10 years in the first phase, all of them primary school pupils, and, in the second phase, 16 children aged 6 to 12, who had been hospitalized for at least one night.	It is concluded that, with the currently available information, it is not possible to deduce emotional content from children's use of color based on their preferences. It is recommended that clinicians and therapists working with children avoid making assumptions about children's feelings based on the color they use in their drawings. Instead, adults should focus on using drawing as a tool for children to engage in interview processes and facilitate verbal communication between the children and the clinicians.	no
37	Bishop, 2012	Australia	The role of art in a paediatric healthcare environment from children's and young people's perspectives	Passive	Understanding what constitutes a pediatric supportive environment from the perspective of children and young people, describing the role of the physical environment in children's feelings of well-being, and illustrating the value of participatory research in health design.	Qualitative	descriptive; cross-sectional; observational; prospective	Participants who had been admitted to a hospital with a collection of works of art were interviewed. The interview included an informal discussion focusing on photographs of the environment and answering a series of questions about the children's experience of hospitalization and their well-being.	A thematic analysis of responses to interviews was carried out	55 children aged between 7 and 18 who had been hospitalized for at least 7 days	The study's findings indicated that art was a key environmental attribute that played a number of roles in the children's hospital experience. These included providing aesthetic variation, entertainment, distraction, engagement, and identity. It helped young patients maintain a positive mood during their hospitalization experience. The presence of works of art in the hospital was understood as a message that the well-being of children and adolescents mattered to the organization. The aesthetically pleasant environment that children and young people recognized in the hospital helped them improve their mood and relieve the emotional stress involved in hospitalization. Particular value was granted to the eclectic nature of the works of art that were part of the hospital environment.	no
38	Wennström et al., 2011	Sweden	Evaluation of the Swedish version of the Child Drawing: Hospital Manual.	Active	Testing the psychometric properties of the Swedish version of the Child Drawing test: Hospital Manual	Quantitative	descriptive; cross-sectional; observational; prospective	Psychometric study to validate the properties of the Swedish version of the test	The test was translated into Swedish, completed by two child samples, and its psychometric properties were validated	59 children aged between 5 and 11 who were to have surgery in a hospital, and 77 children of the same age at a school, completed the test	The Swedish version of the CD:H test showed high interjudge reliability and good internal consistency. In addition, it discriminated anxiety levels between children who were to undergo surgery and the sample of schoolchildren, indicating good construct validity.	no
39	Ullán et al., 2011	Spain	Humanization through the art of environment of children's emergency in a hospital	Active	Describe and analyzes an experience of humanization through artistic interventions of a pediatric hospital space	Qualitative	descriptive; cross-sectional; observational; prospective	Case study of a humanization process through the art of a pediatric hospital emergency department	It describes the experience and values from different points of view, taking particular account of the opinions of the parents of the children who were in the service after the humanization process	51 parents of children who had been in the emergency service	Adapting hospitalization environments to pediatric patients requires taking into account the symbolic aspects of the hospital's physical environment and adapting them to the children's characteristics.	yes
40	Perandones, 2011	Spain	Creation of videogames with hospitalized minors: Workshop "Adventure in the hospital".	Active	Study the appropriateness of the results and possible applications of workshops on creating video-games with hospitalized children and adolescents	Qualitative	descriptive; cross-sectional; observational; prospective	Case study of a video-game creation workshop in a pediatric hospital admission unit.	It describes the experience from the point of view of the artistic and computer resources used and discusses the reactions of the participating children and adolescents.	Hospitalized children and adolescents aged between 6 and 17 years.	The type of activity motivates hospitalized children and adolescents	yes
41	Pati & Nanda, 2011	USA	Influence of positive distractions on children in two clinic waiting areas	Passive	Determine whether the integration of positive distractions in the design of healthcare environments, specifically in waiting rooms, could improve the experience of the patients and their family members.	Quantitative	analytical; cross-sectional; experimental; prospective	Quasi-experimental design with two independent variables. The first referred to the distracting conditions (images of nature, images of ambient art with and without sound, and images of an aquarium with and without sound. The second independent variable was the type of clinic, either a dental clinic or a cardiac clinic. Children's behavior and activities were recorded as the dependent variable.	Children's activities and behavior were recorded using a standardized register for behavioral observations	158 children aged between 5 and 17 years	Analysis of the data showed that the introduction of distracting conditions in waiting rooms was associated with increased calm behaviors and fewer movements in the children, suggesting significant calming effects of the distracting conditions. It is suggested that the use of positive distractions may affect the stress and anxiety associated with the waiting experience.	no
42	Ford, 2011	Australia	"I didn't really like it, but it sounded exciting": Admission to hospital for surgery from the perspectives of children	Active	Improve the understanding of children's experience when they need to be hospitalized for surgery	Qualitative	descriptive; cross-sectional; observational; prospective	Children were interviewed during the interval before or after their operation.	Data were collected through different procedures including interviews with children, field observations, and using the "draw and write" technique in which children are asked to draw and write a story. The data were analyzed from the emerging theory perspective, with constant comparisons, theoretical sampling, and the development of theoretical concepts and categories.	10 children who had been admitted for surgery	Analysis of interviews with children, their drawings, and their narratives suggests a complex experience that children undergo when they are admitted to the hospital for surgery. They feel fear, but they may also experience positive emotions like fun, feeling cared for, etc. Children identified interventions that helped them reduce their anxiety and increase their feelings of control. Therapeutic interventions such as humor, fun, and play created a contrast to anxiety and fear. These interventions promoted coping and well-being by empowering the children and reducing some of the negative effects of hospitalization and the disease.	yes
43	Belver & Ullán, 2011	Spain	Art in a Spanish children's hospital.	Passive	Present and discuss a humanization case study through art in a hospital space	Qualitative	descriptive; cross-sectional; observational; prospective	Case study of a humanization experience of a pediatric emergency department in a hospital	The experience is described, and a thematic analysis of semi-structured interviews are conducted with the parents of the children attended to in the service and with the health staff.	51 parents of children attended to in the service	The experience is positively valued by parents because the illustrations help them distract their children.	yes
44	Ante et al., 2011	Spain	A bit more color. Hospital Room Therapy.	Active	Place contemporary artistic manifestations at the service of hospitalized children and their families	qualitative	descriptive; cross-sectional; observational; prospective	It describes an experience of artistic activities with hospitalized children	They are not detailed	Not specified	They are not specified	yes

45	Park, 2009	USA	Color perception in pediatric patient room design: Healthy children vs. pediatric patients	passive	Investigate preferences of the color of pediatric patients' room walls and compare them to healthy children's preferences.	Quantitative	descriptive; cross-sectional; observational; prospective	Children were presented with a scaled simulation of a hospital room whose wall colors varied. Children had to indicate their preferences for 6 different colors.	Children were presented with a mock-up of a 1:12-scale hospital room that varied the colors of the walls, and were asked to indicate their preferences for the different colors presented.	153 children, 60 of them recruited from a school, 60 outpatients, and 33 hospitalized children.	An analysis of variance was conducted to investigate group differences in color preferences: healthy children, pediatric outpatients, and hospitalized patients. There were no statistically significant differences in the preferences of healthy children and pediatric patients. For all groups, blue and green were the most preferred colors, and white the least.	yes
46	Nanda et al., 2009	USA	Pediatric art preferences: Countering the "one-size-fits-all" approach	Passive	Determine pediatric patients' preferences through an art survey and whether the preferences vary based on age and stage of development. Assess whether pediatric patients of different age groups have similar artistic preferences. Determine whether style or content influence pediatric artistic preferences.	Mixed	descriptive; cross-sectional; observational; prospective	A survey was given to participating children who were admitted to a hospital, asking them to comment how 20 images made them feel and whether they would place them in their room.	The verbal assessments of the subjects were converted to a numerical scale, and the ratings of each image were compared to determine significant differences between the three groups of children defined by their level of development (5-6 years, 7-10 years, 11-17 years). Content analysis of the comments the children made while watching the images was also carried out	64 hospitalized children aged between 5 and 17 years.	The combination of bright colors, interesting themes, and Nature content is consistently evaluated as the most preferred by children. Realistic, brightly colored images with elements that refer to water and/or friendly wildlife may be suitable for pediatric populations. Significant differences were observed between the preferences of older children and those of younger participating children. Children's drawings used in pediatric units are more suitable for younger children than for older children, who like them less. All this indicates that images used in hospitals should be chosen carefully.	yes
47	Jordens et al., 2009	Australia	Decoration or communication? A qualitative study of images displayed around the bedsides of hospitalized children	Active (first)+Passive	Describe the photographs that hospitalized children and adolescents placed around their bed and understand how and why patients are aesthetically involved in the hospital environment	Qualitative	descriptive; cross-sectional; observational; prospective	A sample of hospitalized children who had placed personal photographs in the space around their hospital bed and another sample of the parents of children who also had such photographs around their hospital bed were interviewed	A thematic analysis was carried out of the contents of the interviews and the contents of the photographs that the patients had placed around their bed	8 patients aged between 8 and 18 who had placed personal photographs around their bed in the hospital and 7 mothers of other patients who also had such photographs in their hospital room.	Personal photographs in the space surrounding the hospital bed have the obvious goal of brightening the room, but they also meet a clinical goal of alleviating the separation anxiety children may experience during these periods. In addition, the results suggest that these interventions function as a means of communication with others to the extent that they invite further communication of the child or adolescent with others, promoting better social support to these patients	yes
48	Brady, 2009	United Kingdom	Hospitalized children's views of the good nurse.	Active	Explore children's perspective of a good nurse in the hospital	Qualitative	descriptive; cross-sectional; observational; prospective	A sample of children was interviewed with the "draw and write" technique to learn their views on good and bad nurses in the hospital. This technique asks participants to draw an image of the topic in question and the researcher uses this image as the basis for their questions	A thematic analysis of children's interviews and their drawings was carried out	22 children aged between 7 and 12 admitted to a pediatric unit	The topics that emerged from the data analysis referred to communication, professional competence, safety, appearance, and the virtues of the nurses caring for the children.	yes
49	Stefanatou, 2008	Greece	Use of drawings in children with pervasive developmental disorder during hospitalization: A developmental perspective.	Active	Explore the level and nature of the emotional experience of hospitalized children diagnosed with generalized developmental disorder by asking them to draw a person in a hospital and evaluating their drawings	Mixed	descriptive; cross-sectional; observational; prospective	Children were asked to draw a person in a hospital and, after they finished drawing, it was used as the basis for a semi-structured interview with the children about what they had drawn	A descriptive analysis of children's drawings and an analysis of their content and responses to the semi-structured interviews were carried out.	25 hospitalized children aged between 5 and 12 years diagnosed with generalized developmental disorder	The results indicated that children experienced anxiety, fear, insecurity, aggressiveness, and emotional imbalance	yes
50	Eisen et al., 2008	USA	The stress-reducing effects of art in pediatric health care: Art preferences of healthy children and hospitalized children.	Passive	Investigate what kind of artistic images children prefer and what kind of images have potentially stress-reducing effects on hospitalized children.	Mixed	analytical; cross-sectional; experimental; prospective	Multi-method in three phases: first, focus groups; second, randomized study; and third phase, a quasi-experimental study	First phase: focus groups were held with children aged between 5 and 18, separated by age, in which they should talk about their favorite images and select, from the 6 presented to them, which they preferred and comment why. Discussion groups were recorded and subsequently analyzed. In phase 2, 6 images were presented to hospitalized children on a laptop, and they had to express their preferences and say why. Phase three determined which type of image was most capable of reducing hospitalized children's stress. Participants were randomly assigned to experimental conditions (control, without artwork in the room; with a representative work of art in the room; and, in the third condition, with an abstract work of art). In all cases, children's stress was assessed prior to exposure to the artwork and two hours later.	Children aged between 5 and 17, some of them hospitalized and some not hospitalized	Phase 1: In all age groups, representational images of nature were preferred, with the same result observed in phase 2. No significant differences were observed between the types of art used in phase three in reducing the stress of hospitalized children. It is concluded that hospitalized children and adolescents prefer figurative art related to nature, but the type of art does not substantially affect these patients' stress reduction, and what they respond to basically is social support.	no
51	Coad & Coad, 2008	United Kingdom	Children and young people's preference of thematic design and color for their hospital environment	Passive	Explore children's and young people's view of the thematic design and color preferences for their new hospital unit	Mixed	descriptive; cross-sectional; observational; prospective	Project developed in two phases, the first through interviews, and the second through questionnaires. In the first phase, each participant was asked individually or in small groups about their preferences for the thematic design and color of the most relevant areas of the hospital. Phase 2 data-collection tools were based on the analysis of the interview responses. In this second phase, a questionnaire was developed that was answered by current patients and those who had already been discharged from the hospital.	An analysis of the frequencies with which different thematic designs and different color combinations were chosen by children from different age groups was carried out. Preferences for the different areas of the hospital (entrance, reception, hallways of the admittance unit) were analyzed separately. The methodology of this study is highlighted, in which a group of children and adolescents acted as consultants during phase 1, and helped develop the data collection tools and contributed to the data analysis and verification of findings.	Phase 1: 40 children and adolescents, 10 of them with learning difficulties and physical disabilities. Phase 2: 275 children, of whom 250 had been admitted to the hospital before answering the questionnaire.	The most notable findings referred to strong preferences for certain colors. Children and adolescents had been expected to choose bright colors but they repeatedly chose medium and paler color ranges, with blue-green colors being the most popular. With regard to thematic design, on average, preferences included the use of water, nature, the beach, and the sea. The use of works of art and a simple thematic design were preferred. The concept of comfort was a priority, and emphasis was made on accessories that made children feel at home (cushions, paintings, lamps, etc.)	no
52	Pelander et al., 2007	Finland	Children in the hospital: elements of quality in drawings.	Active	Describe the quality elements of an ideal hospital from children's perspective by analyzing their drawings	qualitative	descriptive; cross-sectional; observational; prospective	Children were asked to draw an ideal hospital and tell what they had drawn	Qualitative content analysis of children's drawings was carried out	Drawings of 35 children aged between 4 and 11	Two main categories referring to the environment and people were extracted from the analysis of children's drawings. The findings showed that, through their drawings, children can offer a valuable point of view about the elements that provide quality to the care they receive in the hospital.	yes

53	Birch et al., 2007	–	Sense and Sensibilities: In Search of the Child-Friendly Hospital	passive	Explore the viewpoint of children and young people about the physical environment of the hospital	qualitative	descriptive; cross-sectional; observational; prospective	A participant observation and record of children's movements and activities in hospital spaces was carried out, as well as interviewing the children and adolescents who came to or were admitted to the hospital. During interviews, the children were shown photographs of different spaces in their hospital to elicit their comments. A record was also carried out of the field notes taken during the participant observation, recording the children's movements and their daily activities in the hospital.	Data from the participant observations and interviews with the children regarding the various hospital spaces and the children's perspective were analyzed.	255 children and adolescents were interviewed, 120 were outpatients from the three participating hospitals, and 135 were hospitalized patients.	It is concluded that what matters to children and adolescents in relation to the design of the hospital space may be different from what adults think is important. Among other measures, it is highlighted that professional designers should not only consult the children and young people in the processes of construction or reform of children's units, but also be aware of the various requirements of children, especially in terms of age and gender. The requirements and preferences of children of different ages should also be considered in the provision of play spaces and relaxation, as well as in the treatment of the spaces. Spaces other than admittance rooms should be available, specially designed so that children and adolescents can spend time in them.	no
54	Massimo & Zarri, 2006	Italy	In tribute to Luigi Castagnetta - Drawings: A narrative approach for children with cancer.	Active	Collect and evaluate drawings of children affected by serious diseases, particularly cancer, so that the cultural, intellectual, and emotional status of each child can be assessed through these means.	qualitative	descriptive; longitudinal; observational; prospective	Spontaneous drawings of children admitted to the hospital and drawings made by children at the request of the investigators were collected. The children were interviewed about the content of their drawings.	The children's drawings and accompanying comments were analyzed.	50 children aged between 4 and 14 affected by leukemia or other cancers	The drawings denoted the children's perception of the disease and their fears and hopes. Their written comments allowed the professionals to better understand the children's feelings. The longitudinal perspective of the study allowed appraising improvements in the children's feelings about the changes in their environment and the psychosocial support they received.	no
55	Wikström, 2005	Sweden	Communicating via expressive arts: the natural medium of self-expression for hospitalized children.	Active	Investigate what occurs during play therapy when children are given the opportunity to use expressive arts such as modeling, painting, or textile art, and the meanings children assign to artistic objects.	qualitative	descriptive; longitudinal; observational; prospective	For three years, creative play sessions with hospitalized children were recorded. Dialogues of the children with the therapists who played with them were recorded	Systematic observation and content analysis of the play sessions were carried out to determine their priority topics.	22 hospitalized children aged between 6 and 9	The results generated from children's activities included three priority topics: fear, helplessness, and nostalgia. Expressive arts were a means of communication for hospitalized children, which helped them to express themselves	no
56	Smith & Callery, 2005	United Kingdom	Children's accounts of their preoperative information needs.	Active	Explore the information needs of children between ages 7 and 11 related to their admission to the hospital for surgery	qualitative	descriptive; cross-sectional; observational; prospective	The children were interviewed at home, using the writing and drawing technique, to explore their information needs in relation to their hospital process	A thematic analysis of the content of the interviews was carried out	9 children aged between 7 and 11 years	The results showed that using the writing and drawing technique can allow children between ages 7 and 11 to make explicit their knowledge and questions about a hospital admission for surgery.	no
57	Puura et al., 2005	Finland	Children's drawings as a measure of anxiety level: a clinical pilot study	active	Detect children's preoperative anxiety level through their drawings	quantitative	descriptive; cross-sectional; observational; prospective	The children were assigned to two different groups, agitated or calm, according to the level of agitation observed in them while placing an IV line. All the children drew a picture at three different times: right after their arrival at the unit, 10 minutes before the operation, and before they left the hospital to go home. The children were randomly assigned to three pre-medication groups:	The drawings were evaluated by an independent judge who did not know to which group each child belonged according to five characteristics (drawing size, line shape, color used, marks of the paintings, and clarity of the drawings). Each characteristic was evaluated with 0, 1, or 2 points so that the maximum possible score of each drawing was 10, an indicator of higher anxiety.	60 children aged between 4 and 7 who were to undergo adenoidectomy (with or without myringotomy).	The anxiety scores in the drawings of the very agitated children were significantly higher after arriving at the hospital and also before leaving the hospital, and these children tended to be older. There were no significant differences in the anxiety scores of the children's drawings of the different pre-medication groups. It is concluded that the anxiety scores of the children's drawings can be used to detect children or families who need sedative pre-medication, although the results need to be replicated, according to the authors.	yes
58	Driessnack, 2005	USA	Children's drawings as facilitators of communication: a meta-analysis	Active	Conduct a meta-analysis of the effect of offering the child the opportunity to draw as part of an interview process and determine whether there is sufficient evidence to include drawing in clinical and research protocols and use it as a method to facilitate communication with the children.	quantitative	review (meta-analysis)	Studies were selected that included drawings and interviews with children aged between 5 and 12, which were experimental in nature and which had at least a comparison group that used a standard approach to the interview, that is, without drawings. In addition, studies should use some measure or assessment of the quality of communication with the children.	The included studies are described and, following the methodology of meta-analysis, the effect of the intervention carried out was calculated, in this case, including drawings in the interviews with the children to improve the quality of communication	Six studies were included in the meta-analysis	The results of the meta-analysis indicated a strong effect of including the opportunity to draw as an effective strategy to improve the quality of verbal communication in interviews with the children. Drawing can be a method that facilitates communication with children by shifting the focus of what children draw to what they say when they are drawing.	no
59	Wallace et al., 2004	USA	The use of art therapy to detect depression and post-traumatic stress disorder in pediatric and young adult renal transplant recipients.	Active	Determine the prevalence of depression and emotional trauma in children and young people undergoing kidney transplant and evaluate the usefulness of a specific scale of art elements therapy to evaluate these patients	quantitative	analytical; cross-sectional; observational; retrospective	Participating patients were evaluated through different instruments, and their scores were correlated with various art-based measures of depression indicators	Results in continuous and nominal variables correlated with the results of participants' artistic creation-based assessments, their self-assessments, and the health staff's assessments.	64 patients aged between 6 and 21 years undergoing a kidney transplant	Quantitative tests based on art therapy do not identify young patients undergoing kidney transplant who have depression. Other art-based and non-quantitative diagnostic approaches may be more effective for this purpose.	yes
60	Chapman et al., 2001	USA	The Effectiveness of Art Therapy Interventions in Reducing Post Traumatic Stress Disorder (PTSD) Symptoms in Pediatric Trauma Patients	Active	Describe the effect on post-traumatic stress disorders of an art therapy project carried out in a trauma center in a hospital.	Quantitative	analytical; longitudinal; experimental; prospective	Post-traumatic stress disorder scores obtained by patients who had received standard treatment in the hospital and by those who had participated in the art therapy program, all recorded before the intervention, at baseline, after one week, and after one month.	Standardized tests were used to assess the level of post-traumatic stress of patients and to compare the average level of symptoms in patients who had received art therapy intervention with those who had received standard hospital care.	85 patients with a mean age of 10 years	There were no significant differences in overall post-traumatic stress scores between those who had participated in the art therapy program and those who had received standard treatment in the hospital. In some of the symptom clusters, however, those who had participated in the art-therapy intervention scored better than those who had received standard treatment.	no

Supplementary Materials

Full information extracted from the theoretical works, reflections, and commentaries included in the review

Nr	Authors, Year	Country	Title	Consideration of the visual arts in the work.	Nature of the model	Model context	Proposal and/or conclusions for theoretical models	Is graphic information included?
1	Morgan, 2018	-	Putting the child into the children's hospital.	Passive	General	The role of art in pediatric hospitals and its evolution over time	The need to work together from an artistic and a scientific perspective.	Yes
2	(McLaughlan & Pert, 2018)	Australia	Evidence and speculation: reimagining approaches to architecture and research within the paediatric hospital	Passive	General	Designs of hospital spaces for children that are alternative to the evidence-based design model.	A working model is proposed of alternative, imaginative designs and not limited by the conditions imposed by the effective practice of the actual construction of hospital spaces.	Yes
3	(Samarasekera, 2017)	-	The healing power of art.	Active + Passive	general	The article is a presentation of four drawings of children hospitalized at the Boston Children's Hospital to be used as illustrations of four issue-covers of the journal The Lancet Child and Adolescent Health.	A reflection is made on the role that art can play in promoting the well-being of children in hospitals.	Yes
4	(Rubio Arauna Studio y Rai Pinto Studio. & ON Diseño 2017)	Spain	Ambientación de espacios en el Hospital de Sant Joan de Deu [Environmental design in Sant Joan de Deu Hospital]. Barcelona, Spain [2012-2017];	Passive	General	The general approaches to graphic design applied to the Sant Joan de Déu pediatric hospital in Barcelona are described.	The name "the animals' hideout" describes the graphic interventions carried out in the hospital, its logic, and its objectives.	Yes
5	_ (2015).	United Kingdom	Talking point: decor designed to calm younger patients.	Passive	general	Reflection on experiences of improving pediatric hospitalization environments through artistic resources	Brief commentary on the importance of the infantile setting in the hospital, pointing out how it contributes to improving the work of the health staff by facilitating communication with patients	Yes
6	_ (2015).	United Kingdom	Artwork and splash of color transform wards	Passive	general	Reflection on the experience of using artistic resources to improve a pediatric hospital	Brief commentary on the importance of infantile settings in the hospital, pointing out how it contributes to improving children's moods.	Yes
7	(Attiah, 2013)	USA	A piece of my mind. Treat me like a child.	Passive	General	Reflection on the importance of the quality of the environment in the experience of hospital patients.	It is suggested to use the experiences of children's hospitals, much more sensitive than adult hospitals to the impact that the environment can have on patients' quality of life and well-being.	No
8	(Ting et al., 2012)	Taiwan	Using hospital art in medical student reflection.	Passive	Specific (for medical students)	Commentary on an experience of using works of art in the context of a medical student training experience	Proposing that students select works of art to be part of a hospital environment was an activity they enjoyed and through which they learned to be more aware of the importance of the environment and, according to the participants, improved their empathy towards hospitalized children and their families	No
9	(Isaacs, 2012)	Australia	Art in children's hospitals.	Passive + Active	General	Reflection on the role of art in contemporary pediatric hospitals	Considering art as a way to improve hospitals for children, commenting on examples of current programs in that regard.	Yes
10	(Capon, 2012)	Australia	Art at the children's hospital at Westmead.	Passive	General	Reflection on the experience of creating an art collection at an Australian pediatric hospital displayed on the hospital premises.	It indicates criteria to consider in the selection of the works	Yes
11	Rollins 2011 (Rollins, 2011)	USA	Arousing curiosity: When hospital art transcends	Passive	General	Analysis of the work of three artists who have worked in hospital contexts	The works of three artists that have been created for three different hospital contexts are discussed and commented on. Several theoretical concepts and frameworks are explored to account for the effect of these works of art on the experience of patients, families, and healthcare personnel.	Yes
12	(M.H. Belver & Ullán, 2010)	Spain	Symbolic environmental mediators in health settings: The role of art in the humanization of children's hospitals.	Passive	General	Model analysis of child hospitalization contexts based on the symbolic dimension of these health spaces.	It was observed that the model allowed a coherent description of the actual hospitalization environments and the proposed dimensions of their improvement. The proposed model is considered to contribute to developing shared languages in the spheres of art and health.	Yes
13	(Hathorn & Nanda, 2008)	USA	A guide to evidence-based art. The center for health design	Passive	General	Using visual arts in hospitals to improve the experience of patients, their families, and health workers	Several aspects related to the use of art in hospitals must be taken into account, such as the location of works of art so they are more effective in improving the hospital atmosphere, the needs of special patient populations, for example, pediatric patients, and the role of demographic factors (ethnicity, gender, or age). There is robust evidence and solid theoretical frameworks that explain the benefits of figurative images of nature over other more ambiguous images, but aspects such as the role of different types of abstract art, or the form and composition of these artistic creations are not yet clear.	Yes
14	(Robinson, 2007)	United Kingdom	Holistic health promotion: Putting the art into nurse education.	Active + Passive	Specific	Art training proposals for healthcare staff	It details the organization of the course, how students come into contact with different artistic initiatives developed in hospitals, and how the students themselves evaluate the training proposal, both in relation to the contents and to the active teaching methodology.	No
15	(Coad, 2007)	United Kingdom	Using art-based techniques in engaging children and young people in health care consultations and/or research	Active	Specific	Art-based research techniques	Three art-based research techniques are discussed that are particularly relevant for involving children and adolescents: a) photography; b) drawings, posters, and collages; and c) mapping. These techniques are discussed and it is emphasized that their flexible use can promote the active participation of children and adolescents so that adults better understand their desires and views.	No
16	(Brown, 2007)	USA	Facilitating therapeutic expression and communication through play	Active	Specific	The importance of play, including games with creative activities, is proposed for the well-being of hospitalized children. Several cases of children in difficult situations regarding the hospital are reported.	Play, including artistic play, should be part of children's activities in hospitals.	No
17	(Devlin, 2006)	United Kingdom	The art of healing and knowing in cancer and palliative care.	Active	Specific	It describes cases illustrating the value of art in palliative care to help patients, both children and adults, express conscious and unconscious feelings	Particular emphasis is placed on the importance of the creation process, rather than the artistic skills, and the need for the environment to support the needs of participants in non-directive art sessions	Yes
18	(Council, 2003)	-	Medical art therapy with children	Active	General	The use of art in terms of its diagnostic and therapeutic value in the contexts of the health of children	Artistic activities in medical contexts offer a potential for humanization of care, giving children hope and the possibility of expressing themselves and being better understood.	Yes
19	(Wexler, 2002)	USA	Painting their way out: Profiles of adolescent art practice at the Harlem Hospital Horizon Art Studio.	Active		Specific	Reflection on artistic practice in the Harlem Horizon Art Studio, which helps young people with disabilities to overcome the physical, emotional, and social obstacles they face. Emotional and physical health is promoted through art by providing opportunities for self-expression and socialization.	No