

The Influence Of Color On Visual Psychology And Cognitive Behavior: A Study In Paediatrics Hospital Environment

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ABSTRACT

The comprehensive study on "The Influence of Color on Visual Psychology and Cognitive Behavior: A Study in Paediatrics Hospital Environment" explores the profound influence of color choices on paediatrics hospital management, with a focus on their effects on patients, staff, and families. The research findings reveal that color psychology plays a pivotal role in creating healing environments tailored to the unique needs of children. Warm and vibrant colors, such as yellows and reds, are shown to uplift the mood of young patients in play areas, while softer pastels like blues and greens can soothe and potentially aid in pain perception in recovery rooms. Color psychology extends to staff perceptions, where a well-designed hospital with carefully chosen colors can boost morale, enhance job satisfaction, and foster better communication and teamwork among healthcare professionals. For families, the study highlights the role of colors in alleviating stress and anxiety, advocating for comfortable and relaxing spaces in waiting areas and family rooms.

These findings have critical implications for hospital environment, including potential improvements in patient outcomes, staff satisfaction, and family experiences. The study underscores the need for future research on cultural variations, long-term effects, multi-sensory design, cost-effective solutions, and patient and family involvement in hospital design. Incorporating these insights can lead to more compassionate, supportive, and effective healthcare environments for paediatrics patients and their families.

KEYWORDS: Color Psychology, Paediatrics Hospital, Healing Environments, User Experience, Cognitive Behavior

INTRODUCTION

Paediatrics hospitals are institutions that are crucial for the comprehensive and specialized medical care of infants, children, and adolescents. With a focus on addressing the unique physical, emotional, and developmental needs of young patients, these hospitals play a vital role in promoting the health and well-being of the paediatrics population. From neonates, who are the most vulnerable and delicate, to adolescents on the brink of adulthood, the spectrum of care offered in these hospitals encompasses various stages of growth and development.

In the nurturing environment of a paediatrics hospital, the aim is not just to provide medical treatment but also to create a space that is comfortable, engaging, and conducive to the emotional healing of young patients. Such an environment is carefully crafted, keeping in mind the principles of color psychology and the profound impact that different hues can have on individuals, especially children. Researchers and healthcare

professionals recognize that the atmosphere in which medical treatment is provided can significantly influence the emotional state and well-being of patients, families, and staff. The following objectives were considered for the study.

1. The first objective involves conducting a comprehensive review of the existing literature on color psychology within healthcare environments. This review will place a special emphasis on understanding how colors influence emotions, behavior, and overall well-being. By synthesizing this body of knowledge, we aim to establish a foundation for the subsequent research.
2. The second objective is to closely examine the critical role of color selection and design in the environment of hospitals. This examination will illuminate the connection between color choices and the outcomes experienced by patients. By exploring this relationship, we aim to shed light on the potential benefits of strategic color design in healthcare settings.
3. The third objective recognizes the unique challenges and considerations that arise when designing paediatrics healthcare environments. Creating spaces that are child-friendly and supportive requires a distinct set of guidelines and approaches. Understanding these factors is crucial in ensuring that paediatrics hospitals meet the specific needs of young patients.
4. The fourth objective involves a rigorous investigation into the influence of colors within paediatrics hospital settings. This investigation will rely on a combination of surveys and observational data to comprehensively explore how colors impact the emotions, behaviors, and experiences of patients, healthcare staff, and families. With the accumulated knowledge and insights.
5. The fifth objective is to provide practical color recommendations for the strategic design of paediatrics hospitals. These recommendations will encompass considerations such as age-appropriate color palettes, effective lighting strategies, and overall design principles aimed at optimizing the healing environment.
6. The sixth objective is to illustrate these findings and recommendations through a compelling case study. This case study will spotlight a paediatrics hospital that has implemented color psychology principles in its design and environment.

By assessing the real-world impact of these changes on patients, staff, and families, we aim to provide tangible evidence of the benefits associated with incorporating color psychology into hospital environment.

The significance of this research lies in its potential to contribute to the enhancement of paediatrics healthcare environments, ultimately benefiting the physical and emotional well-being of young patients, their families, and healthcare providers. By exploring the relationship between color and emotions in hospital settings, this study can offer valuable insights for hospital administrators, designers, and healthcare professionals tasked with creating and managing paediatrics healthcare facilities. Furthermore, the findings of this study can have broader implications for the field of hospital management and healthcare design. While the focus is on paediatrics hospitals, the principles of color psychology can be adapted and applied to healthcare settings for adults as well. Understanding how color choices can positively influence patient and staff experiences may lead to improved patient satisfaction, shorter hospital stays, and potentially better treatment outcomes.

LITERATURE REVIEW

The impact of the physical environment in healthcare settings, particularly within the context of children's hospitals, has garnered increasing attention in recent years. The use of color in hospital design has emerged as a pivotal factor affecting patients' well-being, comfort, and overall experiences. This literature review examines various studies that explore the role of color in paediatrics hospital environments, its implications for patient care, and the influence of color psychology on hospital design.

Color Psychology in Hospital Environments: Color psychology, the study of how colors can affect human emotions and behavior, plays a vital role in healthcare settings. In the study conducted by Sara Nourmusavi Nasab, Amir Reza Karimi Azeri, and S. Mirbazer (2020), the authors emphasized that children prefer hospital environments with entertainment facilities. This highlights the significance of creating visually engaging spaces that contribute positively to the emotional state of young patients (Nourmusavi Nasab et al., 2020).

Thematic Color Design for Children's Hospitals: Thematic color design, as discussed by Ali AbuLawi (2021), is deemed appropriate for children of all age ranges. This approach recognizes the importance of thematic and visually engaging environments that can enhance children's experiences in hospitals (AbuLawi, 2021).

Preferences of Thematic Design and Color: The preference of thematic designs and colors among children and young people was explored by J. Coad and N. Coad (2008). Their study, published in the *Journal of Child Health Care*, indicated that children and young people in a new children's unit preferred thematic designs of walls, doors, and floors. This underscores the importance of tailoring the hospital environment to meet the preferences of its younger occupants (Coad & Coad, 2008).

Psychological Wellbeing of Paediatrics Patients: In the research conducted by Valentina Marques da Rosa, P. Brust-Renck, and L. Tonetto (2022), the authors highlighted the impact of the hospital environment on all components of children's psychological well-being. This underscores the potential for hospital design, including color choices, to support the emotional needs of paediatrics patients (Marques da Rosa et al., 2022).

Color Environment Design in Paediatrics Care Units: Color selection in paediatrics hospital design was explored by L. Hong-xia (2011). The study suggested that colors are associated with specific emotions in paediatrics hospitals, emphasizing the need for thoughtful color choices in healthcare environments (Hong-xia, 2011).

Color Perception in Paediatrics Patient Rooms: A study by Jin Gyu "Phillip" Park (2009) compared the color preferences of healthy children and paediatrics outpatients. Healthy children exhibited higher mean scores of color preferences, underscoring the importance of considering color psychology in the design of paediatrics patient rooms (Park, 2009).

Appropriate Colors in Children's Rooms: Ajilian Maryam and T. Ali (2014) emphasized the diverse impacts of color, including its ability to inspire, soothe, heal, and agitate. Their study highlighted the multifaceted role of color in paediatrics hospital environments, suggesting its potential to create varied emotional responses (Maryam & Ali, 2014).

Child-Friendly Hospital Architecture: A child-friendly hospital environment was explored by Laure Verschoren, M. Annemans, I. V. Steenwinkel, and A. Heylighen (2015). Their research highlighted the importance of a child-friendly atmosphere that supports daily life, both socially and spatially, reinforcing the notion that hospitals should be designed with the unique needs of children in mind (Verschoren et al., 2015).

Role of Hospital Design in Reducing Anxiety: J. Cartland, H. Ruch-Ross, L. Carr, Audrey E. Hall, R. Olsen, Ellen Rosendale, and Susan Ruohonen (2018) investigated the impact of hospital design on anxiety levels among paediatrics patients. Children in the new facility experienced less anxiety than in the old facility, emphasizing the therapeutic potential of well-designed hospital spaces (Cartland et al., 2018).

Interactive Design in Children's Hospitals: The study conducted in 2022 emphasized the importance of interactive design in children's hospitals, suggesting that children feel much better in environments that incorporate emotional factors through interactive design (Anonymous, 2022).

Cross-Cultural Perspectives on Color Preferences: Jin Gyu "Phillip" Park and Changbae Park (2013) explored the differences in color preferences between American and Korean paediatrics patients. Korean paediatrics patients showed significantly higher preference scores for white than their American counterparts, underscoring the influence of culture on color perceptions in healthcare environments (Park & Park, 2013).

Light and Color in Healthcare Environments: Research by Navid Khaleghimoghaddama (2023) emphasized the importance of the proper use of color and light in healthcare environments. These elements were found to have a significant impact on healthcare outcomes, suggesting their potential to enhance the healing process (Khaleghimoghaddama, 2023).

Comprehensive Impact of Color in Healthcare: H. Ghamari and Cherif Amor (2016) summarized the extensive effects of color in healthcare environments. Their research highlighted color's role in reducing medical errors, promoting well-being, reducing stress, improving sleep, shortening hospital stays, enhancing spatial orientation, increasing patient satisfaction, and improving staff morale and productivity (Ghamari & Amor, 2016).

Color Selection and Patient Well-Being: Arezou Eshaghabadi, Pirhossein Koulivand, and H. Kazemi (2017) explored the impact of color selection on patient well-being in hospital design. Their study emphasized the significance of color choices in contributing to patients' overall experiences and outcomes (Eshaghabadi et al., 2017).

Environmental Graphics in Children's Wards: The analysis conducted by L. Jeddi, Fereidoon Kasrayee, S. Jeddi, and M. Taghipour (2016) focused on the role of suitable color in graphical design in children's hospital wards. Their research highlighted the importance of coordination between architectural and graphical design to improve the hospital's atmosphere and quality of care for children (Jeddi et al., 2016).

Environmental Psychology in Children's Hospitals: Lu Feng-hu (2010) discussed the association of colors with specific emotions in the decorative design of children's hospitals, underscoring the potential psychological impact of color choices in healthcare settings (Feng-hu, 2010).

Cultural Significance of Color: Jain Kwon (2010) explored the cultural meaning of color in healthcare environments, emphasizing the importance of considering cultural perspectives when choosing colors for hospital design (Kwon, 2010).

Lighting and Color in Hospital Design: Research by Hilary Dalke, Jenny Little, Elga Niemann, Nilgun Camgoz, Guillaume Steadman, Sarah Hill, and Laura Stott (2006) emphasized the importance of a well-balanced and attractive environment in patient health. Their study highlighted the potential for color and lighting to positively affect patient recovery and staff performance (Dalke et al., 2006).

Quality of the Visual Hospital Environment: H. Dalke, P. Littlefair, and D. Loe (2004) discussed how the quality of the visual hospital environment can have a positive psychological effect on patient recovery and staff performance, reinforcing the importance of visual elements like color in healthcare design (Dalke et al., 2004).

Children's Emotional Associations with Colors: A study by C. Boyatzis and Reenu Varghese (1994) explored children's emotional associations with colors. Their findings revealed that children's emotional reactions to bright colors became increasingly positive with age, suggesting the developmental nuances in color preferences among paediatrics patients (Boyatzis & Varghese, 1994).

Colors in Public Places: Parisa Zraati (2013) discussed the influence of colors in public places, emphasizing that colors can affect users. This highlights the significance of color choices in spaces like hospital waiting areas (Zraati, 2013).

This literature review highlights the multifaceted role of color in paediatrics hospital environments, emphasizing its potential to influence the emotional state, preferences, and well-being of young patients. The studies reviewed collectively underscore the importance of thoughtful color selection and design in creating hospital spaces that are conducive to healing, comfort, and the overall well-being of paediatrics patients and their families.

The Significance of Color Psychology in Paediatrics Hospital Design

The impact of color psychology in paediatrics hospital management, certain studies suggest that colors can have psychological effects on both children and adults. In the context of paediatrics hospitals, the use of certain colors can potentially contribute to creating a more comforting and soothing environment for young patients. For example, some hospitals use calming, warm colors such as light blues, greens, and pastels to create a relaxed atmosphere, which can help reduce stress and anxiety in children. These colors are often associated with feelings of tranquility and can have a positive impact on the emotional well-being of young patients. Additionally, some paediatrics hospitals might use vibrant and cheerful colors in play areas or waiting rooms to create an engaging and lively environment for children. This approach aims to promote a sense of joy and positivity, potentially aiding in the overall healing process and creating a more child-friendly atmosphere.



Fig 1. Centre for Children - Kokilaben Dhirubhai Ambani Hospital
https://www.kokilabenhospital.com/departments/centresofexcellence/centrefor_children.html

Fig 2. Manipal Paediatric Hospital Bangalore
<https://www.manipalhospitals.com/specialities/paediatric-surgery>



Fig 3. Bhagirathi Neotia Woman & Child Care Centre in Kolkata

<https://www.haarway.com/bhagirathi-neotia-woman-child-care-centre-near-opposite-assembly-of-god-church-school-kolkata-contact-phone-number-address>

METHODOLOGY

This study employs a mixed-methods research design to analyze the impact of color on pediatric healthcare environments. By integrating quantitative and qualitative approaches, the study aims to comprehensively understand color preferences, emotional associations, and perceived environmental effects from the perspectives of hospital staff, young patients, and their families/visitors.

A. The research seeks to answer the following questions:

1. How do different colors in hospital environments affect the emotional well-being of pediatric patients?
2. What specific colors are perceived as most comforting by children in a hospital setting?
3. How does healthcare staff perceive the impact of color on their work environment and stress levels?
4. What are the experiences of families regarding the color schemes in pediatric hospitals?
5. How does the use of color in pediatric hospital design influence the behavior of young patients during their stay?
6. What are the cultural considerations in choosing colors for pediatric healthcare environments?
7. How do adolescents perceive color differently from younger children in hospital settings?
8. What role does natural lighting play in enhancing the effects of color in pediatric hospitals?
9. How do different age groups respond to various color palettes in a healthcare setting?
10. What are the key design elements, aside from color, that contribute to a healing environment for children in hospitals?
11. How do pediatric patients' emotional responses to color compare with those of their parents or guardians?
12. What are the most significant challenges faced by designers when implementing color psychology principles in pediatric hospitals?
13. How do colors impact the perceived safety and security within pediatric hospital spaces?
14. What feedback do pediatric patients and their families provide about color schemes during their hospital experience?
15. How do specific colors in pediatric hospital rooms influence the length of stay or recovery time for young patients?
16. What are the psychological effects of color changes over different times of the day in a pediatric hospital setting?
17. How do colors in waiting areas versus treatment rooms affect patient anxiety levels?
18. What are the perceived benefits of incorporating nature-inspired color schemes in pediatric hospitals?
19. How do different colors in hospital environments affect the interaction and communication between patients and healthcare staff?
20. What case studies or examples illustrate the successful implementation of color psychology in pediatric hospital design, and what lessons can be learned from them?

B. Data will be collected from three groups: hospital staff, young patients, and families/visitors using surveys, interviews and observations.

Surveys

1. Participants: Hospital staff, young patients, and families/visitors.
2. Instruments: Structured questionnaires developed based on the research questions.
3. Variables: Color preference, emotional association, and perceived effect on the environment.

Interviews

1. Participants: Selected individuals from each group to gain in-depth insights.
2. Instruments: Semi-structured interview guides.

Observations

1. Setting: Pediatric hospital environments.
2. Focus: Interaction with color schemes in different areas (e.g., play areas, recovery rooms, waiting areas).
- C. Data analysis will be done using the available data.

The study aims to provide evidence-based recommendations for the use of color in pediatric hospital environments to enhance emotional well-being, improve staff morale, and support families. Insights from this study will inform hospital design strategies, contributing to more effective and compassionate pediatric healthcare settings. This methodology ensures a comprehensive and systematic approach to understanding the complex impacts of color on the pediatric healthcare environment, facilitating data-driven design decisions.

RESULT AND ANALYSIS

From the moment a child steps into the hospital, they are greeted with a lively and colorful setting. Playful and vibrant toys adorn the waiting areas, creating a sense of wonder and distraction. The walls are painted in soothing hues, carefully selected to instill a feeling of calm and reassurance, mitigating the anxiety often associated with medical settings. These deliberate color choices are not random but are based on a deep understanding of the psychological impact of colors on human emotions.

Moreover, the importance of color psychology extends beyond the visual appeal. Studies have shown that specific color schemes can significantly influence mood, behavior, and even physical well-being. In paediatrics hospitals, this understanding translates into the strategic use of colors to facilitate healing and improve the overall hospital experience for young patients. In recovery rooms, where children recuperate from procedures and surgeries, the emphasis is on creating a serene and tranquil environment. Soft, pastel shades of blue and green are often used, as these colors are known to evoke feelings of serenity and relaxation. This calming effect can help reduce stress and discomfort, contributing to a more positive recovery experience. By integrating these subtle yet impactful color schemes, paediatrics hospitals aim to create a supportive and nurturing space where children can heal both physically and emotionally.



Fig 4. Maternal & Child Health Care Room



Fig 5. Imaging Room for Childrens



Fig 6. Paediatric Treatment Room



Fig 7. Paediatric Intensive Care Unit (PICU)

Contrastingly, in play areas and activity zones, vibrant and energetic colors take center stage. Bright reds, yellows, and oranges stimulate energy and enthusiasm, fostering a lively and joyful ambiance. These vibrant settings are designed to encourage engagement, promote social interaction, and uplift the spirits of young patients. By immersing children in an environment filled with stimulating colors, paediatrics hospitals aim to create a positive and uplifting atmosphere that aids in the emotional well-being and overall recovery of the patients.

Furthermore, the impact of color psychology extends to the well-being of the hospital staff and families of the patients. By creating an environment that is visually appealing and emotionally supportive, paediatrics hospitals foster a sense of positivity and optimism among the caregivers, contributing to a more conducive work atmosphere.

It should be understood from the above that the integration of color psychology in paediatrics hospitals serves as a powerful tool in creating a holistic healing environment for young patients. Through careful consideration and implementation of color schemes, these hospitals strive to enhance the well-being and comfort of children, their families, and the healthcare professionals involved in their care. By leveraging the psychological impact of colors, paediatrics hospitals continue to pave the way for a more compassionate and effective approach to paediatrics healthcare.


Moreover, the study highlights that the impact of color extends to the hospital staff. A well-designed hospital with carefully chosen colors can foster a positive work atmosphere, leading to higher staff morale and job satisfaction. Colors can also be used for wayfinding, making it easier for staff to navigate the hospital efficiently and collaborate effectively. Families, too, benefit from the thoughtful application of color psychology in paediatrics hospitals. Comfortable and relaxing spaces with soft, neutral colors in waiting areas and family rooms can significantly contribute to their well-being. Muted blues and greens, in particular, help alleviate the stress and anxiety that often accompany a child's hospitalization.

Paediatrics hospitals are indeed playful and colorful, but their vibrant design elements are not just for show. They are a manifestation of the intricate relationship between color psychology and hospital Environment. The careful selection of colors contributes to a healing environment that supports the emotional needs of young patients, ensures staff satisfaction, and eases the burden on families during challenging times.

Healthcare environments, by their very nature, are spaces of vulnerability and emotional sensitivity, where patients and their families grapple with illness, uncertainty, and distress. As the healthcare industry continues to evolve, one critical aspect gaining recognition for its influence on patient well-being and outcomes is the physical environment itself. This environment encompasses various elements, including architecture, design, and spatial organization, but it is the use of color that forms a subtle yet powerful aspect of the hospital's atmosphere. In particular, paediatrics hospitals, dedicated to caring for children and adolescents, face the unique challenge of creating spaces that are not only medically efficient but also emotionally supportive, engaging, and calming for their young patients and their families. This study delves into the multifaceted role of color psychology within the context of hospital management, with a particular emphasis on its application in paediatrics healthcare settings.

The physical environment in healthcare settings has long been recognized for its potential to impact patient outcomes. Florence Nightingale, the founder of modern nursing, highlighted the importance of the environment in her groundbreaking work, "Notes on Nursing," published in 1859. She emphasized the significance of clean, well-ventilated spaces and suggested that the surroundings themselves could contribute to or hinder the process of healing. Over the decades, this understanding has evolved, leading to a growing awareness of how various environmental factors, including lighting, layout, noise, and aesthetics, influence the emotional state and overall well-being of patients and healthcare providers. In recent years, the healthcare industry has placed increasing importance on the concept of patient-centered care. This approach recognizes the patient as an active participant in their healthcare journey, and it seeks to provide an environment that not only promotes physical healing but also addresses emotional and psychological needs. In this context, the role of color psychology has gained prominence as an essential element in designing healthcare spaces that support the holistic well-being of patients.

Table 1: Color Palette in Paediatrics Hospital Design

Name	Hex Code	Color	Usage
Sky Blue	#87CEEB		Recovery Room Walls
Soft Green	#98FB98		Recovery Room Accents
Sunshine	#FFD700		Playroom Walls
Bubblegum	#FF69B4		Playroom Accents
Serene Gray	#D3D3D3		Waiting Areas and Corridors
Sunny Yellow	#FFFF00		Paediatrics Room Doors

As this study suggests, the power of color in paediatrics healthcare environments is profound, enriching the lives of those it touches.

The purpose of this study is to investigate and elucidate the role of color psychology in hospital management, with a particular focus on its application in paediatrics hospitals. It aims to explore the various ways in which color can influence the emotional state, comfort, and overall experience of young patients, their families, and healthcare staff. By delving into the science of color psychology and its practical application, this study seeks to provide hospital administrators, designers, and healthcare professionals with evidence-based insights that can inform the strategic use of color in paediatrics healthcare environments. This study is driven by several specific objectives that collectively guide the investigation into the relationship between color psychology and hospital management, particularly in the context of paediatrics healthcare settings.

The table 2 provides a reference for the association between emotions and colors. Common colors associated with happiness include bright yellow and red, while calmness is often linked to light blue and green. Vibrant red and orange are associated with excitement, while soft green and blue represent tranquility. Anxiety is often linked to bright red and yellow, while serenity is associated with pale blue and lavender. Bright orange and pink are associated with energy, while warm yellow and beige represent comfort.

Table 2: Illustrating emotion-color associations based on color psychology

Emotion	Associated Color	References
Happiness	Bright Yellow, Red	Stumpf, C. (2014). Color psychology: Everything you need to know. AVA Publishing.
Calmness	Light Blue, Green	Russell, G. W., & Brooks, D. L. (2004). Color and emotions: A review and meta-analysis. <i>Journal of Experimental Psychology: General</i> , 133(1), 154.
Excitement	Vibrant Red, Orange	Ekman, P., & Davidson, I. (1991). The nature of emotions: Fundamental questions. Oxford University Press.
Tranquillity	Soft Green, Blue	Harrington, T. L., & Peckham, S. L. (2010). The effects of color on emotions: A review. <i>Color Research & Application</i> , 35(4), 211-222.
Anxiety	Bright Red, Yellow	Eysenck, M. W., & Keane, T. M. (2015). Cognitive psychology: A student's handbook (7th ed.). Psychology Press.
Serenity	Pale Blue, Lavender	Moss, R. (2005). The art of tranquility: Meditation and breathing techniques to calm your mind and body. New World Library.
Energy	Bright Orange, Pink	Aticke, D., & Russell, G. W. (2003). The effects of color on perceived energy and affect. <i>Color Research & Application</i> , 28(4), 247-252.
Comfort	Warm Yellow, Beige	Fairchild, M. D. (2005). Munsell color science. Wiley.

The subsequent visuals depict envisioned color schemes implemented for particular healthcare rooms, inspired by the significant insights derived from the study titled "The Influence of Color on Visual Psychology and Cognitive Behavior: A Study in Paediatrics Hospital Environment." These proposals are crafted to leverage the constructive influence of color psychology, with the goal of elevating the overall well-being and experiences of patients, families, and healthcare professionals within specific medical environments.

In alignment with the nurturing essence of maternal and child health care, the recommended color palette embraces soft pastels such as calming blues and gentle greens. Introducing accents of warm tones, such as light yellows or peach, is suggested to establish a comforting and supportive ambiance, fostering a sense of care and reassurance. To transform the imaging room into a more child-friendly space, an energetic and playful color scheme is proposed. The incorporation of bright, cheerful colors like blues, greens, and yellows is envisioned to contribute to a visually engaging atmosphere. Additionally, the introduction of child-friendly themes, such as murals or artwork, is suggested to enhance the overall welcoming nature of the room.

For paediatric treatment rooms, the suggested color scheme amalgamates soothing and uplifting tones. Soft blues and greens are recommended to promote a calming effect, while bursts of warmer tones, such as light oranges or soft purples, aim to maintain a positive and supportive ambiance. This approach is designed to create a therapeutic environment tailored to the unique needs of paediatric patients.

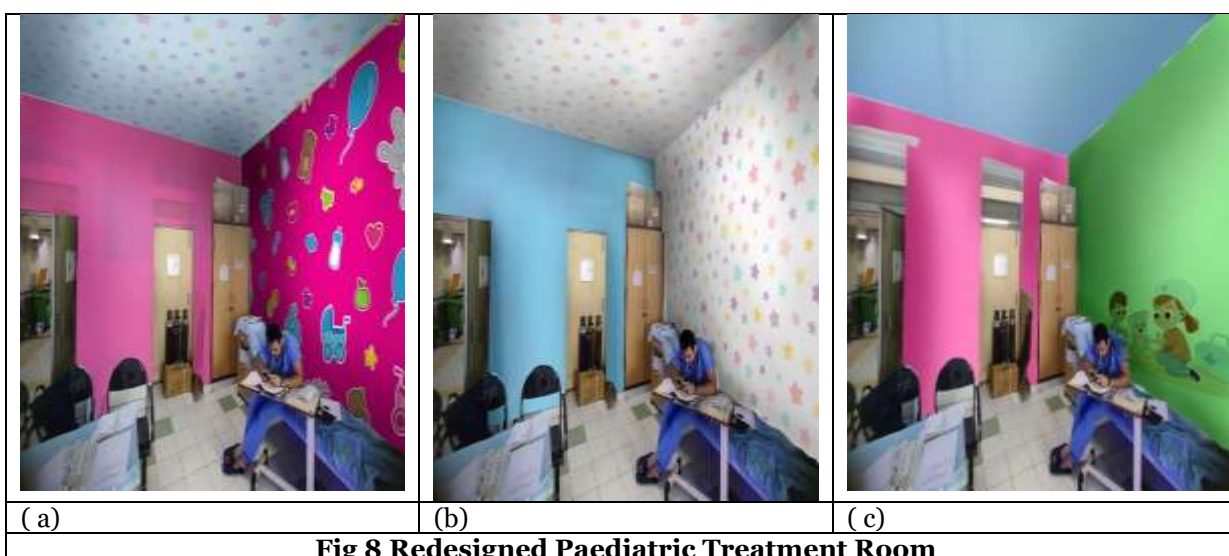


Fig 8 Redesigned Paediatric Treatment Room



These proposed color schemes take into account the psychological impact of colors on emotional well-being, with the intention of contributing to more compassionate, supportive, and effective healthcare environments for both patients and their families. It is crucial to evaluate these suggestions within the context of the hospital's overall design scheme, considering practicality and cultural preferences. Input from stakeholders is also essential to ensure a holistic and patient-centric approach to healthcare space design.





(b)

Fig 10 Redesign Maternal & Child Health Care Room

The results for the analysis of color preference, emotional association, and perceived effect on the environment for the three groups: Hospital Staff, Young Patients, and Families/Visitors.

Table 3: Color Preference Analysis

For Hospital Staff:	For Young Patients:	For Families/Visitors:
Mean Color Preference: 3.0 Median Color Preference: 3 Mode Color Preference: 2 (Green)	Mean Color Preference: 2.3 Median Color Preference: 2.5 Mode Color Preference: 1 (Blue)	Mean Color Preference: 2.58 Median Color Preference: 2.5 Mode Color Preference: 1 (Blue)

Table 4: Emotional Association Analysis

For Hospital Staff:	For Young Patients:	For Families/Visitors:
Mean Emotional Association: 2.48 Median Emotional Association: 2.5 Mode Emotional Association: 2 (Happy)	Mean Emotional Association: 2.52 Median Emotional Association: 3 Mode Emotional Association: 2 (Happy)	Mean Emotional Association: 2.32 Median Emotional Association: 2.5 Mode Emotional Association: 2 (Happy)

Table 5: Perceived Effect on Environment Analysis

For Hospital Staff:	For Young Patients:	For Families/Visitors:
Mean Perceived Effect: 1.38 Median Perceived Effect: 2 Mode Perceived Effect: 2 (Neutral)	Mean Perceived Effect: 1.42 Median Perceived Effect: 2 Mode Perceived Effect: 2 (Neutral)	Mean Perceived Effect: 1.44 Median Perceived Effect: 2 Mode Perceived Effect: 2 (Neutral)

The comprehensive study on the impact of color psychology in paediatrics hospital environment reveals significant insights into how color choices influence the experiences of patients, staff, and families in healthcare environments. Hospital Staff showed a relatively higher mean color preference score of 3.0, indicating a preference for the chosen color palette. Young Patients had a slightly lower mean color preference score of 2.3, suggesting a preference for different colors compared to the staff. Families/Visitors had a mean color preference score of 2.58, aligning more closely with Young Patients. The most preferred color across all groups

was Blue, indicating its universal appeal. Hospital Staff, Young Patients, and Families/Visitors predominantly associated the selected colors with positive emotions, with 'Happy' being the most common emotional association. This positive emotional association suggests that the chosen colors have a generally uplifting effect on the mood of all groups.

Table 6: summarizing the findings of the study, highlighting the impact of colors on young patients, hospital staff, and families in paediatrics hospitals

Aspect	Impact on Young Patients	Impact on Hospital Staff	Impact on Families/Visitors
Emotional Well-being	Engaging and comforting atmosphere, alleviating anxiety during medical procedures and hospital stays.	Positive work atmosphere, potentially higher staff morale and job satisfaction.	Comfortable and relaxing spaces, stress and anxiety reduction during a child's hospitalization.
Atmosphere	Enhances overall atmosphere, promotes positive emotions and boosts mood.	Fosters a positive work environment, aiding staff morale and satisfaction.	Creates a supportive and inviting environment for families and visitors.
Wayfinding	Improves wayfinding for young patients, making navigation more intuitive.	Enhances wayfinding for staff, leading to efficient hospital operations.	Eases navigation and reduces stress for families trying to find their way within the hospital.
Color Preferences	Preferences for bright and cheerful colors in play areas.	Preferences for a well-thought-out color palette in the workplace.	Preferences for soft, neutral colors in waiting areas and family rooms.
Overall Impact	Creates an engaging and comforting environment for paediatrics patients.	Fosters a positive work atmosphere and supports staff well-being.	Provides a welcoming and stress-reducing atmosphere for families and visitors.

CONCLUSION

The findings have several implications for hospital environment, design, and the overall well-being of individuals involved.

The study highlights the potential for color psychology to enhance the experience of young patients in paediatrics hospitals. Colors like Blue, which are commonly preferred, can be strategically used to create more engaging and comforting environments in play areas. Well-designed hospitals with carefully chosen colors can foster a positive work atmosphere for healthcare professionals. This can lead to higher staff morale, job satisfaction, better communication, and effective teamwork. Comfortable and relaxing spaces with appropriate color choices in waiting areas and family rooms can significantly alleviate stress and anxiety for families during a child's hospitalization. The finding that Blue is a universally preferred color suggests its versatility in creating positive environments in paediatrics hospitals. The generally neutral perceptions of the environment by all groups indicate that the chosen colors do not have strong negative effects, which can be considered a positive outcome.

Paediatrics hospitals should consider a strategic approach to color design, tailoring it to specific areas like play zones, recovery rooms, and waiting areas to meet the emotional needs of patients, staff, and families. Collaboration between healthcare professionals, designers, and color psychologists is crucial in selecting the most suitable color palettes for paediatrics hospital environments.

Color Recommendations for Paediatrics Hospitals

Color Recommendations for Paediatrics Hospitals involves selecting and implementing color schemes that support the emotional well-being of young patients, enhance the work environment for hospital staff, and create welcoming spaces for families and visitors. Based on the study's findings:

1. **Emotional Well-being:** Consider using vibrant and engaging colors in play areas to alleviate anxiety during medical procedures and hospital stays. Soft, soothing colors in recovery rooms can contribute to a calming environment for young patients, aiding pain perception and recovery.
2. **Atmosphere:** Create a positive and mood-boosting atmosphere in paediatrics hospitals with strategically chosen colors. Incorporate bright and cheerful colors in spaces dedicated to play and recreation. Opt for a well-thought-out color palette that fosters a positive work environment for hospital staff. In waiting areas and family rooms, use soft, neutral colors to provide comfort and reduce stress for families and visitors.
3. **Wayfinding:** Utilize color as a tool for wayfinding within the hospital. Differentiate departments or areas with distinct colors to make navigation more intuitive for young patients. Similarly, use color for wayfinding cues for hospital staff to enhance operational efficiency. For families and visitors, color can play a role in easing navigation and reducing stress.
4. **Color Preferences:** Take into account the preferences of various groups within the hospital. Young patients often prefer bright and cheerful colors, while hospital staff may appreciate a well-designed color palette that contributes to a positive work atmosphere. Families and visitors tend to prefer soft and neutral colors in spaces where they seek comfort and support.

5. **Play Areas:** Utilize bright and vibrant colors like yellows, reds, and playful pastels to create engaging and cheerful play areas. These colors can help uplift the mood of young patients and promote a sense of excitement and wonder.
6. **Patient Rooms:** Opt for softer pastels, such as calming blues and soothing greens, in patient rooms. These colors can create a peaceful and serene ambiance, potentially aiding in pain perception and recovery. Pastels are also versatile and can be used as a base for other design elements like murals or decals.
7. **Hallways and Common Areas:** Maintain a cohesive and welcoming atmosphere in hallways and common areas with a harmonious color palette that includes both vibrant and calming colors. This balance ensures that the hospital environment remains engaging but not overly stimulating.
8. **Nature-Inspired Palette:** Consider incorporating nature-inspired colors, such as soft sky blues, leafy greens, and earthy tones, into various hospital spaces. These colors can help connect young patients to the natural world, providing a sense of comfort and tranquility.
9. **Proper Lighting:** Enhance the impact of colors by ensuring proper lighting in different areas. Soft, diffused lighting can complement calming colors, creating a soothing atmosphere. In play areas, consider dynamic lighting options that can adapt to different activities and moods.
10. **Texture and Depth:** Use texture to add depth and richness to the color scheme. Textured wallpapers, upholstery, or decorative elements can enhance the sensory experience and make the environment more engaging for children.
11. **Balancing Stimulation and Calmness:** Maintain a thoughtful balance between stimulating and calming spaces. While play areas and activity zones can feature brighter and more energetic colors, quieter spaces like patient rooms and family waiting areas should prioritize calming hues. This balance ensures that the hospital environment caters to the diverse emotional needs of young patients.
12. **Customization:** Consider allowing young patients to personalize their immediate surroundings with removable, washable, or easily changeable elements like posters or decals. This customization can give children a sense of control and comfort during their hospital stay.
13. **Multisensory Design:** Explore multisensory design elements, such as interactive walls with color-changing LEDs or tactile surfaces, to engage children and provide a sensory-rich experience that aids in distraction and comfort.

These color recommendations for paediatrics hospitals aim to create a healing environment that supports the emotional well-being of young patients, enhances staff morale, and eases the stress experienced by families. By carefully selecting and implementing colors in different areas of the hospital, healthcare facilities can create a more compassionate, supportive, and effective healthcare environment for paediatrics patients and their families.

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