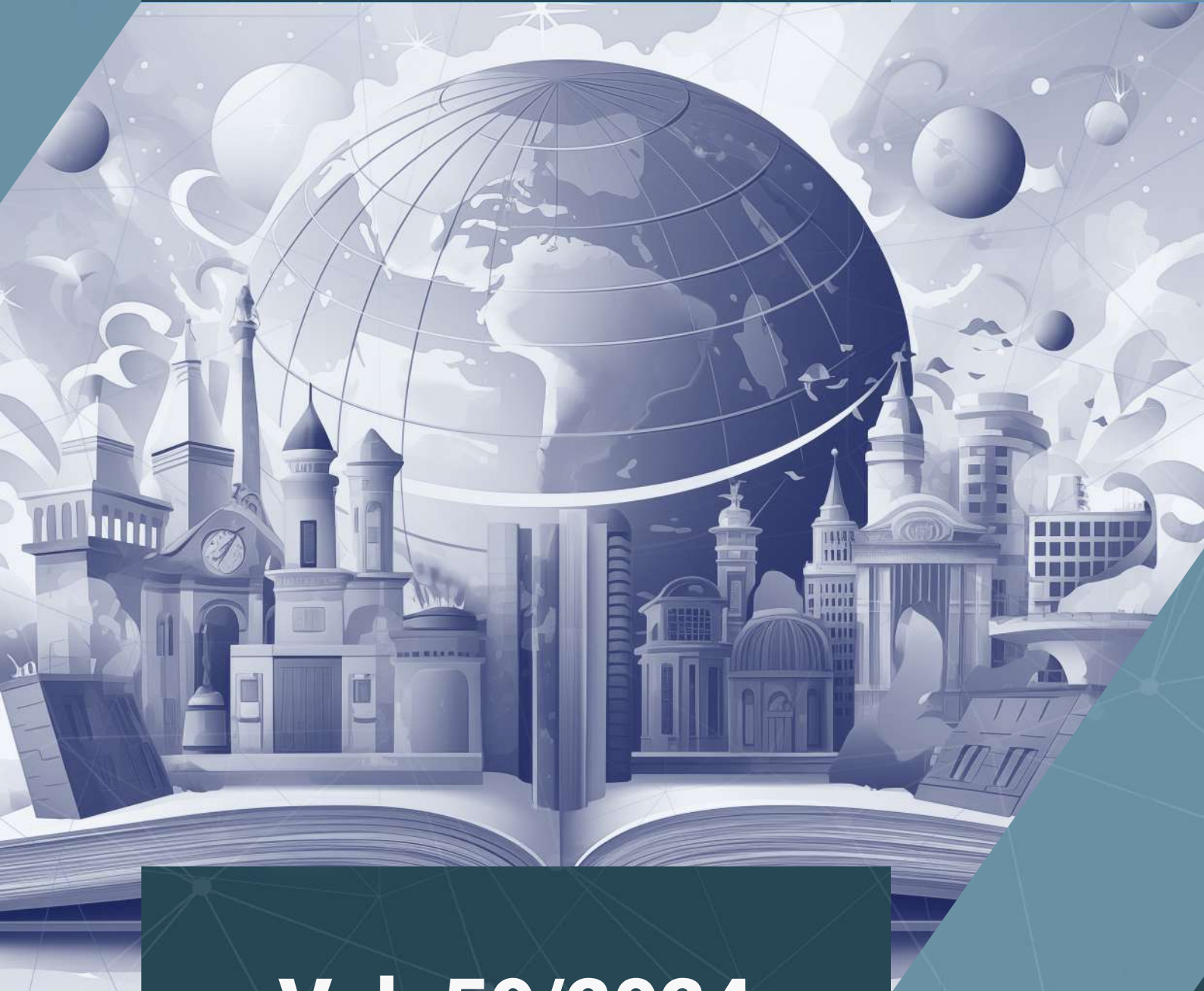




TECHNIUM
SOCIAL SCIENCES JOURNAL



Vol. 59/2024
A New Decade for Social Changes

PLUS
COMMUNICATION



International
Communication & PR

Understanding Patient Preferences: A Review of Patient-Centred Approach in Hospital Ward Interior Design

Syifa Diella Adelita^{1*}, Susy Budi Astuti²

^{1,2}Interior Design Department, Institute Technology of Sepuluh Nopember, Indonesia

*Syifa.diella@yahoo.com

Abstract. Patients who seek treatment in hospitals have a unique conditions that should be considered in facility design. Facilities that are not designed according to the patient's needs and preferences give rise to the phenomenon of discomfort in the process of treatment at the hospital. Interior is one aspect of the built environment that plays a role in patient preferences. This study aims to examine patient preferences in hospital ward interiors to create a comprehensive understanding of patient preferences for a hospital ward. The study conducted by literature studies and through participants validation questionnaire from Indonesia. The results of the study show patients' preferences for interiors that can accommodate the comfort, security, safety, and social needs of patients during inpatient treatment. Preference for interior aspects related to natural elements is also often found in the research results.

Keywords. User Centred Design, Patient Preference, Hospital Design, Interior Design

1. Introduction

Health facilities such as hospitals play an important role in the treatment of diseases, where they act as patient accommodation in the treatment process. Although patients are the main target in a health facility, not all health facilities are designed based entirely on patient comfort. Psychological factors are closely related to the patient's environment where to support the patient's psychological condition it is necessary to create a comfortable environment, in the sense that psychologically the environment provides positive support for the healing process [1]. Inpatient care in hospitals is not the most pleasant experience for users, especially patients. The experience of having to stay overnight for a certain period of time in a hospital environment has a varied responses from patients. The built environment has a significant impact on the psychological and healing process of patients if designed correctly ([1];[2]). The impact will not only felt individually by the patient, but can also be felt by the patient's companion and family, as well as the workforce at the health facility [3]. Unfortunately, many patients experience unpleasant and stressfulness in a hospital setting [1], especially in an unsupportive hospital environment which providing an uncomfortable atmosphere for patients. This has long been a concern by many researchers, where poorly designed inpatient rooms not only have a direct physical and physiological impact, also creating a long-term impacts to patients, such as depression [4]. The sub-optimal condition felt by patients requires a certain understanding that must be obtained while designing an inpatient room design by paying attention to every aspect of design in the inpatient room.

Creating specific designs has become a trend in healthcare [5]. which is proven by many already acknowledging the specific needs of each healthcare practice. Patient-centred design is an approach to designing healthcare facilities that focuses on the patient as a specific or unique individual who needs to be accommodated. This concept stems from the patient-centred care (PCC) approach applied to the hospital service system by positioning patients as individuals who must be respected for their needs and preferences [6]. The concept was then adopted by the designer as a foundation in designing healthcare facilities that prioritize comfort through the application of patient preferences and needs. According to the new modernization approach to health proposed by the Department of Health and NHS service provision, the healthcare environment should develop patient-centred strategies and focus on the things that really matter to patients. In terms of the health-related aspects of the sustainable development paradigm, healthcare facilities are critical to the well-being of current and future patients and other stakeholders [2].

Preference is a form of expression of needs, values, and goals. Needs are biological, social, and functional aspects of nature that every individual human has in order to motivate humans to move and function optimally. Needs are then transformed into values or values that become principles in the behaviour of an individual. Each individual can create a configuration of values systems that are different from each other which can guide the basis of each individual's activities. Meanwhile, Goals are the unconscious desires of a person's behaviour and values [7]

Interior is one of the constructors of the built environment in a health facility that plays a significant role in patient preferences. This study aims to examine patient preferences for inpatient interiors from existing literature to create a comprehensive understanding of patient preferences in a hospital ward interior design context. Moreover, this study can be applied as insight in designing future healthcare facilities or policies regarding healthcare facilities.

2. Methods

The data collection stage was carried out qualitatively through the literature review method sourced from journals and research. The literature review process was carried out on 20 literatures through online scientific journal publication pages with search keywords including: patient centred design, patient preference, patient centred, preference, hospital room, preference. Literature data that has been reviewed will be processed into 2 categories to classify patient preferences for interiors, the first being preferences for room-making aspects namely floors, walls and partitions, windows, doors, and ceilings, and the second is preferences for space-filling aspects which include furniture, furnishings, electronics and accessories in the room.

Validation to participants was also carried out through a questionnaire. The questionnaire was presented with close-ended questions with multiple choices and checks to make it easier for participants to fill in, as well as open-ended questions to better understand the views of participants.

After going through the process of data collection and data processing, analysis was carried out on the literature review that had been reviewed and on the patient validation questionnaire. Data analysis is carried out to find patterns contained in the data review. The pattern will then become the conclusion and discussion material in the study.

3. Results and Discussion

3.1. Preference Study on Room-Making Aspects.

Table 1. Patients' preference on room-making aspects in hospital ward

Source	Category	Preference
[8]	Walls & Partition	Patients tend to have a preference for pastel room colors
[9]	Walls & Partition	Patients have a tendency to prefer warm-colored dinners over cold ones
[10]	Walls & Partition	Curtains that can be opened and closed to increase the sense of control
[11]	Walls & Partition	Younger patients also showed a preference for pale to mid-toned colors.
[12]	Room-making aspects (General)	Moderate use of wood materials was preferred over rooms with no use of wood materials and excessive use of wood materials
[13]	Ceiling	Some patients expressed ceiling to be a positive distraction
[1]	Flooring	Patients tend to have a preference for carpet over vinyl due to its anti-slip properties and cozy feel.
[9]	Doors	Patients prefer doors to hallways to be open rather than closed as it adds a sense of security
[14]	Doors	Patients prefer bathroom doors using sliding doors
[2]	Windows	Windows are preferred by patients because they can view life outside.
[13]	Windows	Patients prefer windows that provides a view of nature (sky and plants)
[1]	Windows	Diverse patient groups agree on the importance of windows that have views of nature
[9]	Windows	Patients and medical professionals consistently prefer inpatient rooms with the highest amount of daylight access.

[9]	Windows	Patients have a preference for horizontal windows as they allow for panoramic views
[15]	Windows	Patients have a preference for knowing activity in the hallway from windows
[16]	Windows	Bright ICU rooms with lots of windows providing natural light and relaxing nature views are favored by patients and families.
[17]	Windows	Patients prefer windows with nature views over urban views

Source: Research literature study findings (2024)

From a total of 20 literatures that have been reviewed, in total there are 17 preferences concluded for room making categories contained in the literature. In details, as many as 4 discuss preferences for walls and partitions, 1 preference concluded discusses the preference aspect for ceilings (roofs), 1 preference regarding flooring categories, 2 preferences regarding door category, 1 preference regarding aspects of room makers in general, and 8 preferences regarding window categories.

From the wall and partition category, colour was identified as the dominant topic of patient preference. Varying results were found from various patient demographics, although there were similarities in the selection of muted colours, such as pastels or mid tones. In the window category, it can be seen that the window aspect of a room is the most discussed on the topic of patient preferences, this is also related to the fact that windows are a link between patients and outside living conditions and natural environments that have been discussed by previous literature which have positive impacts such as reducing stress and anxiety in patients (). The majority of patients' preferences in the room maker aspect are also dominated by preferences for natural elements; such as the use of wood in the room (strobe) and windows that have natural views (Devlin et al., 2015; Ulrich, 2001; Van Oel et al., 2021).

3.2. Preference Study on Room-Fillers Aspect

Table 2. Patients' preference on room-fillers aspects in hospital ward

Source	Category	Preference
[18]	Furniture	Material selection in furniture has a role to create acoustic comfort for patients.
[19]	Furniture	Finishing on furniture is considered important by patients.
[13]	Furniture	Furniture that has personalization properties is in demand to create a sFakhry & Mohammed (2022)ents.

[20]	Furniture	Family zones were preferred to be bedside to the window side.
[15]	Furniture	Provides sufficient storage for patients and visitors.
[14]	Furniture	Patient bed placement is positioned in a place where the patient can see the access door.
[21]	Furniture	special area designated for social interaction between visitors and patients in the patient room is crucial.
[22]	Furniture	Patients had preference for 'house-like' furniture and wool textiles.
[13]	Electronics	TV is preferred by patients as it can be a positive distraction for patients.
[13]	Electronics	Internet facilities were referred to as one of the positive characteristics of inpatient rooms.
[13]	Aesthetic Elements	Plants, paintings, and decorations are a positive distraction for patients
[1]	Aesthetic Elements	Plants, paintings, and decorations are positive distractions for patients
[23]	Aesthetic Elements	Patients feel more satisfied with hospital services when staying in spaces designed to resemble hotels.
[24]	Aesthetic Elements	Patients respond positively to art that represents nature.
[11]	Aesthetic Elements	Thematic design with nature concept is more desirable for pediatric patients.

Source: Research literature study findings (2024)

From a total of 20 literatures that have been reviewed, there are 15 aspects of preferences for room filler categories with details of 8 preferences concluded discussing patient preferences for furniture category, 2 preferences for technology or electronics category, and 5 preferences regarding patient preferences for aesthetic elements category. From the literatures that have been reviewed, it is found that the discussion of furniture preferences is the most reviewed category on the topic of patient preferences. The discussion surrounding furniture including its form, function, placements, and materials. Similar to preferences for room-making aspects,

there is also a tendency for patients to prefer and favor aspects related to nature, as stated in the aesthetic element preferences ([13];[24];[11]). Design that represents normal life is also one of the patient preferences, where patients want an atmosphere that resembles hotels and homes ([23]; [22]).

3.3. Preference Study on Room-Fillers Aspect

The questionnaire questions were prepared to validate the literature review that had been carried out regarding preferences for interior aspects based on patients. The total number of respondents in the questionnaire was 15 respondents from the age group of 17-34 years old and 35-55 years old who are Indonesian citizens (WNI). The questions presented to the participants are shown in the table below:

Table 3. Patients' preference on room-fillers aspects in hospital ward

No	Question Concept	Answer Procedure	Objective
1	Name or initials	Short Answer	Identifying patient demographic
2	Age group	Multiple Choice	Identifying patient demographic
3	Wall and partition colour preference	Close-Ended Multiple Choice	Identifying patient preferences
4	Wall and partition colour preference reasons	Short Answer	Identifying patient preferences
5	Wall and partition shape preference	Open-Ended Multiple Choice	Identifying patient preferences
6	Wall and partition shape preference reasons	Short Answer	Identifying patient preferences
7	Flooring colour preference	Open-Ended Multiple Choice	Identifying patient preferences
8	Flooring colour preference reasons	Short Answer	Identifying patient preferences
9	Flooring material preference	Open-Ended Multiple Choice	Identifying patient preferences
10	Flooring material preference reasons	Short Answer	Identifying patient preferences
11	Ceiling colour preference	Open-Ended Multiple Choice	Identifying patient preferences

12	Ceiling colour preference reasons	Short Answer	Identifying patient preferences
13	Ceiling shape preference	Open-Ended Multiple Choice	Identifying patient preferences
14	Ceiling shape preference reasons	Short Answer	Identifying patient preferences
15	Door colour preference	Open-Ended Multiple Choice	Identifying patient preferences
16	Door colour preference reasons	Short Answer	Identifying patient preferences
17	Door material preference	Open-Ended Multiple Choice	Identifying patient preferences
18	Door material preference reasons	Short Answer	Identifying patient preferences
19	Door shape preference	Open-Ended Multiple Choice	Identifying patient preferences
20	Door shape preference reasons	Short Answer	Identifying patient preferences
21	Window material preference	Open-Ended Multiple Choice	Identifying patient preferences
22	Window material preference reasons	Short Answer	Identifying patient preferences
23	Window shape preference	Open-Ended Multiple Choice	Identifying patient preferences
24	Window shape preference reasons	Short Answer	Identifying patient preferences
25	Furniture colour preferences	Open-Ended Multiple Choice	Identifying patient preferences
26	Furniture colour preferences reasons	Short Answer	Identifying patient preferences
27	Furniture material preferences	Open-Ended Multiple Choice	Identifying patient preferences
28	Furniture material preferences reasons	Short Answer	Identifying patient preferences

			preferences
29	Furniture shape preferences	Open-Ended Multiple Choice	Identifying patient preferences
30	Furniture shape preferences reasons	Short Answer	Identifying patient preferences
31	Aesthetic elements form preference	Open-Ended Checkboxes	Identifying patient preferences
32	Aesthetic elements form preference reasons	Short Answer	Identifying patient preferences
33	Electronics form preference	Open-Ended Checkboxes	Identifying patient preferences
34	Electronics form preference reasons	Short Answer	Identifying patient preferences

Source: Researchers' documentation (2024)

Through the results of the questionnaire, it was found that in wall preferences, the majority of respondents had a preference for pastel colors (80%) for the majority of reasons of soothing. As many as 60% of respondents also chose curtains as partitions because they are easy to use, flexible, and feel private and the same percentage chose pastel colors as floor colors for reasons of cleanliness and calming. For floor material preferences, the highest preference is for ceramic (40%) and vinyl (33.3%) for reasons of safety, comfort, and ease of cleaning, and for ceiling color, the majority of patients (73.3%) tend to have a preference for white for reasons of comfort and making the room feel more spacious, and as many as 80% of respondents tend to have a preference for ceiling shapes that have up ceilings or down ceilings for reasons of providing an atmosphere that is not monotonous, luxurious, modern, and aesthetic. In the door element, respondents have a color preference for pastel colors (46.7%) and white colors (26.7%) on the grounds that they provide calmness, comfort, and cleanliness. The majority of respondents (66.7%) also have a preference for door materials made of wood for reasons of presenting a natural atmosphere, looking comfortable, and acoustic comfort. As for the door shape, 73.3% of respondents preferred a door with a push door shape because it is easier, more common, and for security reasons. In the window element, the majority of respondents (66.7%) have a preference for windows with aluminum material for reasons of durability and cleanliness, and the majority (66.7%) have a preference for windows with horizontal shapes for reasons of having access to a wider view outside.

In the aspect of interior fillers, the majority of respondents (86.7%) chose furniture with pastel colors with the majority of reasons providing tranquility, the majority of respondents (60%) also chose furniture with synthetic materials that resemble nature on the grounds that it gives the impression of nature in the room but is easy to maintain and clean, and the majority of respondents (86.7%) had a preference for furniture with rounded corners on the grounds of patient safety and comfort. A total of 80% of respondents chose plants as a

preference for the form of aesthetic elements in the room on the grounds that they provide a natural atmosphere in the room and are calming. As for the preference of electronic forms, 86.7% of respondents preferred television for entertaining reasons.

4. Conclusion

Patient preference has become one of the most important aspects in designing a hospital inpatient room interior that supports patient experience and comfort. The results of the literature review of patient preferences for interior aspects of hospital inpatient rooms indicate interiors that can accommodate the comfort, security, safety, and social needs of patients during inpatient treatment. Preferences for interior aspects related to natural elements were also found in the journal review results. There are several similarities in the results of the questionnaire with the literature review that has been compiled, including the preference for pastel colors in patients [8], preference for curtains as partitions [10], preference for horizontal windows [9], preference for plants as decoration [13], preference for moderate use of wood material in the room [12], and preference for TV as a positive distraction [13].

However, there are also differences in the results of the questionnaire with the literature review, including those found in the preference for carpet flooring material [1] and preference for sliding doors [14]. Although the majority had similar results, it can be concluded that preferences may vary based on the demographics of the respondents as well as where the study was conducted. Further research is needed to understand specific patient preferences by considering various aspects such as patient background and demographics.

References

- [1] R. S. Ulrich, "Effects of Healthcare Environmental Design on Medical Outcomes," 2001.
- [2] C. H. Douglas and M. R. Douglas, "Patient-centred improvements in health-care built environments: perspectives and design indicators," *Health Expectations*, vol. 8, no. 3, pp. 264–276, Sep. 2005, doi: 10.1111/j.1369-7625.2005.00336.x.
- [3] T. O. Iyendo, P. C. Uwajeh, and E. S. Ikenna, "The therapeutic impacts of environmental design interventions on wellness in clinical settings: A narrative review," *Complement Ther Clin Pract*, vol. 24, pp. 174–188, Aug. 2016, doi: 10.1016/j.ctcp.2016.06.008.
- [4] K. W. Houser and T. Esposito, "Human-Centric Lighting: Foundational Considerations and a Five-Step Design Process," *Frontiers in Neurology*, vol. 12, Frontiers Media S.A., Jan. 27, 2021. doi: 10.3389/fneur.2021.630553.
- [5] U. Nanda, "A Senssthetic Approach to Designing for Health," *J Inter Des*, vol. 42, no. 2, pp. 7–12, Jun. 2017, doi: 10.1111/joid.12098.
- [6] R. Pelzang, "Time to learn: understanding patient-centred care," *British Journal of Nursing*, vol. 19, no. 14, pp. 912–917, 2010.
- [7] K. Van Haitsma *et al.*, "A Preference-Based Model of Care: An Integrative Theoretical Model of the Role of Preferences in Person-Centred Care," *Gerontologist*, vol. 60, no. 3, pp. 376–384, Apr. 2020, doi: 10.1093/geront/gnz075.
- [8] R. Koggala, A. A. Hettiarachchi, W. R. Koggala, and A. A. Hettiarachchi, "Impact of room colour on patient's recovery; a study implements with post cardiac surgery patients in Lanka Hospitals, Colombo Impact of room colour for patient's recovery; a study implemented with post cardiac surgery patients in Lanka hospitals, Colombo," 2016. [Online]. Available: <https://www.researchgate.net/publication/320516064>
- [9] C. J. van Oel, M. Mlihi, and A. Freeke, "Design Models for Single Patient Rooms Tested for Patient Preferences," *HERD: Health Environments Research & Design Journal*, vol. 14, no. 1, pp. 31–46, Jan. 2021, doi: 10.1177/1937586720937995.

- [10] C. H. Douglas and M. R. Douglas, "Patient-friendly hospital environments: exploring the patients' perspective," *Health Expectations*, vol. 7, no. 1, pp. 61–73, Mar. 2004, doi: 10.1046/j.1369-6513.2003.00251.x.
- [11] J. Coad and N. Coad, "Children and young people's preference of thematic design and colour for their hospital environment," *Journal of Child Health Care*, vol. 12, no. 1, pp. 33–48, Mar. 2008, doi: 10.1177/1367493507085617.
- [12] K. Strobel, A. Q. Nyrud, and K. Bysheim, "Interior wood use: linking user perceptions to physical properties," *Scand J For Res*, vol. 32, no. 8, pp. 798–806, Nov. 2017, doi: 10.1080/02827581.2017.1287299.
- [13] A. S. Devlin, C. C. Andrade, and D. Carvalho, "Qualities of Inpatient Hospital Rooms," *HERD: Health Environments Research & Design Journal*, vol. 9, no. 3, pp. 190–211, Apr. 2016, doi: 10.1177/1937586715607052.
- [14] S. A. Lavender *et al.*, "Developing Evidence-Based Design Guidelines for Medical/Surgical Hospital Patient Rooms That Meet the Needs of Staff, Patients, and Visitors," *HERD: Health Environments Research & Design Journal*, vol. 13, no. 1, pp. 145–178, Jan. 2020, doi: 10.1177/1937586719856009.
- [15] E. S. Patterson, E. B. N. Sanders, C. M. Sommerich, S. A. Lavender, J. Li, and K. D. Evans, "Meeting Patient Expectations During Hospitalization: A Grounded Theoretical Analysis of Patient-Centred Room Elements," *Health Environments Research and Design Journal*, vol. 10, no. 5, pp. 95–110, Oct. 2017, doi: 10.1177/1937586717696700.
- [16] D. Leach, K. Vivekanantham, A. Kwong, E. S. Aldridge, and P. G. Buntine, "Improving the patient experience in the Emergency Department Short Stay Unit," *Australas Emerg Care*, vol. 23, no. 4, pp. 265–271, Dec. 2020, doi: 10.1016/j.auec.2020.07.004.
- [17] E. Y. Kim, "Exploring Healing Design Elements for Patient Room Design: Preferences of Adolescent Patients from Surgical Units," *Glob J Health Sci*, vol. 14, no. 8, p. 9, Jul. 2022, doi: 10.5539/gjhs.v14n8p9.
- [18] X. Qin, J. Kang, and H. Jin, "Sound Environment of Waiting Areas in Large General Hospitals in China," *Acta Acustica united with Acustica*, vol. 98, no. 5, pp. 760–767, Sep. 2012, doi: 10.3813/AAA.918557.
- [19] C. Suess and M. Mody, "Hospitality healthscapes: A conjoint analysis approach to understanding patient responses to hotel-like hospital rooms," *Int J Hosp Manag*, vol. 61, pp. 59–72, Feb. 2017, doi: 10.1016/j.ijhm.2016.11.004.
- [20] M. Fakhry and W. E. Mohammed, "Impact of family presence on healthcare outcomes and patients' wards design," *Alexandria Engineering Journal*, vol. 61, no. 12, pp. 10713–10726, Dec. 2022, doi: 10.1016/j.aej.2022.04.027.
- [21] R. D. Prasetya, "Preferences of Javanese People towards Interior Hospital Patient Room," Institut Seni Indonesia Yogyakarta, Yogyakarta, 2015.
- [22] J. E. Mogensen, S. B. Poulsen, and A. G. Hansen, "Interior design and healing architecture: A mixed-method study on the patients' preferences for interior textiles and textile-based furniture for future hospitals," Sheffield Hallam University, 2015.
- [23] J. van Nijhuis, "Healing environment and patients' well-being: Finding the relationship between healing environment aspects and patients' well-being involving Dutch hospitals," Wageningen University, Amersfoort, 2017.
- [24] R. S. Ulrich *et al.*, "A Review of the Research Literature on Evidence-Based Healthcare Design," *HERD: Health Environments Research & Design Journal*, vol. 1, no. 3, pp. 61–125, Apr. 2008, doi: 10.1177/193758670800100306.