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# THE IMPACT OF HOSPITAL ENVIRONMENT ON PATIENT RECOVERY TIME

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## INTRODUCTION

Patient comfort refers to the sense of happiness, relaxation, and satisfaction that patients experience throughout their medical care. It is of utmost importance in healthcare because it greatly influences patients' well-being and their perception of the overall process, leading to faster recovery and improved health outcomes. Indoor air quality (IAQ), airflow, and ventilation systems are factors that significantly impact the physical environment of hospitals, thus affecting patient comfort. Additionally, the social and humanistic environment of the hospital is greatly influenced by factors such as nursing and diet, privacy, and communication. By creating a relaxed and pleasant environment, it is possible to reduce worry and anxiety and provide a positive and comfortable experience. In the era following the pandemic, there is a heightened focus on air quality, making it highly significant to investigate the influence of IAQ on patient comfort. Optimal air quality plays a pivotal role in establishing a soothing and curative atmosphere for patients, mitigating the risk of infections, and enhancing the well-being of patients. People spend 90% of their time in a built environment, and around 87% of their time is spent indoors. Elderlies who have moderate to severe Chronic Obstructive Pulmonary Disease (COPD) and lung function impairment, in particular, go outside less frequently (46%), and spend just around 2 h outside on average. Poor IAQ can lead to discomfort, irritation, and respiratory system problems. Furthermore, many countries have regulations and guidelines regarding IAQ in medical facilities. Improving IAQ can also help hospitals become more energy-efficient save costs, and improve patient comfort and health. Achieving energy reductions of up to 30% is feasible by ensuring optimum thermal comfort and using HVAC systems for air conditioning. Respecting patients' privacy and ensuring adequate personal space is crucial for their comfort. Clear and empathetic communication from healthcare professionals, including transparent explanations of medical procedures, diagnoses, and treatment options, helps patients feel more at ease and in control of their healthcare journey. Encouraging positive social interactions among patients and with healthcare staff can create a sense of community and reduce feelings of isolation. Besides, providing high-quality care can meet the patient's emotional and psychological needs, which need to focus on patients' comfort experience and take measures to address any concerns or issues. Furthermore, appropriate seating, clean restrooms, and nourishing meals are essential for patient comfort. Ensuring these fundamental needs helps patients feel cared for and promotes their general well-being. By analyzing relevant literature, the study will identify key factors that contribute to or hinder patient comfort. The findings will provide insights into different dimensions of patient comfort, guiding healthcare providers and policymakers in making informed decisions and implementing strategies to enhance comfort.

### 1.2 Statement of the Problem

Despite growing awareness of the relationship between environmental factors and healing outcomes, there remains a significant gap between theoretical knowledge and practical implementation in healthcare facilities. This disconnect manifests in several problematic ways that this dissertation seeks to address.

First, while numerous studies have examined isolated environmental factors such as noise, lighting, or room configuration, relatively few have attempted to analyze their combined effects in real-world settings. This fragmented approach has made it difficult for healthcare administrators to prioritize investments in environmental modifications, as the relative importance of different factors remains unclear. Furthermore,

potential interaction effects between environmental elements are poorly understood, limiting the development of comprehensive design strategies.

Second, the metrics used to evaluate recovery have varied widely across previous research, with some studies focusing on physiological indicators while others emphasize psychological well-being or patient satisfaction. This inconsistency makes it challenging to compare findings or establish definitive connections between specific environmental characteristics and objective recovery outcomes. Many existing studies also suffer from small sample sizes, limiting statistical power and generalizability of results.

## LITERATURE REVIEW

Lorenco et al. (2022) investigated on to review the literature about the documentation of hospital environment influence in patients' recovery. Since the second half of the 20th century, studies have been carried out that prove the benefits of the hospital environment in the improvement and recovery of patients. In this way, it would be important to understand what has already been done within the reality of Psychiatry Department**.**

According to Rowe and Knox (2002) that the emergency department (ED) is a complex, volatile, and limited-resource healthcare setting. Many environmental factors, including high patient volumes, overburdened staff, long waits, and a tense atmosphere, converge in the ED. The objective of this study was to perform a systematic review of extant literature to understand how the ED environment drives patient experience and identify methodological or empirical insights for patient-centered ED design**.**

According to Brown, E. L. With the growth of modern hospital technology, there has been increasing concern by physicians for the emotional impact of the hospital environment on patients. In the past, the hospital environment has been studied primarily by social scientists who have examined it as a social system.

According to Pal J, Taywade M, Pal R, Sethi D. Intensive care medicine continues to improve, with advances in technology and care provision leading to improved patient survival. However, this has not been matched by similar advances in ICU bedspace design. Environmental factors including excessive noise, suboptimal lighting, and lack of natural lights and views can adversely impact staff wellbeing and short- and long-term patient outcomes. The personal, social, and economic costs associated with this are potentially large. The ICU of the Future project was conceived to address these issues.

According to Alameddine M, Dainty KN, Deber R, Sibbald WJ. (2009) This is a mixed-method project, aiming to improve the ICU bedspace environment and assess impact on patient outcomes. Two innovative and adaptive ICU bedspaces capable of being individualised to patients' personal and changing needs were co-designed and implemented. The aim of this study is to evaluate the effect of an improved ICU bedspace environment on patient outcomes and operational impact.

According to Mehta S, Cook D, Devlin JW, Skrobik Y, Meade M, Fergusson D, et al. (2015) An investment in getting the environment right has the potential for large, long-term positive impacts on both patient outcomes and staff health and performance, therefore producing better outcomes and cost savings. Given the significant proportion of hospital budgets invested into human resources, environmental modifications that reduce burnout and staff turnover even in small ways could quickly become cost-effective. To our knowledge, this is the first study to investigate the impact of large environmental upgrades on patient outcomes in the ICU setting.

According to Andrade C. C., Devlin A. S., Pereira C. R., Lima M. L. (2017). This study aims to investigate the effective environmental factors of hospital rooms in patients' recovery through data mining techniques. Previous studies have shown the positive effect of the interior environment of the hospitals on patients' recovery. The methods of these studies were mainly based on the evidence and patients' perception while hospital environments are associated with a large amount of data that make them an appropriate case for data mining studies.

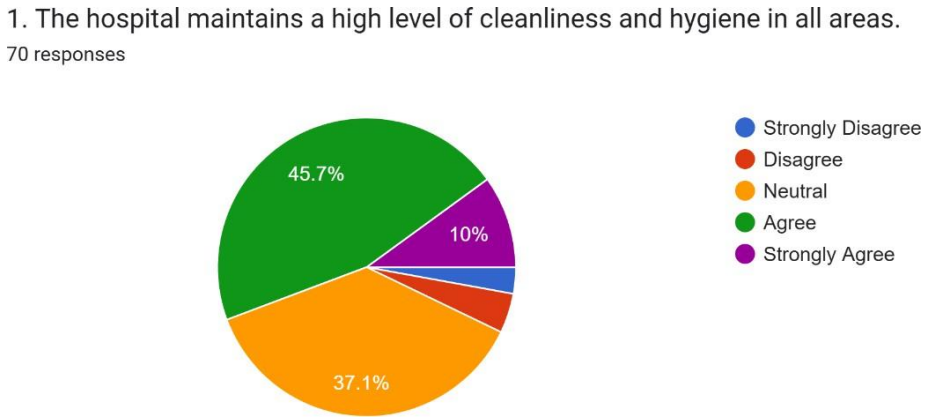
## RESEARCH GAP

After reviewing the existing literature, the author found that while numerous studies have been conducted globally on patient recovery time, there is a significant gap in research specific to India, particularly in Chhattisgarh. The existing body of work primarily focuses on broader geographical areas, leaving the unique factors that might influence recovery times in Chhattisgarh unexplored. Moreover, research examining the impact of the hospital environment on patient recovery time remains limited in the region. Given the growing healthcare challenges in Chhattisgarh, including regional disparities in healthcare infrastructure, it is essential to conduct studies that explore how the local hospital environment might influence recovery outcomes. This gap in research is particularly critical for developing targeted interventions to improve healthcare services and patient outcomes in the state.

### Research Objective

The objective of the present study is to examine how hospital environment affect patient recovery time among the former patients of government and private hospitals of Chhattisgarh.

### Data analysis and interpretation




**Summary Analysis:**

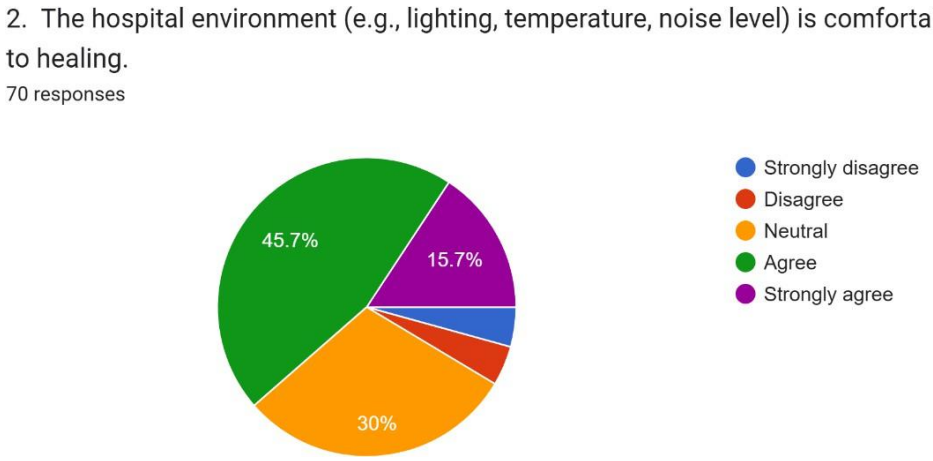
- **Total responses:** 70
- **Agree (45.7%) + Strongly Agree (10%) = 55.7%** — Most respondents feel the hospital maintains good cleanliness.
- **Neutral: 37.1%** — A significant number are unsure or indifferent.
- **Disagree + Strongly Disagree: 7.2%** — Very few are dissatisfied.

**Interpretation:**

The overall feedback is positive, but the high neutral response suggests that some patients may not clearly perceive cleanliness efforts.

**Recommendation:**

Improve visibility of cleaning practices and investigate areas with mixed impressions to ensure consistent hygiene standards.




**Summary Analysis:**

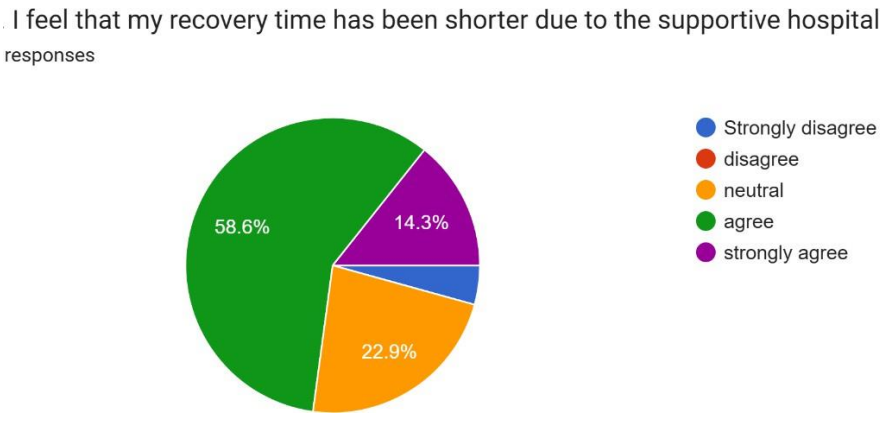
- **Total responses:** 70
- **Agree (45.7%) + Strongly Agree (15.7%) = 61.4%** — Majority feel the hospital environment supports healing.
- **Neutral: 30%** — A significant portion are undecided.
- **Disagree + Strongly Disagree: 8.6%** — Few are dissatisfied.

**Interpretation:**

Most respondents find the hospital environment comfortable and healing-friendly. However, the 30% neutral responses suggest possible inconsistencies in factors like lighting, temperature, or noise.

**Recommendation:**

Assess specific environmental factors and ensure consistent comfort standards across all areas to improve patient experience.



Summary Analysis:

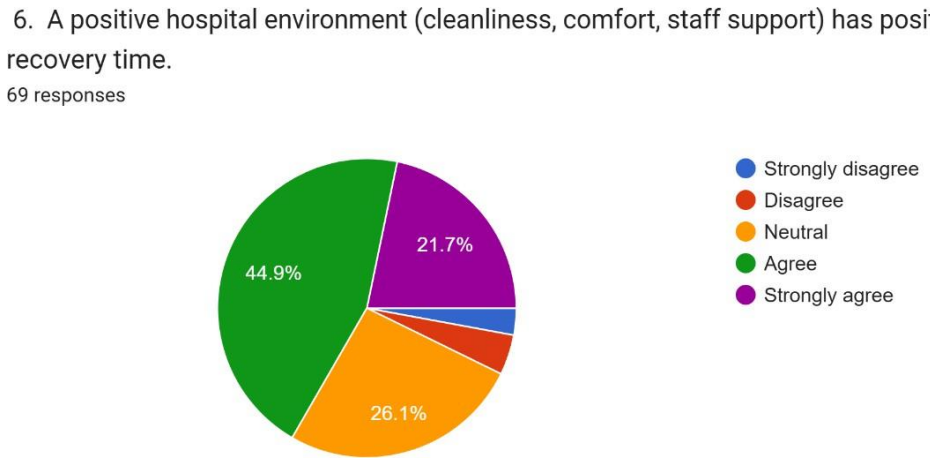
- Total responses: 70
- Agree (58.6%) + Strongly Agree (14.3%) = 72.9% — A strong majority believe the hospital environment helped shorten recovery time.
- Neutral: 22.9% — Some are unsure or had mixed experiences.
- Disagree + Strongly Disagree: 4.2% — Very few felt the environment didn't support faster recovery.

Interpretation:

The hospital environment is perceived as highly supportive of patient recovery, with nearly 3 in 4 respondents affirming its positive impact.

Recommendation:

Maintain and further enhance supportive environmental features (e.g., staff interaction, cleanliness, noise control) to sustain and build on this positive outcome.




**Summary Analysis:**

- **Total responses:** 69
- **Agree (44.9%) + Strongly Agree (21.7%) = 66.6%** — Two-thirds believe the hospital environment positively impacted recovery.
- **Neutral: 26.1%** — A notable number are undecided.
- **Disagree + Strongly Disagree: ~7.2%** — Very few had a negative view.

**Interpretation:**

Most respondents feel that factors like cleanliness, comfort, and staff support have aided their recovery, showing the environment plays a key role in healing.

**Recommendation:**

Continue reinforcing a positive environment and explore reasons behind the neutral responses to further improve patient recovery experiences.

**Limitations of the study**

- Severity of Illness/Injury
  - Provide realistic expectations to patients and families regarding recovery timelines based on the severity of their condition.
  - Prioritize resources and care for patients with the most severe illnesses/injuries, ensuring their environment is optimized for their specific needs (e.g., specialized equipment, intensive monitoring).
  - Implement protocols for early identification and management of potential complications that could prolong recovery.
- Patient's Pre-existing Health Status
  - Conduct thorough patient assessments to identify pre-existing conditions and potential risk factors that may affect recovery.
  - Develop individualized care plans that address the specific needs of vulnerable patients (e.g., elderly, immunocompromised) and optimize their environment accordingly (e.g., fall prevention measures, infection control protocols).

**REFERENCE**


- Lourenço A, Ribeiro M, Lemos M. Hospital environment and patient recovery – a review. Eur Psychiatry. 2022 Sep 1;65(Suppl 1):S753. doi: 10.1192/j.eurpsy.2022.1946. PMCID: PMC9568128.
- Rowe A, Knox M. The Impact of the Healthcare Environment on Patient Experience in the Emergency Department: A Systematic Review to Understand the Implications for Patient- Centered Design. HERD. 2023 Apr;16(2):310-329. doi: 10.1177/19375867221137097. Epub 2022 Dec 21. PMID: 36541114; PMCID: PMC10133779.
- Brown, E. L. The use of the physical and social environment of the general hospital for therapeutic purposes. I. Newer dimensions of patient care, New York: Russell Sage Foundation, 1961.
- Pal J, Taywade M, Pal R, Sethi D. Noise pollution in intensive care unit: a hidden enemy affecting the physical and mental health of patients and caregivers. Noise Health. 2022;24(114):130–6.
- Alameddine M, Dainty KN, Deber R, Sibbald WJ. The intensive care unit work environment: current challenges and recommendations for the future. J Crit Care. 2009;24(2):243–8.
- Mehta S, Cook D, Devlin JW, Skrobik Y, Meade M, Fergusson D, et al. Prevalence, risk factors, and outcomes of delirium in mechanically ventilated adults. Crit Care Med. 2015;43(3):557–66.
- Andrade C. C., Devlin A. S., Pereira C. R., Lima M. L. (2017). Do the hospital rooms make a difference for patients' stress? A multilevel analysis of the role of perceived control, positive distraction, and social support. *Journal of Environmental Psychology*, 53, 63–72