A Critical Analysis of Public Health Infrastructure

- Investigating the Spatial and Functional Disparities of Government CIVIL AND PRIVATE HOSPITALS.

Meet Goti[1*] and Prof. Alpa Pandya[2*]
[1]Meet Goti, B.Arch. V, Faculty of Architecture, IDPT, SU, Surat, India.
[2]Prof. Alpa Pandya, Faculty of Architecture, IDPT, SU, Surat, India.

Abstract

Today, India is the third fastest-growing economy in the world, leading to rapid urbanization and a rising population that has placed significant pressure on the country's public health infrastructure. While healthcare forms the foundation of national well-being, the existing system struggles to meet the increasing demand for accessible and dignified care. Public healthcare infrastructure, particularly government civil hospitals, provides affordable care but often faces challenges such as poor infrastructure, inadequate sanitation, and inefficient building planning. Private hospitals offer better environmental quality but remain financially inaccessible for a large section of the population, creating a widening gap in equitable healthcare delivery.

This Paper critically analyzes the current scenario of health infrastructure in India by examining both government civil hospitals and private hospitals. The study employs spatial, functional, and experiential mapping to evaluate architectural planning, accessibility, environmental performance, and user experience. A comparative analysis of both sectors is conducted to identify architectural, policy, and operational gaps. It also addresses the influence of socio-cultural barriers and low health awareness. The study does not rank the two systems but identifies systemic issues and infrastructural gaps across both.

The study identifies key disparities in hospital performance across public and private sectors, highlighting critical concerns that guide the broader findings of the study. This Paper will conclude that strengthening public healthcare infrastructure requires context-sensitive planning, climate-responsive architectural solutions, and design strategies that prioritize dignity and efficiency. The Paper recommends a parameters-based framework for designing future prototype government hospitals that offer resilient, inclusive, and patient-centered environments.

Keywords: Public Health Infrastructure, Healthcare Architecture, Infrastructure Disparities, Affordable Good Care, Healing environment.

1. Introduction

Healthcare infrastructure plays a critical role in shaping the social, economic, and human development of a nation. Hospitals are not merely spaces for medical treatment; they function as complex built environments where architecture directly influences patient dignity, accessibility, efficiency of care, and the psychological well-being of both users and providers. In a country like India, where healthcare demand continues to rise due to rapid urbanization, population growth, and changing disease patterns, the role of hospital architecture becomes increasingly significant.

India's public healthcare system is the primary support for a large section of the population, particularly low-income and vulnerable communities. Government civil hospitals provide affordable and often free medical services, making them indispensable within the healthcare network. However, despite their importance, many public hospitals struggle with overcrowding, outdated infrastructure, poor maintenance, inadequate sanitation, and inefficient spatial planning. These issues are not limited to operational shortcomings but are

deeply rooted in architectural and planning deficiencies that affect how healthcare is experienced on a daily basis.

In contrast, private hospitals in urban India have emerged as well-designed, technologically advanced facilities that prioritize comfort, efficiency, and controlled patient flow. With organized circulation systems, better environmental quality, and enhanced spatial hierarchy, private hospitals often offer a dignified and healing environment. However, the high cost of treatment restricts access to a limited socio-economic group, creating a stark divide between affordability and quality of care. This duality exposes a critical contradiction within India's healthcare infrastructure: public hospitals emphasize access but compromise on spatial quality, while private hospitals deliver quality environments but limit inclusivity.

Despite the existence of national standards and guidelines such as the Indian Public Health Standards (IPHS), National Accreditation Board for Hospitals (NABH), and the National Building Code (NBC), the implementation of these frameworks often remains limited to minimum quantitative compliance. In many government hospitals, architectural design is driven by capacity targets number of beds, departments, and services rather than qualitative aspects such as user experience, spatial dignity, and environmental responsiveness. As a result, hospitals frequently evolve as congested and inflexible structures that struggle to adapt to increasing demand and changing healthcare needs.

The COVID-19 pandemic further exposed the vulnerabilities of public healthcare infrastructure, particularly in government hospitals, where spatial congestion, inadequate isolation facilities, and limited flexibility intensified operational challenges. These conditions highlighted the urgent need to reassess hospital design beyond functional efficiency and toward resilient, human-centered, and context-sensitive architecture. The crisis demonstrated that healthcare infrastructure must be capable of responding not only to routine medical demands but also to emergency situations that require adaptability and spatial clarity.

Within this context, architecture emerges as a powerful tool to bridge the gap between access and quality. By critically examining how hospital spaces are planned, organized, and experienced, architects can contribute to creating environments that uphold dignity while remaining affordable and inclusive. The integration of climate-responsive design, passive ventilation, daylighting, and culturally sensitive spatial planning can significantly enhance the performance of public hospitals without disproportionately increasing costs.

Figure 1: Current Healthcare in the India (Sources: Primary data collection- Author)

2. Literature Review

2.1 Hospitals as Social Infrastructure

Healthcare facilities function as social infrastructure where built environments intersect with lived practices, cultural values, and community expectations. Scholars such as Ulrich emphasize that hospitals should be designed around people rather than diseases, highlighting the role of daylight, ventilation, and access to nature in improving patient recovery and staff performance. Architectural theorists like John Ruskin further argue that the built environment directly influences mental well-being, reinforcing the idea that

VOLUME-3, ISSUE: 1, MAY 2026
ISSN: 3049-0006 (ONLINE)

hospital architecture must contribute positively to human health beyond clinical treatment.

2.2 Evolution of Healthcare Infrastructure in India

Post-independence healthcare development in India has transitioned from disease-control programs to broader goals of universal health coverage. However, public investment in healthcare infrastructure has remained relatively low compared to global standards. Studies indicate that while urban areas concentrate advanced medical facilities, rural and semi-urban regions often lack adequate infrastructure, leading to overburdened tertiary hospitals. This uneven distribution places additional strain on government civil hospitals, intensifying spatial congestion and operational inefficiencies.

2.3 Hospitals as Social Infrastructure: Built Environment, Lived Practices & Dignity

Hospitals function not only as medical facilities but also as vital social infrastructures where architecture shapes everyday human experience. The built environment influences patient dignity, comfort, and psychological well-being through spatial planning, circulation clarity, and environmental quality. Poorly designed hospital spaces often intensify stress, overcrowding, and loss of privacy, particularly in high-density public hospitals. Lived practices such as family caregiving, prolonged waiting, and informal occupation of corridors reveal how users adapt to spatial inadequacies. In contrast, well-planned hospital environments with clear zoning, daylight, and defined waiting areas support dignity, efficiency, and humane care. Thus, architecture plays a crucial role in mediating social interaction and lived experience within healthcare settings.

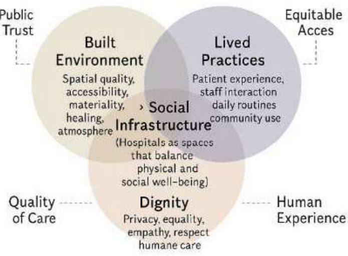


Figure 2 Hospital as space that balance physical, functional, social well-being (Source: Author)

2.4 Healthcare Trends in India After Independence

After independence, India's healthcare system evolved from basic disease-control programs to a broader focus on universal health coverage and institutional expansion. Government investment prioritized increasing the number of hospitals and beds, often emphasizing capacity over spatial quality and user experience. Rapid urbanization led to the concentration of advanced healthcare facilities in cities, placing excessive pressure on government civil hospitals. While private hospitals introduced modern infrastructure and technologically advanced environments, their growth remained market-driven and socially exclusive. These trends reveal a structural imbalance where expansion in

healthcare services has not been matched by equitable, context-sensitive architectural planning.

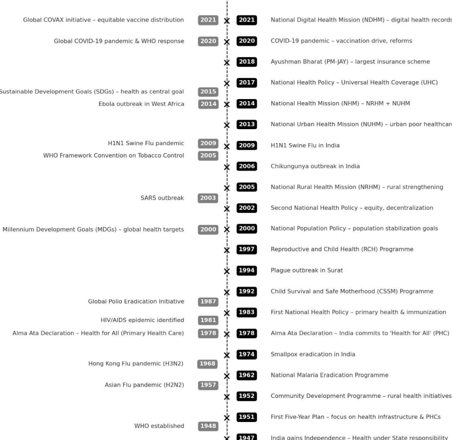


Figure 3 Healthcare Trends after Independence (Source: Author)

3. Research Methodology

The research adopts an exploratory and analytical methodology to investigate spatial and functional disparities between government civil hospitals and private hospitals in India. The study is grounded in architectural inquiry, focusing on how the built environment influences accessibility, operational efficiency, patient dignity, and overall healthcare experience. Rather than relying solely on quantitative indicators, the methodology integrates spatial analysis, experiential assessment, and policy review to develop a holistic understanding of healthcare infrastructure.

Through literature review and case studies, I developed an analytical framework to identify the key parameters that needed to be mapped. With prior permission from hospital authorities, I was able to access the premises and interact with patients, doctors, and staff during the visits. For primary data collection, I adopted the following quantitative research techniques:

1. On Case study Observation Survey
2. Survey through interview schedule with the questionnaire prepared
3. Focus group discussion

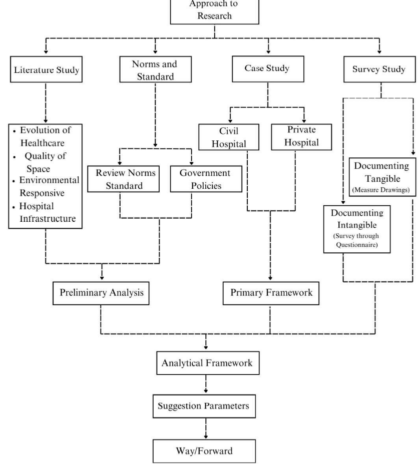


Figure 4 Chart of research methodology. (Source: Author)

4. Analytical Framework and Evaluation Parameters

To systematically assess public and private healthcare facilities, the study develops an analytical framework based on identified architectural, functional, environmental, and socio-cultural parameters. These parameters were derived from the literature review, review of healthcare norms and standards, and preliminary observations during field visits. The framework enables a structured comparison of hospital environments beyond medical performance, focusing on spatial quality, accessibility, dignity, and user experience.

The evaluation parameters are broadly categorized into physical and social factors. Physical factors include location and climate responsiveness, entry and accessibility, circulation efficiency, spatial hierarchy, corridor adequacy, natural light and ventilation, open and green spaces, and material and construction quality. These parameters address the tangible aspects of hospital design that directly influence operational efficiency and environmental comfort.

Social and experiential factors focus on patient-centric design, privacy, safety, socio-cultural sensitivity, and community interaction. Parameters such as dignity of patients, family waiting spaces, gender-sensitive planning, wayfinding clarity, and perception of affordability were considered to assess the lived experience within hospital environments. These aspects capture the intangible dimensions of healthcare architecture that are often overlooked in conventional infrastructure assessments.

Both tangible parameters were documented through spatial mapping, drawings, and on-site observations, while intangible parameters were assessed through stakeholder surveys and interviews. This dual approach ensured that the analytical framework remained grounded in both physical evidence and user perception. The identified parameters formed the basis for evaluating selected government and private hospitals and guided the subsequent case study analysis.

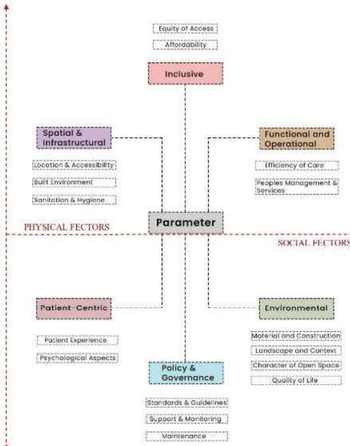


Figure 21 Identified parameters to be mapped (Source- Author)

5. Case Study and Comparative Analysis

Based on the above evaluation parameters, selected government and private hospitals were analyzed to understand spatial, functional, and experiential disparities in healthcare infrastructure.

Healthcare is not only about infrastructure and technology it is fundamentally about people. At the core of every hospital system lies a network of stakeholders whose experiences define the success or failure of healthcare delivery. Patients, the most direct stakeholders, seek

timely treatment, dignity, and recovery in an environment that feels safe and supportive. Doctors and nurses, as professional stakeholders, rely on proper facilities, equipment, and work conditions to provide effective care. Administrators and policymakers, on the other hand, carry the responsibility of balancing efficiency, funding, and governance to ensure that healthcare institutions remain functional and sustainable. Each of these groups interacts with the physical and organizational structure of hospitals, making their perspectives essential in understanding mismatches between expectation and reality.

Category	Type	Name Of the Hospital	City	Numbers of the Beds
A (250 – 500Beds)	Government	Sasson General Hospital	Pune	360
	Private	Symbiosis Hospital	Pune	270
B (750 - 1000Beds)	Government	Smimer Hospital	Surat	812
	Private	Kiran Hospital	Surat	900

Table 1 Graphical table showcasing the formation of Case study Selection. (Source: Author)

To contextualize these dynamics, the table below maps a selection of government and private hospitals across three Indian cities Pune, Surat, and Ahmedabad classified by their bed capacity. These hospitals represent diverse categories of healthcare provision: from smaller institutions of 250–600 beds to large-scale facilities of over 3,000 beds. The mapping also incorporates an international government hospital as a comparative case study. This categorization helps trace the variation not only in size but also in quality, accessibility, and the lived experience of stakeholders within these systems.

5.1 Sassoon Hospital (Category- A)

Parameters	Photograph	Observation
Flow / Circulation		Linear planning leads to severe congestion, as inpatients, outpatients, and staff use the sameroutes.Lack of directional signage further disrupts movement, making navigation confusing for first-time visitors.
Hierarchy of Spaces		Zoning between emergency, OPD, and inpatient areas is unclear, causing overlapping and inefficiency. The layout prioritizes function over organization, with no defined spatial hierarchy

Entry & Accessibility		The hospital entry is located along a busy main road, creating frequent traffic congestion and safety risks. Although public transport access is good, pedestrian entry is unsafe, and universal accessibility for differently-abled patients is largely absent.
Open / Green Spaces	There are no designated green or open spaces inside the hospital premises. The campus lacks formal landscaping or therapeutic zones, leaving patients and visitors without any dedicated outdoor relief area.	
Corridor area		Corridors are overcrowded with patients and staff, restricting movement. Seating is insufficient, forcing many to stand or sit on the floor.
Natural Light & Ventilation	Corridors receive good daylight and cross-ventilation through large windows and verandahs. However, deeper wards remain poorly lit and inadequately ventilated.	
Service & Support Areas		Support areas are in poor condition, with visible lack of hygiene and upkeep. No proper segregation exists between service zones and patient circulation areas.
Safety & Emergency Measures		Ambulance drop-off point is available but highly congested, with no dedicated emergency lane for quick access. Pedestrian and vehicle movements overlap, and safety signage is minimal, creating risks during peak hours

Materiality / Ambience		Old colonial building with weathered plaster and exposed concrete; poorly maintained with visible stains; ambience feels unhygienic and dull.
Community / Social Interaction		There is no designated community or social interaction space within the hospital. Patients and relatives gather informally in circulation and open areas, often causing overcrowding.

Table 2 Sassoon hospital Pune Analysis (Source: Author, Primary data)

5.2 Symbiosis Hospital (Category- A)

Parameters	Photograph	Notes
Flow / Circulation		The circulation is well-structured with clear pathways and minimal congestion, ensuring smooth movement for patients and staff.
Hierarchy of Spaces		Spaces are logically organized with defined zones and courtyards, creating clarity and comfort, though achieved at a high development cost.
Entry & Accessibility		The entry is wide, barrier-free, and easily accessible with clear pathways and drop-off zones that enhance patient comfort, though such infrastructure comes with a high financial investment.

Open / Green Spaces		The hospital integrates landscaped courtyards and green pockets that create a healing environment and improve patient recovery.
Corridor area		The corridors are wide, well-lit, and free from overcrowding, ensuring smooth circulation and patient comfort, though the cost of
Natural Light & Ventilation		The hospital design provides ample natural light and ventilation through large openings and courtyards, creating bright and healthy interiors, though achieved with high construction and maintenance costs.
Service & Support Areas		Service and support areas are well-maintained, hygienic, and adequately planned, ensuring efficiency in hospital operations, but the cost of upkeep is significantly higher than in government hospitals.
Safety & Emergency Measures		The hospital is equipped with advanced safety systems, clear exits, and efficient emergency planning that ensure patient security, though these facilities require high investment and maintenance.

Materiality / Ambience		The building uses modern materials with clean finishes and natural tones, creating a welcoming ambience that supports healing, though it involves high construction and maintenance costs.
Community / Social Interaction		The hospital provides designated community areas and waiting lounges that allow comfortable social interaction for patients and relatives, though such provisions come with higher operational costs.

Table 3 Symbiosis hospital Pune Analysis (Source: Author, Primary data)

Comparative Findings

The comparative analysis of government civil hospitals and private hospitals reveals significant disparities in spatial planning, functional efficiency, and user experience, despite both systems operating within the same urban and socio-cultural context. The findings highlight that differences in healthcare delivery are strongly influenced by architectural decisions rather than medical capability alone. These disparities become evident when evaluated through parameters related to accessibility, circulation, environmental quality, and dignity.

Government civil hospitals demonstrate high levels of accessibility and affordability, serving a large and diverse population. However, this inclusivity is accompanied by severe spatial challenges. Overcrowding, unclear zoning, and overlapping circulation between patients, attendants, and service staff are commonly observed. Waiting areas often extend into corridors, and inadequate spatial provisions lead to compromised privacy and dignity. Environmental factors such as limited daylight, poor ventilation, and lack of open spaces further intensify stress for patients and healthcare workers. These conditions indicate a planning approach driven primarily by capacity requirements rather than qualitative spatial experience.

In contrast, private hospitals exhibit organized spatial layouts with clearly defined circulation networks and functional zoning. Separate pathways for patients, staff, and services improve operational efficiency and reduce congestion. Adequate waiting spaces, controlled access, and well-designed transitional areas contribute to a calmer and more dignified environment. Environmental quality is generally superior, with better daylight penetration, ventilation, and interior comfort. However, the high cost of treatment restricts access, making these environments available only to a limited socio-economic group.

From an experiential perspective, patients and attendants in government hospitals report higher levels of discomfort, confusion, and psychological stress due to prolonged waiting times and lack of spatial clarity. Healthcare staff in these settings also experience increased workload and burnout, exacerbated by poorly designed workspaces. Conversely, private hospitals provide supportive environments for staff through better spatial organization and amenities, although the focus on efficiency and control can limit social interaction and inclusivity.

- General Information Comparison
- Spatial and Planning Comparison
- Infrastructure and Facility Performance
- Experiential and Human Aspects
- Operational and Management Differences
- Policy, Compliance, and Cost Factors

Factor	Sub-factor	Govt. Hospitals	Private Hospitals
Socio-Economic	Affordability	Affordable, accessible to all income groups	Very costly, excludes lower income groups.
	Equity of Access	Inclusive and open, but overcrowded	Restricted by cost, only accessible to middle/upper class.
Spatial & Infrastructural	Location & Accessibility	Central city locations, but congested traffic and delays.	Prime city areas, easily accessible for the wealthy
	Built Environment	Large scale, poor maintenance, aging infrastructure.	Modern, well-maintained, but over-commercialized.
	Sanitation & Hygiene	Insufficient toilets, overcrowding → unhygienic conditions.	Good sanitation, regularly cleaned.
Patient-Centric	Patient Experience	Overcrowding, no privacy, relatives on floors.	Comfort, private rooms, faster care.
	Psychological Aspects	Stressful, chaotic, low dignity.	Supportive ambience, trust-building environment.
Functional & Operational	Efficiency of Care	Delays, inefficient workflows.	Efficient, shorter waiting.
	People's Management & Services	Understaffed, overburdened doctors.	More personalized care, but profit-driven.
Environmental	Material & Construction	Low durability, poor quality finishes.	High-quality, durable finishes.
	Landscape & Context	Limited open areas, no courtyards.	Indoor-focused, limited healing gardens.
	Quality of Life	Basic facilities, but no dignity in design.	High comfort, but accessible only to few.
Policy & Governance	Standards & Guidelines	Exists (IPHS norms) but poorly implemented.	Self-monitored, commercial compliance.
	Maintenance	Poor upkeep, neglected.	Regular professional upkeep.

Table 4 Finding aspect from case study (Source: Author)

6. Conclusion

Hospitals are not only centres of medical treatment but also spaces that shape the well-being of individuals and communities. They are designed to promote better health and a better life, providing care that restores not just the body but also the dignity and confidence of patients.

Their impact extends beyond medicine, touching the psychological realm of how people feel, heal, and trust the system.

The organised healthcare infrastructure approach implemented through government schemes has not yet fully resolved the fundamental challenges faced by public hospitals in India. This bureaucratic model often struggles to respond to the real needs of patients and communities. While government reports highlight the construction of large hospital complexes and the expansion of healthcare capacity, the critical concern is whether these facilities genuinely serve their intended purpose?

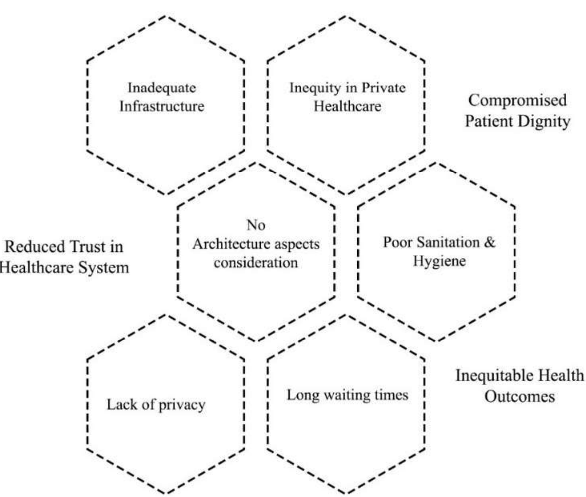


Figure 6 Issues and Effects of mismatch (Source: Author)

The overcrowded wards and underutilized facilities in government hospitals are clear indicators that infrastructure alone is not sufficient to meet the needs of patients. Although all government schemes are framed with the intention of improving public health, the fundamental issues of dignity, accessibility, and quality of care often remain untouched. This gap reduces the real impact of such policies when assessed against patient experience and outcomes.

The challenges identified in both government and private hospitals reveal that the issue is not simply about capacity, but about how infrastructure, operations, and patient needs are addressed. To ground this analysis, the comparative framework is built on the same parameters used in the theoretical framework of this research, ensuring consistency throughout. The suggested responses are derived from the primary data collected during fieldwork and reflect practical directions for improvement.

Factor	Sub-factor	Govt. Hospitals	Private Hospitals	Suggested Response
Socio-Economic	Affordability	Affordable, accessible to all income groups	Very costly, excludes lower income groups.	Develop cross-subsidy models, and PPP (Public–Private Partnership) healthcare.
	Equity of Access	Inclusive and open, but overcrowded	Restricted by cost, only accessible to middle/upper class.	Universal healthcare policies with equitable design for all.

Spatial & Infrastructural	Location & Accessibility	Central city locations, but congested traffic and delays.	Prime city areas, easily accessible for the wealthy	Improve connectivity to public hospitals with public transport and emergency access.
	Built Environment	Large scale, poor maintenance, aging infrastructure.	Modern, well-maintained, but over-commercialized.	Context-sensitive, durable, low-cost but quality design.
	Sanitation & Hygiene	Insufficient toilets, overcrowding → unhygienic conditions.	Good sanitation, regularly cleaned.	Enforce norms, better sanitation planning in govt. hospitals.
Patient-Centric	Patient Experience	Overcrowding, no privacy, relatives on floors.	Comfort, private rooms, faster care.	Introduce healing spaces, enhance privacy.
	Psychological Aspects	Stressful, chaotic, low dignity.	Supportive ambience, trust-building environment.	Biophilic design, stress-reducing layouts.
Functional & Operational	Efficiency of Care	Delays, inefficient workflows.	Efficient, shorter waiting.	Adopt smart scheduling, digital systems in govt. hospitals.
	Staff & Doctor Well-Being	Congested, stressful workspaces, No proper resting rooms or private break areas	Cleaner, more organised circulation, Dedicated resting rooms	ergonomic nurse stations, mental-decompression spaces,.
Environmental	Material & Construction	Low durability, poor quality finishes.	High-quality, durable finishes.	Low-cost but durable materials, sustainable building practices.
	Landscape & Context	Limited open areas, no courtyards.	Indoor-focused, limited healing gardens.	Courtyards, open recovery spaces for both models.
	Quality of Life	Basic facilities, but no dignity in design.	High comfort, but accessible only to few.	Balance dignity + affordability in healthcare design.
Policy & Governance	Standards & Guidelines	Exists (IPHS norms) but poorly implemented.	Self-monitored, commercial compliance.	Stronger regulation + accountability for both.
	Maintenance	Poor upkeep, neglected.	Regular professional upkeep.	Long-term maintenance contracts in public hospitals.

Table 1 Finding aspect and Suggestion (Source: Author)

Government healthcare schemes often emphasize numbers, beds, buildings, and targets aiming to improve the standard of healthcare delivery. Yet, the quality of care, dignity of patients, and human experience remain secondary. Hospitals cannot be reduced to capacity alone; they must be seen as social infrastructure that balances accessibility with quality of life. The mismatch between policy intentions and lived hospital realities requires urgent attention, as healthcare is not just about survival, but about ensuring equitable and dignified healing for all.

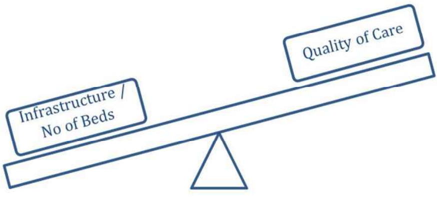


Figure 7 Balance between Infrastructure and quality of care (Source- Author)

7. Reaccommodation

The study of this research shows the challenges in healthcare infrastructure cannot be solved only by adding more buildings or policies. Government hospitals must be seen as social infrastructure, where dignity, accessibility, and equity are as important as medical treatment. The recommendations given here are not about creating a completely new system, but about improving and strengthening the existing one through inclusive, collaborative, and design-focused strategies. These suggestions aim to reduce the gap between what policies promise and what patients actually experience, so that hospitals can serve both functional and human needs.

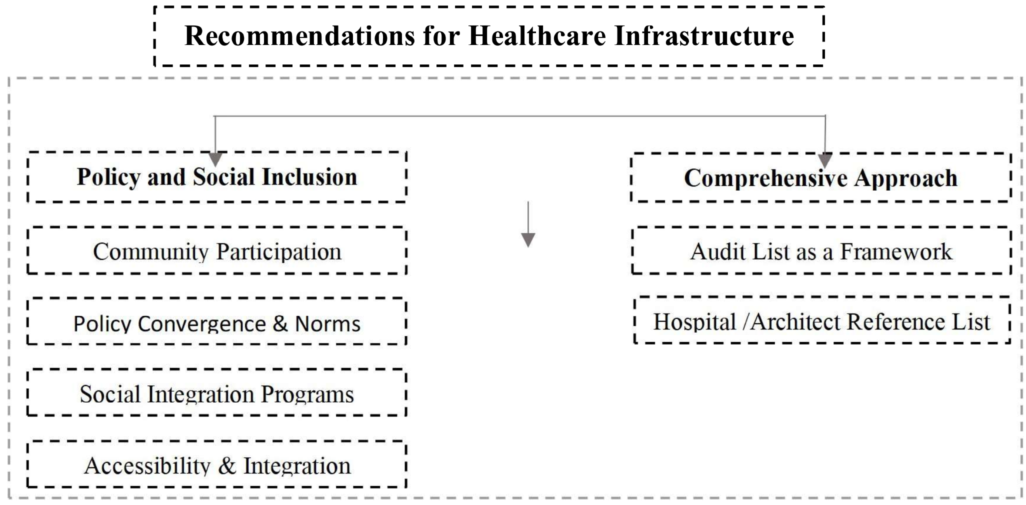


Table 6 Recommendations of Heathcare Infrastructure (Source: Author)

The recommendations for healthcare infrastructure can be addressed through two parallel approaches. The first is a conservative approach, which focuses on improving the existing system. This includes involving communities in planning and decision-making, aligning healthcare policies with reform architectural norms, introducing systematic maintenance

and management, and integrating social programs, accessibility, and inclusive public spaces. Together, these measures strengthen current hospitals without the need for large-scale reconstruction. The second is a comprehensive approach, which emphasizes planning for new healthcare infrastructure using structured tools.

7.1 Policy and Social Inclusion

- **Community Involvement & Participation**

  Community involvement ensures that hospitals are designed and managed with the voices of patients, families, and staff at the centre. Active participation in planning and feedback processes makes healthcare spaces more inclusive, responsive, and humane. This reduces the gap between policy intentions and lived realities, creating hospitals that genuinely serve their users. This also builds trust and ownership, reducing resistance to reforms.

- **Policy Convergence & Norms Reform**

  In the current scheme, the major issue is the lack of policy integration. Different policies for healthcare, infrastructure, and building norms often work in isolation, creating gaps in implementation.
  Policy convergence means aligning medical guidelines with architectural standards so that functionality and human dignity go hand in hand. Reforming existing norms (IPHS, NABH) Integrating these into hospital design will ensure that expansion is not only about capacity, but also about dignity, accessibility, and equity Such integration ensures that infrastructure is not only efficient but also inclusive and patient-centred.

- **Maintenance & Management Policy**

  The hospital infrastructure in government facilities requires systematic maintenance and efficient management to remain functional. An effective maintenance system should not be left only to bureaucratic authorities but must involve hospital staff, users, and local bodies.

  Field surveys highlight that many facilities are below required standards due to poor upkeep and neglect. This could include independent monitoring cells and regular audits to ensure accountability, ensuring that public healthcare assets are not wasted but serve their intended purpose.

- **Social Integration Programs**

  Hospitals should also act as spaces for social integration, not only treatment. Programs led by NGOs, local authorities, and community groups can spread awareness to reduce stigma around illness, mental health, or marginalized patients. Such initiatives can build trust, encourage inclusivity, and improve patient confidence. By combining treatment with awareness, hospitals can strengthen their role as community-centred spaces.

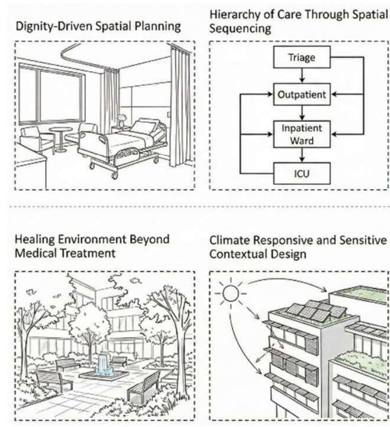
- **Accessibility & Integration**

  Accessibility goes beyond affordability and includes how patients physically reach and experience hospitals. Government hospitals often face congestion and poor transport links, while private ones remain car-dependent and exclusionary. Improving public transport connectivity, ensuring barrier-free access, and integrating inclusive public spaces are critical steps. These measures will allow hospitals to function as open, healing environments rather than isolated medical centres.

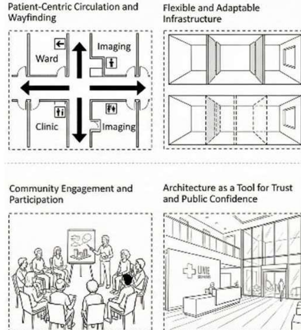
1 Community Involvement
Include voices of patients
2 Policy Convergence
Align medical, architectural standards
3 Maintenance Policy
Involve staff, users, local bodies
4 Social Integration
Reduce stigma, build trust
5 Accessibility
Improve transport, ensure access
Fragmented Healthcare System
Isolated policies, poor maintenance
Integrated Improvements
People-Centric Healthcare
Inclusive, responsive, humane spaces

Figure 8 Integrated improvement in the public health infrastructure (Source: Author)

- **Design Principles of Healthcare Architecture:**



- Hospital spaces must respect patient privacy, comfort, and emotional well-being through thoughtful layouts and visual control
- Healthcare spaces should follow a clear progression from triage to OPD, wards, and ICU to ensure efficient patient flow.
- Healing extends beyond medicine through access to natural light, greenery, and calm restorative spaces.
  Therapeutic landscapes and quiet zones enhance psychological recovery and overall patient experience.
- Hospitals must respond to local climate through ventilation, shading, and energy-efficient strategies.
  Context-sensitive design ensures sustainability, thermal comfort, and long-term operational.



- Clear circulation with intuitive signage reduces confusion, stress, and unnecessary movement within hospitals
- Healthcare buildings should be designed with modular planning to accommodate future expansion and changing medical needs.
  Adaptable spaces enhance resilience during emergencies, pandemics, and evolving healthcare technologies.
- Hospitals must respond to local social and cultural needs through participatory planning and inclusive spaces.
  Community-oriented design strengthens ownership, accessibility, and long-term public trust.
- Hospitals must respond to local social and cultural needs through participatory planning and inclusive spaces.
- Architectural Interventions for Staff & Doctor Well-Being
- Healthcare environments are not only places of treatment for patients but also demanding workplaces for doctors, nurses, and support staff. The quality of these spaces directly influences staff performance, mental health, and their ability to deliver compassionate care. Government hospitals in particular face high patient loads, long working hours, insufficient resting areas, and stressful environments, which collectively affect service quality.

As architects, our responsibility extends beyond designing for patients — we must equally design for the people who heal, support, and sustain the healthcare system. Therefore, architectural planning must move beyond a patient-only lens and incorporate dedicated strategies that support staff well-being, strengthen work culture, and enhance overall operational efficiency.

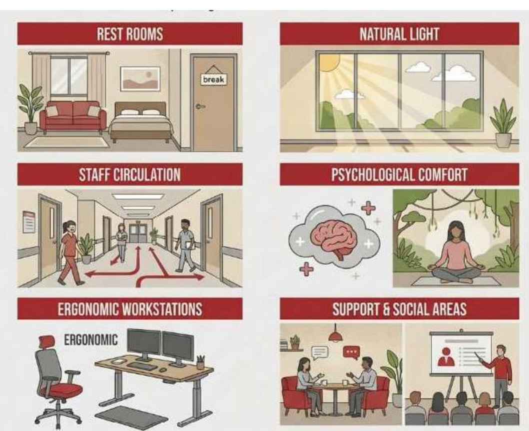


Figure 9: Recommendation of Stuff & Doctor Well-Being (Source: - Author)

8. References & Bibliography

Ulrich, Roger **S.** (1984). View through a window may influence recovery from surgery. *Science, 224*(4647), 420–421. https://doi.org/10.1126/science.6143402

Ulrich, R. S., Zimring, C., Zhu, X., DuBose, J., Seo, H. B., Choi, Y. S., Quan, X., & Joseph, A. (2008). A review of the research literature on evidence-based healthcare design. *HERD: Health Environments Research & Design Journal, 1*(3), 61–125.

Lawson, B. (2010). Healing architecture. *Arts & Health, 2*(2), 95–108. https://doi.org/10.1080/17533015.2010.494024

Verderber, S., & Fine, D. J. (2000). *Healthcare architecture in an era of radical transformation*. Yale University Press.

Pallasmaa, J. (2012). *The eyes of the skin: Architecture and the senses* (3rd ed.). Wiley.

Frampton, K. (1983). Towards a critical regionalism: Six points for an architecture of resistance. *The Anti-Aesthetic: Essays on Postmodern Culture*, 16–30.

Ruskin, John (1849). *The seven lamps of architecture*. Smith, Elder & Co.

Sen, A. (1999). *Development as freedom*. Oxford University Press.

Foucault, M. (1973). *The birth of the clinic: An archaeology of medical perception*. Tavistock Publications.

Marmot, M. (2005). Social determinants of health inequalities. *The Lancet, 365*(9464), 1099–1104.

Gesler, W. (1992). Therapeutic landscapes: Medical issues in light of the new cultural geography. *Social Science & Medicine, 34*(7), 735–746.

Ministry of Health and Family Welfare. (2012). *Indian Public Health Standards (IPHS): Guidelines for district hospitals*. Government of India.

Government of India. (2021). *National Health Policy*. Ministry of Health and Family Welfare.

NITI Aayog. (2019). *Health systems for a new India: Building blocks*. Government of India.

Duggal, R. (2007). Poverty and health: Criticality of public financing. *Indian Journal of Medical Research, 126*(4), 309–317.

Baru, R., Acharya, A., Acharya, S., Kumar, A. S., & Nagaraj, K. (2010). Inequities in access to health services in India. *Economic and Political Weekly, 45*(38), 49–58.

Mackintosh, M., Channon, A., Karan, A., Selvaraj, S., Zhao, H., & Cavagnero, E. (2016). What is the private sector? Understanding private provision in the health systems of low-income and middle-income countries. *The Lancet, 388*(10044), 596–605.

Sengupta, A. (2013). Universal health care in India: Making it public, making it a reality. *Indian Journal of Public Health, 57*(1), 1–3.

Bhat, R. (1993). The private/public mix in health care in India. *Health Policy and Planning, 8*(1), 43–56.

World Bank. (2020). *Urban population growth (India)*. World Development Indicators.

United Nations. (2018). *World urbanization prospects*. UN Department of Economic and Social Affairs.

Harvey, D. (2008). The right to the city. *New Left Review, 53*, 23–40.

Bureau of Indian Standards. (2016). *National Building Code of India (NBC 2016)*. BIS.

National Accreditation Board for Hospitals & Healthcare Providers. (2016). *NABH standards for hospitals* (4th ed.). Quality Council of India.

World Health Organization. (2010). *Health systems financing: The path to universal coverage*. WHO.

World Health Organization. (2015). *WHO global strategy on people-centred and integrated health services*. WHO.

World Health Organization. (2020). *Hospital preparedness for epidemics*. WHO.

Lakshmi, R., & Mohan, M. (2021). COVID-19 and spatial challenges in Indian public hospitals. *Journal of Urban Health, 98*(2), 260–270.

Capolongo, S., Rebecchi, A., & Buffoli, M. (2020). COVID-19 and cities: From emergency to recovery. *Sustainable Cities and Society, 59*, 102197.