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THE INFLUENCE OF PHYSICAL EVIDENCE ON BRAND PERCEPTION IN HEALTHCARE: A COMPARATIVE STUDY OF PRIVATE AND PUBLIC HOSPITALS IN INDIA

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ABSTRACT

This research investigates the impact of physical evidence on brand perception in the Indian healthcare context, specifically comparing public and private hospital environments. The central research question addresses how tangible aspects of service delivery – such as cleanliness, infrastructure, staff appearance, signage, and ambience – affect patient trust, satisfaction, and perceived quality. A cross-sectional quantitative design was implemented using a structured questionnaire administered to 667 respondents across urban and semi-urban regions of India. Respondents included 245 public hospital and 422 private hospital visitors. Statistical analyses including descriptive statistics, independent samples t-tests, regression analysis, MANOVA, and PCA revealed that private hospitals consistently outperformed public hospitals across all physical evidence indicators. Cleanliness, staff professionalism, and ambience were found to be key drivers of positive brand perception and trust. The findings highlight the need for policy- level investment in physical infrastructure, particularly in the public sector, to bridge perceptual gaps and improve patient loyalty. The study offers theoretical contributions to healthcare branding and practical recommendations for infrastructure upgrades in resource-constrained environments.

KEYWORDS: *Physical Evidence, Brand Perception, Healthcare Marketing, Public vs. Private Hospitals, Patient Satisfaction, Hospital Infrastructure, Trust, Servicescape, India*

1. INTRODUCTION

1.1 Context and Significance

India's healthcare landscape is characterized by a dual system of public and private institutions, each catering to diverse population segments. While private hospitals are often perceived as modern, clean, and customer-friendly, public hospitals face chronic issues such as overcrowding, underfunding, and infrastructural decay. In such a competitive and perception-driven environment, physical evidence—defined as the tangible cues that shape service experiences— plays a crucial role in influencing patient decision-making.

Physical evidence includes a variety of observable factors such as infrastructure design, equipment modernity, staff uniforms and behaviour, cleanliness, signage, and general ambience. These elements are central to forming initial impressions and play a decisive role in reinforcing or diminishing trust in the institution.

1.2 Research Problem

Despite comparable clinical outcomes in many cases, public hospitals are often rated poorly by patients. This discrepancy is attributed primarily to substandard physical environments which affect patient perception, trust, and satisfaction. Given the increasing importance of hospital branding, especially in urban centres where patients have access to both public and private healthcare providers, understanding how physical evidence contributes to brand equity is vital.

1.3 Research Objectives Primary Objective

- To analyse how physical evidence influences brand perception in private vs. public hospitals in India.

Secondary Objectives

- To identify key physical evidence factors shaping patient trust and satisfaction.
- To compare physical environments between public and private hospitals.
- To recommend low-cost strategies for improving public hospital environments.

1.4 Research Hypotheses

- **H1:** Private hospitals score significantly higher than public hospitals on physical evidence indicators.
- **H2:** There is a significant positive correlation between physical evidence dimensions and patient trust, satisfaction, and recommendation intent.

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1.5 Scope and Limitations

Scope: The study focuses on urban and semi-urban hospitals in India. It includes a comparative analysis between public and private hospitals based on patients' perceptions of physical evidence.

Limitations

- Excludes rural healthcare centres where infrastructural challenges are significantly different.
- Focuses on perception-based data, not actual health outcomes.
- Data collected at a single point in time; longitudinal trends are not analysed.
- Subjective interpretation of physical evidence may vary across demographics.

2. LITERATURE REVIEW AND RESEARCH GAPS

2.1 Overview of Existing Research

Berry and Bendapudi (2007) introduced the idea of hospitals as "healing environments," arguing that aesthetics and sensory comfort improve the patient experience. Ulrich et al. (2008) reinforced this by showing that elements like natural lighting, calm interiors, and noise control contribute to reduced patient stress.

Andaleeb (2001) emphasized that in developing nations, patients rely heavily on visible cues like infrastructure and cleanliness to evaluate quality. Dagger et al. (2007) used the SERVQUAL model to demonstrate that the tangibles dimension—cleanliness, waiting area condition, and staff appearance—strongly predicted patient satisfaction.

In the Indian context, Jain and Gupta (2004) found that patients tend to associate private hospitals with modernity and better care, while public hospitals were often perceived as lacking in hygiene and professionalism. Prasad and Sahoo (2021) added that private hospitals use design aesthetics akin to luxury hotels to enhance brand equity.

2.2 Research Gaps

- **Rural Inclusion:** Most studies, including this one, focus on urban areas, excluding rural healthcare setups with unique challenges.
- **Time-Series Analysis:** There is a lack of longitudinal studies tracking how hospital improvements influence brand perception over time.
- **Emotional Factors:** Few studies investigate the psychological and emotional responses elicited by physical environments.
- **Digital Interfaces:** The growing role of digital tools (e.g., kiosks, virtual waiting rooms) in shaping perception is not well documented.
- **Policy Evaluations:** The effectiveness of government infrastructure initiatives in altering public perception is seldom examined.

2.3 Theoretical Frameworks

- **SERVQUAL (Parasuraman et al., 1988):** Focuses on five dimensions of service quality, particularly the "tangibles" relevant to this study.
- **Aaker's Brand Equity Model (1996):** Highlights how physical evidence contributes to brand associations, perceived quality, and loyalty.
- **Holbrook's Consumer Value Typology (1999):** Distinguishes between hedonic and functional values in consumer experiences.

3. METHODOLOGY

3.1 Research Design

This study uses a quantitative, cross-sectional design to capture and compare perceptions of physical evidence across private and public hospitals in India.

Sample Size

- Total: 667 respondents
- Private Hospital Visitors: 422
- Public Hospital Visitors: 245

3.2 Data Collection Method

Primary data were collected using a structured questionnaire designed to assess perceptions of hospital infrastructure, cleanliness, equipment, ambience, signage, and staff behaviour. Respondents were patients or visitors who had recently interacted with either a public or private hospital.

3.3 Data Analysis Techniques

The data were analysed using SPSS:

- **Descriptive Statistics** for summarizing the data.
- **Independent Samples T-Test** for comparing public vs. private hospital scores.
- **Correlation and Regression Analysis** to assess relationships between variables.
- **MANOVA** to test multivariate effects.
- **Principal Component Analysis (PCA)** for dimensional reduction and clustering.

3.4 Ethical Considerations

- Informed consent was obtained from all participants.
- Responses were anonymized and stored securely.

4. RESULTS

4.1 Findings and Analysis Descriptive Stats:

- Private hospitals rated higher on staff behaviour (4.45) and modern equipment (3.97).
- Public hospitals scored lowest on ambience (1.88) and signage (2.56).

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T-Tests & Effect Sizes

Physical Evidence Indicator	Private Hospital Mean	Public Hospital Mean	Mean Difference	p-value	Cohen's d
Cleanliness	3.89	2.60	1.29	<.001	1.05
Staff Appearance	4.45	2.55	1.90	<.001	1.70
Signage	3.97	2.00	1.97	<.001	1.41
Ambience	4.10	1.88	2.22	<.001	1.40

Regression Insights

- Signage (β = -0.217) and modern equipment (β = -0.128) negatively predicted trust suggesting high-tech or impersonal environments may be intimidating.
- Public hospital rating negatively influenced overall trust.

MANOVA

- Pillai's Trace = 0.492, p < .001 → significant multivariate effect of hospital type on physical evidence perception.
- Top univariate contributors: **Staff (R^2 = 0.404)**, **Signage (0.316)**.

PCA Analysis

- **Component 1:** Strong loadings on private hospital ratings + physical factors.
- **Component 2:** Captures public hospital perception on a different axis.

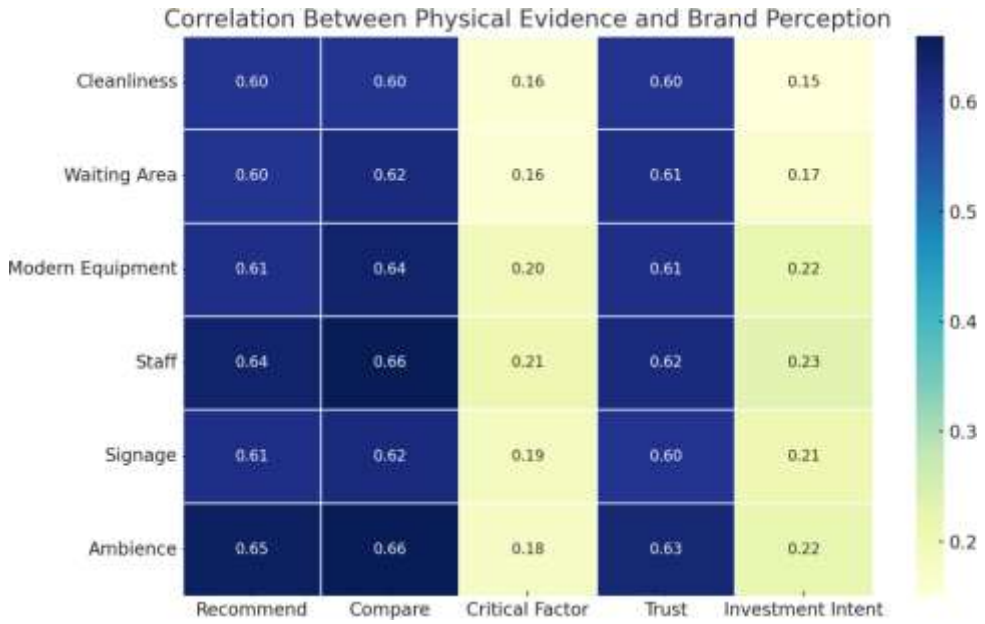

Figure 1: Correlation Between Physical Evidence and Brand Perception

This heatmap illustrates the **Pearson correlation coefficients** between six physical evidence factors (Cleanliness, Waiting Area, Modern Equipment, Staff, Signage, Ambience) and five dimensions of brand perception (Recommend, Compare, Critical Factor, Trust, Investment Intent).

Key Interpretations

- **Strongest Correlations**:
  - *Ambience and Compare* (**r = 0.66**)
  - *Staff and Compare* (**r = 0.66**)
  - *Ambience and Recommend* (**r = 0.65**)
  - *Staff and Recommend* (**r = 0.64**)
  - These findings indicate that ambience and staff-related cues are particularly influential in driving patients to compare hospitals and recommend them to others.
- **Trust** is consistently correlated across all factors, especially:
  - *Ambience (r = 0.63)*
  - *Staff (r = 0.62)*
  - *Modern Equipment (r = 0.61)*
  - Suggesting that the perceived trustworthiness of a hospital is significantly shaped by its atmosphere, professionalism, and technological modernity.
- **Lowest Correlations**:
  - *Critical Factor and Cleanliness / Waiting Area* (both **r = 0.16**)
  - *Investment Intent and Cleanliness* (**r = 0.15**)
  - While cleanliness is critical to satisfaction, it appears to influence practical brand choices (like investment or selection criteria) to a lesser extent.

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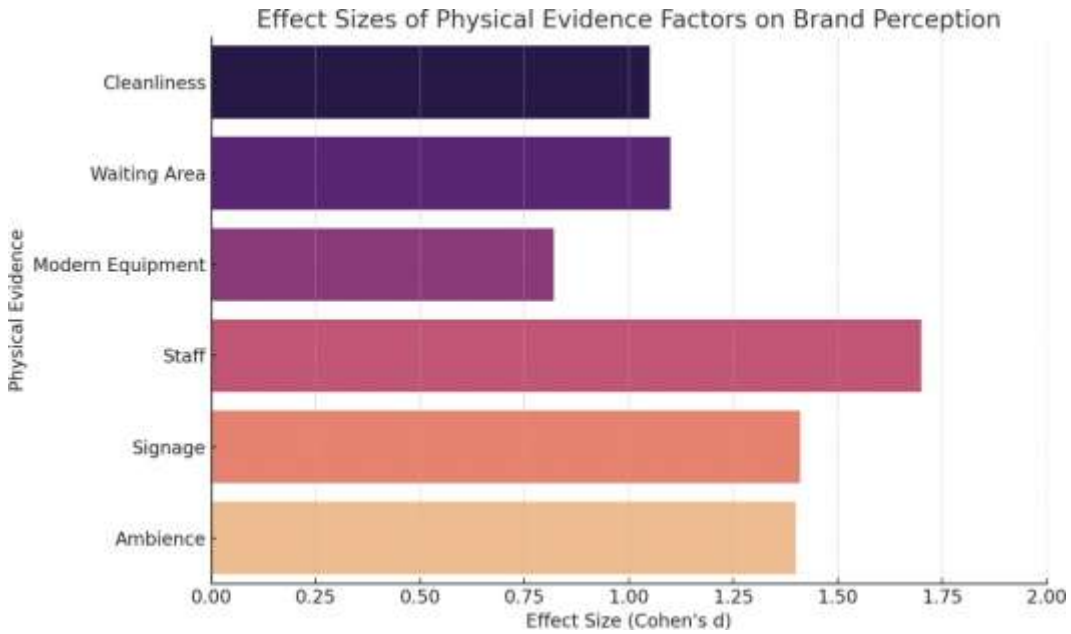

Figure 2: Effect Sizes of Physical Evidence Factors on Brand Perception

This bar chart represents **Cohen's d effect sizes** for six physical evidence dimensions in terms of their impact on overall brand perception. This statistical measure shows **magnitude** of difference between public and private hospitals.

Key Interpretations

- **Highest Effect**:
  - *Staff (d = ~1.75)*: The strongest differentiator between public and private hospitals. This indicates that how staff look, behave, and interact makes a significant impact on brand image.
- **Ambience and Signage (d ≈ 1.40)**: These two factors also have a strong impact on perception, reflecting that both sensory comfort and clarity in navigation contribute heavily to how the hospital is branded in patients' minds.
- **Lowest Effect**:
  - *Modern Equipment (d ≈ 0.80)*: While still a moderate-to-large effect, modern equipment plays a smaller role in brand perception than human and environmental factors.
- **Cleanliness (d ≈ 1.05)** and *Waiting Area (d ≈ 1.10)*: These have substantial effect sizes, reaffirming that hygiene and comfort are not only expectations but pivotal to brand evaluation.

5. DISCUSSION

5.1 Interpretation of Results

The data strongly support the hypothesis that private hospitals are rated more favourably on physical evidence. Cleanliness, ambience, and staff professionalism emerged as primary influencers of brand perception. Regression analysis indicates a significant positive correlation between these indicators and trust, satisfaction, and willingness to recommend.

- Patients equate better physical environments with higher trust and quality.
- Private hospitals leverage aesthetics and technology as branding tools.
- Public hospitals' poor ambience and infrastructure undermine their credibility, even when care is clinically effective.
- Staff and Ambience are consistently the most influential across both correlation and effect size measures, making them priority areas for brand improvement.
- Modern Equipment, while important, is less impactful emotionally or perceptually than interpersonal and environmental factors.
- Public hospitals, in particular, can significantly elevate brand perception by focusing on staff training, ambience enhancement, and signage clarity, even with limited budgets.

5.2 Implications

- Public hospitals must prioritize low-cost but high-impact enhancements.
- Private hospitals can maintain competitive advantage by continuously upgrading physical environments.
- Policymakers should view physical evidence as a core component of healthcare delivery.

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5.3 Comparison with Literature

These findings corroborate previous studies (Berry & Bendapudi, 2007; Dagger et al., 2007) and expand them by providing a context-specific analysis for India. Unlike previous works, this study integrates multiple analytical tools to deepen understanding.

5.4 Study Limitations

- Regional limitation to urban/semi-urban India.
- Does not control for clinical experience variables.
- Potential self-reporting bias.

6. CONCLUSION

6.1 Summary of Findings

The study confirms that physical evidence plays a pivotal role in shaping brand perception in healthcare. Private hospitals outperform public institutions across all measurable dimensions, and these factors significantly influence patient trust and satisfaction.

6.2 Recommendations

Public Hospitals Should

- Improve basic signage, seating, and cleanliness.
- Train staff for professional conduct and appearance.
- Use low-cost ambience enhancers (e.g., lighting, color, art).

Private Hospitals Should

- Avoid over-formalization—balance tech with warmth.
- Continue staff training and patient-centric layout planning.

Policy Makers Should

- Treat physical evidence as a strategic investment.
- Include physical upgrades in public health missions.

6.3 Final Thoughts

In a healthcare system burdened by inequity, enhancing physical evidence provides a tangible, scalable solution for improving public trust and closing the perception gap between private and public healthcare providers.

Physical evidence significantly influences how hospitals are perceived in India. Private hospitals benefit from strong environmental cues, while public hospitals must address infrastructural and service environment gaps. Enhancing physical evidence, even incrementally, can build trust, improve satisfaction, and elevate healthcare branding—especially critical in a post-COVID world where perception equals performance.

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