Original research

A study on patients' perception of signage system in a tertiary care teaching hospital

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Abstract

Objective: Navigating hospital environments presents a significant challenge for patients, visitors, and staff, exacerbated by inherent stress of healthcare settings. Beyond easing navigation in complex hospital layouts and instilling confidence, signage system embodies professionalism and care, contributing to brand identity and patient satisfaction. Since hospitals must accommodate an increasingly diverse population, it is critical that signage be designed to be effective and universally comprehensible. The aim of the study was to examine patients' perceptions of signage systems in a tertiary care teaching hospital, aiming to identify the areas for improvement and enhance overall patient satisfaction.

Methods: The cross-sectional study conducted at Government General Hospital, Kakinada from January-March 2024, surveyed 970 patients visiting the outpatient department, using a structured questionnaire. It assessed satisfaction with hospital signage using a Likert scale. Exclusions applied to Psychiatry, Pediatrics, and Emergency departments. Data was analyzed with descriptive and inferential statistics using SPSS version 26.0.

Results: Patient responses underscore hospital signage's critical role in effectiveness, reliability, and impact. Well-informed patients express higher satisfaction, emphasizing signage's informational role. Strategic placement earns high satisfaction, though reliability concerns exist. Wayfinding effectiveness is moderate. Visibility and readability are crucial, with local language inclusion positively perceived, but clarity enhancements are needed for service awareness.

Conclusion: This study revealed moderate patient satisfaction with hospital signage, with higher satisfaction among literate patients, young patients and regular visitors. Significant correlations were noted for literacy, regular visitors, and ease of navigation. Improvements in visibility and readability are needed. The insights from this study will be used by Hospital Administration department to enhance the signages in the hospital.

Key words: Signage, wayfinding, hospital navigation, universal symbols, patient satisfaction, patient perception, questionnaire

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Introduction

Within the expansive confines of a tertiary care teaching hospital, navigating the intricate network of corridors and departments can pose a formidable challenge, particularly for patients dealing with health-related concerns. Healthcare facilities in general and hospitals in particular, are often seen as unfriendly places (1). Visits can be a cause of stress for patients and the general public due to the nature of the visits and unfamiliarity of the facility. New staff, volunteers and even existing staff who have been accustomed to their own areas may not be comfortable navigating unfamiliar areas of the facility as well (2).

Clear and effective signage serves as a vital guide for patients, visitors, and staff, facilitating navigation through the intricate maze of corridors and departments (3). Signage acts as a beacon, offering direction and assurance amidst the bustling activity (4). Signs do more than provide directions; they reach out to the visitors and make them feel more comfortable with their navigating experience (5).

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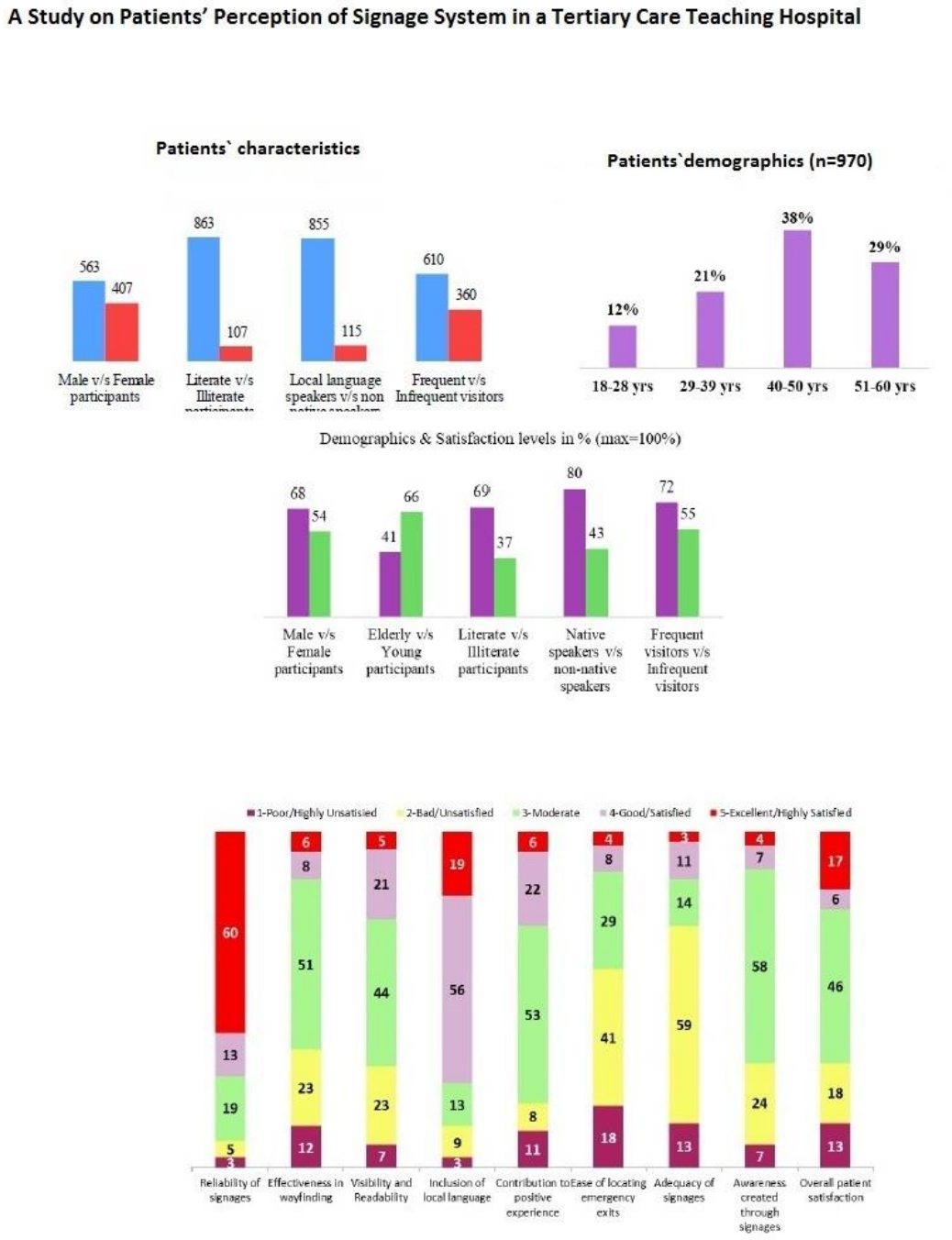
Graphical abstract



It is true that wayfinding is more than just signage (6) but hospital signage goes beyond providing directions; it embodies the institution's ethos of care and professionalism. By offering clear information, signage establishes a cohesive visual identity, reinforcing brand consistency, and fostering a sense of competence and reliability in the hospital environment. Studies have shown that signage has a considerable impact upon wayfinding behavior that must be included in the overall plan configuration of a building (7).

However, merely installing signage within facilities such as hospitals does not automatically improve people's wayfinding experience.

Faulty sign design can cause navigation problems in unfamiliar environments (8). The frustration caused by wayfinding difficulties not only provokes a negative opinion of the physical setting but that it also affects the perception of the public itself and the services offered in that setting (9). Signage is definitely not the only element that should be considered in wayfinding, but it has been proved that it can reduce difficulties by preventing user confusion and frustration, reduce time spent by staff in giving directions, reduce the stress associated to wayfinding tasks, and consequently reduce costs (10). Since community settings, such as hospitals, must accommodate an increasingly diverse population, it is critical that signage be designed to be as universally comprehensible as possible (11). Thus, it is crucial to thoroughly assess signage effectiveness in meeting diverse patient needs. There are many characteristics that play a factor in signage comprehension (signage recognition, color, font type, size, location, illumination, etc.) and the usability of the healthcare system depends on the consideration of these (12). These features ensure user-friendly navigation throughout the hospital.

Signs also tend to be ignored by people during the first encounter with them; however, they become increasingly aware of and compliant with signs the more times they are seen (13). This behavior shows the importance of multiple, standardized signs at regular intervals throughout facilities to streamline wayfinding tasks and minimize the burden on staff, thereby contributing to operational efficiency.

The aim of the study is to study the existing signage system in a tertiary care teaching hospital.

Objectives:

1. The primary objective of the study is to understand the patients' perception of signage system in a tertiary care teaching hospital.
2. The secondary objective is to analyze the patients' satisfaction with the existing signage system to identify areas of improvement.
3. To suggest recommendations to improve patients' hospital experience through signages.

Methods

Study design and population

Study design: The study adopted a descriptive cross-sectional design.

Study participants and setting: The study was conducted on patients visiting the outpatient department of Government General Hospital, Kakinada, Andhra Pradesh, over a period of three months, from January to March 2024 **Inclusion criteria:** The study included patients aged between 18 and 60 years visiting outpatient department of the hospital. This inclusion criteria aimed to ensure a diverse representation and relevance of patients and their health needs. **Exclusion criteria:** Exclusion criteria were applied to patients visiting psychiatry and pediatrics out-patient departments and emergency department because emergency and psychiatric patients may lack time or privacy for participation, while pediatric patients' responses may be less reliable due to their age. Patients in these departments may have unique needs, potentially confounding the study's outpatient objectives. Excluding these departments ensured a more consistent outpatient sample.

Ethical considerations: Institutional ethical committee approval was obtained from Rangaraya Medical College, Andhra Pradesh. The participants were also informed that participation was voluntary and anonymity was ensured.

Survey

Participants were approached in the waiting areas of the outpatient department and were administered questionnaires by trained nurses. These nurses briefed the participants on the study's nature and purpose, emphasizing the importance of truthful responses. They also assisted illiterate participants in understanding and completing the questionnaire. Each questionnaire took approximately 10-15 minutes to complete.

The questionnaire

The questionnaire assessed the patients' perception and satisfaction with the current signage system in the hospital which predominantly uses 'information' and 'identification' signs along with 'direction' signs in local language i.e. Telugu and English. The questionnaire comprised of two sections. The first section included 5 questions regarding demographics about age, sex, local language, education level, and frequency of hospital visits.

The second section consisted of 9 questions assessing patients' perceptions of hospital signage, covering aspects such as reliability, visibility, readability, inclusion of local language, ease of locating emergency exits, and overall satisfaction etc on a Likert scale of 1 to 5, ranging from 1 for "Poor/Very Unsatisfied," 2 for "Unsatisfied," 3 for "Moderate," 4 representing "Satisfied," to 5 representing "Excellent/Very Satisfied."

Data collection

All participants were informed that participation was voluntary and responses were collected anonymously to ensure privacy and encourage honesty. In the study, educated participants were considered as the ones with at least high school education and uneducated patients were the ones who had not received any formal education. 'Literate' patients were defined as those who could read and understand written instructions in the local language i.e. Telugu or English and 'illiterate' patients were unable to read the written instructions on signages. Individuals who had a good understanding and orientation of the hospital's layout and services were considered as 'well-informed' patients. Individuals who visited the hospital at least 3 times in the last 6 months were considered as frequent visitors.

Statistical analysis

Responses were entered into spreadsheets and analyzed using descriptive statistics (percentages, means, standard deviations). Charts and graphs helped illustrate patterns and disparities in patient perceptions of the signage system. Statistical analysis was conducted using SPSS version 26.0.

Results

The questionnaire was distributed to 1200 patients, yielding responses from 970 patients. Response rate = 80.83%.

The study involved 970 participants, with 58% being male (563) and 42% female (407) as shown in Figure 1 and 89% (863) of participants were literate while 11% (107) were illiterate who could not read or understand the signages.

Figure1 also depicts that 63% (610) participants were regular visitors compared to 37% (360) who were visiting the hospital for the first time.

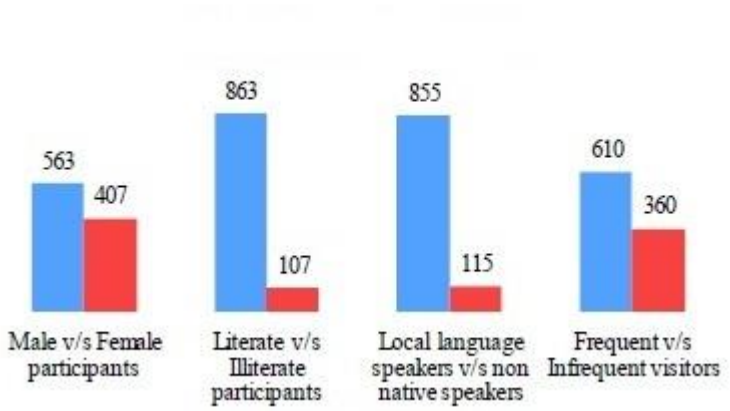


Figure 1: Graphical representation of participants` demographics (n=970)

Figure 2 shows the participants categorized into four groups based on age, with the largest proportion (38%) in the 40-50 years range, followed by 29% in the 51-60 years range, 21% in the 29-39 years range, and 12% in the 18-28 years range. The mean age of the participants was 43.7 years (SD = 10.3).

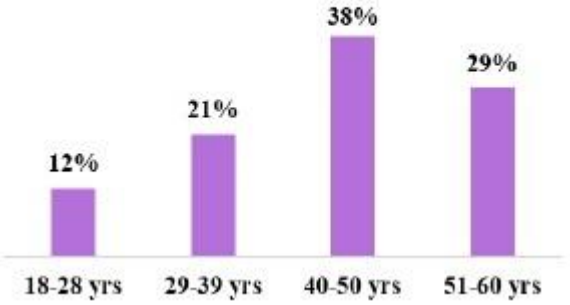


Figure 2. Age wise distribution of the participants in percentage

The study found significantly higher satisfaction among literate patients (69%) compared to illiterate patients (37%), supported by Chi-square analysis (Chi-square = 4.72, p = 0.03) showing significant association between literacy and satisfaction (Fig. 3). Regular hospital visitors also reported higher satisfaction (Chi-square = 6.63, p = 0.01) than infrequent visitors, indicating familiarity enhances signage effectiveness. Younger patients (29-39 years) were more satisfied (66%) than older patients (51-60 years) (41%) with signage, confirming statistical significance (p = 0.05).

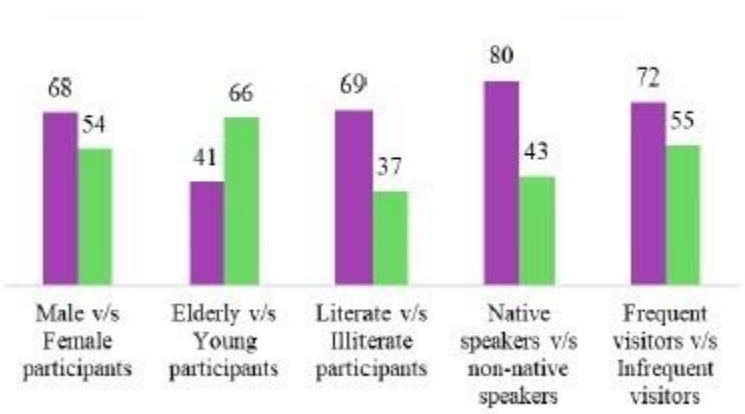


Figure 3. Participants` demographics & their satisfaction levels with the current signage system

Figure 4 depicts the patients' perception and satisfaction with the hospital signage. Perception refers to the patients' viewpoints regarding the clarity, visibility, effectiveness and other aspects of the signage system, while satisfaction refers to the overall contentment of patients with the signage system. Patient responses highlight clarity, visibility, and effectiveness as key aspects. Well-informed patients expressed higher satisfaction, emphasizing signage's role in providing crucial information. Strategically located signage received positive feedback. Despite trust in reliability (mean score=3.2 SD=0.9), improvements are needed in wayfinding effectiveness and visibility. Patients stressed the need for more signage, clearer information on critical areas, and better language inclusivity. Navigation difficulties significantly lowered satisfaction (mean score=2.5, p=0.01), suggesting a need for clearer navigation aids. Overall, continuous evaluation is essential to enhance the overall patient satisfaction (mean score=3.2, SD=0.9).

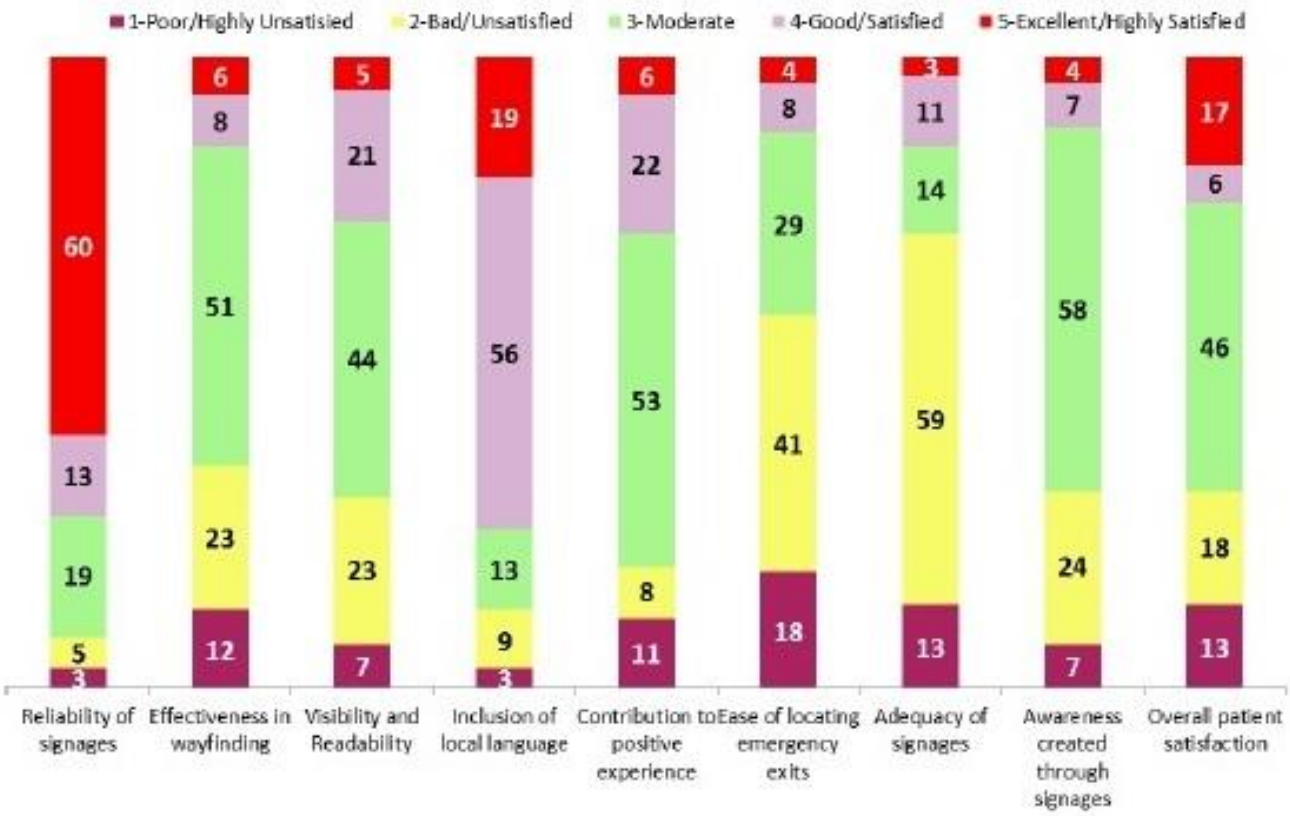


Figure 4. Graphical representation of patients' responses in percentage

Discussion

Our study revealed key findings about patient satisfaction with the signage system in a tertiary care teaching hospital. Overall satisfaction was moderate, with significant variability across demographics. Literate patients reported higher satisfaction compared to illiterate patients, supported by a significant association between literacy and satisfaction. Regular hospital visitors reported higher satisfaction, suggesting familiarity enhances signage effectiveness. Younger patients (29-39 years) were more satisfied than older patients (51-60 years). Easy navigation also correlated with higher satisfaction emphasizing the need for clear and accessible signage. Although, 60% of participants rated signage reliability as highly satisfactory, the current signage system needs improvement, especially in visibility and readability, as 41% of patients struggled to locate emergency exits and other facilities.

Our study provides insights into patients' perceptions of signage in a tertiary care teaching hospital, showing moderate overall satisfaction with notable demographic differences. The study's findings are consistent with previous studies by Davis et al. (14) who found that clear and intuitive signage significantly improved patient navigation and satisfaction and aligns with, Thompson et al. (15), who suggested that higher educational attainment correlates with better comprehension and usage of hospital signage.

Well-informed patients reported higher satisfaction, consistent with Rousek and Hallbeck's (2) findings emphasizing that clear and accessible signage is crucial in reducing wayfinding difficulties and enhancing patient experience.

The study uniquely focuses on the tertiary care setting, where navigational challenges are more pronounced. Despite these insights, there is room for improvement in the hospital's signage system to better address navigational challenges in this complex setting.

Ongoing evaluation and enhancement of signage systems are essential for meeting diverse patient needs and improving hospital efficiency and satisfaction. Clear, well-designed signs can enhance wayfinding, making hospital environments more navigable and welcoming, ultimately improving patient experience. The Hospital Administration Department oversees quality assessment and improvement, regularly reviewing patient feedback and operational efficiency. The department will use insights from this study to enhance the signage system, ensuring better navigation and overall patient satisfaction.

Study limitations

1. The study's sample size of 970 participants, though sufficient for initial insights, may not fully represent the broader patient population, limiting generalizability.
2. The data was collected through self-reported questionnaires, which may be subject to response biases.
3. The study's cross-sectional nature does not allow for the assessment of changes in perceptions over time or the impact of potential signage improvements.

Conclusions

This study revealed moderate patient satisfaction with hospital signage, with higher satisfaction among literate patients, young patients and regular visitors. Significant correlations were noted for literacy, regular visitors, and ease of navigation. Improvements in visibility and readability are needed. The insights from this study will be used by Hospital Administration department to enhance the signages in the hospital.

Recommendations:

1.Placement of signages in high-traffic areas and critical zones to facilitate easy navigation for patients and to help reduce confusion and prevent delays, particularly in areas prone to congestion.

2.Incorporate universally recognized symbols to transcend language and literacy barriers.

3.Maintain consistent design, color scheme, and typography across all signage for a cohesive visual identity and improved recognition.

4.Utilize various signage types such as directional, informative, statutory, and identification signs accordingly, to effectively guide patients and provide necessary information.

5.Implement digital signage solutions, such as interactive touchscreens or electronic display boards, alongside traditional static signs to offer real-time updates and wayfinding assistance enhancing patient engagement and communication.

Ethics: Institutional ethical committee approval was obtained from Rangaraya Medical College, Andhra Pradesh. The participants were also informed that participation was voluntary and anonymity was ensured.

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Conflict of interest: None to declare

Authorship: B.A.K., M.Y.R., and S.S.i equally contributed to the study and preparation for manuscript, and fulfilled authorship criteria

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