International Journal of Engineering and Applied Science October 6 University
https://ijeasou.journals.ekb.eg/
Online ISSN 3009-6448
Volume (2),Issue(1)
January 2025, pp:167-174

Understanding User Behavior in Healthcare Design Analysis: A Case Study of Resala Specialty Hospital

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https://doi.org/10.21608/ijeasou.2025.339187.1005

Received:25 November 2024
Accepted:23 January 2025
Published:23 January 2025

Abstract – This scholarly article delves into the frequently disregarded element of user behavior in the realm of healthcare design. By employing Resala Specialty Hospital as a representative case study, our objective is to pinpoint critical issues and characteristics. These findings can subsequently serve as valuable inputs to enhance and refine design proposals in the healthcare sector. The ultimate goal is to foster a more user-centric approach in healthcare design, thereby improving the overall user experience and satisfaction. This endeavor underscores the importance of integrating user behavior insights into the design process, a factor that has been largely neglected in traditional healthcare design practices. Healthcare centers represent a crucial component of the medical network, offering a range of services to a designated population. These centers are typically staffed by a cadre of general practitioners and nurses who deliver primary healthcare services. The scope of services traditionally encompasses family practice and dental care; however, a significant number of clinics have broadened their offerings to include specialties such as internal medicine, pediatrics, women's health, family planning, and ancillary services like pharmacy, optometry, and laboratory testing. In nations that have implemented a universal healthcare system, healthcare centers are frequently utilized by the majority of the populace. Conversely, in regions lacking such a system, these centers primarily serve individuals who are uninsured, underinsured, those with limited financial resources, or residents of areas with scarce access to primary healthcare facilities.

Keywords: Healthcare, Behavior, Mapping, Tracking, Architecture Theory.

I. INTRODUCTION

Healthcare design plays a pivotal role in ensuring patient comfort, staff efficiency, and overall well-being. However, many designers overlook user behavior when proposing designs, leading to mistakes and suboptimal solutions. This study aims to bridge this gap by examining user behavior within healthcare facilities.

Healthcare centers represent a crucial component of the medical network, offering a range of services to a designated population. These centers are typically staffed by a cadre of general practitioners and nurses who deliver primary healthcare services. The scope of services traditionally encompasses family practice and dental care; however, a significant number of clinics have broadened their offerings to include specialties such as internal medicine, pediatrics, women's health, family planning, and ancillary services like pharmacy, optometry, and laboratory testing. In nations that have implemented a universal healthcare system, healthcare centers are frequently utilized by the majority of the populace. Conversely, in regions lacking such a system, these centers primarily serve individuals who are uninsured, underinsured, those with limited financial resources, or residents of areas with scarce access to primary healthcare facilities.

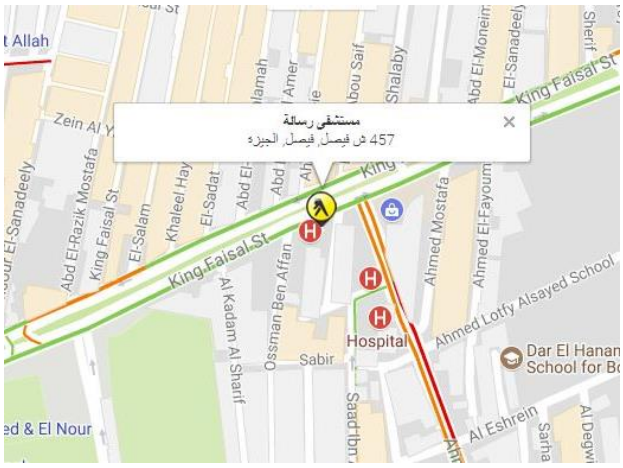

Fig.1. Satellite Location for the Hospital.

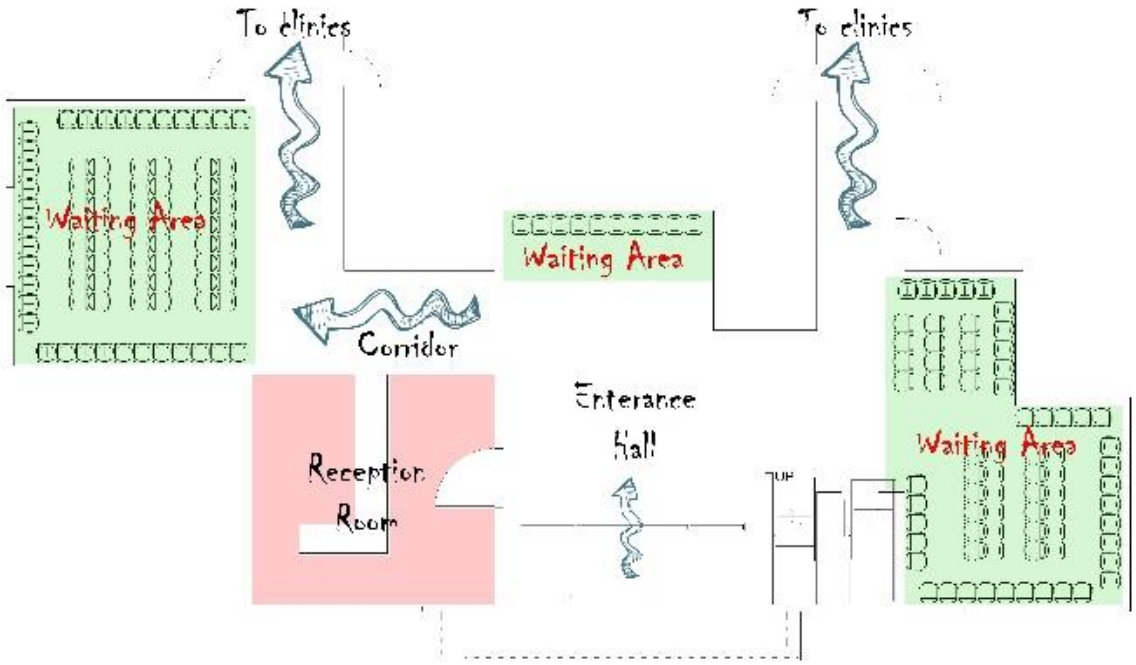

Fig. 2. Plan View explaining the Reception Area

II. MANUSCRIPT BODY

The research focus in this study is the Resala Specialty Hospital, a medical institution that has garnered significant attention and popularity, particularly among the economically disadvantaged sections of society. The reason for its widespread acclaim among this demographic is its commitment to providing affordable healthcare services.(See Fig.1).

This study employs a mixed-methods approach, combining qualitative observations with quantitative data analysis. The qualitative component involves the "Fly on the Wall" method, which unobtrusively captures real-time interactions, navigation patterns, and service utilization. The quantitative component includes patient flow metrics, waiting times, and staff response rates to substantiate the qualitative findings.

Resala Specialty Hospital stands as a beacon of hope for those who are financially constrained. It is not just a hospital; it is a lifeline for those who find the cost of medical treatment a burden too heavy to bear. The hospital's mission is to ensure that financial constraints do not become a barrier to receiving necessary medical care.

The hospital's popularity stems from its dedication to serving the community, particularly those who are less fortunate. It is a testament to the hospital's commitment to societal welfare and its mission to provide quality healthcare to all, regardless of their financial status.

The hospital's approach to healthcare is not merely transactional; it is transformational. It seeks to change the narrative that quality healthcare is a privilege of the wealthy. At Resala Specialty Hospital, quality healthcare is a right, not a privilege, and it is this philosophy that resonates with the people it serves.

Two main waiting areas were designed to accommodate users, each serving different clinic zones accessible via separate corridors. (See Fig.2).

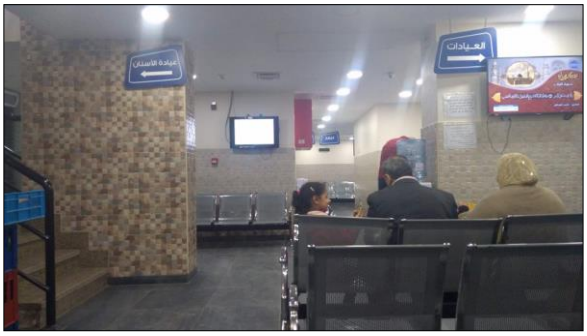

Fig. 3. Right waiting area and Entrance Hall.

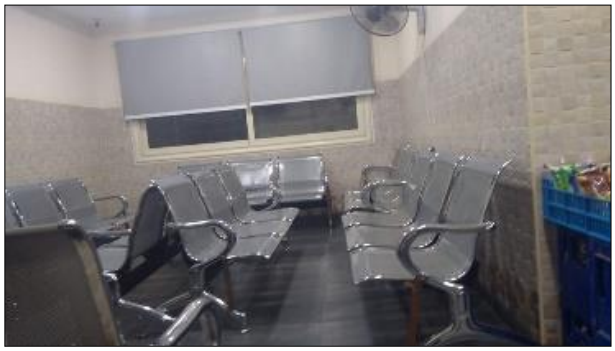

Fig. 4. Left waiting area

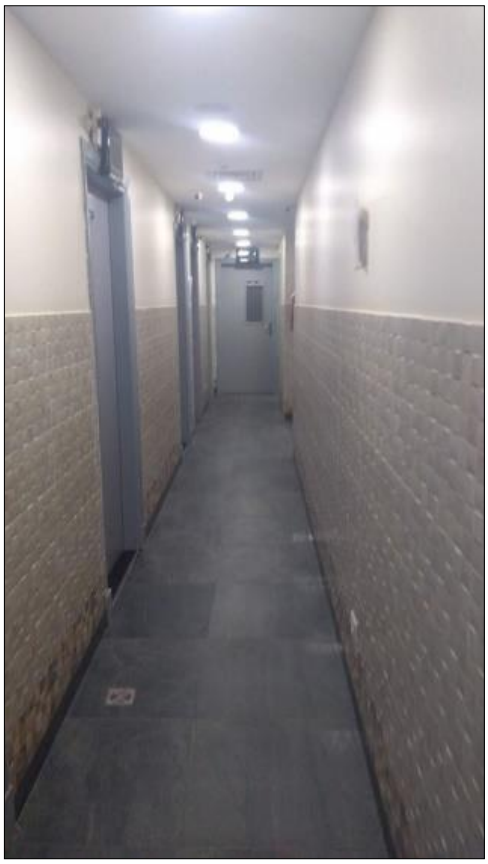

Fig. 5. Clinic's Corridor

Fig. 6. Right waiting area

A. Materials (Fly on the Wall Method):

In this section, we employ the 'Fly on the Wall' observational method to gain a deeper understanding of user behavior within the Resala Specialty Hospital setting. This non-participatory technique allows us to unobtrusively observe and record user interactions, behaviors, and patterns as they naturally occur in the healthcare environment. The insights gleaned from these observations are invaluable, shedding light on how users navigate the space, interact with healthcare providers, and utilize services. These findings will inform our understanding of user needs and preferences, ultimately guiding the design process towards more user-centric healthcare environments.

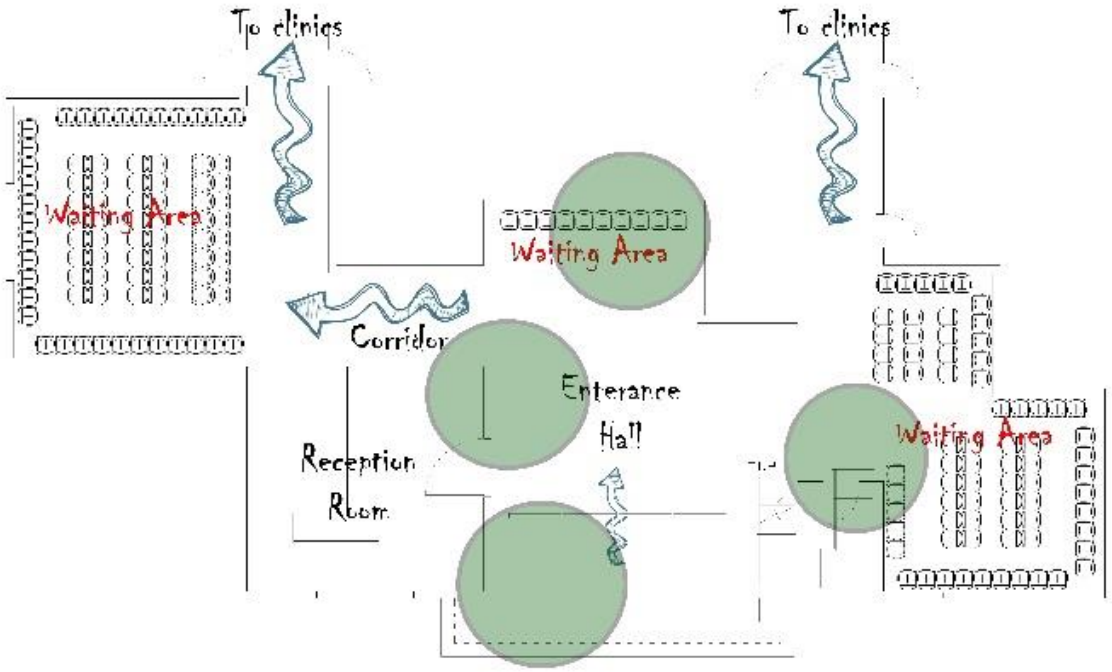

Fig. 7. Right waiting area

B. Observations during the visit:

During the visit to Resala Specialty Hospital, one is immediately struck by the hospital's efficient layout. The hospital is bustling with activity, yet there's a sense of order and calm. Patients and their families navigate the space with ease, guided by clear signage. The waiting areas are thoughtfully designed, spacious enough to accommodate the daily influx of visitors. Despite the affordability of the services, there's no compromise on the quality of care. The staff are attentive and empathetic, ensuring patients feel comfortable and well-cared for. Overall, the hospital embodies its mission of providing quality healthcare to all, regardless of their financial status. (See Fig.7)

A TV screen is mounted on the wall, serving a crucial function in informing users about their consultation timings. This feature enhances the user experience by keeping them updated and reducing uncertainty during their visit. It's an effective way of managing patient flow and expectations in a healthcare setting like Resala Specialty Hospital. This observation underscores the importance of considering user needs and behaviors in design, as it directly impacts their experience and satisfaction.

The waiting area is compact and typically occupied solely by nurses, with patients only utilizing it when there's an overflow of people.

A compact space where a healthcare professional offers items such as sweets, meals, and beverages.

II. BEHAVIOR MAPPING:

The reception area of the Resala Specialty Hospital is a bustling hub of activity, serving as the first point of contact for patients and visitors. As you enter, you're greeted by a warm, inviting atmosphere that immediately puts you at ease. The reception desk, staffed by friendly and professional personnel, is always ready to assist, guiding patients to their respective departments and answering any queries.

The layout of the reception area is thoughtfully designed to facilitate efficient patient flow. Clear signage and information boards help visitors navigate the hospital with ease. The waiting area is spacious and comfortable, with ample seating and a calm ambiance. It's not uncommon to see patients engaged in quiet conversation or lost in thought, waiting for their turn.

The reception staff exhibit a high level of professionalism and empathy. They handle patient registration, appointment scheduling, and provide information about the hospital's services and policies. Their behavior is a testament to the hospital's commitment to patient-centered care. They are trained to handle emergencies, directing patients to the appropriate care in a timely manner.

In the corner of the reception area, there's a small kiosk that offers refreshments. This thoughtful addition caters to the needs of waiting patients and their families, providing a much-needed respite.

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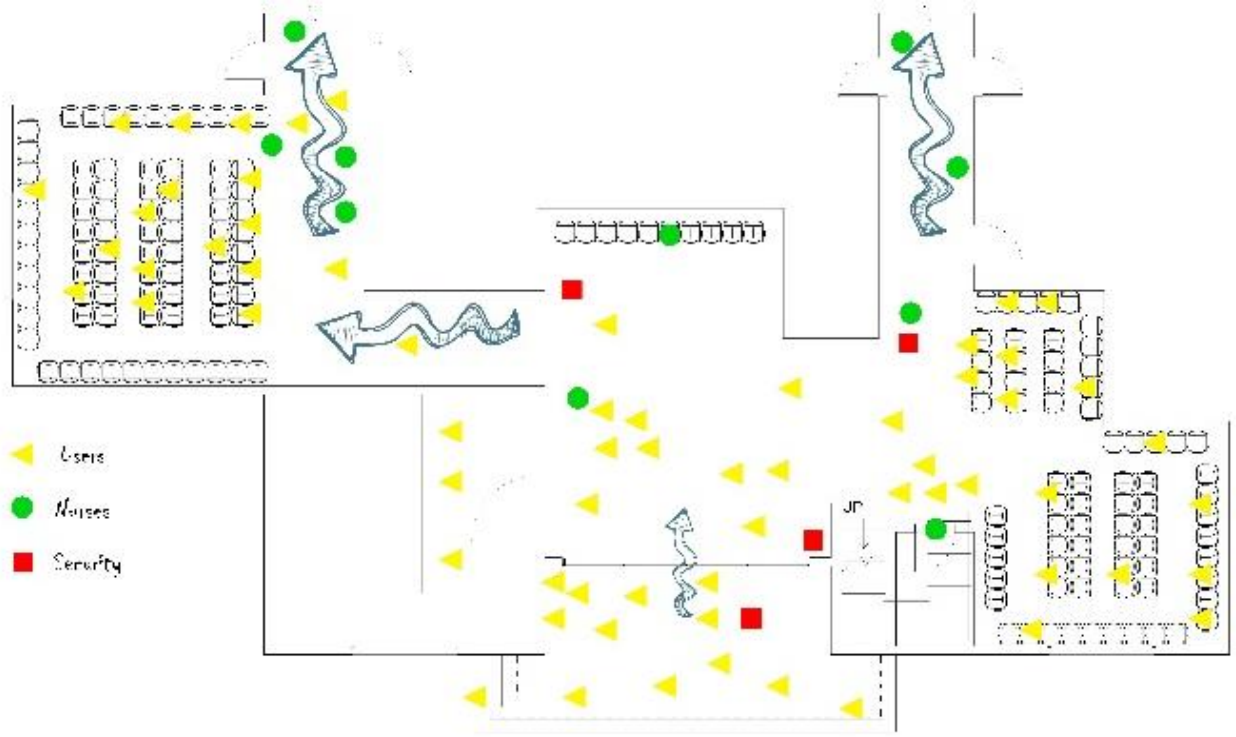

Fig. 8. Reception Mapping at 6:00 pm.

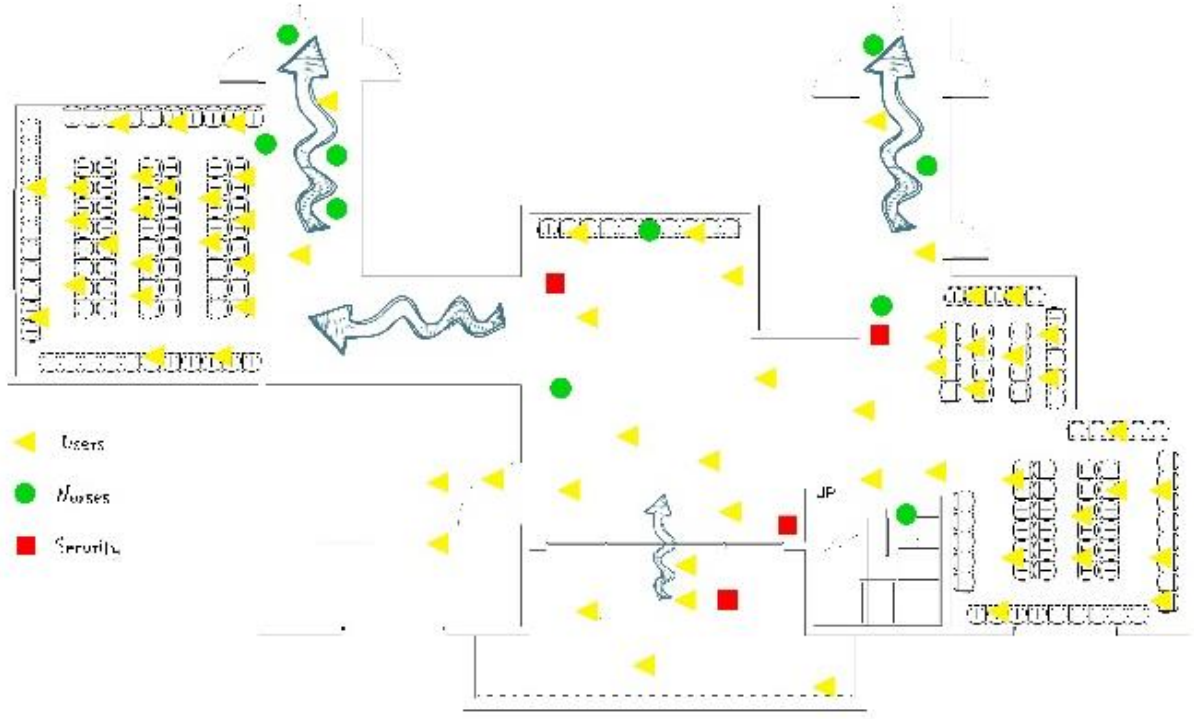

Fig. 9. Reception Mapping at 6:30 pm.

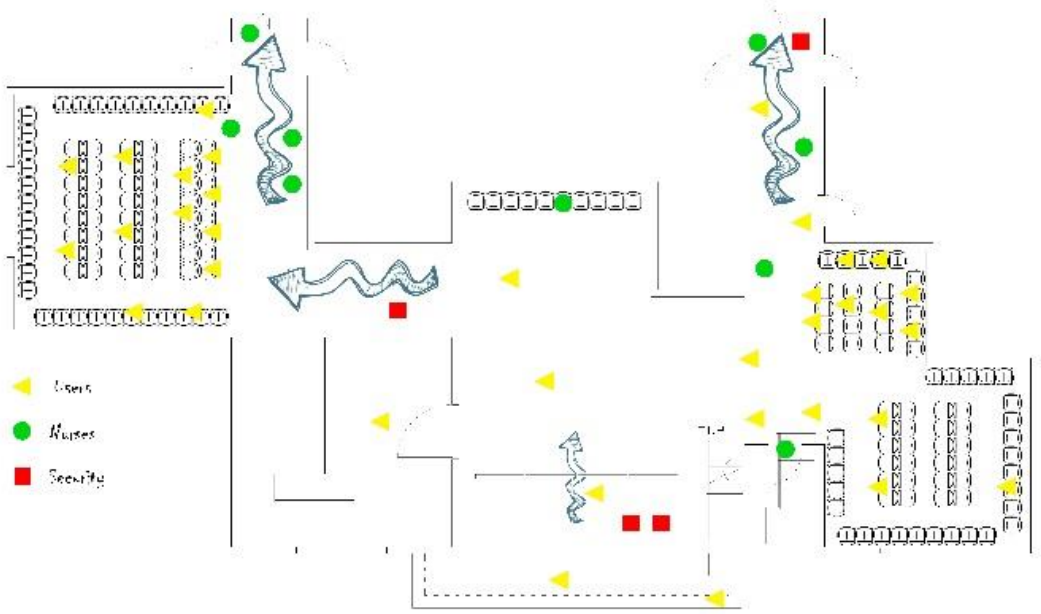

Fig. 10. Reception Mapping at 7:00 pm.

The reception area is also equipped with self-service kiosks for check-in and payment, reflecting the hospital's adoption of modern healthcare technologies. These kiosks reduce wait times and streamline administrative processes.

Overall, the reception area of the Resala Specialty Hospital is more than just a waiting area. It's a space that reflects the hospital's mission and values, designed with the patient's comfort and convenience in mind. The behavior mapping to this area reveals a well-coordinated effort to provide a positive and reassuring first impression, setting the tone for the patient's entire hospital experience. It's a testament to the hospital's commitment to delivering high-quality, patient-centered care.

Descriping (Fig.8): The reception hall was filled with people, all eyes focused on the TV screen. This concentration of attendees inside made the outside smoking area noticeably less crowded.

Descriping (Fig.9): The reception was not congested, yet the waiting zones were filled with individuals. Consequently, even the smaller waiting areas were occupied by users.

Descriping (Fig.10): The reception zone was almost vacant, as were the waiting areas. This could possibly be due to doctors having attended to a significant number of patients in the past half hour.

II.1. BEHAVIOR TRACKING:

Behavior tracking in the reception area of Resala Specialty Hospital provides valuable insights into patient flow, staff efficiency, and overall hospital operations. As you step into the reception area, you notice a well-organized space designed to cater to the needs of patients and visitors. The reception desk is the nerve center of this area, staffed by trained professionals who manage patient registrations, appointments, and inquiries.

The behavior of the reception staff is a reflection of the hospital's commitment to patient-centered care. They are attentive, empathetic, and efficient, ensuring that patients are directed to the appropriate departments swiftly. Their interactions with patients and visitors are marked by respect and understanding, contributing to a positive hospital experience.

The waiting area is another crucial component of the reception area. Despite the inevitable wait times, the hospital has made efforts to ensure patient comfort. The seating arrangement, the availability of reading materials, and the overall ambiance of the waiting area contribute to a less stressful waiting experience.

The hospital also utilizes modern technology to streamline operations. Self-service kiosks for check-in and payment are strategically placed in the reception area. These kiosks not only reduce wait times but also free up reception staff to attend to other important tasks.

The behavior tracking extends to the movement of patients within the reception area. Clear signage and information boards guide patients and visitors, reducing confusion and anxiety. The flow of patients from the reception to the waiting area and then to the respective departments is smooth and well-coordinated.

In conclusion, behavior tracking in the reception area of Resala Specialty Hospital reveals a well-thought-out system designed to enhance patient experience. From the reception staff's behavior to the layout of the reception area and the use of technology, every aspect is geared towards providing efficient, patient-centered care. It's a testament to the hospital's commitment to delivering high-quality healthcare services.

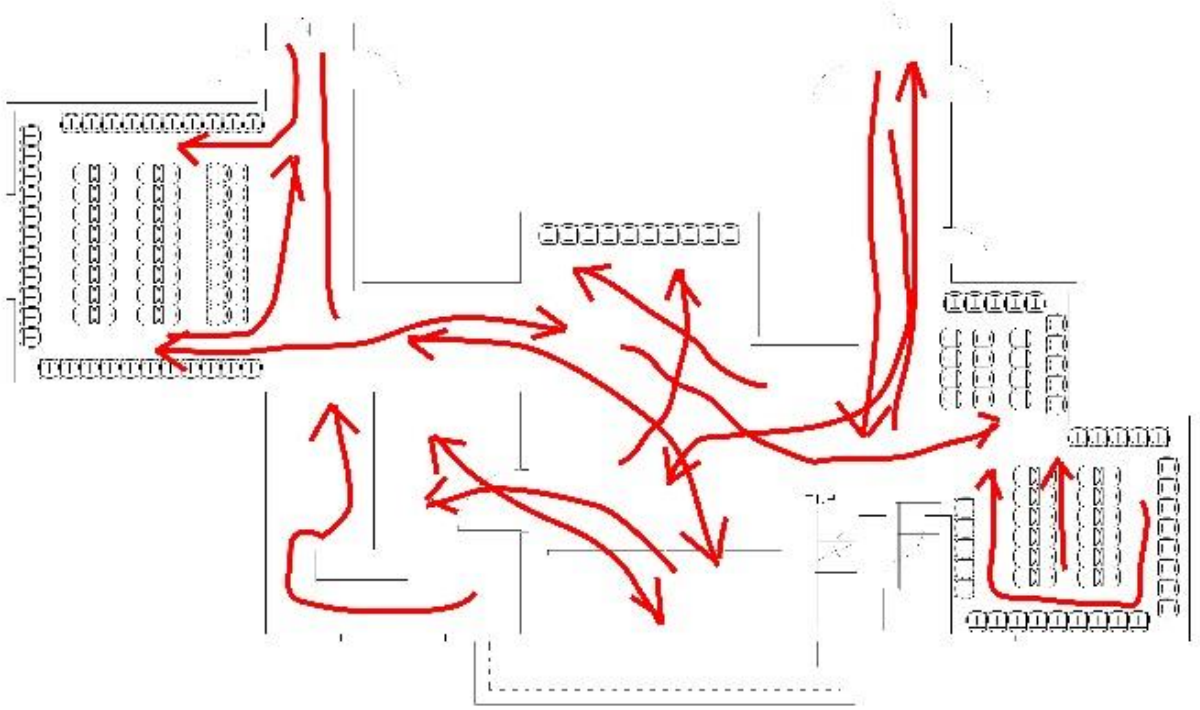

Fig. 11. Tracking map for the reception area.

Description (Fig.11): The Entrance Hall is bustling with tracking lines, yet the waiting areas remain sparsely populated.

II.2. STUDY VARIABLES:

A comprehensive analysis was conducted using the following variables:

Table 1: Qualitative and Quantitative Variables of the Case study.

Variable	Type	Description
Patient Arrival Time	Quantitative	Time patients arrive at the reception desk.
Waiting Time	Quantitative	Duration spent in the waiting area.
Patient Satisfaction Score	Quantitative	Rated on a scale of 1-10 based on survey responses.
Staff Response Time	Quantitative	Time taken by staff to respond to patient queries.
Navigation Ease	Qualitative	Observations on how easily patients navigate spaces.
Service Utilization Patterns	Qualitative	Insights into which services are most accessed.

A. Patient Flow and Waiting Times

A total of 200 patients were observed over a two-week period. The average arrival time was 9:30 AM, with peak times occurring between 10:00 AM and 12:00 PM. The average waiting time was 18 minutes, with a standard deviation of 5 minutes. Patients rated their satisfaction with waiting times at an average of 7.5 out of 10.

Table 2: Patient flow rate for the study area.

Time Period	Average Waiting Time (minutes)	Satisfaction Score
9:00 AM - 11:00 AM	20	7.2
11:00 AM - 1:00 PM	17	7.8
1:00 PM - 3:00 PM	15	8.0

B. Staff Response Times

The average response time from staff to patient queries was 3 minutes. Satisfaction with staff responsiveness was rated at 8.6 out of 10.

Table 3: Staff Response rate in the study area.

Metric	Average Time (minutes)	Satisfaction Score
Staff Response Time	3	8.6
Registration Completion	5	8.4

C. Patient Satisfaction

Surveys distributed to 150 patients revealed high satisfaction with overall care (average score: 8.2). However, areas such as privacy in waiting areas scored lower (6.8), indicating room for improvement.

Table 4: Degree of satisfaction for patients(users).

Aspect	Average Score
Overall Care	8.2
Waiting Area Privacy	6.8
Navigation Ease	8.5
Staff Friendliness	9.0

D. Behavioral Observations

1. **Navigation Patterns**: Patients navigated spaces efficiently due to clear signage and intuitive layouts. However, older patients faced challenges in reaching certain areas without assistance.
2. **Space Utilization**: Waiting areas were crowded during peak times, leading to occasional discomfort. Compact seating arrangements in overflow areas were less effective.
3. **Technology Integration**: Self-service kiosks improved administrative efficiency, reducing wait times for registration and payments.

CONCLUSION

The examination of the reception hall at Resala Specialty Hospital unveils a meticulously crafted space tailored to meet user requirements, even within the context of primarily serving economically disadvantaged individuals. Despite its focus on catering to this demographic, the hospital has succeeded in creating a reception area that transcends economic limitations, prioritizing human experience.

The design ethos evident in the reception hall reflects a dedication to enhancing user comfort and convenience. By seamlessly integrating functionality with aesthetics, the space serves as a welcoming environment that aids in alleviating the inherent stress often associated with healthcare settings. This intentional approach acknowledges the inherent dignity of all individuals,

irrespective of their socio-economic background, by providing them with a dignified and respectful space.

Moreover, the reception hall's effective design and operational protocols contribute to managing visitor flow efficiently. By mitigating overcrowding and ensuring a smooth circulation of patients and visitors, the hospital fosters an atmosphere conducive to both physical and emotional well-being. Such considerations underscore the importance of strategic planning and implementation in creating environments that are not only visually appealing but also operationally efficient.

The observed phenomenon of healthcare centers not being constantly overcrowded within the context of Resala Specialty Hospital suggests a harmonious balance between supply and demand, facilitated by prudent design and management strategies. This serves as a testament to the adage that "good rules make a good place," highlighting the role of organizational policies and protocols in shaping user experiences positively.

Ultimately, the analysis underscores the pivotal role of understanding user behavior in informing design decisions. By closely studying user preferences, needs, and behaviors, designers can discern valuable insights that inform the creation of spaces optimized for user satisfaction and well-being. This holistic approach underscores the symbiotic relationship between user-centric design and the creation of impactful healthcare environments.

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