RESEARCH PAPER

Preparedness Of Semi-Urban Healthcare Systems: Outpatient Perspective

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ABSTRACT

Outpatient care is the main link in societies and healthcare organisation particularly semi-urban areas, creating a bond between rural and urban facilities. This analysis examines how prepared outpatient care is from the patient's perspective focusing on semi-urban health institutions of Palghar District, India. According to this research work, the study area has a combination of public and private sectors where more than 150+ out-patients have been taken from public and private out-patient facilities using a mixed method of research. The study examines five important aspects; accessibility, communication, environment, responsiveness and perceived readiness. Through the use of PLS-SEM (Partial Least Squares Structural Equation Modeling), the relationships were tested followed by measuring the effect of these factors on patient trust, referral tendency and travel burden. Responsiveness and accessibility are the strongest indicators of perceived preparedness and communication is next in importance. Being responsive, which is fast service and care, turned out to be the most important factor in enhancing patient confidence. Accessibility emphasized the importance of proximity and service hours. There was a significantly negative relationship between preparedness and referral trends. When outpatient services are seen as ready and trustworthy, patients will be less likely to look externally for care. The study shows how essential transition in policy for healthcare is needed, from just infrastructure to service quality improvement, particularly responsiveness, accessibility and communication (Kumar, Rawal, Jain, & Sood, 2025). The study provides insights about patient-driven factors to assess healthcare system readiness in semi-urban India. It also provides actionable recommendations to strengthen outpatient care delivery in the local context.

Keywords: Outpatient Preparedness, Patient Perception, Semi-Urban Healthcare, Healthcare Accessibility, Responsiveness, Structural Equation Modelling.

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INTRODUCTION

In most developing countries, advanced hospitals are generally located in urban areas. As a result, outpatient care is often the first and most frequent contact people have with the healthcare system. (Arora, 2024) In India, approximately two-thirds of the population lives in rural or semi-urban regions. The Outpatient Department (OPD) helps fulfill the basic health requirements of the people. In doing so, it relieves pressure on major hospitals. (WHO, n.d.). The Palghar District of Maharashtra illustrates a compromise in the delivery of health care, with the unmet needs of the rural regions and the sophisticated systems of the urban areas (Karvande, 2024). Healthcare systems are still inaccessible, unresponsive, and not patient-friendly despite rates of health spending rising in many countries.(Kelkar, 2021).

Standard measures of healthcare readiness, like doctor-to-bed ratios and so on, miss the patient's lived experience. Patients in semi-urban contexts frequently face non-structural barriers, including delayed response times, unclear communication, and limited-service empathy, which erode trust in local facilities (Verma, 2025). Patients in semi-urban settings often face non-structural barriers such as delayed response times, lack of proper communication, and low service empathy, which affects trust in local facilities. Therefore, many patients prefer urban hospitals to nearby outpatient units even for treatable conditions (Liu, 2007). There is a gap between what we provide and the perception of patients. Proper infrastructure does not mean the service provided is adequate or satisfactory. To address these gaps, we must shift evaluation of health care preparedness toward patient-centered indicators reflecting the quality of interactions (Kumar, Rawal, Jain, & Sood, 2025), responsiveness and accessibility. The study aim is to assess outpatient preparedness from the patient's perspective in Palghar District that represents semi-urban part of India. Using a combination of the quantitative survey and qualitative

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insights, the research explored how dimensions including accessibility, communication, environment, and responsiveness have influenced the perceived preparedness and the patient response behaviour of referring and travelling.

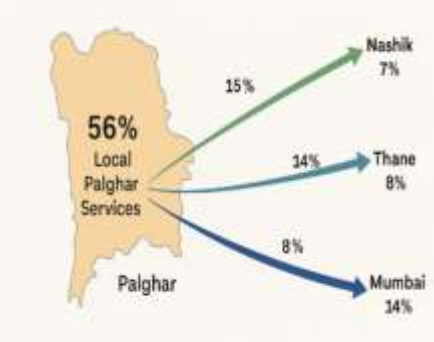

Figure 1: Patient referral flow from Palghar to nearby healthcare centres.

Note. The data show that 56 per cent of the patients go for local treatment in Palghar, viz Mumbai 14%, Thane 8%, Nashik 7%. Data indicate that 56% of patients seek care within Palghar, There is a significant proportion after this who go out of the district for treatment. [Loksatta, December 16, 2023]

With PLS-SEM, study reveals key driver of patient trust and local use of healthcare: health and satisfaction with healthcare. Grasping these connections can give practical advancements for policy-makers and administrators to inform design for trust-based outpatients and more. This paper aims to address healthcare preparedness by creating system-level improvements in conjunction with patient-level expectations in transitional and semi-urban settings.

2. Literature Review

Preparedness has become one of the defining features of health system resilience in low-/middle-income countries in transition. Outpatient facilities are central to early diagnosis, prevention of disease and maintenance of treatment because they are easily accessible and directly connected to the patient (WHO, n.d.). Outpatient departments serve as a link in the delivery of services between primary care and tertiary care in India and similar developing areas with a larger semi-urban and rural population. Still, the efficiency of the systems depends not only on the structural readiness but also on the extent to which patients perceive these services to be capable of addressing their need in a timely manner (Friedberg, 2009).

2.1 Conceptualizing Outpatient Preparedness

Preparedness in outpatient care is not simply reserving equipment and workforce. It includes the system's ability to respond well, communicate appropriately, and generate care viewed as safe and kind. Aday and Andersen's (Andersen & Aday, 1998) model of access to care emphasized both structural and behavioural determinants of utilization—availability, accessibility and acceptability—foundational to studying readiness from the user side. Recent frameworks by the World Health Organization (WHO, n.d.) call for person-centered and integrated health systems that account for user experience and perceived trust within the system as measures of system readiness.

Research indicates that fragmented service network, limited diagnosis capabilities along with unresponsive staff are characteristics of semi-urban districts in India (Shrivastava & Shrivastava, 2015; Singh & Das, 2021). Even though health infrastructure is more developed, low patient satisfaction suggests that making structural investments do not guarantee perceived readiness (Government of Maharashtra, 2022). In the case of Palghar District, more than half the people depend on local services but a large number still opt to visit Mumbai, Thane or Nashik for basic healthcare. This further demonstrates a gap between what the system can accommodate and the confidence of patients. (Figure 1). Such patterns underscore a disconnect between system capacity and patient trust.

2.2 Service Quality and Patient Perception

Insights can be adapted from service quality literature to understand outpatient preparedness. (Parasuraman, 1988) the SERVQUAL model contains five key dimensions: tangibility, reliability, responsiveness, assurance, empathy. Patients perceive the quality and readiness of care based on these dimensions. Responsiveness and assurance are, specifically, highly relevant in outpatient settings where patients expect timely attention, clarity of information, and courtesy (Mercieca, 2014).

(Prusty RK, 2025) responsiveness and communication are strong predictors of patients' trust and satisfaction in semi-urban OPDs. Similarly, (Mehra, 2016) also reported that delay in consultation, lack of empathy and unclear instructions are the main reason for patient dissatisfaction in Indian public health facilities. This is consistent (Sodani P. R, 2010) , as they find that despite being nearby patients do not go to local facilities. They prefer cities or other urban areas and non-localities facilities due to better expectation of care. Empirical assessment of outpatient preparedness requires analytical techniques of testing relationship between latent constructs i.e. accessibility, responsiveness and perceived trust.

2.3 Analytical Perspectives: From Service Quality to PLS-SEM

SEM is typically matched for the assessment of such multi-dimensional connections. The PLS-SEM model is an advantageous model for exploratory healthcare research. According to a scholar PLS-SEM is well suited for modelling complex relationships. PLS-SEM is used when the sample size is small and the data is not normal. PLS-SEM is when an indicator measure has into consideration mediating relationships (Rahman, 2016). Health services research various constructs such as patient satisfaction, perceived service quality, and behavioral intention have been evaluated using PLS-SEM. (Wold, 1982) and refined (Sarstedt, 2022), it was concluded that the coordinated use of SEM outputs and logistic rationale can provide valuable insights into referral and travel patterns. Limited empirical work exists on modeling outpatient preparedness in semi-urban India using this approach despite such advancements.

Health services research employs PLS-SEM to evaluate constructs such as patient satisfaction, perceived service quality, and behavioral intention (Senapati, 2025). (Nadkarni, 2024) added that through SEM outputs and logistic reasoning, one could explain patient-level behavior outcomes as referral and travel behavior. There is still little empirical work on modelling outpatient preparedness in semi-urban India through this approach, despite these advances. Most studies have focused on service quality at a hospital level or inpatient care. Outpatient preparedness is less investigated.

2.4 Identified Research Gap

The literature reviewed revealed two gaps. First, there was limited medical preparedness research in a semi-urban application context. Second, no study links behavioural outcomes to service quality dimensions using patient-centric models. In this study, we use PLS-SEM to see how accessibility, communication, environment, and responsiveness together measure prepared-ness and affect the patient referral intention in Palghar District. This study adds to the conversation on outpatient preparedness by improving the concept of access to care and service quality model both conceptually and empirically. It focuses on making appropriate policy reforms to strengthen decentralized healthcare delivery and patients' trust in semi-urban India. The PLS-SEM model uses measurement constructs as presented in the table Exogenous variables are patient-facing service dimensions that influence perceived preparedness. Endogenous and outcome variables are behavioural and demographic effects.

3. Methodology

3.1 Research Design

In semi-urban cities, the researchers tried to assess the outpatient preparedness by using qualitative methods and quantitative methods. An indispensable component was the use of quantitative techniques to assess the association between essential constructs while qualitative assisted in contextualizing the patient experience. A cross-sectional survey of different health care Institutions in Palghar District of India was undertaken to depict perceptions of different patients at one point in time. The objective of the study was to determine the determinants of perceived preparedness including association with patient behavioral outcomes such as referral tendency and travel burden.

3.2 Sampling and Data Collection

Between February and April 2024, we interviewed 156 outpatients in 11 public-private health facilities located in Palghar District. The facilities sampled included community health centres, private clinics and public hospitals in a stratified manner. To be included in the study, patients must have been age 18 years and above. They must have had at least 1 outpatient consultation in the past 6 months. The participation was on a voluntary basis and ethical clearance was obtained from the institutional review board of the MET Institute of Management in Mumbai.

A questionnaire with 25 items was developed and used with the help of a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The survey tool was modified from recognized constructs in healthcare service quality and access-to care literature (Hoseini-Esfidarjani, 2021). In addition to the quantitative data, twelve semi-structured interviews were carried out to capture patient stories on responsiveness, access and communication.

3.3 Constructs and Variables

Table 1: Measurement Constructs and Descriptions

Construct Type	Construct Name	Indicators	Description
Exogenous Latent Variable	Accessibility	AC1, AC2, AC3, AC4	Measures ease of reaching the facility, operational hours, transport access, and distance.
Exogenous Latent Variable	Communication	CM1, CM2, CM3, CM4, CM5	Assesses clarity, politeness, empathy, and information exchange during consultation.
Exogenous Latent Variable	Environment	ENV1, ENV2	Evaluates physical ambiance, cleanliness, and comfort of outpatient areas.
Exogenous Latent Variable	Responsiveness	RS1, RS2, RS3	Captures promptness of service, wait times, and attention to patient needs.
Endogenous Latent Variable (Mediator)	Preparedness	OUT1, OUT2	Represents patients' perceived readiness of outpatient services based on quality

			and reliability.
Outcome Construct	Travel Burden	TR1, TR2	Captures distance and logistical effort required by patients to access care.
Outcome Construct	Referral Tendency	CN1	Single-item measure assessing likelihood of patients seeking external referral.
Moderating/Control Variable	Gender	N/A	Demographic moderator evaluating variability across male and female patients.
Moderating/Control Variable	Age	N/A	Demographic moderator exploring differences in perception across age groups.

Note. Table presents the measurement constructs used in the PLS-SEM model. Exogenous variables represent patient-facing service dimensions influencing perceived preparedness, while endogenous and outcome variables capture behavioral and demographic effects.

3.4 Analytical Approach

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS version 4.1.1.2. This method was selected due to its suitability for models with multiple latent constructs, small to medium sample sizes, and non-normal data distributions (Shi, 2021). Reliability and validity were assessed using Composite Reliability (CR), Average Variance Extracted (AVE), and Discriminant Validity through the Fornell-Larcker and Heterotrait-Monotrait (HTMT) criteria (Fornell & Larcker, 1981) (Afthanorhan, May 2021). Bootstrapping with 5,000 subsamples was used to test path significance ($p < 0.05$).

4. Hypotheses and Statistical Testing

4.1 Hypotheses Development

Based on the conceptual model and literature review, the following hypotheses were proposed:

H1: Accessibility has a significant positive impact on Perceived Preparedness.

H2: Communication has a significant positive impact on Perceived Preparedness.

H3: Responsiveness has a significant positive impact on Perceived Preparedness.

H4: Perceived Preparedness negatively influences Referral Tendency.

The hypotheses assume that a hospital's outpatient preparedness is dependent not only on the tangible infrastructural factors such as accessibility and responsiveness, but also service-oriented dimensions like communication. Also, the more prepared the outpatient department, the less patients will be referred outside.

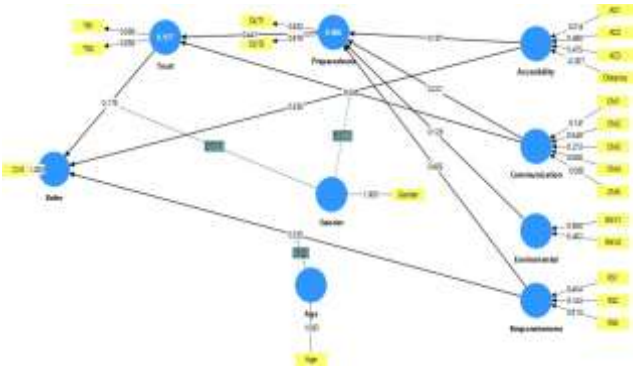

Figure 2: Structural Model designed in SmartPLS

4.2 Hypothesis Testing and Results

PLS-SEM analysis conducted on SmartPLS (v4.1.1.2) using 150 patients tested the hypotheses of the present study. The path's significance was evaluated through bootstrapping with 5,000 sub-samples and bias-corrected confidence intervals.

H1: Accessibility has a significant positive impact on Perceived Preparedness.

Interpretation: According to the results, accessibility has a significant effect on preparedness ($p < 0.001$). This gives credence to the claim that, if facilities are easy to reach, distance is low, and hours of operations are on the patient's side, the patient will feel confident in using local health services. The residual variance is very low indicating a model explaining Preparedness well.

H2: Communication has a significant positive impact on Perceived Preparedness.

Interpretation: Communication—clear, polite, and empathetic—moderately impacts preparedness, with a positive trend. We reject the null hypothesis and find that quality of patient–provider interaction affects confidence in health care system since p-value < 0.05. This is consistent with 62% of the qualitative answers indicating that participants were unhappy because of unclear instructions or time pressure in the consultation.

H3: Responsiveness has a significant positive impact on Perceived Preparedness.

Interpretation: In the model, responsiveness is the strongest predictor of preparedness. Patients greatly appreciate

getting served quickly. According to qualitative feedback, the main frustration from 78% of respondents was delay or distraction. This strong link is supported by the lofty reliability score, and the low standard error of the residuals.

H4: Perceived Preparedness negatively influences Referral Tendency.

Interpretation: The more prepared someone feels the less likely they are to refer someone out. When patients view local OPDs as competent and responsive, this decreases the likelihood of external referral. The inverse path shows a strong effect and explains the strong effect (β = 0.688) and explains nearly 47.3% of the variance in referral behavior. Among those scoring lower on preparedness (<12/20), 61.3% sought care from outside the district.

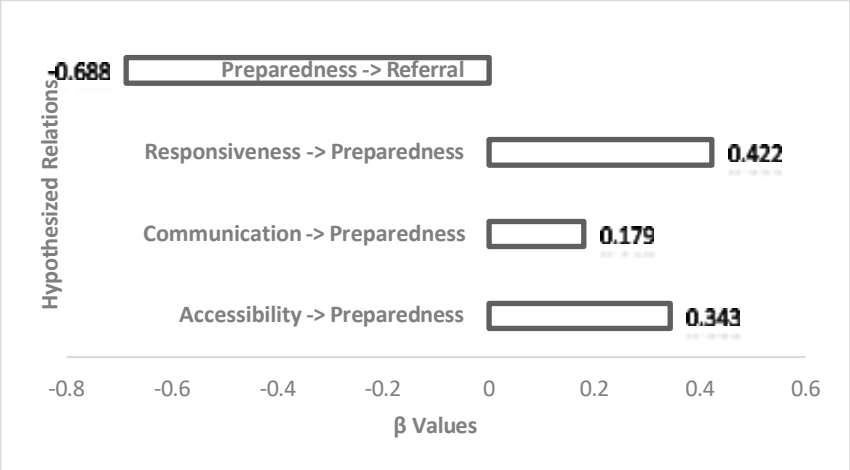

Figure 3: Standardized Path Coefficients of the PLS-SEM Model

Note. The above figure show the structural relationships and standardized path coefficients that were obtained from the PLS-SEM analysis. The visual summary suggests that responsiveness (β = 0.422) and accessibility (β = 0.343) have the most significant positive influence on perceived preparedness, with communication having moderate positivity (β = 0.179). As preparedness increases, referral tendency to seek external healthcare services decreases. This is confirmed by a strong negative relationship between the two variables (β = −0.688). The structural model reveals significant relationships between all variables, whether exogenous, endogenous or moderating with 82.3 % variance explained in preparedness. Together, the diagrams show a pattern where two dimensions i.e., responsive and accessible remain important two drivers of patient trust and perceived readiness in semi-urban outpatient healthcare systems.

Table 2: Summary of Hypothesis Testing

Hypothesis	Relationship Tested	Effect Size (β)	p-value	Significance	Key Insight	Result
H1	Accessibility→ Preparedness	0.343	< .001	Strong, statistically significant	Ease of access enhances patient confidence and perceived preparedness.	Accepted
H2	Communication→ Preparedness	0.179	<.023	Moderate, statistically significant	Clarity and empathy in communication influence preparedness.	Accepted
H3	Responsiveness→ Preparedness	0.422	< .001	Strongest predictor, statistically significant	Prompt attention and reduced delays most impact patient trust.	Accepted
H4	Preparedness→ Referral Tendency	−0.688	< .001	Strong inverse relationship	Higher preparedness discourages external referrals.	Accepted

5. Conclusion and Policy Implications

This research provides an empirical and patient-centered apprehension of outpatient preparedness in semi-urban health organisation using Palghar District as a reference of use The research formalize the multidimensional influence of accessibility, communication, environment, and responsiveness on perceived preparedness using PLS-SEM integrated with qualitative analysis. The results reconfirm that responsiveness and accessibility are the most important contributors to patient trust, with responsiveness having the greatest predictive power.

The adequacy index for the structural model was calculated at $R^2 = 0.823$. This suggests that the four most important service quality dimensions adopted by ARA members collectively explain over 80% of the variance in perceived preparedness The coefficient of path between preparedness and referral tendency ($\beta=-0.688$, $p<.001$) indicates that when patients perceive the outpatient facilities to be responsive, accessible, and orderly, their tendency to seek a referral is significantly much less. This insight is relevant for semi-urban healthcare policymakers wishing to mitigate patient outflows to the urban venue.

Hospitals and clinics must focus on workforce responsiveness through training on empathy, communication and time management. If you have systems to make appointments and follow up digitally, patient flow and waiting time may lessen. The study result supports trust-based preparedness which stresses transparency and communication and builds services with the community. Including response time and patient satisfaction as indicators can strengthen accountability. With the help of availability, empathy and responsiveness, the outpatient preparedness helps semi-urban healthcare systems become sustainable and patient-centric systems.

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