
**SERVICE QUALITY GAP ANALYSIS IN HEALTHCARE
INSTITUTIONS:**

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DOI: <https://doi-doi.org/101555/ijrpa.4895>**ABSTRACT**

Healthcare institutions across India and specifically in the state of Chhattisgarh are confronted with a persistent challenge — the widening gap between patient expectations and the actual service delivered. This research paper investigates the nature and dimensions of service quality gaps in healthcare institutions in Chhattisgarh using a secondary data-based analytical approach. The conceptual foundation of this study rests on the SERVQUAL model originally developed by Parasuraman, Zeithaml, and Berry (1988), which identifies five key dimensions of service quality: tangibility, reliability, responsiveness, assurance, and empathy. Drawing upon secondary data from the National Family Health Survey (NFHS-5, 2019-21), Rural Health Statistics (2021-22), National Health Mission (NHM) reports, and published research studies, this paper examines the structural, operational, and perceptual gaps that characterise healthcare service delivery in Chhattisgarh.

The findings reveal significant gaps across all five SERVQUAL dimensions, with the most critical shortfalls observed in tangibility (infrastructure and equipment), reliability (consistent service delivery), and responsiveness (timely care). Chhattisgarh faces a shortage of 279 doctors at Primary Health Centres (PHCs) alone, while Community Health Centres (CHCs) in the state report a specialist shortfall exceeding 79.5 percent. Additionally, rural and tribal populations — constituting a significant portion of Chhattisgarh's 33 million inhabitants — continue to experience disproportionately poor access to quality healthcare. The study identifies systemic barriers including inadequate physical infrastructure, workforce shortages, cultural resistance, and financial constraints as primary drivers of the service quality gap. This paper further proposes actionable recommendations for policymakers, hospital

administrators, and health planners. By situating Chhattisgarh within the broader discourse on healthcare quality in emerging economies, this study contributes to the growing body of literature on patient-centered care and service excellence in the Indian public health context.

KEYWORDS: *Service quality gap, SERVQUAL model, healthcare institutions, patient satisfaction, Chhattisgarh, secondary data analysis, public health.*

1. INTRODUCTION

1.1 Background: Service Quality in the Global Healthcare Context

The quality of healthcare service has assumed central importance in contemporary organisational and public policy discourse. In an era marked by rising patient expectations, mounting competitive pressures, and rapidly evolving medical technologies, healthcare institutions worldwide are being compelled to critically evaluate the quality of care they deliver. Service quality in healthcare is not merely a managerial concern — it is a moral imperative that directly affects patient outcomes, safety, and well-being. Scholars and practitioners alike have recognised that a gap between what patients expect from healthcare services and what they actually receive can lead to dissatisfaction, erosion of trust, and even adverse health consequences (Parasuraman, Zeithaml & Berry, 1988; Gronroos, 1984).

Globally, the measurement of service quality in hospitals and clinics has been extensively studied using frameworks such as SERVQUAL, SERVPERF, and their various adaptations. The five-dimensional SERVQUAL model — encompassing tangibility, reliability, responsiveness, assurance, and empathy — has emerged as the most widely applied instrument for diagnosing service quality gaps in healthcare settings. Studies from the United States, the United Kingdom, Southeast Asia, and South Asia have consistently demonstrated that patients' perceived service quality significantly influences their satisfaction levels, behavioural intentions, and loyalty to healthcare providers (Zeithaml, Berry & Parasuraman, 1996; Brady & Cronin, 2001).

1.2 Healthcare Quality in India: An Overview

India, home to one of the world's largest and most complex healthcare systems, presents a paradoxical picture. On one hand, the country has made remarkable strides in expanding healthcare infrastructure, with the number of Sub-Centres (SCs), Primary Health Centres (PHCs), and Community Health Centres (CHCs) growing substantially over the past two decades. On the other hand, quality remains inconsistent, with glaring disparities between urban and rural areas, between public and private institutions, and across different

socioeconomic groups. The healthcare sector in India is one of the largest service economies in the country, yet it continues to grapple with structural inefficiencies and systemic underinvestment (Kondasani & Panda, 2015).

Patients in India frequently report dissatisfaction with public healthcare services, citing long waiting times, inadequate facilities, unfriendly staff, and perceived lack of empathy as key pain points. Studies by Sharma and Jain (2021) and Swain and Singh (2021) have highlighted significant disparities between expected and perceived service quality in Rajasthan and other Indian states. The growth of medical tourism, increasing health consciousness among the middle class, and the proliferation of private hospitals have further intensified scrutiny of service quality in the public sector. In this context, the government's flagship schemes — including Ayushman Bharat, National Health Mission (NHM), and Health and Wellness Centres (HWCs) — represent efforts to close these service delivery gaps. However, implementation quality at the ground level, especially in resource-constrained states, remains a persistent challenge.

1.3 Chhattisgarh's Healthcare Landscape: Context and Challenges

Chhattisgarh, carved out as a separate state from Madhya Pradesh in 2000, occupies a unique position in India's development narrative. Rich in mineral resources — particularly coal, iron ore, and bauxite — the state has witnessed significant industrial expansion. However, its social development indicators, particularly in health, paint a more sobering picture. With a population of approximately 33 million, Chhattisgarh is characterised by a high proportion of tribal communities, dispersed rural settlements, and challenging terrain that complicates health service delivery.

According to the National Family Health Survey (NFHS-5, 2019-21), Chhattisgarh has recorded improvements in several health indicators, including institutional births and immunisation coverage. However, gaps in the quality and accessibility of healthcare services remain wide, particularly in tribal districts such as Bastar, Surguja, and Dantewada. The Rural Health Statistics (2021-22) published by the Ministry of Health and Family Welfare report a significant shortfall of 279 doctors at PHCs in Chhattisgarh — one of the highest deficits in the country. Moreover, Community Health Centres in the state, which are expected to provide specialist care, function with more than 79.5 percent vacancy in specialist positions. These structural deficiencies directly contribute to gaps in service delivery and patient dissatisfaction.

Given these realities, a systematic analysis of service quality gaps in Chhattisgarh's healthcare institutions is both timely and imperative. Such analysis can help policymakers,

hospital administrators, and public health professionals identify key areas of intervention and design targeted improvement strategies.

1.4 Research Problem

Despite a growing body of literature on healthcare service quality in India, research specifically focused on Chhattisgarh remains limited. Most existing studies are either primary data-based surveys confined to specific districts or broader national-level analyses that do not adequately account for the unique socioeconomic and geographical conditions of states like Chhattisgarh. There is an urgent need for a structured, secondary data-driven examination of the service quality gaps prevalent in healthcare institutions across the state.

This study addresses the following core research questions:

- What is the current state of healthcare infrastructure and service capacity in Chhattisgarh, and how does it compare to national norms?
- What are the specific dimensions of service quality gaps experienced by patients in Chhattisgarh's healthcare institutions?
- What structural, systemic, and perceptual factors drive the service quality gap in Chhattisgarh?
- What policy interventions and managerial strategies can effectively reduce service quality gaps in the state's healthcare sector?

1.5 Objectives of the Study

The study is guided by the following specific objectives:

- To review and document the existing healthcare infrastructure and service delivery framework in Chhattisgarh using secondary data sources.
- To analyse service quality gaps across the five SERVQUAL dimensions — tangibility, reliability, responsiveness, assurance, and empathy — in Chhattisgarh's healthcare institutions.
- To identify the key barriers and contributing factors that perpetuate service quality gaps in the state.
- To propose actionable recommendations for policymakers, hospital management, and health planners to bridge identified service quality gaps.

1.6 Significance of the Study

This paper makes a distinctive contribution to the literature by focusing exclusively on Chhattisgarh — a state that is often under-represented in health services research — and by relying entirely on secondary data drawn from authoritative sources such as the NFHS-5, NHM reports, and peer-reviewed academic literature. For students and scholars of Hospital and Healthcare Management (HHM), this study offers a replicable research framework. For practitioners and policymakers, it provides an evidence-based diagnosis of healthcare service quality challenges in one of India's developing states.

2. Literature Review

2.1 Conceptual Foundations: Defining Service Quality

The concept of service quality has been the subject of extensive academic inquiry since the early 1980s. Gronroos (1984) was among the first scholars to conceptualise service quality as the difference between customer expectations and perceptions of the service received. This foundational idea was subsequently refined and operationalised by Parasuraman, Zeithaml, and Berry (1985, 1988) through the development of the SERVQUAL model. In their seminal work, Parasuraman et al. (1988) identified five dimensions of service quality — tangibility (physical appearance and facilities), reliability (ability to deliver promised services accurately), responsiveness (willingness to help and provide prompt service), assurance (knowledge and courtesy of staff and their ability to inspire trust), and empathy (individualised attention and care given to customers). The SERVQUAL instrument measures the gap between expected and perceived service on each of these dimensions, with a negative gap score indicating unmet expectations.

In the context of healthcare, service quality takes on additional significance because the 'service' in question is health — a fundamental human right with profound implications for individual and societal well-being. Healthcare service quality is defined as the patient's experience or impression of the overall excellence of a healthcare organisation, typically understood as the gap between expected and perceived service (Parasuraman et al., 1988; Cronin & Taylor, 1992). Researchers such as Dagger, Sweeney, and Johnson (2007) have further extended this conceptualisation to develop multidimensional scales suited specifically to the healthcare context.

2.2 SERVQUAL in Healthcare: A Global Perspective

The application of the SERVQUAL model to healthcare settings has produced a rich and nuanced body of literature globally. Brady and Cronin (2001) argued that service quality

perceptions are hierarchically organised, with multiple sub-dimensions underpinning each primary dimension. Studies across North America, Europe, and the Middle East have consistently found that reliability and empathy are the dimensions most strongly correlated with patient satisfaction. A study conducted in Saudi Arabia found significant influence of tangibility and empathy, moderate influence of reliability and safety, and minor effect of responsiveness on hospital service quality and patient satisfaction (Kilase Ajoud & Jouili, 2021).

In Southeast Asia, researchers have adapted the SERVQUAL instrument to local cultural contexts, recognising that dimensions such as empathy and assurance carry culturally specific meanings in collectivist societies. The World Health Organisation (WHO) has endorsed the use of patient satisfaction scores as a tool for guiding quality improvement in healthcare institutions, further cementing the centrality of gap-based analysis in global health governance (WHO, 2000). Naqavi et al. demonstrated significant relationships among patient satisfaction, the therapy process, and adherence to treatment outcomes, suggesting that service quality gaps have tangible clinical consequences beyond mere dissatisfaction.

2.3 Healthcare Service Quality in India

In India, the study of healthcare service quality has gained significant momentum over the past decade, spurred by rising patient expectations, competitive pressures from private hospitals, and increasing government accountability in the public health sector. Kondasani and Panda (2015) identified that the healthcare sector is one of the largest service economies in India and noted a pronounced gap between patient expectations and service delivery in both public and private hospitals. Ali, Basu, and Ware (2018) applied the SERVQUAL framework to Indian commercial hospitals and found significant negative gaps across all five dimensions, with reliability and responsiveness emerging as the weakest areas.

Research in Tier II cities of India by Madhura and Iyer (2018) used SERVQUAL gap scores to demonstrate that hospitals with advanced information systems showed smaller quality gaps in responsiveness and reliability but continued to underperform on empathy. Sharma and Jain (2021) identified negative gap scores in Rajasthan's healthcare sector, indicating that patients were systematically receiving care that fell short of their expectations. Similarly, Swain and Singh (2021) revealed a significant disparity in perceived service quality between insured and uninsured patients in India, underscoring the compounding effect of socioeconomic status on healthcare quality experiences.

A systematic review by Kamalasanan et al. (2019) of factors influencing healthcare service quality in Indian hospitals concluded that quality management culture remains a nascent

concept in Indian healthcare organisations, with accreditation bodies such as the National Accreditation Board for Hospitals and Healthcare Providers (NABH) gradually driving improvements. The review identified infrastructure, human resources, patient communication, and organisational culture as the primary determinants of service quality in Indian hospitals.

Coutinho, Prasad, and Prabhudesai (2025) recently developed a tailored instrument to measure service quality and assess gaps specifically in dialysis centres across India, demonstrating the increasing specialisation of healthcare quality research. Their findings reinforced the persistent importance of tangibility and reliability as primary drivers of patient satisfaction in resource-limited settings. These findings resonate strongly with the conditions prevailing in Chhattisgarh's public healthcare system.

2.4 Healthcare Quality in Chhattisgarh: Existing Evidence

Research specifically focused on Chhattisgarh's healthcare quality landscape, while limited, provides important insights. A study published in the academic literature examined service quality, expectation, perception, and satisfaction towards healthcare services in selected private and government hospitals in Chhattisgarh, employing a cross-sectional descriptive methodology among in-patients. The study found persistent gaps between patient expectations and actual service delivery, particularly in areas of infrastructure, doctor availability, and nursing care. Bottlenecks and delays in patient flow emerged as significant quality concerns.

A more recent study in the context of Chhattisgarh's emerging medical tourism sector (Emerald Insight, 2024) identified clinical quality, support services, trust, infrastructure, affordability, and the regulatory environment as key drivers of service experience. The research used factor analysis and Structural Equation Modelling (SEM) to demonstrate that investment in these areas can significantly improve patient outcomes and satisfaction. Tripathi et al. (2024) examined the performance of Health and Wellness Centres (HWCs) in providing primary care services in Chhattisgarh, finding that 77.9 percent of participants considered the range of services satisfactory, while qualitative findings highlighted significant service gaps related to physical conditions, community awareness, appointment systems, and safety.

At the national policy level, Unveiling the ABCs — a PMC-published editorial on identifying India's healthcare service gaps — emphasised that gender norms, social shame, religious beliefs, and language barriers interact with structural inadequacies to create compounding healthcare access and quality gaps. These findings are especially pertinent to Chhattisgarh,

where a significant tribal population navigates cultural barriers alongside infrastructural ones (PMC, 2023). The editorial recommended enhancing healthcare infrastructure, strengthening regulatory mechanisms, promoting quality improvement cultures, and leveraging digital technologies for data collection and analysis — recommendations directly applicable to Chhattisgarh.

2.5 Research Gaps and Contribution of This Study

The review of existing literature reveals a pronounced research gap in state-specific, secondary data-driven analyses of healthcare service quality in Chhattisgarh. While national-level surveys and broad-based Indian studies provide valuable context, they often aggregate data in ways that obscure the unique conditions of individual states. This study fills that gap by synthesising secondary evidence specifically pertaining to Chhattisgarh and situating it within the SERVQUAL framework. By doing so, it offers a structured, replicable analytical model that can be adopted by researchers across other developing-economy states facing similar healthcare quality challenges.

3. Conceptual Framework

This study is anchored in the Gap Model of Service Quality, originally proposed by Parasuraman, Zeithaml, and Berry (1985) and subsequently refined in their landmark 1988 publication. The model posits that service quality is fundamentally a function of the gap between customer expectations (what they believe a service should deliver) and customer perceptions (what they experience the service as delivering). A negative gap — where perceptions fall below expectations — indicates a service quality deficit.

In the healthcare context, five primary SERVQUAL dimensions frame the analysis of this study:

- **Tangibility:** The physical appearance of healthcare facilities, medical equipment, cleanliness, adequacy of beds, and appearance of healthcare staff.
- **Reliability:** The ability of healthcare institutions to provide promised services dependably, accurately, and consistently — including diagnosis accuracy, appointment adherence, and medicine availability.
- **Responsiveness:** The willingness of healthcare staff to help patients promptly, respond to queries, and reduce waiting times.
- **Assurance:** The knowledge, courtesy, and competence of healthcare providers and their ability to inspire confidence and trust in patients.

- Empathy: The degree of individualised care, attention, and understanding that healthcare providers demonstrate towards patients and their families.

Beyond the patient-level perceptual gap (Gap 5 in Parasuraman's original framework), this study also considers the broader organisational and systemic gaps that characterise Chhattisgarh's healthcare institutions — including the gap between management's perception of patient expectations and the actual service delivery specifications (Gap 2), and the gap between service specifications and actual service delivery (Gap 3). These gaps are particularly relevant in the public health sector, where policy design, resource allocation, and ground-level implementation frequently diverge.

4. RESEARCH METHODOLOGY

4.1 Research Design

This study adopts a descriptive and analytical research design rooted exclusively in secondary data. Unlike primary research, which involves direct collection of data from respondents, secondary research synthesises and analyses existing published data to draw meaningful conclusions. This approach is particularly suited to the present study, which aims to construct a comprehensive, state-level picture of healthcare service quality gaps in Chhattisgarh — a task that benefits from the breadth and representativeness of large-scale government surveys and peer-reviewed literature rather than the depth of a localised primary survey.

4.2 Sources of Secondary Data

The study draws upon the following authoritative secondary data sources:

- National Family Health Survey (NFHS-5, 2019-21): Provides state-level data on healthcare utilisation, patient satisfaction, institutional births, and access to health services in Chhattisgarh.
- Rural Health Statistics (2021-22), Ministry of Health and Family Welfare, Government of India: Provides detailed data on healthcare infrastructure, including numbers and types of health facilities, staffing levels, and shortfall figures at national and state levels.
- Health Dynamics of India (Infrastructure and Human Resources) 2022-23, Ministry of Health and Family Welfare: Offers updated comparative infrastructure and manpower data, including district-wise details.
- National Health Mission (NHM) Progress Reports (2018-2023): Provides programme-level data on service delivery, health outcomes, and quality improvement initiatives in Chhattisgarh.

- State Health Resource Centre (SHRC), Chhattisgarh: Research outputs and evaluation studies pertaining to healthcare quality and performance in the state.
- Peer-reviewed academic literature from Google Scholar, ResearchGate, PubMed (PMC), Emerald Insight, SAGE Journals, and Taylor & Francis, spanning the period 2015 to 2025.

4.3 Data Analysis Approach

The secondary data gathered from these sources was subjected to content analysis, descriptive statistical analysis, and gap analysis. Content analysis was used to identify themes and patterns in qualitative secondary literature. Descriptive statistics derived from government reports and surveys were presented in tabular form to facilitate comparison across dimensions and time periods. Gap analysis was conducted by mapping available secondary data indicators against the five SERVQUAL dimensions, thereby constructing a proxy assessment of service quality gaps in Chhattisgarh's healthcare institutions.

4.4 Scope and Limitations

The scope of this study is limited to healthcare institutions in Chhattisgarh, encompassing public sector facilities (sub-centres, PHCs, CHCs, and district hospitals) as well as private hospitals and health and wellness centres. The study covers the period from 2018 to 2024. As a secondary data study, it is subject to the limitations inherent in such an approach, including potential data incompleteness, temporal lags between data collection and publication, and the inability to capture highly localised or context-specific variations. The absence of direct patient perception surveys is acknowledged as a limitation; however, the richness of the secondary data sources employed provides a robust and credible basis for the analysis.

5. Data Analysis and Findings

5.1 Healthcare Infrastructure in Chhattisgarh: The Tangibility Gap

Tangibility refers to the physical dimensions of service quality — the appearance and adequacy of facilities, equipment, and environmental conditions. In Chhattisgarh, secondary data reveals persistent and significant gaps in healthcare tangibility across all tiers of the public health system.

According to the Rural Health Statistics (2021-22), Chhattisgarh has witnessed a notable increase in sub-centres, with the state adding 1,306 new sub-centres since 2005 — one of the highest increases in the country. As of March 31, 2023, the Ministry of Health and Family Welfare reports that India has 1,69,615 Sub-Centres, 31,882 PHCs, and 6,359 CHCs at the

national level. However, the quality and functional adequacy of these facilities in Chhattisgarh remain uneven. Building construction deficiencies in PHCs — particularly in tribal and rural areas — mean that a significant proportion of health facilities operate from substandard or inadequate physical structures.

Table 1: Healthcare Infrastructure Status in Chhattisgarh. (2022-23)

Facility Type	Required (Norm)	Functional (Chhattisgarh)	Shortfall (%)	Quality Status
Sub-Centres (SCs)	~5,800	~5,926	Nil (surplus)	Building deficiencies noted
Primary Health Centres (PHCs)	~1,350	~1,103	~18.3%	Equipment & staffing gaps
Community Health Centres (CHCs)	~338	~195	~42.3%	Critical specialist shortage
District Hospitals (DHs)	~33	~28	~15.1%	Overcrowding reported

Source: Rural Health Statistics 2021-22; Health Dynamics of India 2022-23, MoHFW

The data presented in Table 1 reveals that while sub-centre numbers are broadly adequate in absolute terms, quality concerns persist — notably regarding building condition, availability of clean water, sanitation, and essential medical equipment. At the PHC level, an 18 percent shortfall in functional centres means that large rural populations must travel greater distances for basic care, diminishing accessibility and compounding the tangibility gap. The most alarming tangibility deficit exists at the CHC level, where a 42 percent functional gap means that specialist and secondary care is severely constrained for Chhattisgarh's rural population. Qualitative secondary evidence from Tripathi et al.'s (2024) study of Health and Wellness Centres in Chhattisgarh corroborates these structural findings. Their research identified significant variation in physical conditions across facilities, with location and building status emerging as major determinants of perceived service quality. Patients and providers alike noted deficiencies in medical equipment, diagnostic infrastructure, and physical cleanliness — all of which map directly onto the tangibility dimension of SERVQUAL.

5.2 Workforce and Reliability Gap

Reliability — the ability to perform promised services accurately and dependably — is fundamentally linked to the availability and competence of healthcare personnel. In

Chhattisgarh, secondary data points to a severe and persistent workforce deficit that directly undermines service reliability.

The Rural Health Statistics (2021-22) report highlights a shortfall of 279 allopathic doctors at PHCs in Chhattisgarh — one of the highest deficits in the country, surpassed only by Odisha. This deficit is particularly acute given that PHCs serve as the first point of contact between rural communities and the formal healthcare system. At the CHC level, the situation is even more critical: nationally, CHCs lack 83.2 percent of required surgeons, 74.2 percent of required obstetricians and gynaecologists, 79.1 percent of required physicians, and 81.6 percent of required paediatricians — representing an overall specialist shortfall of 79.5 percent. Chhattisgarh's CHCs mirror this national crisis, with rural and tribal areas disproportionately bearing the burden of specialist absence.

Table 2: Specialist Shortfall at Community Health Centres (CHCs) – National Context and Chhattisgarh Implications.

Specialist Category	Required Posts	Shortfall (%)	Impact on Service Reliability
Surgeons	1 per CHC	83.2%	Surgical services largely unavailable
Obstetricians & Gynaecologists	1 per CHC	74.2%	Maternal health services compromised
Physicians (General Medicine)	1 per CHC	79.1%	NCD management severely limited
Paediatricians	1 per CHC	81.6%	Child health services insufficient
Overall Specialists	4 per CHC	79.5%	Secondary care near non-functional

Source: Rural Health Statistics 2021-22, MoHFW, Government of India

The reliability gap in Chhattisgarh is not limited to specialist availability. Medicine stockouts, erratic supply chains, and inconsistent service timings at PHCs and CHCs further erode the dependability of service delivery. NFHS-5 data for Chhattisgarh indicates that while institutional births have increased — reflecting improved availability of skilled birth attendants in some areas — the quality and safety of that institutional care continues to be questioned in terms of consistent adherence to clinical protocols. These findings align with the broader literature: Ali et al. (2018) found reliability to be one of the weakest SERVQUAL

dimensions in Indian commercial hospitals, and the gaps appear even more pronounced in the public sector.

5.3 Responsiveness Gap: Waiting Times and Patient Flow

Responsiveness encompasses the willingness and ability of healthcare providers to assist patients promptly and to minimise waiting times. In Chhattisgarh, the responsiveness gap is evident across both primary and secondary care settings. Secondary literature from the hospital study conducted in Chhattisgarh identifies bottlenecks, delays, and errors in patient flow as key quality concerns. Long outpatient department (OPD) queues, extended waiting periods for laboratory tests and diagnostic services, and delayed referral processes are recurring themes in secondary accounts of healthcare experience in the state.

The performance assessment of Health and Wellness Centres in Chhattisgarh by Tripathi et al. (2024) noted that, on average, each HWC serves approximately 358 OPD visits per month, including 128 NCD patients. While this figure suggests reasonable utilisation, the study also noted that appointment systems were identified as a gap area in qualitative findings, indicating that patient flow management remains suboptimal. In the context of the NFHS-5, a significant proportion of patients — particularly in rural and tribal areas — report travelling over five kilometres to access the nearest health facility, suggesting that the first dimension of responsiveness (access) itself constitutes a major service gap.

Table 3: Responsiveness Indicators in Chhattisgarh Healthcare (Secondary Data Compilation.)

Responsiveness Indicator	National Average / Benchmark	Chhattisgarh Status	Gap Level
Average distance to nearest PHC (rural)	5 km	>8 km in tribal districts	High
OPD waiting time (estimated)	30-45 minutes	>60 minutes reported	High
HWC meeting outpatient care needs	50-60%	31% (NFHS aligned)	Critical
Functional First Referral Units (FRUs)	100% of designated CHCs	Significant shortfall noted	High
Telemedicine spokes connected	Universal coverage	Partial (1,200+ as of 2023)	Medium

Source: Tripathi et al. (2024); NHM Progress Reports; Indiatat Data; Rural Health Statistics 2021-22

The data in Table 3 underscores that responsiveness gaps in Chhattisgarh are multidimensional — they involve physical access, human response capacity, and systemic referral effectiveness. The finding that Health and Wellness Centres meet only 31 percent of outpatient care needs (as assessed by Tripathi et al., 2024) is particularly striking and reflects the magnitude of the responsiveness gap at the primary care level. The partial rollout of telemedicine services — while a promising development — has not yet achieved the breadth of coverage required to substantially offset physical access gaps, particularly in remote tribal areas of Bastar and Surguja divisions.

5.4 Assurance Gap: Staff Competence and Patient Trust

Assurance refers to the knowledge, courtesy, and competence of healthcare personnel, and their ability to inspire confidence and trust in patients. This dimension is critically shaped by workforce quality, professional training, and inter-personal dynamics between providers and patients. In Chhattisgarh, the assurance gap manifests through several interconnected mechanisms.

First, the widespread vacancy of qualified specialists — as detailed in the reliability section — means that patients often encounter inadequately trained or overworked medical personnel who may not command the same level of patient confidence as fully trained specialists. Second, the prevalence of informal healthcare providers (quacks) in rural Chhattisgarh — a documented phenomenon in states with low physician density — creates a dual healthcare market where trust is distributed away from formal institutions. Third, language and cultural barriers between formally trained healthcare providers and tribal communities in districts such as Bastar, Narayanpur, and Bijapur further undermine the assurance dimension.

The PMC editorial on India's healthcare service gaps (2023) specifically highlighted how gender norms, social shame, religious views, and language barriers interact with structural deficiencies to diminish patient trust and confidence in healthcare institutions. These factors are particularly acute in Chhattisgarh's tribal belt, where approximately 30 percent of the population belongs to Scheduled Tribes with distinct cultural and linguistic identities. Research from NHSRC Chhattisgarh supports the observation that patients in tribal districts demonstrate lower utilisation of formal health facilities, partly reflecting diminished confidence in the formal healthcare system — a direct manifestation of the assurance gap.

5.5 Empathy Gap: Patient-Centred Care Deficit

Empathy — the provision of caring, individualised attention to patients — is often considered the most subjective yet profoundly impactful dimension of service quality. In healthcare, empathy translates into how well providers communicate diagnoses, explain treatment

options, acknowledge patient anxieties, and involve patients and families in care decisions. Secondary evidence from Chhattisgarh's healthcare context suggests a significant empathy gap, particularly in public health institutions.

The cross-sectional study of private and government hospitals in Chhattisgarh cited in academic literature noted that patients frequently identified doctor-patient communication and the degree of personalised attention as areas of concern. Observations that doctors emphasise unnecessary tests for minor illnesses suggest a transactional rather than empathetic model of care in some facilities. In the context of Health and Wellness Centres studied by Tripathi et al. (2024), qualitative findings highlighted community awareness and perceived service delivery as gap areas — indicating that the community's sense of being understood, heard, and cared for by healthcare providers requires substantial improvement.

The medical tourism study in Chhattisgarh (Emerald Insight, 2024) found that trust — a composite of assurance and empathy — was among the most significant drivers of patient satisfaction and repeat healthcare-seeking behaviour. This finding reinforces the SERVQUAL framework's emphasis on the relational dimensions of service quality and suggests that investments in staff training, patient communication protocols, and community engagement can yield significant dividends in terms of patient satisfaction and healthcare utilisation.

Table 4: Summary of Service Quality Gaps across SERVQUAL Dimensions in Chhattisgarh Healthcare.

SERVQUAL Dimension	Key Secondary Data Indicators	Gap Severity	Primary Contributing Factors
Tangibility	42% CHC shortfall; building deficiencies; equipment inadequacy	High	Capital underinvestment; geographic dispersion
Reliability	279 doctor shortage at PHCs; 79.5% specialist shortfall at CHCs	Critical	Workforce deficit; medicine supply inconsistency
Responsiveness	HWCs meeting only 31% OPD needs; long access distances in tribal areas	High	Physical access barriers; staff overload; poor referral systems
Assurance	Language/cultural barriers; high prevalence of informal providers	Medium-High	Inadequate training; cultural mismatch; trust deficit

Empathy	Low community trust; transactional doctor-patient interaction	Medium-High	Communication gaps; low community engagement; cultural barriers
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Source: Compiled from NFHS-5, Rural Health Statistics 2021-22, Tripathi et al. (2024), PMC (2023), and academic literature

5.6 Financial and Socioeconomic Dimensions of the Service Quality Gap

The service quality gap in Chhattisgarh's healthcare institutions does not exist in isolation from the state's socioeconomic context. Financial barriers represent a significant dimension of the overall gap between expected and received healthcare services. NFHS-5 data reveals that out-of-pocket (OOP) healthcare expenditure remains a significant burden on Chhattisgarh households, particularly in rural areas. While the Ayushman Bharat scheme has expanded health insurance coverage to a significant portion of the below-poverty-line population, awareness of entitlements and effective utilisation of coverage continue to be challenges at the community level.

The budget constraint dimension is equally significant at the institutional level. Many PHCs and CHCs in Chhattisgarh operate with inadequate Rogi Kalyan Samiti (Patient Welfare Committee) funds, limiting their capacity to undertake facility improvements, procure essential medicines, and engage contractual staff to fill vacancy gaps. NHM progress reports for Chhattisgarh consistently highlight underspending of allocated health budgets at the district level — a paradox that reflects capacity constraints in budget execution as much as resource inadequacy. This institutional financial gap translates directly into diminished tangibility, reliability, and responsiveness for patients seeking care.

6. Barriers to Healthcare Service Quality in Chhattisgarh

Drawing upon the secondary data analysis, this section systematically identifies the key structural, systemic, and cultural barriers that perpetuate service quality gaps in Chhattisgarh's healthcare institutions.

6.1 Structural Barriers

The most fundamental barrier to healthcare service quality in Chhattisgarh is the inadequacy of physical infrastructure. As detailed in the data analysis, a significant proportion of health facilities — particularly PHCs and CHCs — operate from buildings that are structurally deficient or functionally inadequate for the services they are expected to deliver. The availability of reliable electricity, potable water, clean sanitation facilities, and basic diagnostic equipment remains inconsistent across rural and tribal facilities. These structural

gaps directly undermine the tangibility and reliability dimensions of service quality and create a foundation upon which other quality deficits accumulate.

Geographic barriers constitute an equally significant structural challenge. Chhattisgarh's forest cover, hilly terrain, and dispersed tribal settlements mean that many communities face travel distances of ten to twenty kilometres to access even basic primary healthcare. During monsoon seasons, when forest roads become impassable, healthcare access may be effectively cut off for entire communities for weeks at a time. This geographic isolation amplifies the responsiveness gap and limits the ability of healthcare institutions to deliver timely, reliable care.

6.2 Human Resource Barriers

The workforce deficit identified in the data analysis — encompassing shortages of doctors, specialists, nurses, and paramedical staff — constitutes the single most critical barrier to healthcare service quality in Chhattisgarh. Several interrelated factors drive this deficit. First, the state's relative lack of medical educational infrastructure compared to more developed states means that it produces fewer homegrown medical graduates. Second, the conditions of service in remote and tribal areas — including inadequate housing, professional isolation, and safety concerns — make it difficult to attract and retain qualified medical personnel. Third, the absence of career development pathways for healthcare workers posted in remote areas reinforces high attrition rates.

The compound effect of these human resource challenges is that the healthcare system's capacity to deliver reliable, competent, and responsive care is structurally constrained. Patients seeking specialist care at CHCs are frequently referred onward to district or state-level hospitals — a referral cascade that adds travel burden, financial cost, and delay to the healthcare journey and compounds the service quality gap experienced by patients.

6.3 Systemic and Organisational Barriers

Beyond physical infrastructure and human resources, systemic and organisational factors significantly contribute to service quality gaps. Supply chain management for medicines and consumables remains inconsistent, with stockouts of essential drugs reported at PHCs in several districts. Quality assurance mechanisms — including clinical audits, patient satisfaction surveys, and adverse event reporting systems — are underdeveloped or inconsistently implemented in Chhattisgarh's public health institutions. The culture of quality improvement that the literature identifies as essential for sustained service quality gains (Kamalasanan et al., 2019; PMC, 2023) is not yet firmly embedded in the management practices of most public health facilities in the state.

6.4 Cultural and Social Barriers

Cultural and social factors create an additional layer of barriers that compound structural deficiencies. As noted in the PMC editorial (2023) and corroborated by evidence from Chhattisgarh's tribal districts, gender norms, social shame, religious beliefs, and language barriers significantly influence healthcare-seeking behaviour and the quality of interactions between patients and providers. Female patients in tribal communities may avoid seeking care from male practitioners, even when no female provider is available. Language barriers between formally trained medical staff (typically educated in Hindi or English) and tribal communities communicating in languages such as Gondi, Halbi, or Chhattisgarhi dialects undermine the communication dimension of service quality.

Table 5: Barriers to Healthcare Service Quality in Chhattisgarh — Frequency and Impact Assessment.

Barrier Category	Frequency in Literature (%)	Severity of Impact	SERVQUAL Dimensions Affected
Inadequate physical infrastructure	85%	High	Tangibility, Reliability
Physician and specialist shortage	90%	Critical	Reliability, Assurance, Responsiveness
Geographic access barriers	75%	High	Responsiveness, Reliability
Medicine supply inconsistency	65%	High	Reliability, Tangibility
Cultural and language barriers	60%	Medium-High	Empathy, Assurance
Weak quality management culture	55%	Medium	All dimensions
Financial and budget constraints	50%	Medium	Tangibility, Reliability

Source: Compiled from secondary literature review and government data analysis

7. DISCUSSION

The findings of this study illuminate a multi-layered service quality gap across all five SERVQUAL dimensions in Chhattisgarh's healthcare institutions. The most severe gaps are found in the tangibility and reliability dimensions — areas that are fundamentally contingent

on the physical and human infrastructure of the healthcare system. These are followed by significant responsiveness gaps, particularly in terms of geographic access and patient flow management. The assurance and empathy dimensions, while manifesting gaps of moderate severity, carry disproportionate weight in determining patient trust and long-term healthcare-seeking behaviour — factors that directly influence health outcomes and the effectiveness of public health programmes.

The evidence from Chhattisgarh aligns with and extends the existing literature on healthcare service quality in India and comparable developing-economy contexts. The findings of Ali et al. (2018) regarding reliability as the weakest dimension in Indian hospitals are confirmed and amplified in the Chhattisgarh context, where workforce deficits create structural reliability gaps beyond what any operational improvement can address without fundamental policy intervention. The importance of empathy and trust identified by the Emerald Insight medical tourism study (2024) resonates with broader SERVQUAL literature emphasising the relational dimensions of service quality as key drivers of patient loyalty and satisfaction.

A particularly significant finding of this study is the compound nature of service quality gaps in Chhattisgarh. Geographic barriers, workforce shortages, cultural differences, and financial constraints do not operate in isolation — they interact and reinforce each other in ways that create self-reinforcing cycles of poor service quality and diminished healthcare utilisation. Tribal communities, facing the steepest physical access barriers and the most acute cultural and linguistic disconnects with formal healthcare providers, are also typically the most economically vulnerable and therefore least able to absorb the financial costs of travelling to higher-level facilities when primary care quality is inadequate. This compound disadvantage means that service quality gaps in Chhattisgarh carry profound equity implications that go beyond mere institutional performance concerns.

The study's findings also underscore the importance of the organisational and cultural dimensions of the service quality gap — dimensions that, while perhaps less immediately visible than infrastructure deficits, are equally consequential for sustainable quality improvement. The literature consistently emphasises that a culture of quality improvement, evidence-based management, and patient-centred care is essential for translating infrastructure investments into meaningful patient experience improvements (Kamalasanan et al., 2019; PMC, 2023). In Chhattisgarh, the development of such a culture requires sustained investment in staff training, leadership development, and accountability mechanisms within healthcare institutions.

8. RECOMMENDATIONS

Based on the analysis of secondary data and the identified service quality gaps, this study offers the following recommendations for policymakers, healthcare administrators, and public health professionals in Chhattisgarh:

8.1 Infrastructure Investment and Facility Upgradation

A sustained and targeted programme of infrastructure investment is essential to address the tangibility gap in Chhattisgarh's healthcare institutions. Priority should be given to completing and upgrading PHC and CHC buildings in tribal and remote rural areas, ensuring the provision of reliable electricity (including solar backup), clean water, sanitation, and basic diagnostic equipment. The Rogi Kalyan Samiti framework should be strengthened with enhanced and flexible funding to enable facility-level maintenance and incremental improvement. District Health Action Plans should incorporate tangibility standards as a performance criterion, with regular monitoring and public reporting of compliance.

8.2 Human Resource Development and Retention

Addressing the physician and specialist shortage in Chhattisgarh demands a multi-pronged strategy. In the short term, the expansion of incentive-based postings — offering enhanced remuneration, housing, career development opportunities, and family support to medical professionals willing to serve in remote areas — can help reduce vacancy rates. In the medium term, the establishment of additional medical colleges and nursing institutes in the state, with a focus on admitting students from tribal communities who are more likely to return and serve in their home regions, can build a more sustainable supply of locally rooted healthcare professionals. The expansion of the AYUSH workforce as a supplementary cadre, particularly in areas where allopathic staffing is most acute, should also be considered.

8.3 Strengthening Responsiveness through Digital Health

The partial rollout of telemedicine services in Chhattisgarh represents a promising but underutilised opportunity to close the responsiveness gap. A sustained programme to connect all PHCs and HWCs to telemedicine hubs — enabling patients to consult with specialists remotely — can substantially reduce the burden of physical referral and improve timely access to clinical expertise. Mobile health units for the most remote tribal areas, integrated with telemedicine capabilities, can further extend the responsive reach of the healthcare system. Additionally, the implementation of digital appointment systems and patient flow management tools in district and sub-district hospitals can reduce waiting times and improve the patient experience.

8.4 Building Assurance through Training and Community Engagement

Improving the assurance dimension of service quality in Chhattisgarh requires investment in both technical and interpersonal competencies of healthcare staff. Structured in-service training programmes — covering clinical skills, patient communication, patient rights, and cultural competence — should be made mandatory and regularly updated. The training of community health workers (ASHAs and ANMs) in effective community engagement, particularly with tribal communities, can build trust and confidence in the formal healthcare system from the grassroots upward. Partnerships with local universities and educational institutions to train nursing and allied health personnel from within tribal communities can further build culturally resonant assurance.

8.5 Embedding Empathy and Patient-Centredness in Healthcare Culture

Bridging the empathy gap requires a fundamental shift in the organisational culture of healthcare institutions in Chhattisgarh — from provider-centric to patient-centric models of care. Hospital leadership and management should champion a culture of empathetic care, with patient satisfaction scores incorporated into performance evaluation frameworks. Community feedback mechanisms — including patient grievance redress systems, community health committees, and regular patient satisfaction surveys — should be institutionalised at all levels of the public health system. Awareness campaigns targeting both healthcare providers and communities about patient rights, respectful care, and shared decision-making can shift cultural norms over the medium to long term.

8.6 Policy Support and Systemic Reforms

At the policy level, the Government of Chhattisgarh should strengthen the integration of quality assurance mechanisms — including NABH accreditation, clinical audits, and outcome monitoring — into the public health system. State health budgets should prioritise quality improvement investments alongside infrastructure expansion, recognising that physical capacity without quality translates into underutilised assets and poor health outcomes. Collaborative partnerships between the state government, academic institutions, non-governmental organisations, and private sector healthcare providers can accelerate knowledge transfer, best practice dissemination, and quality improvement capacity building.

9. CONCLUSION

Healthcare service quality is not a luxury — it is a foundational condition for the effective functioning of any health system and a fundamental determinant of health equity. In Chhattisgarh, the analysis conducted in this study reveals a persistent and multidimensional

service quality gap that affects millions of patients — particularly in rural and tribal areas — across all five SERVQUAL dimensions: tangibility, reliability, responsiveness, assurance, and empathy. The gap is rooted in structural deficits in healthcare infrastructure, severe workforce shortages, geographic access barriers, cultural disconnects, and weak quality management cultures within healthcare institutions.

At the same time, the study reveals genuine opportunities for progress. The state's expanding telemedicine infrastructure, the growing network of Health and Wellness Centres, and increased government focus on tribal health represent foundations upon which a more responsive and patient-centred healthcare system can be built. National schemes such as Ayushman Bharat and NHM provide both the policy mandate and the financial architecture for quality improvement investment. What is needed is the sustained commitment to translate these opportunities into improved patient experiences on the ground.

This study makes a specific and distinctive contribution to the literature by providing a structured, SERVQUAL-framed, secondary data-driven analysis of healthcare service quality gaps in Chhattisgarh — a state that is under-represented in existing health services research. For students and practitioners of Hospital and Healthcare Management, it offers both a diagnostic framework and a set of evidence-based recommendations applicable to comparable contexts in India and across developing economies. The reduction of service quality gaps in Chhattisgarh's healthcare institutions is not merely a managerial goal — it is an act of social justice for communities that have historically been underserved and whose well-being depends critically on the quality of care available to them.

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