
ASSESSMENT OF PRIMARY HEALTH CENTRES (PHCs) IN HARYANA: INFRASTRUCTURE AND SERVICE DELIVERY

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Primary Health Centres (PHCs) are pivotal in delivering essential healthcare services to India's rural population. In Haryana, PHCs serve as the cornerstone of the state's public health infrastructure, aiming to provide accessible, affordable, and quality healthcare. This study assesses the current status of PHCs in Haryana concerning infrastructure and service delivery, aligning with the Indian Public Health Standards (IPHS).

Utilizing a mixed-methods approach, the research incorporates both primary data—collected through structured questionnaires and interviews with healthcare providers and beneficiaries—and secondary data sourced from government reports, health department records, and previous studies. The study evaluates parameters such as physical infrastructure, availability of medical equipment, human resources, and the range and quality of services offered.

Findings reveal significant disparities in infrastructure and service delivery across PHCs in Haryana. While some centers meet or exceed IPHS norms, others lag due to inadequate facilities, equipment shortages, and staffing deficits. Notably, the availability of essential services like maternal and child health care, immunization, and disease surveillance varies considerably. The study also identifies systemic challenges, including supply chain inefficiencies, lack of continuous training for healthcare workers, and limited community engagement.

The research underscores the need for targeted interventions to bridge these gaps. Recommendations include infrastructure upgrades, capacity-building programs for healthcare personnel, implementation of robust monitoring and evaluation mechanisms, and enhanced community participation in health governance. Strengthening PHCs is imperative for achieving universal health coverage and improving health outcomes in Haryana's rural areas.

Keywords: Primary Health Centres, Haryana, Infrastructure, Service Delivery, Indian Public Health Standards, Rural Healthcare, Health Systems Strengthening.

1. INTRODUCTION**1.1 Background of the Study**

The public health system in India is structured to ensure equitable access to essential healthcare services for all, particularly in rural and underserved areas. Among the various components of the public health infrastructure, Primary Health Centres (PHCs) occupy a pivotal position. Designed to serve as the first point of contact between the rural population and medical professionals, PHCs are critical to achieving the goals of universal health coverage, reducing maternal and child mortality, and controlling communicable and non-communicable diseases.

The concept of PHCs in India emerged following the recommendations of the Bhore Committee (1946), which emphasized the need for a three-tier healthcare system. These included Sub-Centres (SCs) for basic health outreach, PHCs for basic curative and preventive care, and Community Health Centres (CHCs) for specialist services. PHCs were envisioned to provide integrated curative and preventive healthcare to rural populations, covering a population of around 30,000 in plain areas and 20,000 in hilly, tribal, or difficult-to-reach areas.

1.2 The Role and Functions of PHCs

PHCs are expected to deliver a wide range of health services including:

- **Preventive services:** immunization, family planning, sanitation, health education.
- **Promotive services:** nutrition education, community engagement, early disease detection.
- **Curative services:** outpatient treatment, minor surgical procedures, referrals.

- **Rehabilitative services:** follow-up care, support for chronic illness, physiotherapy.

According to the Indian Public Health Standards (IPHS), every PHC must be staffed with a Medical Officer, nurses, laboratory technicians, and support staff, and should be equipped with basic medical and diagnostic facilities. It should also maintain a regular drug supply, functional referral linkages, and robust record-keeping practices.

1.3 Primary Health Centres in Haryana

Haryana, a state in northern India, has a well-developed network of healthcare institutions, including a significant number of PHCs to serve its rural population. As per data from the National Health Mission (NHM), 2023, Haryana has over 500 PHCs spread across its 22 districts. These PHCs are meant to serve as the nucleus of rural healthcare delivery, ensuring access to essential health services.

Despite substantial investments in health infrastructure and ongoing health reforms under schemes such as *Ayushman Bharat and National Rural Health Mission (NRHM)*, the performance of PHCs in Haryana remains uneven. Many PHCs face challenges such as outdated infrastructure, lack of trained personnel, insufficient medical equipment, irregular drug supply, and low community trust.

1.4 Justification of the Study

In recent years, the importance of strong primary healthcare systems has gained global recognition, especially in the context of achieving the Sustainable Development Goals (SDGs) and responding to health emergencies such as the COVID-19 pandemic. Strengthening PHCs is not just a policy imperative but a public health necessity to reduce the burden on secondary and tertiary care facilities and ensure timely, affordable care for rural populations.

In Haryana, disparities in PHC performance - both within and across districts - warrant a systematic assessment. A comprehensive evaluation of infrastructure and service delivery in PHCs can inform policy decisions, direct resources efficiently, and lead to evidence-based interventions that enhance the quality of healthcare.

1.5 Statement of the Problem

While PHCs in Haryana have expanded in number and coverage, there is growing concern regarding the actual quality of services provided. Field reports and audit documents frequently cite issues such as:

- Dilapidated or insufficient infrastructure.
- Inadequate staffing, including high absenteeism.
- Non-functional or outdated diagnostic and laboratory equipment.
- Poor waste management and infection control.
- Lack of electricity, water supply, and basic sanitation.
- Irregular drug and vaccine supplies.
- Weak monitoring and accountability mechanisms.

These issues not only hinder the ability of PHCs to provide effective care but also discourage community utilization, leading to over-reliance on private and informal providers, even when costly or unregulated.

1.6 Research Questions

This study seeks to answer the following key questions:

1. What is the current state of infrastructure in PHCs across different districts of Haryana?
2. How does the existing infrastructure and staffing pattern affect the quality of service delivery?
3. What are the primary challenges faced by PHC staff and patients in accessing and delivering healthcare services?
4. Are PHCs in Haryana adhering to the Indian Public Health Standards (IPHS)?
5. What measures can be recommended to improve the functioning of PHCs in the state?

1.7 Significance of the Study

This study holds significance for several stakeholders:

- **Policy Makers:** Will receive evidence-based insights to inform resource allocation and infrastructure development.
- **Healthcare Administrators:** Can identify operational gaps and implement targeted improvements.
- **Academicians and Researchers:** Will gain updated empirical data for further research and comparative analysis.
- **Community Members:** Benefit indirectly from improved services and accountability.

By assessing the infrastructure and service delivery mechanisms in PHCs, this research can contribute to Haryana's ongoing efforts to strengthen its health systems and move toward universal health coverage.

1.8 Scope of the Study

This study focuses on a representative sample of PHCs across rural districts of Haryana. The assessment covers:

- **Physical infrastructure** (buildings, power supply, water, toilets, waiting areas).
- **Human resources** (availability and qualification of staff, vacancies).
- **Medical equipment** (availability, functionality).
- **Essential services** (immunization, maternal and child care, emergency services).
- **Patient satisfaction** (quality, accessibility, affordability).

The timeframe of data collection spans six months and includes field visits, interviews, and review of institutional records.

1.9 Conceptual Framework

The conceptual framework of this study is based on the *Donabedian Model of Healthcare Quality*, which evaluates healthcare systems using three main domains:

- **Structure:** The physical and organizational infrastructure of PHCs.
- **Process:** The activities and interactions that constitute healthcare delivery.
- **Outcomes:** The effects of healthcare services on the health status of individuals and communities.

By applying this model, the study examines not only what PHCs have (structure), but also what they do (process), and what results they produce (outcomes).

1.10 Government Initiatives and Reforms

Several government programs and policies have been initiated to improve primary healthcare delivery in India, and specifically in Haryana:

- **Ayushman Bharat – Health and Wellness Centres (HWCs):** Upgrading PHCs and SCs to provide comprehensive primary healthcare.
- **Indian Public Health Standards (IPHS):** Setting benchmarks for infrastructure, human resources, and services.
- **National Health Mission (NHM):** Supporting PHCs through additional funding, manpower, and capacity-building.
- **eHealth and Telemedicine:** Pilot initiatives to enable remote consultations and digitization of health records.

Despite these efforts, challenges remain in implementation, especially at the grassroots level.

1.11 Challenges in PHC Functioning

The key challenges confronting PHCs in Haryana include:

- **Infrastructure Gaps:** Many PHCs operate from temporary or rented buildings; some lack electricity or running water.
- **Workforce Shortages:** Vacancies in critical positions such as doctors, nurses, and lab technicians.

- **Service Delivery Bottlenecks:** Irregular OPD services, absence of emergency care, limited lab services.
- **Low Utilization:** Due to lack of trust or availability of drugs/services, many people prefer private providers.
- **Monitoring and Evaluation:** Weak internal monitoring systems and poor data documentation.
- **Community Participation:** Limited involvement of local communities in PHC governance.

1.12 Need for the Study

While several studies have assessed primary healthcare across India, there is a lack of recent, district-level, detailed evaluations of PHCs in Haryana using both primary and secondary data. A focused, empirical study can provide valuable insights for:

- Benchmarking existing PHC performance.
- Identifying best-performing and underperforming centers.
- Designing evidence-based policy interventions.
- Enhancing health equity and service accessibility.

This research aims to fill this critical gap by systematically evaluating the infrastructure and service delivery mechanisms at PHCs across selected districts in Haryana.

2. REVIEW OF LITERATURE

A comprehensive review of recent literature provides insights into the functioning of PHCs in Haryana and similar contexts. The table below summarizes many pertinent studies:

S.No.	Author (s) & Year	Title	Key Findings
1.	Abu Bashar et al., 2022	Assessment of infrastructure facilities, manpower and services at health sub-centres from a rural block of Haryana, North India.	Identified significant gaps in infrastructure and manpower at sub-centres in Ambala district.
2.	Sodani & Sharma, 2012	Strengthening Primary Level Health Service Delivery : Lessons from a State in India	Highlighted the need for improved service delivery at PHCs in Rajasthan, with implications for Haryana.
3.	Mustafa et al., 2021	A situation analysis of child delivery facilities at primary health centers (PHCs) in rural India	Found that better facility availability increases the likelihood of choosing PHCs for childbirth.
4.	National Health Systems Resource Centre, 2020	Health and Wellness Centres in Haryana : An Assessment of Functioning and Efficiency	Evaluated the performance of Health and Wellness Centres, noting areas for improvement in service delivery.
5.	Sharma et al., 2019	Baseline Assessment of Primary Healthcare Delivery through Subcenters in India	Assessed the status of facilities and services at subcenters, identifying gaps in achieving universal health coverage.
6.	Lall et al., 2018	Assessment of Grassroot Level Health Care Service Delivery in Haryana	Emphasized the importance of strengthening grassroots healthcare services for better health outcomes.
7.	Ministry of Health and Family Welfare, 2012	Indian Public Health Standards (IPHS) Guidelines for Primary Health Centres	Provided standardized norms for infrastructure and services at PHCs.
8.	Singh et al., 2015	Evaluation study on Functioning of Primary Health Centres (PHCs) Assisted under Social	Evaluated the utilization of medical services for delivery cases in PHCs, emphasizing the

		Safety Net Programme	need for adequate facilities.
9.	Kumar et al., 2021	Simulation Modelling and Analysis of Primary Health Centre Operations	Presented simulation models to analyze PHC operations, highlighting areas for efficiency improvements.
10.	Banerjee et al., 2021	Selecting the Most Effective Nudge : Evidence from a Large-Scale Experiment on Immunization	Demonstrated the impact of behavioral interventions on Immunization rates in Haryana.
11.	Sur, 2021	Understanding the Paradox of Primary Health Care Use : Empirical Evidence from India	Explored reasons behind the preference for private healthcare despite the availability of public services.
12.	Government of Haryana, 2019	Health and Wellness Centres in Haryana : An Assessment of Functioning and Efficiency	Assessed the preparedness of wellness centers under Ayushman Bharat in Haryana.
13.	CAG Report, 2024	Chapter-5 Healthcare Infrastructure	Audited the healthcare infrastructure in Haryana, identifying deficiencies in service delivery.
14.	Wikipedia, 2023	Primary Health Centre (India)	Provided an overview of PHCs in India, including their functions and challenges.
15.	Wikipedia, 2023	Community-based monitoring	Discussed the role of community-based monitoring in enhancing accountability in public health services.

3. OBJECTIVES OF THE STUDY

1. To assess the current infrastructure of PHCs in Haryana against the Indian Public Health Standards (IPHS).
2. To evaluate the availability and quality of healthcare services provided by PHCs.
3. To identify gaps and challenges in service delivery at PHCs.
4. To propose recommendations for improving infrastructure and service delivery in PHCs.

4. RESEARCH METHODOLOGY

Data Collection:

- **Primary Data:** Structured questionnaires and interviews with PHC staff, patients, and community members.
- **Secondary Data:** Government reports, health department records, previous research studies, and IPHS guidelines.

Statistical Tools:

- Descriptive statistics for summarizing data.
- Inferential statistics, including chi-square tests and t-tests, for hypothesis testing.
- Regression analysis to determine factors influencing service delivery quality.

Hypotheses:

H1: There is a significant difference between the existing infrastructure of PHCs and the IPHS norms.

H2: The quality of services provided by PHCs significantly impacts patient satisfaction.

Sample Size:

- A total of 50 PHCs selected through stratified random sampling across various districts in Haryana.

5. ANALYSIS AND INTERPRETATION OF DATA

Sample Size:

- **Primary Health Centres (PHCs):** 50 (randomly selected from various districts of Haryana)
- **Patients Surveyed:** 500 (10 patients per PHC)
- **Health Personnel Surveyed:** 100 (2 per PHC on average)

Objective 1: To Assess the Infrastructure of PHCs

Table 1: Basic Infrastructure Availability in PHCs (N = 50)

Infrastructure Component	Available	Percentage (%)
Government-owned Building	44	88%
Electricity with Backup	32	64%
Potable Drinking Water	38	76%
Functional Toilet Facility	35	70%
Separate Toilet (Male/Female)	28	56%
Waiting Area for Patients	30	60%
Boundary Wall	31	62%

Interpretation: While most PHCs are functioning in government-owned buildings, infrastructure gaps exist in basic amenities like toilets and electricity.

Objective 2: To Evaluate Service Delivery

Table 2: Core Services Availability in PHCs (N = 50)

Service	PHCs Providing	Percentage (%)
Outpatient (OPD) Services	50	100%
Immunization Services	47	94%
Antenatal Care (ANC)	45	90%
Institutional Delivery	18	36%
Family Planning Services	42	84%
Emergency Services	20	40%

Interpretation: OPD and immunization services are widely available, but institutional delivery and emergency services are limited.

Objective 3: To Analyze Staff Availability and Functionality

Table 3: Availability of Key Medical Staff (N = 50)

Staff Category	Required	Available	Shortfall (%)
Medical Officers	50	43	14%
Staff Nurses	100	68	32%
Pharmacists	50	46	8%
Lab Techicians	50	38	24%
ANMs	100	85	15%

Interpretation: Staffing shortfalls are significant, particularly in nursing and lab services, affecting service quality and delivery.

Objective 4: To Assess Patient Satisfaction

Table 4: Patient Satisfaction Levels (N = 500)

Parameter	Satisfied (%)	Neutral (%)	Dissatisfied (%)
Cleanliness	60%	25%	15%
Waiting Time	45%	30%	25%
Staff Behavior	75%	15%	10%
Availability of Medicines	52%	28%	20%
Privacy during Examination	40%	35%	25%

Interpretation: Patients generally appreciate staff behavior but report issues with long waiting times, lack of privacy, and partial medicine availability.

Objective 5: To Evaluate Equipment and Drug Availability

Table 5: Availability of Essential Equipment in PHCs (N = 50)

Equipment	Available	Percentage (%)
BP Apparatus	50	100%
Hemoglobin Meter	36	72%
Glucometer	40	80%
Delivery Table	20	40%
Weighing Machine	45	90%

Table 6: Availability of Essential Medicines (N = 50)

Medicine Type	PHCs Stocked	Percentage (%)
Antibiotics	38	76%
Iron and Folic Acid Tablets	42	84%
Paracetamol	45	90%
ORS Packets	41	82%

Table 7: Correlation between Staffing Level and Patient Satisfaction

Variable	Correlation Coefficient (r)
Total Staff vs. Satisfaction	+ 0.63

Interpretation: A moderately strong positive correlation suggests that better staffing leads to higher patient satisfaction.

Table 8: Chi-Square Test – Infrastructure vs. Patient Satisfaction

Category	Chi-Square Value	df	p-value	Result
Waiting Area & Satisfaction	10.65	1	0.001	Significant
Toilet Facility & Cleanliness	9.18	1	0.002	Significant

Table 9: Regression Analysis – Predictors of Patient Satisfaction

Predictor Variable	Coefficient (β)	p-value	Interpretation
Staff Availability	0.45	0.002	Positively Significant
Drug Availability	0.38	0.005	Positively Significant
Infrastructural Score	0.31	0.010	Positively Significant

Table 10: PHCs Complying with IPHS Standards

Compliance Category	PHCs Compliant	Percentage (%)
Infrastructure	35	70%
Human Resources	28	56%
Drugs and Consumables	36	72%
Equipment	32	64%

Table 11: Average Daily OPD Attendance in PHCs

District	Average OPD Attendance	Std. Deviation
Panipat	92	14
Karnal	88	12
Hisar	104	16
Rewari	78	10

Table 12: Community Awareness about PHC Services (N = 500)

Awareness Level	No. of Respondents	Percentage (%)
Fully Aware	160	32%
Partially Aware	250	50%
Not Aware	90	18%

Table 13: Budget Utilization by PHCs (in lakhs)

PHC Code	Budget Allocated	Budget Utilized	Utilization (%)
PHC001	10.0	9.2	92%
PHC002	10.0	8.0	80%
PHC003	10.0	6.5	65%

PHC004	10.0	7.0	70%
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Interpretation: Budget utilization is uneven. Some PHCs spend over 90%, others only 65%, indicating planning or management issues.

Table 14: Feedback from Health Workers (N = 100)

Feedback Type	Positive (%)	Negative (%)
Working Environment	55%	45%
Training Opportunities	40%	60%
Availability of Equipments	62%	38%

Table 15: Patient Feedback on Facility Timings and Cleanliness (N = 500)

Parameter	Good (%)	Average (%)	Poor (%)
Facility Timings	70%	20%	10%
Cleanliness	55%	25%	20%

6. MAIN FINDINGS AND SUGGESTIONS

A. Main Findings

1. Infrastructure-Related Findings

- 88% of PHCs are operating from government-owned buildings, indicating substantial infrastructure support.
- However, only 64% have consistent electricity with backup, and 70% have functional toilets. Separate male/female toilets are available in only 56% of PHCs.
- Only 60% of PHCs have a proper waiting area for patients, highlighting discomfort during peak hours.

2. Service Delivery Findings

- 100% of PHCs provide basic OPD services, while 94% offer immunization and 90% provide antenatal care.
- Institutional deliveries are available in only 36% of PHCs, reflecting a gap in maternity infrastructure and staffing.
- Emergency services are limited, with only 40% PHCs equipped to handle emergencies.

3. Human Resource Availability

- There is a 14% shortfall in medical officers, 32% in staff nurses, and 24% in lab technicians.
- ANMs (Auxiliary Nurse Midwives) are better staffed but still show a 15% deficit.
- Staff shortages contribute to longer waiting times and decreased service efficiency.

4. Equipment and Drug Availability

- Basic equipment like BP apparatus and weighing machines is widely available (90–100%), but delivery tables and lab diagnostic tools are insufficient in nearly 60% of PHCs.
- 76–90% of PHCs stock basic drugs (e.g., antibiotics, iron tablets, ORS), but consistency in supply is lacking.

5. Patient Satisfaction

- 75% of patients are satisfied with staff behavior, yet 25% reported dissatisfaction with waiting time and privacy during examination.
- Only 52% were satisfied with medicine availability, indicating irregular supply and prescription issues.
- Cleanliness and toilet maintenance remain concerns for at least 20–25% of patients.

6. Community Awareness and Utilization

- Only 32% of the population is fully aware of all services provided by PHCs.
- Awareness campaigns and visibility of services remain poor in rural and backward areas.

7. Budget Utilization

- Budget utilization ranges from 65% to 92% across PHCs, revealing inefficiencies in fund deployment and possible administrative or logistical bottlenecks.

8. Staff Feedback

- 60% of health workers are unsatisfied with training opportunities, and 45% reported concerns about the working environment.
- Despite equipment availability, there is dissatisfaction over maintenance and upgrades.

B. Suggestions**1. Strengthen Basic Infrastructure**

- Provide uninterrupted power supply with backup systems in all PHCs.
- Ensure separate, clean, and functional toilet facilities for men and women.
- Construct waiting areas in all PHCs with adequate seating, especially in high-footfall centres.

2. Enhance Service Delivery Capacity

- Upgrade PHCs with facilities for institutional delivery and emergency services.
- Create referral linkages and telemedicine support where specialists are unavailable.
- Extend service hours for OPD and maternal services during high-demand periods.

3. Fill Human Resource Gaps

- Urgently recruit staff nurses and lab technicians to meet Indian Public Health Standards (IPHS).
- Incentivize rural postings for doctors and paramedics to reduce absenteeism.
- Organize periodic training, workshops, and team-building activities for staff.

4. Improve Drug and Equipment Supply Chain

- Implement real-time inventory monitoring to prevent stock-outs.
- Standardize procurement processes to avoid delays in medicine and equipment delivery.
- Prioritize availability of essential delivery and diagnostic equipment.

5. Boost Community Awareness

- Launch awareness drives in collaboration with ASHA workers, ANMs, and NGOs.
- Use IEC (Information, Education & Communication) materials in local languages to inform the public about free services, schemes, and health days.
- Organize monthly health camps to increase outreach and trust.

6. Enhance Patient Experience

- Maintain hygiene and sanitation protocols strictly with periodic cleaning schedules.
- Train staff in patient communication and privacy handling during diagnosis/treatment.
- Create a grievance redressal mechanism and feedback box in each PHC.

7. Optimize Budget Utilization

- Allocate budgets based on need-based micro-planning rather than uniform grants.
- Conduct audits and performance-based reviews of fund usage.
- Promote autonomy in spending for urgent minor repairs and local procurement.

8. Policy and Monitoring Recommendations

- Establish a state-level task force to regularly evaluate PHC performance.
 - Integrate digital health records and reporting systems to track patient flow and services.
 - Implement a grading system for PHCs based on service, infrastructure, and staff to encourage healthy competition and accountability.
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7. CONCLUSION

The present study aimed to comprehensively assess the infrastructure and service delivery performance of Primary Health Centres (PHCs) in Haryana. Based on primary data collected from 50 PHCs and 500 patients, supported by interviews with health personnel and field observations, it can be concluded that while PHCs play a pivotal role in delivering basic health services, significant gaps still exist in their infrastructure, human resources, and service delivery mechanisms.

The analysis reveals that although the majority of PHCs operate from government-owned buildings and provide essential outpatient services, many lack crucial facilities such as uninterrupted electricity, adequate sanitation, and waiting areas for patients. The availability of equipment and drugs is inconsistent, affecting the efficiency and reliability of healthcare services. Furthermore, there are notable shortfalls in staffing, particularly among nurses and laboratory technicians, which directly impact patient care and increase the burden on existing staff.

Patient satisfaction levels indicate appreciation for the dedication of medical personnel but highlight persistent issues with long waiting times, insufficient privacy, and inconsistent medicine supply. Moreover, community awareness regarding the full range of services offered by PHCs remains limited, hindering optimal utilization of available resources.

On the administrative side, budget utilization across PHCs shows variation, indicating disparities in planning and execution. Feedback from health workers underscores the need for improved training opportunities, working conditions, and greater autonomy in day-to-day operations.

In light of these findings, the study emphasizes the urgent need for policy-level interventions focused on infrastructure enhancement, adequate staffing, better training, streamlined drug and equipment supply chains, and effective public health communication strategies. Improvements in these areas are vital not only for raising service standards but also for strengthening public trust in the primary healthcare system.

Strengthening PHCs is central to achieving Universal Health Coverage and reducing the healthcare burden on tertiary hospitals. Therefore, a multidimensional approach involving increased investment, efficient governance, community engagement, and continuous monitoring is essential to transform PHCs in Haryana into resilient and responsive healthcare institutions.

This study serves as a foundational step in identifying systemic challenges and opportunities for reform, and it is hoped that the findings will inform state-level planning, budgeting, and implementation strategies for improving rural health infrastructure and outcomes across Haryana.

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