

LOCAL HEALTH SYSTEMS, GLOBAL GOALS: EVALUATING THE ROLE OF PRIMARY HEALTH CENTRES IN ACHIEVING SDG-3

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Abstract

The study aimed to assess community awareness, perceptions of equity and accessibility, service challenges, and suggested improvements related to Primary Health Centres (PHCs), with reference to their role in advancing Sustainable Development Goal 3 (Good Health and Well-Being) and Universal Health Coverage. A cross-sectional survey was conducted among 300 respondents across selected taluks, using a structured questionnaire covering awareness levels, service accessibility, perceived challenges, and utilization patterns. Descriptive statistics, chi-square tests, and logistic regression were employed to examine taluk-wise variations and predictors of service perception. Awareness of PHC contribution to SDG-3 was high (93.3%), though lower in certain taluks, while awareness of the right to Universal Health Coverage was moderate (66%) with no significant inter-taluk variation. Perceptions of equity and accessibility were strongly positive, with 94.3% agreeing that PHCs serve all groups equally and 100% confirming disability-friendly infrastructure. Long waiting times were the most frequently reported challenge (52%), followed by occasional service inadequacy (12.6%) and localized staff shortages (3%). The most common recommendations were recruitment of additional medical staff (53.3%) and improvement of medical equipment (33.7%). When PHC services were unavailable, 80% of respondents reported shifting to private clinics, indicating continued dependence on the private sector during service gaps.

INTRODUCTION

Primary Health Centers (PHCs) constitute the foundational pillar of India's public healthcare architecture, designed to deliver essential, accessible, and affordable medical care, particularly in rural and peri-urban landscapes. As the first point of contact between the community and the national health system, PHCs are entrusted with a comprehensive mandate encompassing preventive, promotive, curative, and rehabilitative services. Their performance is intrinsically linked to broader public health outcomes, including maternal and child health, disease control, and the management of both communicable and non-communicable diseases. In the context of India's commitment to Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs), especially SDG 3 (Good Health and Well-being), the efficacy of PHCs is not merely a measure of healthcare delivery but a barometer of social equity and developmental progress.

The state of Kerala presents a unique paradox within the Indian healthcare narrative. Historically lauded for its advanced health indicators, high literacy rates, and robust community engagement, Kerala's health system often serves as a model for other states. However, this aggregate success can mask significant sub-regional disparities and emerging challenges, particularly in zones of demographic and economic transition. Rural-urban fringe areas—characterized by dynamic population fluxes, blending socio-cultural norms, and often lagging infrastructure development—represent critical interstitial spaces where the pressures on primary healthcare are acutely felt. These areas contend with the health burdens typical of rural settings, such as infectious diseases and limited specialist access, while simultaneously facing urban-style challenges like a rising prevalence of lifestyle diseases, environmental stressors, and fragmented community cohesion. Consequently, PHCs operating in these fringe regions must navigate a complex landscape of evolving health needs amidst often inconsistent resource allocation and infrastructural support.

Despite their critical role, there remains a paucity of focused, granular studies evaluating the functionality and service quality of PHCs within these specific transitional geographies of Kerala. Existing evaluations often focus on purely rural or established urban settings, leaving a gap in understanding the unique operational realities, community perceptions, and systemic bottlenecks faced by fringe-area PHCs. This study seeks to address this gap by concentrating on the Kannur district, a region embodying Kerala's diverse socio-cultural and geographic profile.

The present research aims to conduct a comprehensive evaluation of the healthcare services delivered by PHCs in five taluks of Kannur district—Thaliparamba, Kannur, Thalassery, Iritty, and Payyannur—with a specific lens on rural-urban fringe populations. It systematically assesses multiple dimensions of PHC performance, including service quality and reliability, physical and socioeconomic accessibility, infrastructural adequacy, and the perceived impact of these services on community health and well-being. By employing a mixed-methods approach that integrates quantitative patient feedback with qualitative insights from healthcare providers, this study endeavors to move beyond aggregate statistics and uncover the nuanced, ground-level realities of primary care delivery. The findings are intended to generate actionable evidence to inform policymakers, district health authorities, and PHC managers in designing targeted interventions that strengthen the primary healthcare system, ensure equitable service delivery, and enhance the health resilience of communities residing in Kerala's rapidly transforming fringe landscapes.

METHODOLOGY

This study employed a mixed-methods explanatory sequential design to ensure a comprehensive and nuanced evaluation. The approach prioritized the collection and initial analysis of quantitative data, which was then explained and contextualized through subsequent qualitative inquiry. This two-phase process allowed for the statistical identification of patterns, trends, and associations from a broad sample, followed by an in-depth exploration of the underlying reasons, experiences, and operational realities from the perspective of healthcare providers.

The research was conducted across five taluks in the Kannur district of Kerala: Thaliparamba, Kannur, Thalassery, Iritty, and Payyannur. To achieve a representative and focused sample, a multi-stage stratified cluster sampling technique was utilized. The first stage involved stratifying the study area at the taluk level to ensure geographic representation. Within each taluk, the sampling frame was further refined to exclusively include PHCs located in rural-urban fringe areas, as these sites represent critical zones of transitional healthcare demand. In the second stage, five PHCs from each taluk were selected as clusters using Probability Proportional to Size (PPS) sampling, based on their registered patient population, resulting in a total of 25 PHCs. The final stage involved the systematic random sampling of patients within each cluster; specifically, 12 patients were selected from the outpatient registry at each PHC on pre-determined data collection days, yielding a total quantitative sample of 300 respondents.

Data collection was bifurcated to align with the mixed-methods design. Quantitative data were gathered through a structured, pre-tested survey administered to the 300 patient-respondents. The instrument captured data on demographic profiles, service utilization patterns, satisfaction levels across various service dimensions, and perceived challenges. Qualitative data were collected through semi-structured interviews conducted with one key healthcare staff member (such as a medical officer, nurse, or health supervisor) from each of the 25 selected PHCs, generating rich insights into operational issues, resource availability, and systemic constraints. For analysis, quantitative data were processed using SPSS software, employing descriptive statistics, Chi-square tests for association, and logistic regression modeling to identify significant predictors. Qualitative interview transcripts were subjected to thematic analysis to identify recurring themes and narratives, which were then used to explain and elaborate upon the quantitative findings. Throughout the research process, strict ethical protocols were observed, including obtaining informed consent from all participants and ensuring the anonymity and confidentiality of their responses.

RESULTS

Table 1: Demographic and Service Utilization Profile of Respondents (N=300)

Characteristic	Category	Percentage (%)	Frequency (N)	Notable Taluk-wise Variation / Remarks
Age Group	25–34 years	30.3%	91	Under-representation in 35–44 age group (4.3%)
	56–66 years	31.3%	94	Higher representation of elderly respondents
Gender	Male	55.0%	165	Male-dominated in Kannur taluk
	Female	45.0%	135	Female-dominated in Thalassery taluk
Education Level	College	55.7%	167	Majority with post-secondary education
	Higher Education	43.0%	129	Indicates strong educational background
Occupation	Private Sector	23.3%	70	Reflects salaried employment
	Vendor / Shop Owner	37.4%	112	Indicates strong informal sector presence

Monthly Household Income	< ₹20,000	50.0%	150	Significant variation across taluks ($p < 0.001$)
Household Size	3–5 members	82.0%	246	Predominantly medium-sized households
Visit Frequency	Monthly	47.3%	142	Regular dependence on health services
	Occasionally	30.7%	92	Indicates episodic healthcare usage
Primary Reason for Visit	Emergency Care	36.7%	110	High emergency dependency
	Routine Check-ups	33.3%	100	Preventive care also significant
Mode of Travel	Walking	43.7%	131	Indicates close proximity to facility
	Public Transport	42.3%	127	Access via transport remains critical

Table 2: Infrastructure, Service Quality, and Health Outcomes

Aspect	Indicator	Result	Statistical Note / Interpretation
Infrastructure Perception	Availability of all basic amenities	100% reported availability	Logistic regression shows taluk and income as significant predictors ($p < 0.05$)
Service Gaps	Laboratory services least available	57.0% (170) reported gap	Maternal care gap: 17%; Chronic disease care: 20%
Waiting Times	Waiting time of 1–2 hours	42.3% (127)	About 10% waited more than 2 hours
Staff Behavior	Treated with respect and empathy (Agree/Strongly Agree)	High positive perception reported	Significant variation across taluks ($p < 0.001$)
Medical Equipment Adequacy	Adequate equipment (Agree/Strongly Agree)	76.7% (230)	Significant taluk-wise difference ($p < 0.001$)
Quality of Life Impact	Significant improvement in quality of life	61.3% (184)	No significant association with visit frequency
Financial Impact	Reduction in household medical expenses (Agree/Strongly Agree)	63.7% (191); 0% disagreed	Indicates strong financial protection role of PHCs
Disease Management	Very effective for common diseases	53.7% (161)	Lower effectiveness for NCDs (33% agree effective)
Emergency Care Trust	Trust PHC for emergency services	20.0% (60) agree	Majority neutral (80%), indicating hesitation

Table 3: Awareness, Equity, Challenges, and Recommendations

Category	Indicator	Result	Note / Taluk-wise Observation
Awareness	Awareness of PHC contribution to SDG-3 (Good Health & Well-Being)	93.3% (280)	Lower awareness in Kannur and Iritty taluks
	Awareness of Right to Universal Health Coverage	66.0% (198)	No significant taluk-wise difference ($p = 1.000$)
Equity & Accessibility	PHCs serve all population groups equally (Agree)	94.3% (283)	Indicates strong perception of equity
	Disability-accessible PHC buildings	100% (300)	Full consensus among respondents
Major Challenges	Long waiting times	52.0% (156)	Most frequently reported challenge
	Staff shortages	3.0% (9)	Mainly reported from Kannur taluk
	Occasional service inadequacy	12.6% (38)	Reflects intermittent service gaps

Suggested Improvements	Recruitment of more medical staff	53.3% (160)	Top recommendation by respondents
	Upgradation of medical equipment	33.7% (101)	Second most cited improvement
Coping Without PHCs	Shift to private clinics when PHC unavailable	80.0% (240)	Indicates dependence on private sector as fallback

DISCUSSION

The findings of this study indicate a high level of public awareness regarding the role of Primary Health Centres (PHCs) in contributing to Sustainable Development Goal 3 (Good Health and Well-Being), with more than ninety percent of respondents acknowledging this linkage. This suggests that community-level health messaging and outreach programs have been largely effective in communicating the broader public health mission of PHCs. However, relatively lower awareness in Kannur and Iritty taluks points to uneven dissemination of information, possibly reflecting differences in local health education initiatives or community engagement strategies. In contrast, awareness of the Right to Universal Health Coverage was moderate, with only two-thirds of respondents being aware, and no significant variation across taluks. This indicates that while people recognize the functional importance of PHCs, their understanding of health as a legal and policy entitlement remains limited, highlighting a gap between service utilization and rights-based awareness.

Perceptions of equity and accessibility were overwhelmingly positive. A very large majority of respondents believed that PHCs serve all population groups equally, and all respondents reported that PHC buildings were accessible to persons with disabilities. These results suggest that, at least in physical and procedural terms, PHCs are perceived as inclusive institutions. Such perceptions are critical for encouraging service utilization among vulnerable groups and for strengthening trust in public health systems. The finding also aligns with the broader goals of universal health coverage, which emphasize not only availability but also equitable access to services.

Despite these positive perceptions, operational challenges remain evident. Long waiting times emerged as the most frequently reported problem, affecting over half of the respondents. This indicates a mismatch between service demand and available human or infrastructural capacity, which can negatively influence patient satisfaction and continuity of care. Although staff shortages were reported by only a small proportion of respondents, their concentration in Kannur suggests localized workforce constraints rather than a system-wide deficit. Additionally, reports of occasional service inadequacy reflect intermittent disruptions in service delivery, possibly due to supply chain issues, staff rotations, or patient load fluctuations.

Suggested improvements further reinforce these concerns. The most common recommendation was the recruitment of additional medical staff, followed by upgrading medical equipment. These preferences suggest that patients perceive service quality as being strongly linked to both human resources and technological capacity. Importantly, the coping behavior observed when PHCs are unavailable—where the majority of respondents turn to private clinics—raises concerns about financial protection and continuity of care. While PHCs appear to reduce household medical expenditure when functional, reliance on private providers during service gaps may undermine the financial risk protection objective of public healthcare.

Overall, the results reflect a health system that is trusted, equitable, and broadly accessible, but constrained by capacity-related challenges. Strengthening human resources, reducing waiting times, and improving service continuity could significantly enhance the effectiveness of PHCs and reduce dependence on private healthcare, thereby advancing both equity and sustainability within the public health system.

CONCLUSION

The study reveals that Primary Health Centres are widely recognized and trusted as essential providers of basic healthcare services, with strong public perception of equity and physical accessibility. High awareness of PHCs' contribution to community health and SDG-3 reflects successful integration of public health goals into local service delivery. However, moderate awareness of Universal Health Coverage as a right suggests that while people value PHC services, their understanding of healthcare as an entitlement remains limited, which may affect community participation in accountability and health governance mechanisms.

Operational challenges, particularly long waiting times, indicate capacity constraints that may compromise patient satisfaction and service efficiency. Although staff shortages were not widely reported, their localized nature suggests that workforce distribution requires closer monitoring at the taluk level. Intermittent service inadequacy further points to the need for consistent supply chains and better facility-level management. The strong demand for additional medical staff and improved equipment underscores the importance of strengthening both human and infrastructural resources to meet growing service demand.

The reliance on private clinics when PHCs are unavailable raises concerns about financial burden and continuity of care, potentially undermining the protective role of public healthcare in reducing out-of-pocket expenditure. Therefore, improving service availability and reducing waiting times are critical not only for quality enhancement but also for sustaining trust in public health systems.

Overall, while PHCs demonstrate strong performance in terms of accessibility and equity, targeted policy interventions focused on staffing, equipment upgrades, and service continuity are necessary to enhance system efficiency and reduce dependence on private healthcare, thereby supporting the broader goals of Universal Health Coverage and sustainable public health development.

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