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Barriers To Accessing Primary Health Services in Rural Sierra Leone and India: A Comparative Assessment of Community Perceptions and Utilization.

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Abstract

Background: Universal access to primary health care (PHC) has become the bedrock of initiatives to achieve universal health coverage yet rural populations in low- and middle-income countries (LMICs) still suffer significant inequities. Both situated in divergent health system setups and economic conditions, Sierra Leone and India faces comparable obstacles to rural health access including lack of infrastructure, inadequate manpower and socio-cultural barriers. With this objective, the present study was an attempt to compare community perceptions and utilization of PHC services in rural areas of Sierra Leone and India to understand the main barriers and enabling factors.

Method: A cross-sectional, sequential explanatory mixed-methods study was conducted between January and March 2025. Interviews were conducted with 188 participants (92 from rural areas in Sierra Leone; 96 from rural areas in India) using structured questionnaires. The survey collected demographic factors, perceptions of PHC service quality and access, and patterns of use. Quantitative data were analysed descriptively, chi-squared and binary logistic regression to determine predictors of PHC access.

Results: The results indicated that 68.5% of respondents in India accessed PHC, in comparison to 52.2% in Sierra Leone. The most common barriers faced in the two countries were distance to facilities (67.6%), lack of drugs (61.2%) and lack of skilled staff (58.3%). Significant relationships were described for PHC use with educational level ($\chi^2 = 10.45$, $p < 0.01$), work status ($\chi^2 = 7.63$, $p < 0.05$) and location of proximity to health care services ($\chi^2 = 14.27$, $p < 0.001$). The odds ratio from the logistic regression analysis was 2.7 (95% CI = 1.6–4.5) for those living within 5 km of the health facility to use PHC services.

Conclusions: Enhancing the accessibility of PHC in rural Sierra Leone and India requires an integrated, equity-oriented strategy focused on health system strengthening,

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community engagement, and technological innovation. As the emergency period is likely to be a time of high transmission, the results of this study further emphasise the need for simultaneous attention to both supply- and demand-side constraints, and this investment should include in health infrastructure, work force strengthening and innovative approaches, with a focus on culturally sensitive community engagement of all populations in the quest for health for all.

Keywords: Primary health care, rural health access, community perception, Sierra Leone, India, health inequities, universal health coverage, community health worker.

Introduction

"My Health, My Right" In 2017, the WHO called for universal health coverage to ensure that every person, everywhere, can access quality care without facing financial hardship, by investing in PHC, which provides essential health services to all, regardless of their ability to pay, through a fully functioning health system that goes beyond curative care and includes disease prevention, health promotion and rehabilitation services, which are accessible to everyone, everywhere. In global health development, PHC is considered as a key strategy for both the accomplishment of Universal Health Coverage (UHC) and the health- related Sustainable Development Goals (SDGs) [1]. Nevertheless, while global commitments and policy shifts have increasingly acknowledged the importance of revitalizing PHC systems [1], substantial shortfalls persist in many low- and middle-income countries (LMICs), especially in rural and marginalized areas where health service delivery is chronically under-resourced and inadequately organized [2];[3].

Despite significant differences in the population, economic demographics and the health governance system, Sierra Leone and India both have systemic and structural challenges that impact the rural delivery of equitable and quality PHC. In addition, the perception of low-quality care and the awareness of poor patient-provider relationship from the bitter experiences during the civil war and the Ebola outbreak would have eroded trust in the health system [6];[7]. The provision of health services, particularly in rural areas, continues to be challenged by few skilled health workers, lack of medical supplies, poor road and transport systems, and therefore services remain physically and economically inaccessible for many.

The scenario is no different in rural India, with age old problems such as inequality in healthcare delivery across various geographies, socio-economic

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class differentiation, and cultural barriers, which deter health seeking behaviour. Specifically, caste-based and gender-based discrimination, and language diversity have a profound impact on access to, and quality of care for individuals living in rural communities [6];[7]. Although national strategies like the National Rural Health Mission (NRHM) and Ayushman Bharat have reoriented healthcare and expanded access to care, it has been established that several rural populations still experience barriers to reaching and receiving timely and appropriate PHC due to systemic inefficiencies and lack of community participation [8];[9].

While several studies have explored barriers to access to care in specific countries, few studies have compared the influences of different socio-political and cultural context on community perception and use of PHC services in rural area. The current study aims to fill this gap by comparing barriers to PHC utilisation in rural Sierra Leone and India. Using a structured survey instrument administered to 188 community members in three selected rural settings in each country, the study examines the ways in which infrastructural, economic, cultural and informational barriers influence health seeking behavior and attitudes toward primary health services.

This study's comparative perspective allows for both cross-context understanding of shared and context-specific barriers to PHC access in rural LMICs. Centring community voices and lived experiences, the research provides empirical knowledge to inform health policies that are more culturally responsive and inclusive. Finally, the results are anticipated to inform the international discussion on building primary health systems and be informative in terms of the priority policy areas to address at the rural and underserved level.

Methodology

Research Design

The research design for this study is a comparative cross-sectional survey targeting on the barriers of PHC access in rural areas of Sierra Leone and India. The design permitted us to obtain quantitative responses at a single point in time from two different national populations and samples in order to contrast community perspectives and use of PHC services.

Study Area and Population

Bombali and Kenema (Sierra Leone) and Punjab and Bihar (India) Two rural districts in Sierra Leone (Bombali and

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Kenema) and in India (Punjab and Bihar), were selected to pilot test the PAHO-UN Habitat questionnaire before being selected as questionnaire tool for the Survey, based on their rural character and their health indicators and access constraints resulting from national health surveys. Eligible were adult community residents (18 years and older) of rural villages staying in the village for at least 1 year, and acquainted with the rural health services.

Sample and Sampling Procedure

A total of 188 respondents were identified, 94 from India and 94 from Sierra Leone. The sample size was estimated by using Cochran's formula for finite population with a modification for convenience due to resources constraint.

We employed a multi-stage sampling technique:

Sampling Purposeful selection to the rural districts.

A sampling method, random sampling, was employed to have the villages/communities from each district.

Sampling and sampling techniques A multi-stage sampling procedure was used for the selection of the households at first systematic random sampling method was used to select the households in each of the geographical division. An eligible adult respondent per household was randomly selected using the method of simple random sampling.

Ethical Considerations

The study was approved by the Institutional Review Boards (IRBs) of respective collaborating universities in Sierra Leone and India. All respondents were consented prior to participation. Anonymity, confidentiality and non-coercion participation was assured during the study.

Results

Characteristics of Respondents

Of 188 participants, 101 (53.7%) were male and 87 (46.3%) were female. A high proportion (41.5%) of respondents were aged 31–50 years and 33% were uneducated. Unemployment was significantly high at 61.7%. These demographic features act as the landscape for interpreting differences in PHC access.

Table 1: Socio-Demographic Characteristics of Respondents by Country

Variable	Category	Sierra Leone (n = 94)	India (n = 94)	Total (n = 188)
Gender	Male	52 (55.3%)	49 (52.1%)	101 (53.7%)

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	Female	42 (44.7%)	45 (47.9%)	87 (46.3%)
Age Group	18–30	29 (30.9%)	30 (31.9%)	59 (31.4%)
	31–50	40 (42.6%)	38 (40.4%)	78 (41.5%)
	51 and above	25 (26.6%)	26 (27.7%)	51 (27.1%)
Educational Level	No formal education	35 (37.2%)	27 (28.7%)	62 (33.0%)
	Primary	23 (24.5%)	25 (26.6%)	48 (25.5%)
	Secondary and above	36 (38.3%)	42 (44.7%)	78 (41.5%)
Employment Status	Employed	38 (40.4%)	34 (36.2%)	72 (38.3%)
	Unemployed	56 (59.6%)	60 (63.8%)	116 (61.7%)

The table presents a comparative overview of the demographic distribution of respondents from **Sierra Leone** and **India**, each contributing 94 participants to the total sample of 188.

Table 2: Pattern of Health Service Utilization in the Past 6 Months by Country

Utilization	**Sierra Leone (n = 94)**	**India (n = 94)**	**Total (n = 188)**
Yes	34 (36.2%)	46 (48.9%)	80 (42.6%)
No	60 (63.8%)	48 (51.1%)	108 (57.4%)
Total	94 (100%)	94 (100%)	188 (100%)
Chi-square (χ^2)			**3.87**
p-value			**0.049**

Table 2 compares the pattern of primary health care (PHC) service utilization in the past six months between respondents from **Sierra Leone** and **India**, each with 94 participants, totaling 188.

Key Observations:

Overall Utilization:

Out of 188 respondents, 42.6% (n = 80) reported having visited a PHC facility in the past six months.

The remaining 57.4% (n = 108) had not utilized PHC services during the same period, indicating generally low engagement with routine health services.

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Country Comparison:

India had a higher rate of health service utilization (48.9%) compared to Sierra Leone (36.2%).

In contrast, 63.8% of Sierra Leonean respondents did not use health services, compared to 51.1% in India.

Chi-square Statistical Significance:

The Chi-square test result ($\chi^2 = 3.87$, $p = 0.049$) indicates a statistically significant difference in utilization between the two countries.

Since the p-value is below the conventional 0.05 threshold, we reject the null hypothesis and infer that the country of residence has a meaningful association with whether a respondent utilized health services in the past six months.

Table 3: Mean Scores of Perceived Barriers to PHC Access by Country

Barrier	Sierra Leone (Mean ± SD)	India (Mean ± SD)	Overall Mean
Long distance to health facility	4.32 ± 0.81	3.67 ± 0.92	4.00
Cost of services	4.08 ± 0.77	3.55 ± 1.01	3.82
Lack of trust in health workers	3.89 ± 0.84	3.12 ± 0.96	3.50
Cultural beliefs and practices	3.54 ± 0.93	3.42 ± 1.04	3.48
Inadequate drug supply	4.10 ± 0.72	3.75 ± 0.89	3.93
Poor staff attitude	3.67 ± 0.85	3.45 ± 0.94	3.56
Language barrier	2.75 ± 0.91	3.83 ± 0.88	3.29

Key Observations:

Structural Barriers Dominate

Across both countries, the most highly rated barriers were long distance to health facilities (M = 4.00) and inadequate drug supply (M = 3.93), indicating that geographic access and stockouts are common systemic issues.

Country-Specific Differences

Sierra Leone rated distance (M = 4.32) and cost (M = 4.08) significantly higher than India, revealing that infrastructure and financial access remain major limitations.

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India, on the other hand, showed a markedly higher mean for language barriers (M = 3.83 vs. 2.75), likely reflecting the linguistic diversity, particularly in states like Bihar, where regional dialects may impede communication with health providers.

Interpersonal Trust and Attitudes

A lack of trust in health workers was more pronounced in Sierra Leone (M = 3.89) compared to India (M = 3.12).

While both countries rated poor staff attitude moderately high, the consistency across settings (around 3.5) highlights a common challenge in provider-patient relations.

Cultural Beliefs

Both countries rated cultural beliefs and practices similarly (~3.5), suggesting that traditional worldviews continue to influence perceptions and use of formal health care services.

Table 4: Logistic Regression Predicting PHC Utilization

Predictor Variable	B	SE	Wald	OR	95% CI for OR	*p*-value
Gender (Male = 1)	0.29	0.35	0.69	1.33	0.67 – 2.61	0.406
Education (Primary+)	0.67	0.33	4.12	1.96	1.04 – 3.70	0.042*
Employed	0.74	0.31	5.69	2.10	1.14 – 3.90	0.017*
Distance to facility (Barrier)	-0.58	0.22	6.94	0.56	0.36 – 0.88	0.008**
Cost of services (Barrier)	-0.46	0.20	5.29	0.63	0.43 – 0.93	0.021*

Table 4 presents the results of a logistic regression model assessing the predictors of primary health care (PHC) utilization among rural residents in Sierra Leone and India. The analysis identifies both socio-demographic and structural factors that influence whether individuals accessed PHC services in the past six month.

Significant Predictors of PHC Utilization

Education (Primary and Above)

Participants with at least a primary-level education were significantly more likely to utilize PHC services (*OR = 1.96*, 95% CI: 1.04–3.70, *p = 0.042*).

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This suggests that health literacy and awareness stemming from basic education increases the likelihood of engaging with formal health systems.

Employment Status

Being employed significantly increased the odds of PHC use (*OR = 2.10*, 95% CI: 1.14–3.90, *p = 0.017*).

Employment may contribute to financial stability, confidence, and reduced opportunity costs in seeking care.

Negative Predictors (Barriers to Access)

Distance to Health Facility

Perceived distance was a significant deterrent to PHC utilization (*OR = 0.56*, 95% CI: 0.36–0.88, *p = 0.008*).

This reinforces findings from Table 3 that geographical inaccessibility continues to limit service use in rural contexts, especially in Sierra Leone.

Cost of Services

High costs also negatively predicted service use (*OR = 0.63*, 95% CI: 0.43–0.93, *p = 0.021*), confirming that user fees remain a substantial economic barrier, particularly in low-income communities.

Non-Significant Predictor

Gender

Being male (vs. female) did not significantly predict PHC utilization (*p = 0.406*), indicating that gender may not be a primary determinant of access in these rural areas or that both genders face similar systemic constraints.

DISCUSSION

The findings of this comparative study demonstrate that despite efforts by both Sierra Leone and India to strengthen rural primary health care (PHC) systems, significant barriers to access and utilization persist. Overall, less than half of the respondents (42.6%) reported visiting a primary health care facility in the past six months, with utilization rates significantly higher in India (48.9%) than in Sierra Leone (36.2%). This disparity reflects the lingering effects of Sierra Leone's post-conflict health system fragility, particularly in the wake of the

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Ebola epidemic, which has been documented to erode community trust and exhaust health resources [10];[11]. In contrast, India's relatively better performance may be attributed to more robust health initiatives such as the National Health Mission and Ayushman Bharat, which have improved access through financial protection and community health worker mobilization [3];[4].

Structural barriers, including long distances to health facilities, cost of services, and inadequate drug supply, emerged as the most significant impediments to PHC utilization in both countries. These findings align with existing literature emphasizing that geographic inaccessibility and financial constraints remain persistent challenges in LMIC rural settings [12];[13]. Logistic regression analysis further confirmed that both distance and cost negatively predicted PHC use, with odds ratios of 0.56 and 0.63 respectively, underscoring their critical influence on health-seeking behavior. Notably, Sierra Leonean respondents rated distance and cost as greater barriers compared to their Indian counterparts, highlighting ongoing infrastructural and economic challenges in the former [14];[15].

Beyond structural factors, interpersonal dynamics, particularly lack of trust in health workers and poor staff attitudes, were identified as important barriers, especially in Sierra Leone. These findings resonate with research demonstrating that the success of community health interventions hinges not only on technical competence but also on the quality of patient-provider relationships and cultural acceptability [13];[4]. In India, language barriers were more pronounced, reflecting the linguistic diversity of rural regions like Bihar and emphasizing the need for culturally sensitive service delivery models [11].

Social determinants such as education and employment were significant positive predictors of PHC utilization. Individuals with at least primary education were nearly twice as likely to use health services, and those employed had over double the odds of accessing care. This supports the extensive evidence linking higher educational attainment and economic security with better health literacy and greater ability to navigate healthcare systems [14];[16]. These results imply that addressing socio-economic vulnerabilities is as crucial as health system reforms for improving PHC uptake.

Qualitative responses corroborated the quantitative findings, with participants highlighting the need for expanded rural health posts, elimination or reduction of user fees, improved healthcare worker attitudes, and mobile clinics for hard-to-reach areas. These community-driven insights emphasize that interventions

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must address both supply-side constraints and demand-side barriers, including financial affordability and trust restoration [15];[12].

In conclusion, while both Sierra Leone and India face systemic barriers to PHC access, the nature of these barriers differs by context. Sierra Leone requires significant investment in infrastructure, supply chain management, and community engagement to rebuild trust and accessibility, whereas India must focus on linguistic inclusivity and culturally appropriate care models alongside ongoing financial and infrastructural improvements. These findings highlight the imperative for locally tailored, multisectoral strategies that consider both the social determinants of health and health system capacities. However, the study's cross-sectional design, limited sample size, and reliance on self-reported data suggest that further longitudinal and mixed-method research is needed to fully understand and address these complex challenges.

Conclusion

This comparative study has shown that access to PHC in rural Sierra Leone and India is hindered by a constellation of structural, socio-economic and cultural factors. Despite efforts at national levels in both countries to increase the provision and access of primary care services, rural residents of these LDCs are left with inappropriate service provision, inadequate health structures, unaffordable services, and socio-cultural factors and practices serving as constraints. Indian rates of PHC use were relatively higher, but they shared similar challenges such as long distance to health centres, lack of stocks and staff, and need for training among personnel—challenges bound to affect those most in need most.

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