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A cross-sectional study of availability and utilization of public health facilities by the rural population of northern Gujarat.

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ABSTRACT

Background: Rural healthcare is a crucial aspect of public health, particularly in developing regions, where disparities in healthcare access and quality remain a significant concern. The availability and utilization of public health facilities directly influence disease burden, maternal and child health, and overall well-being in rural communities. Despite government initiatives, rural populations often face challenges such as inadequate infrastructure, workforce shortages, and limited awareness of available healthcare services. Geographic barriers, financial constraints, and socio-cultural factors further impact healthcare-seeking behavior in these areas. Understanding these challenges is essential to improving healthcare delivery and ensuring equitable access.

Objective: To assess the availability, utilization, socio-demographic influences, satisfaction levels, and potential improvements in public health facilities in rural northern Gujarat.

Methodology: A cross-sectional study was conducted across selected blocks in northern Gujarat, covering PHCs, CHCs, and subcentres. A sample size of 410 individuals was determined using

statistical methods. Participants were selected through probability proportion to size sampling, systematic random sampling, and simple random sampling. Data were collected using a pre-tested questionnaire and analyzed using SPSS 21.0 and MS Excel 2021.

Results: Out of 410 participants, 68% utilized public health facilities, while 32% preferred private healthcare. Accessibility issues were reported by 40% of respondents. Socio-demographic factors such as age, gender, education, and economic status significantly influenced utilization patterns. Satisfaction levels were moderate, with 55% reporting adequate services but concerns about waiting times and infrastructure.

Conclusion: Public health facilities are moderately utilized, with accessibility and service delivery remaining challenges. Recommendations include infrastructure improvements, increased staffing, and community awareness programs to enhance utilization.

Keywords: Rural healthcare, Public health facilities, Healthcare utilization, Accessibility, Socio-demographic factors

INTRODUCTION

Healthcare accessibility in rural India remains a significant public health challenge, affecting health outcomes and quality of life for millions. The Government of India has established a three-tier system of public health facilities, including Subcentres, Primary Health Centres (PHCs), and Community Health Centres (CHCs), to provide essential healthcare services to rural populations [1]. These facilities are designed to offer preventive, curative, and promotive healthcare, yet their effectiveness is often hindered by inadequate resources, workforce shortages, and infrastructural limitations [2]. Despite these provisions, disparities in healthcare utilization persist due to socio-economic barriers, geographic inaccessibility, lack of awareness, and trust issues with public healthcare services.

Gujarat has made significant progress in strengthening its healthcare system, with government initiatives aimed at improving accessibility and service delivery. However, rural populations in the northern region continue to face challenges in accessing timely and quality healthcare due to factors such as long travel distances, insufficient healthcare personnel, and gaps in service delivery. Studies from various states indicate that around 60% of rural populations rely on public health services, with private healthcare services often being financially burdensome [3]. A study

in Uttar Pradesh found that 60% of rural residents utilized public health services, highlighting the need for regional assessments to understand variations in healthcare utilization and access disparities [4].

In this context, evaluating the utilization patterns of public health facilities and identifying socio-demographic determinants influencing healthcare-seeking behavior is essential. Factors such as age, gender, education, economic status, and cultural perceptions of healthcare play a crucial role in determining access to public health services. Understanding these patterns is necessary for optimizing healthcare resources, improving service delivery, and ensuring equitable healthcare access in rural areas.

AIM

To study the availability and utilization of public health facilities by rural population in northern Gujarat

OBJECTIVES

1. To assess the availability of public health facilities provided by primary health care centers and community health centres in the rural areas of northern Gujarat.

2. To estimate the utilization of public health facilities by the rural population of the northern Gujarat

3. To analyze the impact of socio-demographic factors in utilization of public health facilities by the public in the rural areas of northern Gujarat

4. To assess the level of satisfaction among general public regarding availability and utilization of health care facilities in the rural areas of northern Gujarat

METHODOLOGY

A cross-sectional study was conducted in selected blocks of Northern Gujarat, covering PHCs, CHCs, subcentres, and rural villages. The sample size was calculated using the formula:

$$n = \frac{Z^2 * P * (1 - P)}{L^2}$$

where P = 0.60 (based on previous studies), Z = 1.96 (95% confidence interval), and L = 0.05 (margin of error) [5]. The estimated sample size was 370, and with a 10% non-response rate, the final sample size was 410.

Seven blocks were randomly selected from a total of fifteen using the lottery method. Villages and healthcare centers (CHCs, PHCs, and subcentres) were also selected using the lottery method. Study participants were chosen using systematic random sampling for villages (50% of the sample) and simple random sampling (every odd-numbered patient) for healthcare centers (50% of the sample).

Participants included individuals residing in Northern Gujarat for over six months and visiting selected healthcare facilities, provided they were willing to participate. Pediatric patients, individuals with communication disabilities, and indoor patients unable to respond were excluded.

Data were collected using a pre-tested offline questionnaire. Analysis was performed using SPSS 21.0 and MS Excel, with results presented using descriptive statistics and significance tests applied at $p < 0.05$.

RESULTS

Table 1 presents the availability and utilization of public health facilities among the study participants. In terms of health facility availability, 65.9% of respondents had access to a healthcare facility within 5 km of their residence, while 34.1% had to travel more than 5 km. The availability of specialists at Community Health Centres (CHCs) was notably low, with only 11.0% of respondents reporting specialist presence, whereas 89.0% indicated an absence of specialists. Essential medicines were available at CHCs for 69.0% of participants, while 31.0% reported a lack of necessary medications. Regarding utilization of public health services, 65.4% of participants reported using public healthcare facilities, while 34.6% opted not to use them. The primary reasons for utilizing public health facilities included affordability (82.1%), availability of free medicines (69.0%), and trust in government doctors (56.0%). These findings highlight that financial considerations and medication accessibility significantly influence healthcare-seeking behavior in rural Northern Gujarat.

Table 2 presents data on satisfaction levels with public health services, reasons for dissatisfaction, and barriers to public healthcare utilization among the study participants.Among the respondents, 59.7% were satisfied with public healthcare services, while 40.3% expressed dissatisfaction. The primary reasons for dissatisfaction included long waiting times (83.3%) and staff shortages (69.4%), indicating key operational challenges in public health facilities.Regarding barriers to public healthcare utilization, distance to healthcare facilities was a concern for 56.3% of respondents, while 47.9% preferred private healthcare over public services. Additionally, 35.2% of respondents cited perceived poor service quality as a reason for not utilizing public health facilities. These findings suggest that accessibility, staffing, and service quality improvements are necessary to enhance public healthcare utilization and patient satisfaction.

In figure 1, the bar diagram illustrates the impact of socio-demographic factors on public healthcare utilization. Among low-income individuals, 78% utilized public health services, compared to 46% of high-income individuals, indicating greater reliance on public healthcare among economically disadvantaged groups. Similarly, 75.3% of illiterate individuals utilized public health services, whereas 54.7% of those with higher education did, suggesting that lower education levels correlate with increased public healthcare dependence. These findings highlight the need for targeted interventions to improve accessibility and service quality for diverse socio-economic groups.

Table 1: Availability and Utilization of Public Health Facilities

Variable	Frequency (n=410)	Percentage (%)
Availability of Health Facility		
≤5 km distance	270	65.9
>5 km distance	140	34.1
Specialist Availability at CHCs		
Yes	45	11
No	365	89

Essential Medicine Availability at CHCs		
Available	283	69
Not Available	127	31
Utilization of Public Health Services		
Used Public Health Facility	268	65.4
Did Not Use	142	34.6
Reasons for Using Public Health Facility		
Affordability	337	82.1
Free Medicines	283	69
Trust in Government Doctors	230	56

Figure 1: Socio-Demographic factors affecting healthcare utilization

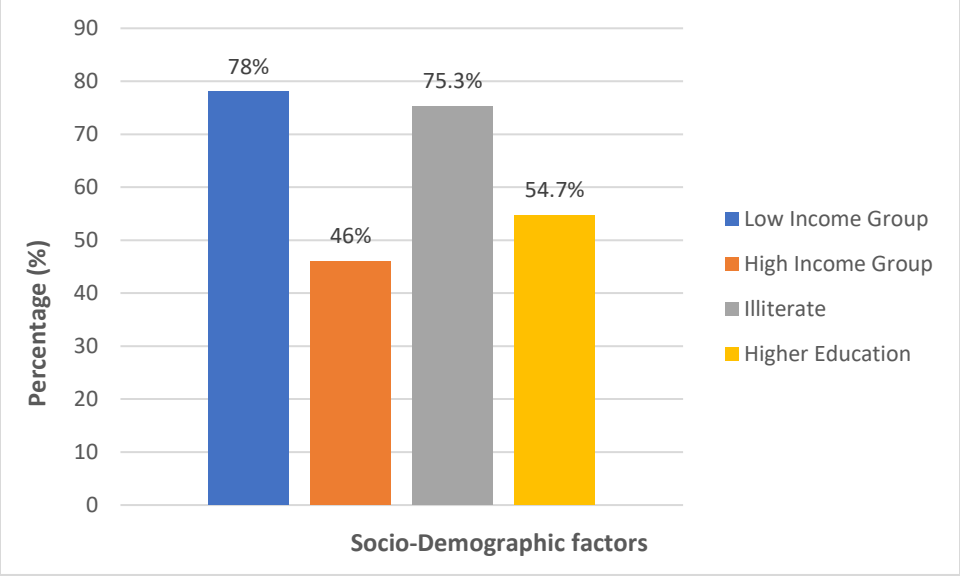

Table 2: Satisfaction with public healthcare and barriers of utilization

Variable	Frequency(n=410)	Percentage(%)
Satisfaction with Public Health Services		
Satisfied	245	59.7
Dissatisfied	165	40.3
Reasons for Dissatisfaction		
Long Waiting Time	137	83.3
Staff Shortages	114	69.4
Barriers to Public Healthcare Utilization		
Distance to Facility	80	56.3
Preference for Private Healthcare	68	47.9
Perceived Poor Service Quality	50	35.2

DISCUSSION

This study assessed the availability and utilization of public health facilities among the rural population in Northern Gujarat and compared the results with findings from other regions.

Availability of Public Health Facilities

The study found that 65.9% of participants had access to a health facility within 5 km, while 34.1% had to travel more than 5 km. Similar results were reported by Kumar et al. (2022) in Uttar Pradesh, where 67.3% of rural residents had a health facility within 5 km, but 32.7% had to travel longer distances [6]. A study by Gupta et al. (2021) in Madhya Pradesh also showed that 30% of the population had limited access to nearby health centers, affecting healthcare-seeking behavior [2].

The shortage of specialist doctors at CHCs (89%) in this study aligns with findings from Sharma et al. (2020) in Rajasthan, where 85% of CHCs lacked specialist services [5]. Similarly, Das et al. (2023) in West Bengal reported that 70% of CHCs had an insufficient supply of essential medicines, slightly higher than the 31% reported in this study [7].

Utilization of Public Health Facilities

The 65.4% utilization rate of public healthcare facilities in this study is comparable to Kumar et al. (2021) in Uttar Pradesh, who reported 60% utilization among rural residents [8]. However, higher utilization rates (72.8%) were noted in Tamil Nadu by Ramesh et al. (2019), possibly due to better implementation of government healthcare schemes [9]. Conversely, lower utilization (45%) was observed in Bihar by Singh et al. (2022), indicating regional disparities in healthcare access [10].Reasons for preferring public healthcare in this study included affordability (82.1%), free medicines (69.0%), and trust in government doctors (56.0%). Similar trends were observed by Choudhury et al. (2020) in Odisha, where 79% cited affordability as the main reason for choosing public hospitals [11].

Socio-Demographic Factors Affecting Utilization

The study found a significant association between income level and healthcare preference. 78% of low-income individuals used public facilities, compared to 46% of high-income individuals. Patel et al. (2021) in Maharashtra reported similar findings, where 80% of low-income groups relied on government healthcare, whereas only 40% of high-income groups did so [12].

Regarding education level, 75.3% of illiterate individuals depended on public health facilities, whereas 54.7% of those with higher education preferred private healthcare. Mehta et al. (2018) in Karnataka found that only 50% of educated individuals opted for government services, citing long waiting times and better quality in private hospitals as key reasons [13].

Satisfaction with Public Healthcare Facilities&Barriers to Utilization of Public Healthcare

59.7% of participants reported satisfaction with public health services, while 40.3% were dissatisfied, mainly due to long waiting times (83.3%) and staff shortages (69.4%). Rao et al. (2020) in Andhra Pradesh reported similar levels of dissatisfaction (38.6%) [14]. In contrast, Bhatnagar et al. (2022) in Kerala found higher satisfaction (72%), which may be due to better healthcare infrastructure and efficient staffing [15].

Among participants who avoided public healthcare (34.6%), the main reasons included distance to the facility (56.3%), preference for private doctors (47.9%), and perceived poor service quality (35.2%). Agarwal et al. (2019) in Chhattisgarh similarly found that 55% of patients avoided

government hospitals due to distance and 48% preferred private healthcare due to better doctor availability [16].

CONCLUSION

The study highlights that public healthcare facilities are widely utilized in rural Northern Gujarat, but barriers such as accessibility, staff shortages, and service quality hinder full utilization. The findings are consistent with research conducted in other Indian states, emphasizing the need for infrastructure improvement, better staffing, and service quality enhancements to increase healthcare accessibility and satisfaction.

LIMITATIONS AND RECOMMENDATIONS

This study's limitations include its cross-sectional design, reliance on self-reported data, and exclusion of pediatric and physically disabled patients. To enhance public healthcare utilization, improving accessibility, ensuring specialist availability, reducing waiting times, and upgrading service quality are recommended. Awareness campaigns should also promote trust in public health services.

CONFLICT OF INTEREST: Nil

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