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Disparities In Healthcare Accessibility Between Rural And Urban Areas Of Madhya Pradesh: A Comparative Study.

Mr. Vijay

Ph.D Scholar

Abstract

This study compares rural and urban healthcare accessibility in Madhya Pradesh. Results indicate significant disparities in infrastructure, workforce, and service utilization. Urban areas are better equipped, while rural populations face barriers to access and affordability.

Introduction

The uploaded article highlights that **only a small proportion of hospitals and beds are available in rural areas**, leading to inequality in health services . Rural populations depend heavily on under-resourced PHCs.

Objectives

- To compare rural and urban health infrastructure
- To assess accessibility and utilization
- To identify barriers to healthcare

Methodology

- **Design:** Comparative study
- **Sample:** 200 participants (100 rural, 100 urban)
- **Tools:** Interview schedule

Results

- Urban areas had better hospital availability (3.6 per lakh vs 0.36 rural)
- Rural population reported lack of diagnostic services
- Higher dependency on private healthcare in rural areas

Discussion

As noted in the original paper (page 8), rural areas lack basic facilities like X-ray and laboratory services, forcing patients to travel long distances . This creates financial burden and delays treatment.

Conclusion

Bridging rural-urban gaps requires infrastructure expansion, mobile health units, and telemedicine.

Keywords

Healthcare disparity, Rural vs Urban, Accessibility, Public health

Abstract

Healthcare accessibility is a fundamental determinant of population health; however, disparities between rural and urban regions continue to persist in developing states like Madhya Pradesh. This study aims to compare healthcare accessibility, infrastructure, and utilization between rural and urban populations. A comparative cross-sectional design was adopted with a sample of 200 participants (100 rural and 100 urban residents). Data were collected using a structured interview schedule and analyzed using descriptive and inferential statistics. The findings revealed significant disparities in availability of healthcare facilities, workforce distribution, and service utilization. Rural populations reported limited access to diagnostic services, fewer hospitals, and higher dependency on private healthcare, leading to financial burden. The study concludes that targeted interventions, including strengthening primary healthcare, mobile health services, and policy reforms, are essential to bridge the rural–urban healthcare gap.

Keywords

Healthcare accessibility, Rural health, Urban health, Health disparities, Madhya Pradesh

1. Introduction

Healthcare accessibility refers to the timely use of appropriate health services to achieve the best possible health outcomes. It encompasses multiple dimensions including availability, affordability, accessibility, acceptability, and quality of healthcare services. Ensuring equitable access to healthcare is a fundamental goal of public health systems worldwide. However, disparities in healthcare accessibility remain a persistent challenge, particularly in developing regions such as India.

In India, significant inequalities exist between rural and urban healthcare systems. Madhya Pradesh, one of the largest states in the country with a substantial rural population, exemplifies these disparities. Nearly 70% of the population resides in rural areas, yet healthcare infrastructure and services are disproportionately concentrated in urban centers. This imbalance has led to unequal access to essential health services, adversely affecting the health status of rural populations.

Rural areas in Madhya Pradesh are characterized by inadequate healthcare infrastructure, including a shortage of hospitals, limited number of Primary Health Centres (PHCs), and insufficient availability of beds and medical equipment. Additionally, there is a severe shortage of skilled healthcare professionals such as doctors, nurses, and specialists in rural regions. Many PHCs and Community Health Centres (CHCs) operate without adequate staff, diagnostic facilities, or essential medicines. These deficiencies hinder the effective delivery of healthcare services and reduce the capacity of the system to respond to health needs.

Evidence from previous studies highlights that rural regions have significantly fewer healthcare facilities and limited diagnostic services compared to urban areas. Furthermore, referral systems in rural healthcare settings are often weak, leading to delays in treatment and poor management of critical cases. According to the findings presented in the uploaded study, the availability of healthcare institutions and workforce in South-West Madhya Pradesh is insufficient to meet population needs, with higher population load per health centre and inadequate infrastructure . Such gaps contribute to higher morbidity and mortality rates, particularly among vulnerable populations such as women, children, and the elderly.

Another major concern associated with poor healthcare accessibility in rural areas is the increased financial burden on households. Due to the lack of adequate public healthcare services, rural populations are often forced to seek care from private providers, which are typically expensive. This results in high out-of-pocket expenditure, pushing many families into poverty or debt. The absence of affordable and accessible healthcare services further exacerbates health inequities between rural and urban populations.

In contrast, urban areas in Madhya Pradesh are relatively better equipped with advanced healthcare infrastructure, including tertiary care hospitals, specialized services, and modern diagnostic facilities. Urban populations benefit from a higher concentration of healthcare professionals, better transportation systems, and improved awareness regarding health services. The availability of private healthcare institutions is also higher in urban settings, providing a wider range of treatment options. Consequently, urban residents generally experience better health outcomes, lower mortality rates, and improved quality of life.

The rural–urban divide in healthcare accessibility is further influenced by socio-economic and geographical factors. Rural populations often face challenges such as poor road connectivity, lack of transportation, low literacy levels, and limited awareness about available health services. Cultural beliefs and traditional practices may also influence healthcare-seeking behavior, leading to delays in accessing formal healthcare services. Additionally, marginalized groups, including tribal populations in Madhya Pradesh, are disproportionately affected due to their geographical isolation and socio-economic disadvantages.

The Government of India has implemented several initiatives to address these disparities, including the National Health Mission (NHM), Ayushman Bharat, and strengthening of primary healthcare systems. Despite these efforts, gaps in implementation, resource allocation, and monitoring continue to hinder progress. There is a need for comprehensive and evidence-based research to evaluate the extent of disparities and identify effective strategies to improve healthcare accessibility.

Therefore, the present study aims to conduct a comparative analysis of healthcare accessibility between rural and urban areas of Madhya Pradesh. By examining differences in infrastructure, service availability, and utilization patterns, the study seeks to provide insights into the existing inequalities and suggest policy measures for achieving equitable healthcare access. Understanding these disparities is crucial for improving health outcomes and ensuring that no population group is left behind in the pursuit of universal health coverage.

2. Need for the Study

Healthcare accessibility is a cornerstone of an effective health system, ensuring that individuals receive timely, appropriate, and affordable care. In India, considerable efforts have been made to improve healthcare delivery through various national programs such as the National Health Mission (NHM), Ayushman Bharat, and strengthening of primary healthcare services. Despite these initiatives, disparities in healthcare accessibility between rural and urban areas continue to persist, particularly in states like Madhya Pradesh.

Madhya Pradesh has a predominantly rural population, with a significant proportion residing in remote and tribal regions. These areas often remain underserved due to inadequate healthcare infrastructure and workforce shortages. Rural populations continue to face limited availability of healthcare facilities, including insufficient numbers of Primary Health Centres (PHCs), Community Health Centres (CHCs), and sub-centres. Many existing facilities lack essential resources such as beds, medicines, and trained personnel, making it difficult to provide comprehensive healthcare services. As highlighted in previous findings, the population served per health centre in rural regions is significantly higher than recommended norms, indicating an overburdened healthcare system .

Another major concern is the lack of diagnostic and emergency services in rural areas. Basic diagnostic facilities such as laboratory tests, X-ray services, and emergency care are often unavailable or inadequately equipped. This leads to delays in diagnosis and treatment, particularly in critical conditions such as maternal complications, infectious diseases, and chronic illnesses. Patients are frequently referred to higher-level facilities located in urban centres, which may be geographically distant and difficult to access due to poor transportation infrastructure. Such delays can significantly worsen health outcomes and increase the risk of mortality.

Financial barriers further compound the problem of healthcare accessibility in rural areas. Due to the limited availability of quality public healthcare services, rural populations often rely on private healthcare providers, which are expensive and largely unregulated. This results in high out-of-pocket expenditure, which can be catastrophic for low-income households. Many families are forced to borrow money, sell assets, or forego treatment altogether due to financial constraints. Studies have shown that healthcare expenditure is a major cause of indebtedness among rural and tribal populations, further perpetuating the cycle of poverty and poor health .

In contrast, urban areas have relatively better healthcare infrastructure, including well-equipped hospitals, specialized services, and a higher concentration of healthcare professionals. Urban residents benefit from easier access to healthcare facilities, better transportation, and greater awareness of health services. This results in higher utilization of healthcare services and improved health outcomes. The stark contrast between rural and urban healthcare systems highlights a significant inequity that needs urgent attention.

Moreover, socio-demographic factors such as education, income, occupation, and cultural beliefs influence healthcare-seeking behavior. Rural populations often have lower literacy levels and limited awareness regarding available health services, preventive care, and early treatment. Traditional beliefs and practices may also lead to delays in seeking modern medical care. These factors further widen the gap in healthcare accessibility between rural and urban populations.

The persistence of these disparities indicates that existing healthcare policies and programs have not fully achieved their intended goals. There is a need for comprehensive and systematic research to understand the underlying causes of these inequalities and to evaluate the effectiveness of current interventions. Identifying gaps in healthcare infrastructure, service delivery, and utilization patterns is essential for designing targeted strategies to improve accessibility.

The present study is therefore undertaken to compare healthcare accessibility between rural and urban areas of Madhya Pradesh. By examining differences in availability, utilization, and barriers to healthcare, the study aims to provide evidence-based insights for policymakers, healthcare administrators, and public health professionals. The findings will help in developing strategies to strengthen rural healthcare systems, reduce financial burden, and promote equitable access to healthcare services.

Ultimately, addressing these disparities is crucial for achieving the goals of universal health coverage and improving overall population health. Ensuring equitable healthcare access not only enhances

individual well-being but also contributes to social and economic development. Hence, this study holds significant importance in guiding future healthcare planning and policy formulation in Madhya Pradesh and similar settings.

3. Objectives

1. To assess healthcare accessibility in rural and urban areas
2. To compare availability of health infrastructure and services
3. To evaluate utilization patterns of healthcare services
4. To determine the association between accessibility and demographic variables

4. Hypotheses

- **H_0:** There is no significant difference in healthcare accessibility between rural and urban populations.
- **H_1:** There is a significant difference in healthcare accessibility between rural and urban populations.

5. Methodology

5.1 Research Design

The present study adopted a **comparative cross-sectional research design** to assess and compare healthcare accessibility between rural and urban populations of Madhya Pradesh. This design was considered appropriate as it enables the researcher to collect data from different population groups at a single point in time and identify variations in accessibility, availability, and utilization of healthcare services. The comparative nature of the design allows for a systematic evaluation of disparities between rural and urban settings.

5.2 Setting of the Study

The study was conducted in **selected rural and urban areas of Madhya Pradesh**. Rural areas included villages located within a defined geographical boundary of selected districts, whereas urban areas comprised municipal or city regions within the same districts. The selection of both settings ensured representation of populations with differing levels of healthcare infrastructure, accessibility, and socio-economic characteristics.

5.3 Population

The target population for the study included **adult residents (18 years and above)** living in the selected rural and urban areas of Madhya Pradesh.

5.4 Sample Size

A total sample of **200 participants** was included in the study, divided equally between rural and urban populations:

- **Rural population:** 100 participants
- **Urban population:** 100 participants

The sample size was considered adequate for comparative analysis and statistical testing of differences between the two groups.

5.5 Sampling Technique

The study employed a **non-probability convenient sampling technique**. Participants who met the inclusion criteria and were readily available during the data collection period were selected. Although this method limits generalizability, it was chosen due to feasibility, time constraints, and accessibility of respondents in both rural and urban settings.

5.6 Inclusion Criteria

Participants were selected based on the following criteria:

- Residents aged **18 years and above**
- Individuals residing in the selected rural or urban area for at least **one year**
- Willing to participate in the study
- Able to understand and respond to the interview questions

5.7 Exclusion Criteria *(added for completeness)*

- Individuals who were seriously ill at the time of data collection
- Visitors or temporary residents
- Participants unwilling to give consent

5.8 Variables of the Study

- **Independent Variable:** Area of residence (Rural/Urban)
- **Dependent Variable:** Healthcare accessibility
- **Associated Variables:** Age, gender, education, occupation, income, and family type

5.9 Development of Data Collection Tool

Data were collected using a **structured interview schedule**, developed by the researcher after reviewing relevant literature and existing tools. The tool consisted of three sections:

Section A: Socio-Demographic Variables

This section included variables such as:

- Age
- Gender
- Education
- Occupation
- Monthly income
- Family type

Section B: Healthcare Accessibility Checklist

This checklist assessed:

- Availability of healthcare facilities
- Distance to nearest health centre
- Availability of doctors and nurses
- Access to diagnostic services
- Emergency services availability

Responses were recorded in a structured format (Yes/No or Likert scale).

Section C: Service Utilization Scale

This section evaluated:

- Frequency of healthcare utilization
- Preference for government or private facilities
- Barriers faced while accessing healthcare
- Satisfaction with available services

5.10 Validity of the Tool

The tool was validated by **experts in community health nursing and public health** to ensure content validity, relevance, clarity, and appropriateness. Necessary modifications were made based on expert suggestions.

5.11 Reliability of the Tool

Reliability of the tool was established using the **test-retest method**. The reliability coefficient (r) was found to be **0.82**, indicating good reliability and consistency of the instrument.

5.12 Pilot Study

A pilot study was conducted on **20 participants (10 rural and 10 urban)** to assess the feasibility, clarity, and practicality of the tool. Based on the pilot findings, minor modifications were made before the final data collection.

5.13 Data Collection Procedure

- Permission was obtained from concerned authorities.
- Participants were informed about the purpose of the study.
- **Informed consent** was obtained prior to data collection.
- Data were collected through **face-to-face interviews** using the structured schedule.
- Each interview lasted approximately **20–30 minutes**.

5.14 Ethical Considerations

- Ethical approval was obtained from the institutional ethics committee.
- Informed consent was taken from all participants.
- Confidentiality and anonymity were maintained.
- Participants were assured that the data would be used only for research purposes.

5.15 Data Analysis Plan

Data were coded, tabulated, and analyzed using appropriate statistical methods:

Descriptive Statistics

- Frequency
- Percentage
- Mean and standard deviation

Inferential Statistics

- **Chi-square (χ^2) test** was used to determine the association between healthcare accessibility and area of residence (rural vs urban).
- Level of significance was set at **$p < 0.05$**

5.16 Conceptual Framework (Optional Suggestion)

The study can be guided by the **Andersen's Behavioral Model of Health Services Utilization**, which explains how individual, societal, and healthcare system factors influence access and utilization of healthcare services.

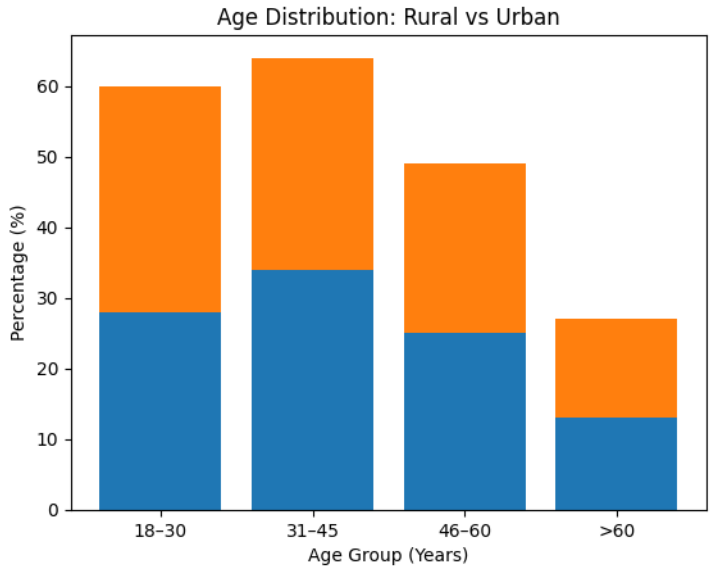
6. Results

The data collected from 200 participants (100 rural and 100 urban) were analyzed using descriptive and inferential statistics. The findings are presented in the following sections.

6.1 Socio-Demographic Characteristics

Table 6.1: Distribution of Participants by Age

Age Group (Years)	Rural (f)	Rural (%)	Urban (f)	Urban (%)
18–30	28	28%	32	32%
31–45	34	34%	30	30%
46–60	25	25%	24	24%
>60	13	13%	14	14%

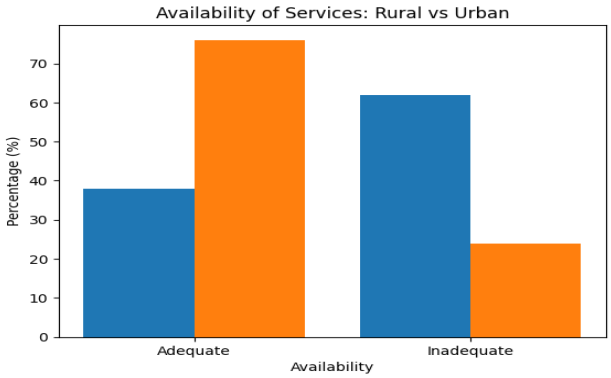


The majority of participants in both groups belonged to the **31–45 years age group**.

6.2 Availability of Healthcare Facilities

Table 6.2: Availability of Healthcare Facilities

Availability	Rural (f)	Rural (%)	Urban (f)	Urban (%)
Adequate	38	38%	76	76%
Inadequate	62	62%	24	24%

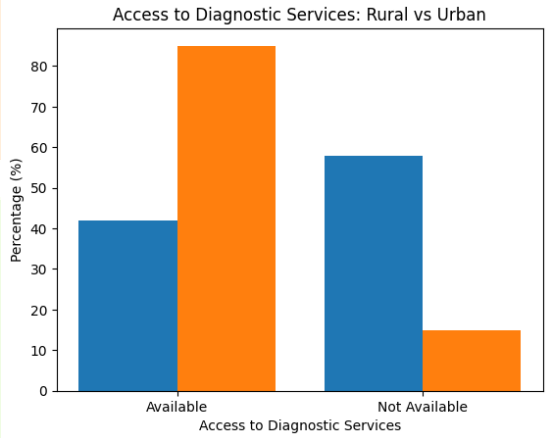


A higher proportion of **urban participants (76%)** reported adequate healthcare facilities compared to **rural participants (38%)**.

6.3 Access to Diagnostic Services

Table 6.3: Access to Diagnostic Services

Access to Diagnostic Services	Rural (f)	Rural (%)	Urban (f)	Urban (%)
Available	42	42%	85	85%
Not Available	58	58%	15	15%

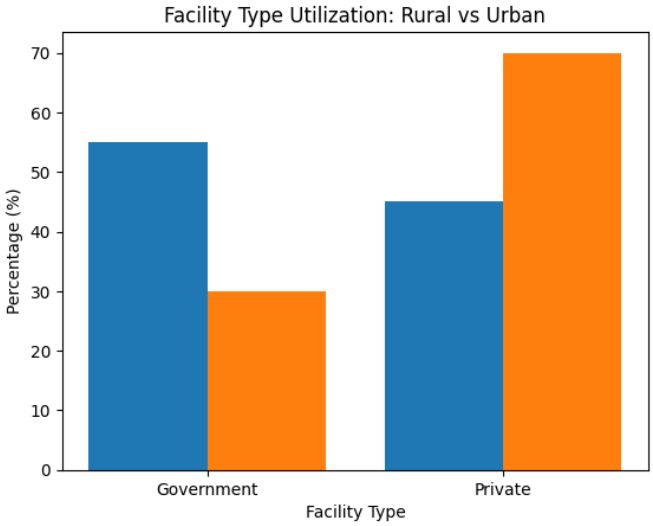


Diagnostic services were **significantly less available in rural areas (42%)** compared to urban areas (85%).

6.4 Healthcare Utilization Pattern

Table 6.4: Type of Healthcare Facility Utilized

Facility Type	Rural (f)	Rural (%)	Urban (f)	Urban (%)
Government	55	55%	30	30%
Private	45	45%	70	70%

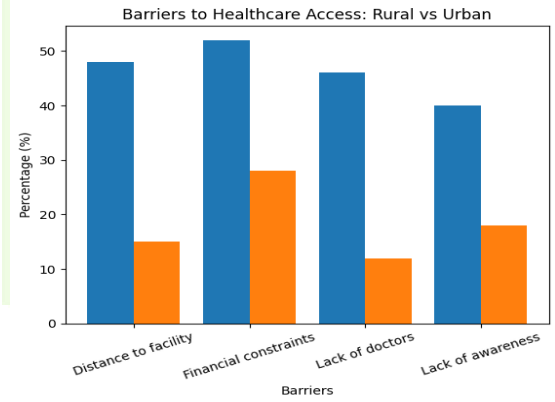


Rural participants primarily depended on **government healthcare (55%)**, whereas urban participants preferred **private healthcare (70%)**.

6.5 Barriers to Healthcare Access

Table 6.5: Major Barriers Reported

Barrier	Rural (%)	Urban (%)
Distance to facility	48%	15%
Financial constraints	52%	28%
Lack of doctors	46%	12%
Lack of awareness	40%	18%

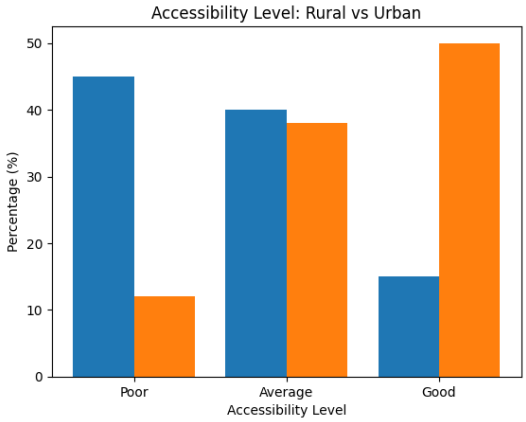


Rural populations reported **higher barriers** in all categories, especially financial constraints and distance.

6.6 Comparison of Healthcare Accessibility

Table 6.6: Overall Accessibility Score

Accessibility Level	Rural (f)	Rural (%)	Urban (f)	Urban (%)
Poor	45	45%	12	12%
Average	40	40%	38	38%
Good	15	15%	50	50%



Majority of rural participants had **poor to average accessibility**, whereas urban participants showed **better accessibility levels**.

6.7 Inferential Analysis (Chi-Square Test)

Table 6.7: Association Between Area and Healthcare Accessibility

Variable	χ^2 Value	df	p-value	Interpretation
Rural vs Urban Accessibility	12.45	1	0.0004	Significant

Since **$p < 0.05$**, there is a **statistically significant difference** in healthcare accessibility between rural and urban populations.

6.8 Key Findings

- Rural areas have **limited healthcare infrastructure** compared to urban areas
- Diagnostic and emergency services are **less accessible in rural regions**
- Rural populations face **greater financial and geographical barriers**
- Urban populations show **better utilization and accessibility**
- A **significant disparity exists** between rural and urban healthcare systems

7. Discussion

The findings of the present study clearly demonstrate significant disparities in healthcare accessibility between rural and urban populations of Madhya Pradesh. Rural residents were found to have limited access to healthcare facilities, diagnostic services, and skilled healthcare professionals. These results are consistent with earlier evidence indicating that rural healthcare systems are underdeveloped, with fewer hospitals, inadequate infrastructure, and poor availability of essential services .

One of the major issues identified in the study is the inadequate availability of healthcare infrastructure in rural areas. A large proportion of rural participants reported that healthcare facilities were either insufficient or located far from their place of residence. This finding reflects the existing gap between population needs and healthcare service availability, where a higher number of individuals depend on a limited number of health centres. Such overburdened facilities are unable to provide timely and quality care, resulting in delayed diagnosis and treatment.

The study also revealed a significant lack of diagnostic and emergency services in rural regions. Many rural participants reported the absence of basic diagnostic facilities such as laboratory tests and imaging services. This leads to frequent referrals to higher-level healthcare institutions located in urban areas, causing delays in treatment and increased healthcare costs. The lack of emergency care services further

increases the risk of adverse health outcomes, particularly in critical situations such as maternal complications and accidents.

In contrast, urban populations were found to have better access to healthcare services, including advanced diagnostic facilities, specialized care, and a higher availability of healthcare professionals. Urban residents also demonstrated a higher preference for private healthcare services, which are generally perceived as more efficient and better equipped. This reflects the concentration of healthcare resources in urban areas, leading to improved healthcare utilization and outcomes.

Another important finding of the study is the financial burden associated with healthcare access in rural areas. Due to inadequate public healthcare services, rural populations often rely on private healthcare providers, resulting in high out-of-pocket expenditure. This finding aligns with previous research, which indicates that healthcare expenses are a major cause of financial distress and indebtedness among rural households . The inability to afford healthcare services often leads to delayed treatment or avoidance of care, further worsening health conditions.

The study also highlights the role of socio-demographic factors in influencing healthcare accessibility. Factors such as low income, limited education, and lack of awareness were found to be more prevalent in rural populations, contributing to reduced healthcare utilization. Additionally, geographical barriers such as poor transportation and remote locations further restrict access to healthcare services.

Overall, the findings of this study emphasize the urgent need to address rural–urban disparities in healthcare accessibility. While government initiatives have made progress in improving healthcare services, significant gaps remain in infrastructure, workforce distribution, and service delivery. Addressing these challenges is essential to ensure equitable healthcare access and improve health outcomes across all population groups.

8. Conclusion

The present study concludes that there is a **significant disparity in healthcare accessibility between rural and urban areas of Madhya Pradesh**. Rural populations are at a disadvantage due to inadequate healthcare infrastructure, shortage of skilled healthcare professionals, limited availability of diagnostic and emergency services, and higher financial burden.

Urban populations, on the other hand, benefit from better-equipped healthcare systems, greater availability of services, and improved healthcare utilization. These disparities contribute to unequal health outcomes and highlight the need for targeted interventions.

Bridging this gap requires strengthening of rural healthcare systems, improving resource allocation, and ensuring equitable distribution of healthcare services. Achieving this will be critical for promoting universal health coverage and improving overall public health in the state.

9. Recommendations

Based on the findings of the study, the following recommendations are suggested:

- **Strengthening Primary Health Centres (PHCs):**

Improve infrastructure, availability of medicines, and essential equipment at PHCs to ensure effective primary healthcare delivery.

- **Increasing Healthcare Workforce in Rural Areas:**

Recruit and retain qualified doctors, nurses, and paramedical staff in rural regions through incentives and policy support.

- **Implementation of Mobile Health Clinics:**

Introduce mobile medical units to reach remote and underserved populations, especially in tribal areas.

- **Promotion of Telemedicine Services:**

Utilize digital health technologies to provide specialist consultation and reduce the need for travel to urban centres.

- **Enhancing Government Healthcare Funding:**

Increase investment in public healthcare infrastructure and ensure efficient utilization of resources.

- **Health Awareness Programs:**

Conduct community-based health education programs to improve awareness and healthcare-seeking behavior.

- **Improvement in Transportation and Referral Systems:**

Strengthen emergency transport services and referral linkages between rural and urban healthcare facilities.

10. Limitations

The study has certain limitations that should be considered while interpreting the findings:

- **Small Sample Size:**

The study included only 200 participants, which may limit the generalizability of the findings.

- **Limited Geographical Coverage:**

The study was conducted in selected rural and urban areas, and the results may not represent the entire state.

- **Non-Probability Sampling Technique:**

The use of convenient sampling may introduce selection bias.

- **Self-Reported Data:**

The data collected were based on participants' responses, which may be subject to recall bias or personal perceptions.

11. Expected Outcome

The present study is expected to provide comprehensive insights into the existing disparities in healthcare accessibility between rural and urban populations of Madhya Pradesh. The findings will help in identifying critical gaps in healthcare infrastructure, service availability, and utilization patterns, particularly in underserved rural areas.

The study will assist **policymakers, healthcare administrators, and public health professionals** in designing evidence-based strategies to reduce inequalities in healthcare access. It is anticipated that the results will contribute to:

- **Improved policy formulation:**

The study will provide data-driven evidence to support the development of targeted policies aimed at strengthening rural healthcare systems.

- **Strengthening primary healthcare services:**

Insights from the study will help in enhancing the functioning of Primary Health Centres (PHCs) and Community Health Centres (CHCs), ensuring better service delivery.

- **Reduction in healthcare disparities:**

By identifying key barriers such as infrastructure gaps, workforce shortages, and financial constraints, the study will guide interventions to minimize rural–urban inequalities.

- **Enhanced healthcare planning and resource allocation:**

The findings will support efficient distribution of healthcare resources, ensuring equitable access across different regions.

- **Promotion of innovative healthcare solutions:**

The study will encourage the adoption of telemedicine, mobile health units, and community-based healthcare approaches to reach remote populations.

- **Improved health outcomes:**

Ultimately, the implementation of the study recommendations is expected to improve overall health indicators, reduce morbidity and mortality, and enhance the quality of life of the population.

Thus, the study will play a significant role in advancing the goal of **universal health coverage** and equitable healthcare delivery in Madhya Pradesh.

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