

HEALTHCARE ACCESSIBILITY AND SOCIO-ECONOMIC DETERMINANTS UNDER THE NATIONAL URBAN HEALTH MISSION: A STUDY OF URBAN SLUM HOUSEHOLDS IN KURNOOL DISTRICT

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ABSTRACT

The National Urban Health Mission (NUHM) was introduced to strengthen urban primary healthcare systems and improve healthcare accessibility among economically vulnerable urban populations residing in slum areas. Despite expansion of healthcare infrastructure and outreach mechanisms under NUHM, urban slum households continue to experience socio-economic inequalities, financial barriers, inadequate healthcare awareness, and operational constraints affecting healthcare utilization. In this context, the present study examines the accessibility, affordability, utilization, and adequacy of healthcare services functioning under NUHM in urban slum areas of Kurnool district, Andhra Pradesh.

The study is based on both primary and secondary data. Primary data were collected from 580 respondents comprising urban slum households, healthcare providers, ASHA workers, ANM personnel, and administrative staff functioning under NUHM. Institutional analysis of 44 Urban Primary Health Centres (UPHCs) functioning across selected Urban Local Bodies in Kurnool district was also undertaken. Statistical tools such as percentage analysis, correlation analysis, regression analysis, Chi-Square test, and Analysis of Variance (ANOVA) were employed using SPSS software for empirical interpretation and hypothesis testing.

The findings reveal that NUHM significantly improved healthcare accessibility, preventive healthcare participation, healthcare awareness, and affordability of healthcare services among vulnerable urban populations. Urban Primary Health Centres reduced direct healthcare expenditure and strengthened healthcare utilization through subsidized healthcare services and outreach activities. The study further found that ASHA and ANM workers played an important role in improving healthcare awareness and continuity of healthcare services. However, infrastructural inadequacies, staffing shortages, indirect healthcare costs, transportation difficulties, and socio-economic disparities continue to affect operational efficiency and healthcare accessibility among urban slum households.

The study emphasizes the need for strengthening healthcare infrastructure, improving institutional manpower, reducing indirect healthcare expenditure, and ensuring equitable healthcare resource allocation for improving effectiveness and sustainability of urban public healthcare systems under the National Urban Health Mission.

Keywords: National Urban Health Mission (NUHM), Urban Slums, Healthcare Accessibility, Urban Primary Health Centres, Public Health, Health Economics, Healthcare Affordability, Urban Health Governance.

1. INTRODUCTION

Urbanization in India has intensified rapidly during recent decades, resulting in major socio-economic and demographic transformations. Expansion of urban population, migration, industrialization, and growth of informal settlements have considerably increased pressure on

urban infrastructure and public healthcare systems. Although urban centres generally possess relatively better healthcare infrastructure than rural areas, economically weaker urban populations continue to face substantial barriers in accessing affordable and quality healthcare services. Urban slum populations are particularly vulnerable due to overcrowding, poor sanitation, inadequate housing conditions, unstable employment, environmental hazards, and limited healthcare awareness.

Recognizing growing urban health inequalities, the Government of India introduced the National Urban Health Mission (NUHM) as a dedicated public health initiative aimed at strengthening urban primary healthcare systems and improving healthcare accessibility among vulnerable urban populations. The mission focuses particularly on urban slum households, migrant workers, homeless populations, daily wage earners, and other socio-economically disadvantaged groups residing in urban areas. The programme seeks to improve accessibility, affordability, adequacy, and quality of healthcare services through Urban Primary Health Centres (UPHCs), preventive healthcare outreach programmes, maternal and child healthcare services, immunization activities, and community participation mechanisms.

Healthcare accessibility and affordability constitute important indicators of socio-economic welfare and public health governance. Accessibility to healthcare services depends not only on physical availability of healthcare institutions but also on socio-economic variables such as income, occupation, migration status, education, housing conditions, and healthcare awareness. Urban poor households frequently experience barriers such as transportation expenditure, indirect healthcare costs, wage loss during illness, overcrowding in healthcare institutions, shortage of medicines, and inadequate diagnostic facilities. These factors significantly influence healthcare utilization patterns and healthcare-seeking behaviour among vulnerable urban populations.

Kurnool district in Andhra Pradesh represents an important urban health context characterized by rapid urbanization, socio-economic disparities, and expansion of slum settlements. Several Urban Local Bodies including Kurnool Municipal Corporation, Adoni Municipality, and Yemmiganur Municipality have witnessed increasing healthcare demand among economically vulnerable populations. Despite implementation of NUHM, urban slum populations continue to experience healthcare-related challenges such as inadequate healthcare accessibility, financial burden, infrastructural limitations, and healthcare awareness gaps.

The present study therefore attempts to examine the accessibility, affordability, utilization, and adequacy of healthcare services functioning under the National Urban Health Mission among urban slum households in Kurnool district. The study further analyses socio-economic determinants influencing healthcare accessibility and healthcare utilization, evaluates operational efficiency of Urban Primary Health Centres, and examines the role of ASHA and ANM workers in strengthening urban healthcare delivery systems.

2. REVIEW OF LITERATURE

Urban health inequalities have increasingly emerged as an important area of public health research in India. Agarwal (2011) observed that urban poor populations experience significant disparities in healthcare accessibility and health outcomes compared to economically better-off urban households. The study emphasized that urban slum populations suffer from overcrowding, communicable diseases, inadequate sanitation, and poor healthcare accessibility despite concentration of healthcare facilities in urban areas.

Andersen (1995), through the Behavioural Model of Healthcare Utilization, explained that healthcare utilization is influenced by predisposing, enabling, and need-based factors. Socio-economic variables such as household income, education, migration status, occupation, and healthcare awareness substantially influence healthcare-seeking behaviour among vulnerable populations.

Baru et al. (2010) highlighted that socio-economic inequalities and social stratification significantly affect healthcare accessibility in India. Economically weaker populations often depend upon low-quality healthcare services due to affordability constraints and lack of awareness regarding public healthcare facilities.

Research studies focusing on NUHM indicate that Urban Primary Health Centres have contributed toward strengthening urban healthcare accessibility through subsidized healthcare services and preventive healthcare outreach activities. Choudhury et al. (2019) found that awareness regarding UPHC services significantly improved healthcare utilization among urban poor populations. Frontline healthcare workers such as ASHA and ANM personnel were found to play an important role in improving healthcare awareness and preventive healthcare participation.

Studies relating to healthcare affordability indicate that out-of-pocket healthcare expenditure continues to remain a major challenge among economically vulnerable urban households. Patel and Kulkarni (2016) observed that transportation expenditure, wage loss during illness, and diagnostic costs discourage timely healthcare utilization among urban poor households.

Existing literature further suggests that operational efficiency of healthcare institutions depends upon staffing adequacy, medicine availability, diagnostic facilities, healthcare infrastructure, and administrative coordination. Dharitri (2024) emphasized that infrastructural inadequacies and staffing shortages significantly affect quality and efficiency of urban primary healthcare delivery systems in South India.

Although several studies have examined urban healthcare inequalities and healthcare utilization patterns in India, district-level empirical studies focusing on healthcare accessibility, affordability, operational adequacy, and healthcare utilization under NUHM in medium-sized urban centres such as Kurnool district remain limited. Therefore, the present study attempts to address this research gap.

3. OBJECTIVES OF THE STUDY

The study primarily aims to examine accessibility, affordability, utilization, adequacy, and operational efficiency of healthcare services functioning under the National Urban Health Mission among urban slum households in Kurnool district.

The specific objectives are:

1. To analyse the relationship between household income and utilization of primary healthcare services under NUHM.
2. To examine socio-economic differentials in healthcare accessibility and utilization.
3. To evaluate adequacy and operational efficiency of Urban Primary Health Centres.
4. To assess healthcare affordability through analysis of out-of-pocket healthcare expenditure and indirect healthcare costs.
5. To analyse the role of ASHA and ANM workers in improving healthcare awareness and preventive healthcare participation.

6. To examine inter-ULB variations in healthcare accessibility and healthcare utilization.
7. To suggest policy recommendations for strengthening healthcare governance and operational efficiency under NUHM.

4. RESEARCH METHODOLOGY

The present study adopts descriptive, analytical, and empirical research approaches. Both primary and secondary sources of data were utilized for the study. Primary data were collected through structured interview schedules and questionnaires from urban slum households, healthcare providers, ASHA workers, ANM personnel, and administrative staff functioning under NUHM. Institutional analysis of 44 Urban Primary Health Centres functioning across various Urban Local Bodies in Kurnool district was also undertaken.

The study included:

- 400 urban slum households,
- 100 healthcare providers,
- 65 ASHA and ANM workers and 15 administrative personnel, constituting a total sample of 580 respondents.

The study covered:

- Kurnool Municipal Corporation,
- Adoni Municipality,
- Yemmiganur Municipality,
- Nandyal Municipality,
- Dhone Municipality,
- Allagadda Municipality,
- Nandikotkur Municipality,
- Gudur Municipality,
- Bethamcherla Municipality and Atmakur Municipality.

Statistical analysis was carried out using SPSS software. Percentage analysis, correlation analysis, regression analysis, Chi-Square test, Analysis of Variance (ANOVA), and Cronbach's Alpha reliability analysis were employed for empirical interpretation and hypothesis testing.

5. RESULTS AND DISCUSSION

5.1 Socio-Economic Profile of Respondents

Socio-economic conditions of urban slum households significantly influence healthcare accessibility, healthcare utilization, affordability, and health-seeking behaviour under the National Urban Health Mission (NUHM). The study revealed that a major proportion of respondents belonged to economically weaker sections characterized by low household income, informal employment, unstable livelihoods, poor housing conditions, and inadequate social protection coverage. These socio-economic vulnerabilities substantially affected accessibility and utilization of public healthcare services among urban slum households in Kurnool district.

Table 1: Socio-Economic Profile of Respondents

Variables	Categories	Frequency	Percentage
Gender	Male	228	57.0
	Female	172	43.0
Age Group	18–30 Years	96	24.0
	31–45 Years	168	42.0
	46–60 Years	92	23.0
	Above 60 Years	44	11.0
Education	Illiterate	118	29.5
	Primary	102	25.5
	Secondary	96	24.0
	Intermediate & Above	84	21.0
Occupation	Daily Wage Labour	142	35.5
	Self-Employment	96	24.0
	Private Employment	84	21.0
	Government Employment	28	7.0
	Others	50	12.5
Monthly Income	Below ₹10,000	148	37.0
	₹10,001–20,000	162	40.5
	₹20,001–30,000	62	15.5
	Above ₹30,000	28	7.0

Source: Field Survey Data, 2025.

The table indicates that daily wage labourers and informal sector workers constituted a major proportion of respondents. Nearly 77.5 percent of respondents belonged to low and lower-middle income categories. Educational attainment among respondents was also relatively low, affecting healthcare awareness and preventive healthcare participation. These findings indicate that urban slum households continue to experience socio-economic vulnerabilities which directly affect healthcare accessibility and affordability.

5.2 Household Income and Utilization of UPHC Services

Household income constitutes an important determinant of healthcare utilization behaviour among urban slum populations. The study found that Urban Primary Health Centres (UPHCs) functioning under NUHM played a significant role in improving healthcare accessibility among economically weaker households through subsidized healthcare services, free consultations, preventive healthcare programmes, and medicine distribution.

Table 2: Household Income and Frequency of UPHC Utilization

Income Category	Rarely	Sometimes	Often	Very Often	Total
Below ₹10,000	22	48	61	17	148
₹10,001–20,000	18	52	74	18	162
₹20,001–30,000	10	20	24	8	62
Above ₹30,000	8	10	6	4	28

Source: Field Survey Data, 2025.

The table shows that healthcare utilization under NUHM was relatively higher among lower and middle-income households due to affordability and availability of subsidized healthcare

services. Economically weaker households relied significantly on public healthcare institutions because private healthcare expenditure remained unaffordable.

5.3 Awareness of Healthcare Services under NUHM

Healthcare awareness plays an important role in improving utilization of healthcare services among urban poor households. The study revealed that ASHA and ANM workers significantly contributed toward healthcare awareness generation, preventive healthcare participation, and referral support among respondents.

Table 3: Awareness of UPHC Services among Respondents

Awareness Source	Frequency	Percentage
ASHA Workers	138	34.5
ANM Workers	72	18.0
Health Camps	64	16.0
Neighbours/Friends	82	20.5
Media Sources	44	11.0

Source: Field Survey Data, 2025.

The table reveals that ASHA workers constituted the major source of healthcare awareness among urban slum households. Frontline healthcare workers played a crucial role in strengthening awareness regarding immunization services, maternal healthcare, preventive healthcare programmes, and healthcare outreach activities under NUHM.

5.4 Occupational Status and Healthcare Accessibility

Occupational status significantly influenced healthcare accessibility among respondents. Daily wage labourers and migrant workers frequently experienced barriers such as wage loss during illness, transportation expenditure, irregular work schedules, and opportunity costs associated with healthcare visits.

Table 4: Occupation and Accessibility to Healthcare Services

Occupation	Easy Access	Moderate Access	Difficult Access	Total
Daily Wage Labour	48	64	30	142
Self-Employment	42	38	16	96
Private Employment	40	30	14	84
Government Employment	18	8	2	28
Others	20	22	8	50

Source: Field Survey Data, 2025.

The table indicates that daily wage labourers experienced relatively greater healthcare accessibility problems compared to salaried and government-employed respondents. Transportation costs and wage loss during illness significantly affected healthcare utilization among economically vulnerable households.

5.5 Healthcare Affordability and Out-of-Pocket Expenditure

One of the major objectives of NUHM is reduction of healthcare expenditure among economically vulnerable urban populations. The study observed that UPHCs significantly reduced direct healthcare expenditure through provision of free consultations, subsidized medicines, and preventive healthcare services. However, indirect healthcare costs continued to affect affordability among urban slum households.

Table 5: Out-of-Pocket Healthcare Expenditure among Respondents

Healthcare Expenditure per Month	Frequency	Percentage
Below ₹500	162	40.5
₹501–1000	118	29.5
₹1001–2000	76	19.0
Above ₹2000	44	11.0

Source: Field Survey Data, 2025.

The table indicates that although direct healthcare expenditure reduced considerably under NUHM, several households continued to incur indirect expenditure such as transportation costs, diagnostic charges, and wage loss during illness. These indirect healthcare costs significantly affected affordability among economically weaker households.

5.6 Institutional Adequacy and Operational Efficiency of UPHCs

Operational efficiency of Urban Primary Health Centres significantly influenced healthcare accessibility and patient satisfaction among respondents. Institutional analysis conducted across 44 UPHCs revealed moderate institutional adequacy with variations in staffing, medicine availability, infrastructure, and diagnostic facilities across Urban Local Bodies.

Table 6: Availability of Medicines and Diagnostic Facilities at UPHCs

Variables	Adequate	Moderate	Inadequate
Medicine Availability	188	146	66
Diagnostic Facilities	124	168	108
Staffing Adequacy	118	154	128
Infrastructure Facilities	132	162	106

Source: Field Survey Data, 2025.

The table reveals that medicine availability remained relatively satisfactory in several UPHCs. However, diagnostic facilities, staffing adequacy, and infrastructure limitations continued to affect operational efficiency and healthcare service delivery under NUHM.

5.7 Role of ASHA and ANM Workers

The study found that ASHA and ANM workers played a crucial role in strengthening healthcare awareness, maternal healthcare participation, immunization coverage, referral services, and preventive healthcare outreach among urban slum households.

Table 7: Role of ASHA and ANM Workers in Healthcare Awareness

Activities	Highly Effective	Moderately Effective	Less Effective
Maternal Health Awareness	242	118	40
Immunization Awareness	228	126	46
Referral Services	214	132	54
Health Camp Awareness	196	144	60

Source: Field Survey Data, 2025.

The findings indicate that frontline healthcare workers significantly contributed toward improving healthcare participation and preventive healthcare awareness among vulnerable urban populations.

5.8 Regression Analysis: Determinants of Healthcare Utilization

Regression analysis was employed to examine socio-economic determinants influencing healthcare utilization under NUHM.

Table 8: Regression Analysis Results – Determinants of Healthcare Utilization

Variables	Regression Coefficient	t-value	Significance
Household Income	0.412	4.862	0.001
Education	0.286	3.944	0.003
Healthcare Awareness	0.524	5.781	0.000
Migration Status	-0.184	-2.116	0.028
Social Security Coverage	0.338	4.122	0.002

Source: Computed from Field Survey Data, 2025.

The regression results indicate that healthcare awareness, household income, education, and social security coverage positively influenced healthcare utilization. Migration status negatively affected healthcare utilization due to instability and lack of institutional support mechanisms.

5.9 Chi-Square Analysis

Chi-Square analysis was conducted to examine relationships between socio-economic variables and healthcare utilization patterns.

Table 9: Chi-Square Test Results – Income and Healthcare Utilization

Variables	Chi-Square Value	Degrees of Freedom	Significance
Income & Utilization Frequency	18.442	6	0.005
Occupation & Accessibility	16.284	8	0.012
Awareness & Healthcare Utilization	22.617	4	0.001

Source: Computed from Field Survey Data, 2025.

The results confirm statistically significant relationships between socio-economic variables and healthcare utilization patterns among urban slum households.

5.10 Major Problems Faced by Respondents

Despite improvements in healthcare accessibility under NUHM, respondents continued to experience several institutional and operational barriers affecting healthcare utilization.

Table 10: Major Problems Faced by Respondents in Accessing Healthcare

Problems	Frequency	Percentage
Transportation Difficulties	142	35.5
Waiting Time	118	29.5
Inadequate Medicines	76	19.0
Diagnostic Facility Shortage	42	10.5
Staff Shortage	22	5.5

Source: Field Survey Data, 2025.

Transportation difficulties and long waiting time emerged as the major barriers affecting healthcare accessibility among urban slum households. Institutional inadequacies such as shortage of medicines, staffing limitations, and diagnostic facility constraints also affected operational efficiency of healthcare delivery systems under NUHM.

6. MAJOR FINDINGS

The present study examined healthcare accessibility, affordability, utilization, institutional adequacy, and operational efficiency of healthcare services functioning under the National Urban Health Mission (NUHM) among urban slum households in Kurnool district. Based on empirical analysis and statistical interpretation, the following major findings were identified:

1. The study found that NUHM significantly improved accessibility and utilization of primary healthcare services among urban slum populations through Urban Primary Health Centres (UPHCs), preventive healthcare programmes, and community healthcare outreach activities.
2. Household income, educational attainment, healthcare awareness, and social security coverage positively influenced healthcare utilization among respondents. Regression analysis confirmed statistically significant relationships between socio-economic variables and healthcare utilization patterns.
3. Economically weaker households depended substantially on public healthcare services because private healthcare expenditure remained unaffordable for vulnerable urban populations.
4. ASHA and ANM workers played a significant role in improving healthcare awareness, maternal healthcare participation, immunization coverage, referral support, and preventive healthcare participation among urban slum households.
5. UPHCs substantially reduced direct healthcare expenditure through free consultations, subsidized medicines, immunization services, and preventive healthcare programmes.
6. Despite improvements under NUHM, indirect healthcare costs such as transportation expenditure, wage loss during illness, and diagnostic expenses continued to affect affordability among economically vulnerable households.
7. Daily wage labourers, migrant workers, and informal sector workers experienced relatively greater healthcare accessibility problems due to unstable income and opportunity costs associated with healthcare visits.
8. Institutional analysis revealed moderate operational efficiency among UPHCs. However, staffing shortages, inadequate diagnostic facilities, overcrowding, medicine shortages, and infrastructural limitations continued to affect healthcare service delivery.
9. Significant inter-ULB disparities existed in healthcare accessibility, staffing adequacy, infrastructure facilities, and operational efficiency of healthcare institutions.
10. Transportation difficulties and long waiting time emerged as major barriers affecting healthcare accessibility among urban slum populations.

7. POLICY SUGGESTIONS

Based on the findings of the study, the following policy suggestions are proposed for strengthening healthcare accessibility and operational efficiency under the National Urban Health Mission:

7.1 Strengthening Urban Primary Healthcare Infrastructure

Government authorities should strengthen healthcare infrastructure in Urban Primary Health Centres by improving building facilities, waiting areas, sanitation facilities, medicine storage

systems, and diagnostic infrastructure. Expansion of healthcare infrastructure is necessary to address increasing patient load in urban slum areas.

7.2 Recruitment of Healthcare Personnel

There is an urgent need to increase recruitment of doctors, nurses, laboratory technicians, pharmacists, and support staff in UPHCs. Adequate staffing is essential for improving quality of healthcare services and reducing overcrowding in healthcare institutions.

7.3 Expansion of Diagnostic Facilities

Diagnostic services should be expanded within UPHCs to reduce dependence on private diagnostic centres. Availability of basic laboratory services and diagnostic equipment can significantly reduce indirect healthcare expenditure among vulnerable urban households.

7.4 Reducing Indirect Healthcare Expenditure

Government authorities should introduce transportation support mechanisms and healthcare assistance schemes for economically weaker households. Reduction of transportation expenditure and wage loss can improve healthcare accessibility among daily wage labourers and migrant workers.

7.5 Strengthening Healthcare Awareness Programmes

Community healthcare awareness programmes should be strengthened through health camps, outreach programmes, digital awareness campaigns, and community participation mechanisms. Greater emphasis should be given to preventive healthcare awareness among urban slum households.

7.6 Institutional Support for ASHA and ANM Workers

ASHA and ANM workers should be provided adequate incentives, training programmes, and institutional support mechanisms for improving effectiveness of community healthcare outreach activities under NUHM.

7.7 Strengthening Healthcare Governance and Monitoring

Digital healthcare governance systems, healthcare monitoring mechanisms, and institutional accountability frameworks should be strengthened for improving transparency and operational efficiency in urban healthcare delivery systems.

7.8 Equitable Allocation of Healthcare Resources

Government authorities should ensure equitable allocation of healthcare infrastructure, staffing, and financial resources across Urban Local Bodies in order to reduce disparities in healthcare accessibility and service quality.

8. CONCLUSION

Urban health inequalities have emerged as one of the most important public health challenges associated with rapid urbanization in India. Economically vulnerable urban populations residing in slum settlements continue to experience multiple socio-economic and institutional barriers affecting healthcare accessibility, healthcare affordability, and healthcare utilization. In this context, the National Urban Health Mission represents an important policy initiative aimed at strengthening urban primary healthcare systems and improving healthcare accessibility among vulnerable urban communities.

The present study revealed that implementation of NUHM significantly improved healthcare accessibility, preventive healthcare participation, healthcare awareness, and utilization of

subsidized healthcare services among urban slum households in Kurnool district. Urban Primary Health Centres played a major role in reducing direct healthcare expenditure and strengthening availability of primary healthcare services among economically weaker populations.

The study further found that ASHA and ANM workers contributed substantially toward improving healthcare awareness, maternal healthcare participation, immunization coverage, and continuity of healthcare services. Statistical analysis confirmed that socio-economic variables such as household income, educational attainment, healthcare awareness, and social security coverage significantly influenced healthcare utilization patterns among respondents.

However, despite these improvements, several institutional and socio-economic challenges continue to affect operational efficiency and sustainability of healthcare services under NUHM. Transportation difficulties, indirect healthcare expenditure, staffing shortages, infrastructural inadequacies, overcrowding, and limited diagnostic facilities remain major barriers affecting healthcare accessibility among vulnerable urban populations.

The study therefore concludes that strengthening healthcare infrastructure, improving institutional manpower, expanding diagnostic facilities, reducing indirect healthcare expenditure, and strengthening community healthcare outreach systems are essential for improving effectiveness and sustainability of urban healthcare governance under the National Urban Health Mission.

The findings of the study may contribute toward strengthening public healthcare policy, improving operational efficiency of Urban Primary Health Centres, and enhancing equitable healthcare accessibility among urban slum populations in India.

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