

Public Healthcare Financing and Rural Health Service Delivery in Meghalaya

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Abstract: This study aims to analyse the effect of public healthcare financing on healthcare services in the rural areas of Meghalaya with a particular emphasis on accessibility, infrastructure, and the effectiveness of the services. The study employed quantitative method with descriptive and analytical type of research. A structured questionnaire was used to gather data from 150 respondents, of who were rural healthcare beneficiaries, healthcare workers, medical officers and government health officials. Statistic tools as correlation and regression analysis were performed using SPSS 27 and MS Excel. The results showed that the effects of public funding of health care services in rural areas are largely positive for the quality of the services. Furthermore, it was found that funding of healthcare had a positive relationship with healthcare accessibility for the rural population. The study underscores the need for proper financial planning, fair distribution of health facilities and better investments by the government to make the rural healthcare system strong in Meghalaya. But there are still challenges with infrastructure and the distribution of resources to ensure effective health services.

Keywords: Public Healthcare Financing, Rural Health Services, Healthcare Accessibility, Meghalaya, Healthcare Infrastructure

1. Introduction

India houses almost one-sixth of the world's population and has undergone swift economic expansion in the past decade. Advancements in population health during this period have been minimal, characterised by the highest global incidence of tuberculosis and an increasing prevalence of chronic non-communicable diseases, alongside elevated rates of child malnutrition, stunting, and maternal and neonatal mortality in numerous states. The Government of India now allocates only 1.3% of GDP to healthcare, representing one of the lowest public health expenditures globally (Nengnong, et al., 2024).

Nonetheless, the Government is dedicated to attaining “Universal Health Coverage (UHC) for the Indian populace”. Every penny designated for health must be employed wisely to maximise population health outcomes within the limits of limited resources. Health is primarily a responsibility of the state within India's federal structure; however, the central government has a substantial role in the development and implementation of health programs and services in partnership with state governments through the public healthcare network (PK, 2020). Both the central and state governments have enacted diverse initiatives to augment resources for basic healthcare services, enhance accessibility and quality of care, and offer financial risk protection against catastrophic health costs for the most impoverished households (Dutta, et al., 2022; 2).

The public health infrastructure serves as a crucial metric for assessing the healthcare policy of a welfare state, as it enables the prevention of both communicable and non-communicable diseases, facilitates health promotion, and supports healthcare improvement planning. Quality health infrastructure is defined as the capacity to access effective care efficiently and equitably for the health benefit of the entire community (Passah, et al., 2022).

Nevertheless, evidence indicates that the provision of maternal health care services within India's public health care system is inadequate regarding infrastructure, which significantly impairs accessibility and sufficient availability for disadvantaged women. The National Health Profile indicates that public expenditure on the health sector in India constitutes about 1.28% of its GDP, a figure that is comparatively low relative to other

nations globally. The Rural Health Statistics indicate that insufficient public expenditure on the health sector leads to inadequate health facilities and poor maintenance, resulting in the majority of the Indian people experiencing a lack of access to competent public healthcare (Kumar, & Shobana, 2024).

The deficiencies of the public health sector are evident from outcome indicators such as the current rates of mortality and morbidity in the country. “The most recent information from the sample registration system indicates that India's maternal mortality ratio (MMR) is 130 per 100,000 live births. Despite a drop in maternal mortality ratio (MMR), it remains well below the Sustainable Development Goals (SDGs) target of reducing MMR to less than 70 per 100,000 live births by 2030”. This outcome indicator is strongly correlated with the availability of health infrastructure in the state (Momin, & Dutta, 2021; 1-2).

“The North-Eastern region consists of eight states: Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura”. The North-Eastern region is recognised for its diversity, seen in both its economic and social characteristics across the states. The states differ in their chosen culture, traditions, and demographics. All states, except Assam, heavily depend on agriculture as their primary source of income due to limited options for income-generating activities (Marwein, & Rao, 2020).

The distinction is also noted regarding Assam, classified as a large state according to the Sample Registration System, whereas the other North-Eastern states are categorised as minor states. Assam is the most densely populated state, succeeded by Tripura, while Arunachal Pradesh has the lowest population density. The Government of India has been implementing policies to ensure equal allocation of resources to enhance the conditions of these tiny and underdeveloped states, aiming to elevate to the same level as other states in India (Rymbai, & Thangkhiew, 2020; 1-6).

The aim of this study is to examine the role of public healthcare financing in improving rural health service delivery in Meghalaya. The study seeks to analyse how government expenditure, budget allocation, and healthcare funding mechanisms influence the accessibility, quality, and efficiency of healthcare services in rural areas. It also aims to identify the major challenges faced in the implementation of public health programs and evaluate the effectiveness of healthcare infrastructure, medical personnel, and service delivery systems in meeting the healthcare needs of the rural population.

2. Review of Literature

Sarmah, A. B. and Ganguly, A. N. (2026) examined the evolution and functioning of health systems in HP districts since 2023, aiming to increase infrastructure, healthcare worker availability, accessibility to health services, and national health programs. This qualitative research design and secondary analysis of government reports, policy documents and scholarly literature revealed that while there have been improvements in primary healthcare facilities, institutional deliveries and child health indicators, there are still challenges of insufficient doctors and medical equipment in rural settings. The study concluded that for the sustainable improvement of health care, better governance, and better incentives for the healthcare workforce, and digital health interventions were needed.

Gangopadhyay, S., & Das, S. (2025) analysed the changes in important maternal and child health outcomes are evaluated and frontline workers are asked about gaps in health care services. The study utilized a convergent mixed-methods approach, integrating secondary data analysis of national surveys and data from the Meg Health dashboard with qualitative interviews of frontline healthcare workers. The results showed the progress achieved in maternal and child health care services, institutional delivery, antenatal care, and immunization coverage but that socio-cultural barriers, geographical problems, and coordination problems remained as challenges to service delivery. The study found that digital health efforts, financing and better health system coordination were critical for enhancing maternal and child health outcomes.

Jyrwa, D. D., et al., (2025) investigated the spatial distribution, significance, and efficiency of the healthcare delivery system in the north eastern state of Meghalaya, India. The study, using secondary data gathered from the Statistical Handbook of 2022 and analytical methods such as Z-score standardisation, correlation matrix analysis using SPSS, reveals inequalities in healthcare access and performance at the district level. The results show that the more connected and urbanized the districts, the more efficient the district's healthcare, “such as East Khasi Hills and West Garo Hills”, whereas the other districts that are remote and less developed have infrastructural and personnel deficiencies. The study recommends strategic actions to build up the capacity of primary health care (PHC) and enhance health outcomes, especially for the less served.

Kumar, J. S., & Shobana, D. (2025) explored the trends in public health spending in “the eight North Eastern states of India, namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura for the period 2012-2020”. The research analysis, based on data from official government sources on expenditure at the State level, reveals considerable variation in budget allocation, growth trends and efficiency of healthcare investments across the region. Socio-political factors and governance models and their impact on policy implementation are also explored in the study. The study recommends specific policy interventions based on the findings to improve health financing equity in the region, access to quality health services and sustainable health outcomes in the North East region.

Kadarpeta, R. S. R., et al., (2024) explored the effect of public funding of healthcare and the recent reforms of Ayushman Bharat on enhancing financial protection and primary healthcare services. Goals addressed the assessment of government financing mechanisms, Health and Wellness Centres and incentives for the healthcare workforce. The study employed a qualitative and policy research approach that involved analysing health policies, financing mechanisms and national health initiatives. The results indicated that greater government funding led to better primary health care infrastructure and service delivery, but issues of funding alignment, accountability and implementation still remained. The study found that effective sustainable financing, proper payment systems, and enhanced accountability systems were crucial for sustaining better healthcare outcomes and system resilience.

Rymbai, M. S., & Thangkhiew, D. W. (2022) analysed NES and public health resources' PHI. The study has used the Euclidian Distant Method (EDM) that satisfies a multitude of compulsive and instinctive properties: normalization, symmetry, monotonicity, proximity, uniformity and inclusiveness as the signalling properties. This approach is the ranking of states based on infrastructure available and public health resources. The analysis done in the EDM reveals that the Arunachal Pradesh district stands the highest in the Index of Public Health Infrastructure, while Assam district is ranked the lowest. The trends in the Index of Public Health Resources are interesting. Assam has been at the bottom of the list and fluctuated between the bottom and middle ranks among the other NES. The correlation of the indices is positive but not promising.

Gogoi, M., et al., (2021) examined the present scenario of the healthcare infrastructure in rural areas and focuses on assessing their problems in North Eastern Region of India. “The study based on secondary data only. The number of SCs, PHCs and CHCs are found deficient in the NER as compared to the national average, especially in the rural areas”. The study revealed that the health care infrastructure improvement in NER of India has been found to be unequal hence it is not satisfactory.

2.1 Research Gap

The previous research work on the public health services in the North-Eastern region of India had been mostly related to healthcare infrastructure, maternal and child health services, pattern of public expenditure and policy reforms (Sarmah & Ganguly, 2026; Gangopadhyay & Das, 2025; Kumar & Shobana, 2025). Furthermore, the studies by Jyrwa et al. (2025), Rymbai and Thangkhiew (2022) and Gogoi et al. (2021) focused mainly on infrastructural gaps and accessibility to health services. But there was little specific literature focusing on the

effects of public funding of health services in rural areas in Meghalaya. Moreover, little attention had been paid to the understanding of the role of funding mechanisms in terms of their impact on healthcare quality, efficiency of healthcare workers and sustainability of rural healthcare services, which was considered as a significant gap in the existing literature.

3. Research Methodology

The study used a quantitative research design to explore the effect of public healthcare financing on the delivery of health services in rural areas in Meghalaya. A descriptive and analytical research design was used and the subjects were beneficiaries of rural health care services, healthcare workers, and health care officials in the public health care institutions. Stratified random sampling technique was used and the number of respondents was 150. The information has been gathered from the primary and secondary sources with the help of a close-ended structured questionnaire. The independent variables were public healthcare financing and healthcare funding allocation, and the dependent variables were rural health service delivery effectiveness and accessibility of healthcare. The data collected were analysed statistically with MS Excel and SPSS 27 which includes mean, standard deviation, correlation and regression analysis.

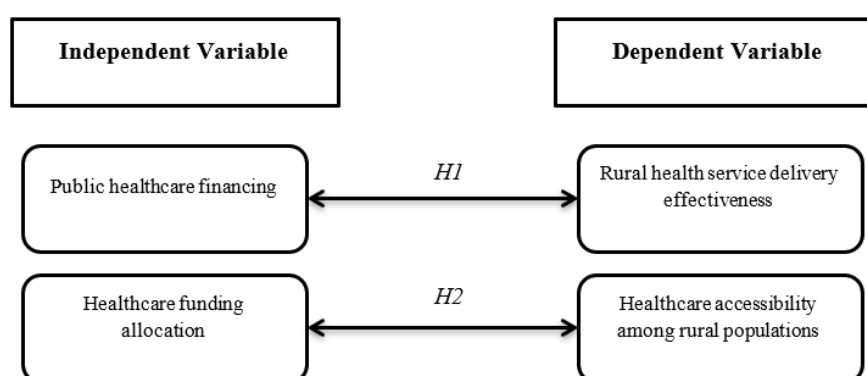


Figure 1: Conceptual Framework

Source: Author's own compilation

4. Results

4.1 Results based on demographic profile of the respondents

Table 1: Demographic Characteristics

S. No.	Demographic Characteristics	Category	N	%
1	Gender	Male	75	50.0
		Female	75	50.0
2	Age Group	Below 30 years	28	18.7
		30–39 years	26	17.3
		40–49 years	36	24.0
		50–59 years	32	21.3

		Above 60 years	28	18.7
3	Educational Qualification	Secondary Education	36	24.0
		Higher Secondary Education	26	17.3
		Undergraduate Degree	33	22.0
		Postgraduate Degree	23	15.3
		Technical Qualification	32	21.3
4	Respondent Category in Public Healthcare System	Rural Healthcare Beneficiary	49	32.7
		Healthcare Worker	39	26.0
		Medical Officer/Administrator	36	24.0
		Government Health Official	26	17.3
5	Location	West Garo Hills	150	100

Table 1 show that the respondents' demographic profile is balanced, which provides reliability and inclusiveness for the study. The gender distribution was even, with 50% male and 50% female respondents, which gave an unbiased view of both sexes. The highest proportion of the respondents (24.0%) was in the age group of 40–49 years, and the lowest proportion (18.7%) was for those aged 60 years and above, its respondents aged below 30 years (18.7%). From an educational qualification perspective, secondary education respondents made up the highest percentage (24.0%), followed by undergraduates (22.0%) and technical qualification holders (21.3%). The respondents covered various aspects of the public healthcare system, including rural healthcare beneficiaries (32.7%), healthcare workers (26.0%), medical officers/administrators (24.0%), and government health officials (17.3%). Furthermore, the study sample was comprised of West Garo Hills (100%) areas.

4.2 Results based on objectives and hypothesis

Objective 1: To examine the impact of public healthcare financing on the effectiveness of rural health service delivery in Meghalaya.

H1: Public healthcare financing has a significant positive impact on the effectiveness of rural health service delivery in Meghalaya.

Table 2: Regression table

Hypothesis	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Hypothesis Result
H1	Public healthcare financing> Rural health service delivery effectiveness	.218	.047	4.884	2.210	0.000	Supported

The regression analysis table 2 results show that public healthcare financing significantly positively affects the effectiveness of delivering health services in rural areas. From the point of view of the β coefficient value (0.218), the improvement of the financing of public healthcare impacts positively on the effectiveness of the delivery of healthcare services in rural areas. The coefficient of determination ($R^2 = 0.047$) indicates that this could be said to be a low 4.7% of the variation of the effectiveness of the delivery of health services in rural settings is explained by public healthcare financing. In addition, “the p-value for the F-value is 4.884 and for t-value is 2.210 which mean that the regression model is statistically significant. The p-value (0.000) is below the critical value of 0.05”, indicating that the relationship between the public healthcare financing and the effectiveness of health service delivery in rural communities is statistically significant. Thus, the hypothesis H1 is confirmed, meaning that the more the public healthcare financing is increased and efficient, the more effective is the rural health services.

Objective 2: To analyse the relationship between healthcare funding allocation and healthcare accessibility among rural populations in Meghalaya.

H2: Healthcare funding allocation is significantly associated with healthcare accessibility among rural populations in Meghalaya.

Table 3: Correlation table

Hypothesis	Factor			Correlation		Hypothesis Result
		Mean	SD	Pearson Correlation [r]	Sig value	
H2	Healthcare funding allocation	10.5800	2.64071	.300**	.002	Supported
	Healthcare accessibility among rural populations	9.3000	2.78343			
*. Correlation is significant at the 0.05 level [2-tailed].						

The results of the correlation analysis table 3 indicate that there is a positive and statistically significant association between healthcare funding allocation and healthcare accessibility among rural populations. The Pearson correlation coefficient value ($r = 0.300$) points towards moderate positive association, meaning that an increase in allocation of healthcare funds leads to an improvement in the accessibility of healthcare services in the rural area. “The significance value ($p = 0.002$) is less than 0.05, which indicates that the relationship is not random and is indeed statistically significant. Healthcare funding allocation got a mean score of 10.58 and a standard deviation of 2.64071”, and healthcare accessibility in rural population received a mean score of 9.30 and a standard deviation of 2.78343. The results confirm Hypothesis H2 and suggest that efficient and just funding of healthcare is an important factor in enhancing healthcare utilization in rural areas.

5. Discussion

The study findings reveal that public health funding is crucial to support health service delivery in rural areas of Meghalaya. Financial allocation is a significant factor to enhance the accessibility of medical services, medicines, healthcare infrastructure, and medical equipment in rural areas (Sengupta, 2025). The study noted that government spending on health care is seen as one of the most significant determinants of accessibility and quality of healthcare services by the respondents (Hossain, 2019). Rural populations can access medical services in time due to increased funding support which enables public healthcare institutions to recruit trained healthcare professionals, enhance primary healthcare facilities (Nongdhar, et al., 2018). Moreover, good

governance of healthcare funds could lead to successful implementation of every other aspect of healthcare, which further demonstrated a positive correlation between financial management of healthcare and the effectiveness of healthcare delivery, both for reducing disparities in healthcare access among remote communities and for improving patient satisfaction, healthcare outreach and overall rural health outcomes in Meghalaya (Albert, et al., 2019).

The study also found that the efficiency and accessibility of healthcare services in rural areas are significantly affected by the allocation of funding. It highlighted that insufficient financial resources frequently result in insufficient number of health workers, poor health infrastructure and service delays at the rural health institutions (Duggal, & Jadhav, 2018). It was noted that adequate funding allocation led to better access to healthcare, better functioning of preventive healthcare programmes and better functioning of public health centres (Lahariya 2018). The study also showed that strategic healthcare financing could contribute to sustainable rural healthcare development by providing continuous monitoring, implementing welfare schemes, and expanding healthcare services to the underserved population (Chatterjee, et al., 2018). Furthermore, the participation of healthcare beneficiaries, healthcare workers, and government officials in a balanced manner provided comprehensive insights into challenges and opportunities related to public healthcare financing. Hence the study concludes that it is important to have efficient financial planning and transparent allocation of healthcare resources for improving the health service delivery in rural areas of Meghalaya (Singh, et al., 2019).

6. Conclusion

The study concludes that public healthcare financing has a significant impact on enhancing the healthcare service delivery in rural areas in Meghalaya. The provision of sufficient budget allocation and good governance help to improve access to healthcare, improve infrastructure, increase number of medical personnel and quality of healthcare services in rural areas. The study results indicated that effective use of funds leads to the improvement of the operation of public health institutions and health results of rural people. Nevertheless, the lack of infrastructure, shortage of health care professionals and inequities in distribution of health care resources remain barriers to service delivery. Hence, it is essential to have clear financial planning and sustainable investment in healthcare in Meghalaya, to make the healthcare system stronger in the rural areas.

✓ Implications, Limitation and Future Research Direction

The study has significant policy relevance for the hospital financing and allocation of public health resources in the rural areas of Meghalaya, and the need for efficient financing of health services. The results can help government officials plan how to make health care more accessible and improve the infrastructure in under-served areas. But the study has only a small number of respondents, 150, and it is only in selected rural and semi-rural areas of Meghalaya, so the findings may not be broader and more generalizable. There is a scope for further research with larger samples, comparative studies across various North-Eastern states, and qualitative studies to have a better insight into the challenges in healthcare financing, policy implementation, and sustainability of healthcare in the rural areas of India.

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