International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Enhancing Primary Health Accessibility for Elderly Citizens in Remote Indian Villages: The Mobile Medical Unit Initiative

Banoj Kumar Mahanta[1], Sameni Narayan Rao[2]

[1]Manager, Monitoring, Evaluation and Learning Department, The Hans Foundation
[2]Senior Manager, Monitoring, Evaluation and Learning Department, The Hans Foundation

Abstract:
This study aimed to address the escalating health challenges faced by India's elderly population, which is projected to reach 300 million by 2050, emphasizing the surge in chronic health conditions. The Rural areas, housing 69% of the elderly, grapple with inadequately equipped health facilities and limited access to essential services, contributing to high out-of-pocket expenditures. Health-seeking behaviour is intricately linked to factors such as availability, affordability, and accessibility, revealing disparities influenced by income and urban-rural differences.
The Hans Mobile Medical Unit (MMU) project, initiated by The Hans Foundation, is being implemented across eight states in the country. This research study is conducted in 4 states, evaluates the project's impact on elderly beneficiaries, with a focus on health-seeking behaviour, prior challenges, and satisfaction levels.
The results indicate a substantial reduction in out-of-pocket expenditures (71%), with notable improvements in health conditions reported by 99% of elderly beneficiaries. Major diseases include high blood pressure and back & neck pain. The project has successfully provided free medicines, diagnostics, home visits, and referrals, catering specifically to the elderly population.
Despite certain limitations, including the cross-sectional design and state-specific focus, this study contributed essential insights for policymakers and healthcare practitioners working towards inclusive and accessible healthcare for the elderly in rural India.

Keywords: MMU project, Out of Pocket Expenditure, Elderly, Fixed time fixed place, primary health service, community mobilization

Introduction:

According to the National Statistical Office (NSO) of India, the estimated population of India aged 60 years and above in 2023 is 138 million. The NSO projects that the population of India aged 60 years and above will reach 220 million by 2031 and 300 million by 2050.
This means that the elderly population in India is growing rapidly, and with this growth comes an increase in the prevalence of chronic health conditions. Some of the most common health issues faced by the elderly in India include Cardiovascular Diseases, Diabetes, Chronic Obstructive Pulmonary diseases (COPD), Dementia etc. These are just some of the most common health issues faced by the elderly in India.

Therefore, It is important for elderly people to get regular check-ups and to manage their chronic health conditions.

According to the 2011 census, 69% of the elderly population in India lives in rural areas. And The status of health facilities in rural India is a major concern. According to the World Health Organization, only 54% of rural Indians have access to essential health services, compared to 81% of urban Indians.

The rural health facilities are poorly equipped and lack basic amenities, such as clean water and electricity and even there is acute shortage of doctors, nurses , and other healthcare workers and many health facilities are located away from the communities.[1] This makes it difficult for people to access healthcare, especially for those who are sick , disabled or elderly. Since many elderly people in India do not have easy access to healthcare services it must have results to high out of pocket expenditure in regard to treatment of any illnesses being suffered by them.

There has been considerable amount of evidences that suggests that the health seeking behaviour for elderlies depends upon several underlying factors namely availability, affordability and accessibility of healthcare, healthcare consciousness of the people, the responsiveness of health care service providers, fees charged by healthcare providers and long waiting time to seek treatment.[2] About 60% of older people in low-income countries did not access health care because of the cost of the visit.[3] Health seeking behaviour and wealth had a significant relationship with each other, higher the person's wealth quintile the more likely the person can seek care (World Health Organization, 2017). Also, familiarity and accessibility of health care providers play essential roles in health-seeking behaviour of elderly. The flexibility of health care providers in receiving payment was a crucial deciding factor of whether or not to seek treatment, and even the type of treatment sought.[4] It can be stated that untreated morbidity was concentrated among poor people and more so for older than their younger counterpart (Pandey, Ploubidis, Clarke, & Dandona, 2017).[5] It has been found that income-related inequities and inequalities in health care utilisation are a prominent concern for elderly well-being. Moreover, it was found that not only utilisation but also reporting of ailments displays a pro-rich bias, whereas it was expected that sickness will be concentrated among the poorer sections.[6] The urban-rural regional difference was the most important predictor of treatment-seeking behavior, which may be explained by better access to medical services in urban areas.[7]

The accessibility to primary health services is found to be one of significant challenge encountered by the elderlies for seeking health services. In order to mitigate the accessibility related issues, Mobile Medical Unit (MMU) is an innovative model of healthcare delivery that could help alleviate health disparities in vulnerable populations and individuals with chronic diseases. Indeed, some studies have concluded that MMUs are particularly impactful in the following contexts: offering urgent care, providing preventative health screenings, and initiating chronic disease managements. By opening their doors directly into communities and leveraging existing community assets, MMUs can offer tailored, high-impact and affordable health care that responds dynamically to the community's evolving needs.

Hans Mobile Medical Unit Project :

The Hans Foundation (THF) is running more than 300 MMUs in 8 states of India to provide door to door free medical and diagnostics services to people of rural areas. The project was initiated in 2021.

Goal : People in remote areas are able to access quality health services, thereby improving their overall well-being.

Objective : Free quality primary health services are available in target villages benefitting the community especially marginalised and unserved groups.

Strategy : The four broad strategies:

- Fixed Time Fixed Place Principle : Ensures regularity as every village is visited on a fixed day once in fifteen days which is preceded by the active mobilization activities.
- Standard Package of Services : Including the availability of a set of free medicines, provision of a set of diagnostic tests, counselling, home visits, follow-up & referral care.
- Collaboration with the Government : Liaison with health departments, engaging health functionaries (ASHA/ANM/AWW) at the village level.
- Community Involvement and Awareness Generation : Mobilize PRI members and the opinion makers of the village.

Hans Mobile Medical Unit, has been operational for over one year since its inception . In the FY 2022-23, The project has benefitted more than 10.6 lakh of unique beneficiaries by providing free medicines and lab tests. Among the beneficiaries ,approximately one third are the elderlies (60+ years age) patients. Particularly to Elderly patients, apart from regular clinical services like medication, diagnosis test and referrals , the MMU clinical team often provided specific services like home visits and follow ups as well. A short cross sectional study was conducted to understand the impact of health services and beneficiary's (Elderly patients) viewpoints for the Hans Mobile Medical Unit project. Also, the study attempts to reflect the treatment-seeking behaviour among the elderly for chronic and infectious diseases.

Objectives of the Study :

1. To assess the impact of Mobile Medical Unit (MMU) services on improving health outcomes, healthcare utilization, and overall well-being among elderly individuals residing in remote locations in India.

Methodology:

Study Design : A cross-sectional community-based study was conducted. The information collected using a quantitative data collection methods.

Sampling Methodology : Four states namely Himachal Pradesh, Uttarakhand, Uttar Pradesh and Jharkhand were purposively selected. Then a list of MMUs prepared that has initiated its services for more than 6 months. From the list, 10 MMUs from each state were selected randomly except Himachal Pradesh where 5 MMUs were selected . Overall, 35 MMUs were randomly selected for this research study.

From the identified MMUs in four states, elderly patients visiting the MMUs were recruited randomly for the interviews. Considering 90% CI , 5% margin of error and 10% non-response rate, a sample of 300 respondents were targeted to be covered for the study. And the target the sample size was covered during the data collection.

Target Respondent group: Elderly of age 60 years and above who have taken services from the MMUs.

Data Collection : The survey questionnaire was developed and digitized for use on Commcare a mobile data collection platform . The investigators for the study were recruited locally from four states and provided detailed orientation on the questionnaire and mobile data collection application. The tool was field-tested and refined before the actual survey. The tool comprised of 3 sections like Socio-demographic details , About the health services taken before and About health services from MMUs. The data collection completed in 7 days (13th March-20th March).

Sample Coverage : Overall, 301 respondents from four states were interviewed. The state specific sample are depicted below:

Table 1: Sample Coverage

State	N	%
Himachal Pradesh	38	13
Jharkhand	99	33
Uttar Pradesh	87	29
Uttarakhand	77	26
Total	301	100

Ethical Consideration : The informed consent were taken from the all respondents before the data collection. The personal data like address , phone no. were not collected to ensure the confidentiality of the respondents.

Results:

1. Socio-Demographic Characteristics of Respondents

a. Age of Respondents: Of the total respondents, 71% were in between 60-70 years age.

Table 2 : Sample by age group

Age group	N	%
60-70	214	71
70-80	71	24
Above 80	16	5

b. Religion of Respondents: Of the total respondents, Mostly (87%) were from Hindu religion.

Table 3 : Sample by religion group

Religion	N	%
Christian	6	2
Hindu	262	87
Muslim	21	7
Other	12	4

c. Caste of Respondents : Of the total respondents, Mostly (40%) were from General category followed by OBC (32%).

Table 4 : Sample by Caste category

Caste Category	N	%
General	119	40
OBC	95	32
SC	46	15
ST	41	14

d. Education level of Respondents : Of the total respondents, Mostly (60%) did not have any formal schooling.

Table 5 : Sample by Education level

Education level	N	%
Illiterate (No schooling)	180	60
Primary	69	23
Upper primary	24	8
Secondary	16	5
Graduate	6	2
Senior secondary	6	2

e. **Annual Household Income:** Of the total respondents, More than (80%) reported to have less than Rs 1,50,000.

Table 6 : Sample by Annual income level

Annual Income level	N	%
<150000	248	82
150000-300000	39	13
300000-500000	12	4
>500000	2	1

2. Prior to Project

a. **Major disease being suffered :** High BP and Back & Neck pain were most prevalent diseases being suffered by the elderly patients . The most preferred mode of treatment were from private hospitals (33%) and 24% of respondents were taking services from other non-registered medical practitioners. Less than 50% of respondents reported to use to the government health facilities for their clinical services prior to MMU project.

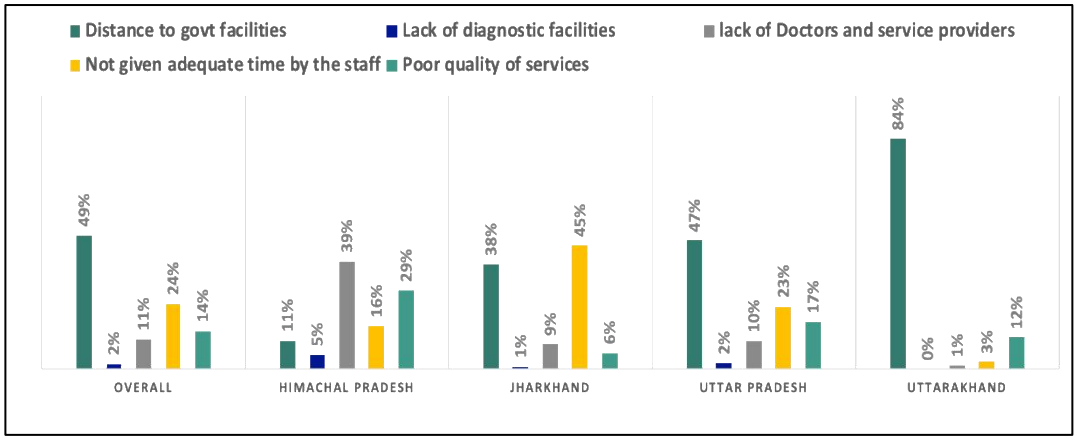
Interestingly, 16% of respondents reported that they were unware of their illness prior to MMU project. This suggest that health seeking behaviour among the elderly group is considerably low.

Figure 1 : Service Uptake status by facility

Disease	CHC	District Hospital	Home Remedies	Others (non-medical)	PHC	Private Hospital/Clinic	Sub Centers	N
High BP(Hypertension)	0%	0%	13%	63%	0%	25%	0%	66
Back and Neck Pain	0%	19%	24%	5%	0%	52%	0%	64
Other (Asthma,CVD,Dental problem,ENT,Hearing and others)	17%	17%	5%	25%	8%	25%	3%	43
Diabetes	9%	30%	9%	9%	0%	43%	0%	23
Arthritis	8%	14%	5%	27%	5%	36%	6%	21
Skin rashes	38%	25%	0%	0%	0%	25%	13%	13
Anemia	8%	23%	0%	15%	8%	38%	8%	8
High Cholesterol	0%	13%	0%	50%	0%	38%	0%	8
Visual Impairment	7%	26%	12%	30%	0%	26%	0%	8
Total	10%	19%	7%	24%	4%	33%	3%	254

b. **Challenges in Health facilities :** Distance to Govt facilities and Not being given adequate time by the health care providers at Govt facilities were the most perceived challenges reported by the respondents prior to MMU project. However, In Himachal Pradesh , The lack of qualified doctors and service providers were also major challenges reported for government health facilities. The state wise findings are presented in below figure.

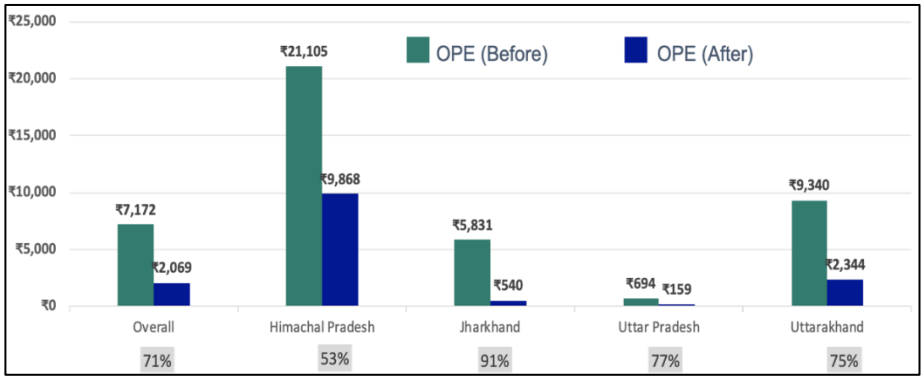
Figure 2 : Major challenges faced at facilities by states



3. Impact of the Project : View-points of Elderly patients

a. **Status of Out of Pocket Expenditure:** Overall, The Out of Pocket expenditure (OPE) has reduced by 71% as reported by the respondents. The maximum reduction was observed in Jharkhand (91%). However, In absolute terms, Himachal Pradesh shown maximum reduction (Rs.11,000). The state wise findings are presented in below figure.

Figure 3 : Changes in OPE by states



b. **Diseases being suffered :** Overall, 27% of respondents reportedly suffering from Back & Neck pain followed by High BP(23%).

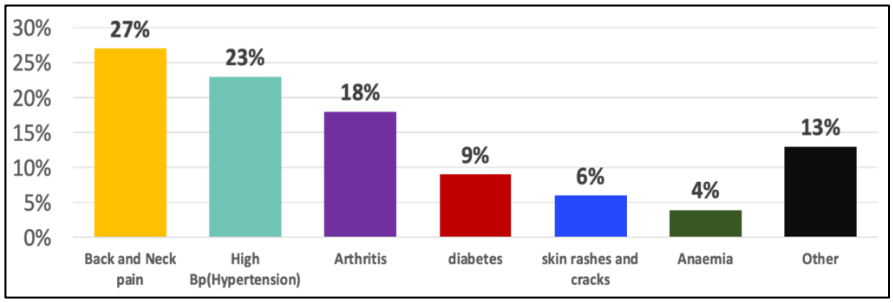
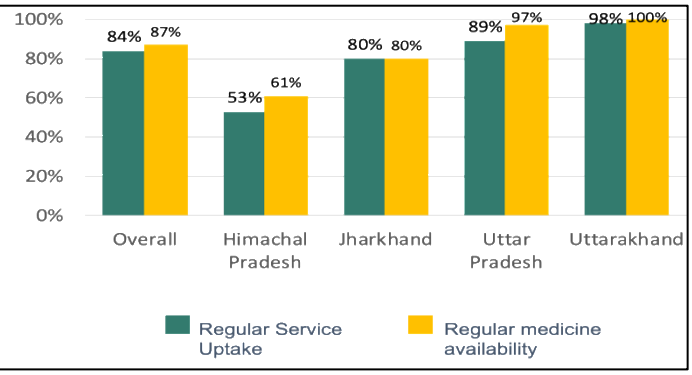


Figure 4 : Major diseases suffered by Elderlies

c. **Service Uptake Status :** Overall, the average tenure for treatment for respondents was 10 months. At overall level, 84% & 87% of respondents reportedly received regular service and medicines from the MMUs respectively. However, the service uptake status was relatively poor in case of Himachal Pradesh.

Figure 5 : Service Uptake and Medicine availability status by States

State	Average tenure of treatment(In Months)
Himachal Pradesh	11
Jharkhand	9
Uttar Pradesh	11
Uttarakhand	12
Overall	10



d. Satisfaction level for MMU services:

- **Improvement in Health Condition:** Overall, 99% of respondents reported to have improved in their health conditions due to MMU services they have received in last 1 year. The findings are same across the states. 90% of respondents have reported "Excellent" for the improvement.
- **For MMU services:** Overall, 99% of respondents are satisfied with the MMU services in their region. The findings are almost same across the states. 92% of respondents have reported "Excellent" category for MMU services.

Discussion:

The findings of this study shed light on the critical health challenges faced by the elderly population in rural India, the existing barriers to accessing healthcare, and the potential impact of the Hans Mobile Medical Unit (MMU) project in addressing these issues. The discussion is organized around key themes, including health-seeking behaviour, challenges in prior healthcare services, the impact of the MMU project, and the satisfaction levels among the elderly beneficiaries.

1. Health-Seeking Behaviour among Elderly:

The study underscores the complex relationship between health-seeking behavior and various underlying factors such as availability, affordability, and accessibility of healthcare. It aligns with existing evidence that financial constraints, along with the availability and accessibility of healthcare services, significantly influence the decision of elderly individuals to seek medical attention. The study further emphasizes the disproportionate burden of untreated morbidity among the economically disadvantaged elderly population.

2. Challenges in Prior Healthcare Services:

The research highlights the prevalent challenges faced by elderly individuals in rural areas before the implementation of the MMU project. The inadequacy of rural health facilities, including poor infrastructure, shortages of healthcare professionals, and limited access to essential services, poses significant hurdles for the elderly. This results in high out-of-pocket expenditures, particularly for those

suffering from chronic conditions. The urban-rural regional difference emerges as a crucial predictor of treatment-seeking behavior, reinforcing the importance of addressing healthcare disparities in rural settings.

3. Introduction and Impact of the Hans MMU Project:

The Hans MMU project, initiated by The Hand Foundation, emerges as a promising initiative to bridge the healthcare gap in rural India. The project's strategies, including fixed-time fixed-place principles, a standard package of services, collaboration with the government, and community involvement, align with global best practices for improving healthcare delivery. The study reveals that the MMU project has been operational for over a year, benefiting a substantial number of unique beneficiaries, with approximately one-third being elderly patients.

4. Impact Assessment and Satisfaction Levels:

The impact assessment of the Hans MMU project indicates a significant reduction in out-of-pocket expenditures for elderly patients. This reduction is attributed to the provision of free medicines, diagnostic tests, counseling, home visits, follow-ups, and referral care. The most prevalent diseases among the elderly patients include high blood pressure and back & neck pain. The reported improvements in health conditions and high satisfaction levels among the respondents underscore the project's effectiveness in delivering quality healthcare services.

5. Limitations and Future Directions:

While the study provides valuable insights into the impact of the Hans MMU project, it is essential to acknowledge certain limitations. The cross-sectional design may limit the ability to establish causal relationships. Additionally, the study focuses on a specific set of states where the MMU project is implemented, which may affect the generalizability of findings. Future research could explore the long-term sustainability of such initiatives, considering demographic changes, evolving health needs, and the scalability of the MMU model.

Conclusion:

In conclusion, the study underscores the urgent need for innovative healthcare delivery models in rural India, especially for the growing elderly population. The Hans MMU project, with its comprehensive strategies, has shown promising results in improving healthcare access, reducing financial burdens, and enhancing the overall well-being of the elderly in targeted regions. These findings contribute to the broader discourse on addressing healthcare disparities in resource-constrained settings and provide valuable insights for policymakers, healthcare practitioners, and organizations working towards inclusive and accessible healthcare for all.

Reference:

1. Sahoo, P.M. and Rout, H.S. (2023), "Analysis of public health-care facilities in rural India", *Facilities*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/F-07-2022-0098
2. Amente, T., & Kebede, B.A. (2016). Determinants of Health Service Utilization among Older Adults in Bedele Town,Illubabor Zone, Ethiopia. *Journal of diabetes & metabolism, 7*, 1-7.

3. Beard, J. R., Officer, A. M., & Cassels, A. K. (2016). The world report on ageing and health. *The Gerontologist*, *56*(Suppl_2), S163-S166.
4. Biswas, P., Kabir, Z. N., Nilsson, J., & Zaman, S. (2006). Dynamics of health care seeking behaviour of elderly people in rural Bangladesh. *International Journal of ageing and later life*, *1*(1), 69-89.
5. Pandey, A., Ploubidis, G. B., Clarke, L., & Dandona, L. (2017). Horizontal inequity in outpatient care use and untreated morbidity: evidence from nationwide surveys in India between 1995 and 2014. *Health Policy and Planning*, *32*(7), 969-979.
6. Li, C., Dou, L., Wang, H., Jing, S., & Yin, A. (2017). Horizontal inequity in health care utilization among the middle-aged and elderly in China. *International journal of environmental research and public health*, *14*(8), 842.
7. Sharma, D., Mazta, S. R., & Parashar, A. (2013). Morbidity pattern and health-seeking behavior of aged population residing in Shimla hills of north India: A cross-sectional study. *Journal of family medicine and primary care*, *2*(2), 188.