

Innovations

Socio-Economic Determinants of Health Expenditure and Insurance Coverage: A Case Study of Visakhapatnam, India

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Abstract: *This study explores the factors influencing health expenditure and insurance coverage among households in Visakhapatnam, Andhra Pradesh. Data from 224 households was analysed using statistical methods like descriptive statistics and Chi-Square tests. The results indicate that education, income, and caste significantly affect health expenditure, while occupation does not. Health insurance coverage is higher among regular salaried workers and those with secondary education, though disparities remain across different income and occupational groups. The findings underscore the importance of addressing socio-economic disparities to enhance healthcare access and financial protection for vulnerable populations.*

Key Words: *Women Health, Health Expenditure, Insurance penetration*

Introduction

The pursuit of equity in healthcare access has been a global priority since the Alma Ata Declaration of 1978, which called for universal healthcare as a means to improve and protect the health of all individuals (WHO 1978). This emphasis on equitable healthcare systems underscores the need for medical services to be distributed based on need and for healthcare costs to be aligned with individuals' ability to pay (Schieber and Maeda 1999; Purohit 2017). However, in many low- and middle-income countries, healthcare is predominantly financed through out-of-pocket payments (OOP), which can place a significant financial burden on households, especially when faced with health shocks (Wagstaff 2007).

Global health spending reached a peak of 10.8 percent of gross domestic product (GDP) in 2022, but this spending is heavily skewed in favour of wealthier nations. High-income countries, which comprise just 15 percent of the global population, account for a staggering 80 percent of total health expenditures. In stark contrast, lower-middle-income countries, which represent 43 percent of the

world's population, contribute only 16 percent to global health spending (Patricio V. Marquez and Arun Chockalingam 2024).

The sources of healthcare financing also differ significantly based on a country's fiscal capacity. In high-income nations, government spending serves as the primary funding source for healthcare. However, in poorer countries, individuals bear a much larger burden, with 44 percent of health expenditures being financed out-of-pocket. Such expenditures not only push non-poor households into poverty but also exacerbate the financial challenges faced by already impoverished households (Xu et al. 2003; Kien et al. 2016). Given the disproportionate impact of health shocks on poorer populations, particularly in the absence of robust social insurance and public healthcare infrastructure, the study of the determinants of health expenditure is crucial for understanding and addressing income-related disparities in healthcare access (Gwatkin 2000; Purohit 2019).

India faces unique challenges in managing health expenditure due to its diverse population and a growing double burden of diseases, encompassing both communicable and non-communicable diseases. Despite the launch of significant healthcare policies aimed at enhancing access to medical services, such as the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana, Arogya Sree etc., the reliance on out-of-pocket expenditure remains high, especially among the economically disadvantaged. These dynamics necessitate an in-depth exploration of the factors that influence health expenditure patterns across different demographic and socio-economic groups.

Health Care Expenditure in India

The trends in health expenditure by the general government, including both central and state levels, reveal a significant upward trajectory in both absolute terms and as a percentage of overall government spending from 2015-16 to 2022-23. Total government expenditure steadily increased from ₹3,760,611 crores in 2015-16 to a budgeted estimate of ₹8,008,684 crores in 2022-23. Within this, spending on social services rose from ₹915,500 crores to ₹2,132,059 crores over the same period, reflecting the government's increasing commitment to social welfare.

Table 1
Trends in Health Expenditure by General Government (Combined Centre and States)

Items	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23 (BE)
Total Expenditure	3760611	4265969	4515946	5040747	5410887	6353359	7453320	8008684
Expenditure on Social Services	915500	1040620	1139524	1278124	1364906	1479389	1944013	2132059
Health	175272	213119	243388	265813	272648	317687	516427	548855
percent of Health Expenditure in total Expenditure	4.7	5	5.4	5.3	5	5	6.9	6.9
% of GDP on Health Expenditure	1.3	1.4	1.4	1.4	1.4	1.6	2.2	2.1

Source: Press information bureau, Govt. of India.

Health expenditure, in particular, saw a notable rise, growing from ₹175,272 crores in 2015-16 to ₹548,855 crores in 2022-23. This growth is also evident in the percent age of health expenditure relative to total government spending, which increased from 4.7 percent in 2015-16 to 6.9 percent in 2021-22 and 2022-23. Furthermore, the proportion of GDP allocated to health expenditure also saw an uptick, moving from 1.3 percent in 2015-16 to a peak of 2.2 percent in 2021-22, before slightly declining to 2.1 percent in 2022-23. This trend highlights a growing focus on healthcare within government priorities, particularly in response to the heightened demands on public health systems during recent years.

Objectives of the Study

This study aims to analyse the determinants of health expenditure in India, highlighting the interplay between socioeconomic factors, health insurance penetration, and healthcare utilization patterns. By examining these variables, the research seeks to provide valuable insights into the barriers faced by households in accessing necessary healthcare services, particularly in times of economic strain or health crises.

Methodology

Visakhapatnam city was selected for this study due to its status as the most urbanized area in Andhra Pradesh, coupled with its diverse industrial base. The city's population comprises a wide range of groups, including formal and informal employees, self-employed individuals, various income brackets, and different caste communities. Industrialization has led to significant migration, contributing to this demographic diversity.

For data collection, a stratified random sampling technique was employed, resulting in interviews with 224 households using a pre-tested questionnaire. The data were analysed using SPSS software, with statistical techniques such as percent ages and Chi-square applied to identify differences in health expenditure across various demographic and socio-economic groups such as education, income, caste and occupation.

The research highlights the complex interplay between socioeconomic factors, health insurance penetration, and healthcare expenditure patterns. By analysing these variables, the study uncovers significant variations in health care expenditure and insurance of households. These insights contribute to a deeper understanding of the challenges in healthcare access and among different socio-economic groups.

Findings

The analysis of health expenditure as a percent age of total income across different income groups reveals notable variations. Among households with an income below ₹15,000, 33.33 percent spend less than 10 percent of their income on health, while 14.29 percent spend more than 30 percent . In the ₹15,000-20,000 income group, 30.30 percent spend less than 10 percent, and 18.18 percent spend above 30 percent on health. As income increases to the ₹20,000-25,000 range, 26.09 percent of households spend below 10 percent, while 23.91 percent exceed the 30 percent mark. Households earning between ₹25,000-30,000 show a higher proportion (31.82 percent) spending below 10 percent, but 15.15 percent still spend more than 30 percent . For those earning above ₹30,000, 27.59 percent spend less than 10 percent on health, while 20.69 percent exceed the 30 percent threshold.

Table 2
percent age of Income Spent on Health Expenditure by Different Income Groups

% of Health Expenditure in Total Income	below 15000	15000-20000	20000-25000	25000-30000	above 30000	Total
Below 10%	7 (33.33)	10 (30.30)	12 (26.09)	21 (31.82)	16 (27.59)	66 (29.46)
10-20%	6 (28.57)	8 (24.24)	9 (19.57)	16 (24.24)	17 (29.31)	56 (25.00)
20-30%	5 (23.81)	9 (27.27)	14 (30.43)	19 (28.79)	13 (22.41)	60 (26.79)
above 30%	3 (14.29)	6 (18.18)	11 (23.91)	10 (15.15)	12 (20.69)	42 (18.75)
Total	21 (100.00)	33 (100.00)	46 (100.00)	66 (100.00)	58 (100.00)	224 (100.00)

Source: Field Study

Note: Figures in brackets are percent ages

Overall, 29.46 percent of households across all income groups spend less than 10 percent of their income on health, while 18.75 percent spend more than 30 percent. This distribution indicates that while a significant portion of higher-income households can limit their health expenditure to under 10 percent of their income, a concerning percentage across all income groups, especially in the middle and lower-income brackets, face higher health-related financial burdens, with expenditures exceeding 30 percent of their total income.

Sources of Health Finance

The analysis of the sources of financing health expenditure among households reveals a heavy reliance on personal resources. A significant majority, 62.50 percent, of households finance their health expenses through their income or savings. Borrowings are the second most common source, utilized by 24.11 percent of households, indicating that a quarter of the population must resort to loans to cover healthcare costs.

Table 3
Sources of Financing Health Expenditure

Source of Finance	No	%
Income /savings of household	140	62.50
Borrowings	54	24.11
Sale of assets	16	7.14
Contributions from friends / relatives	11	4.91
Others	3	1.34
Total	224	100.00

Source: Field Study

A smaller percent age, 7.14 percent, are compelled to sell assets to meet their health expenditure, reflecting the financial strain healthcare can impose. Additionally, 4.91 percent of households rely on contributions from friends or relatives, highlighting the role of social networks in managing health-related costs. A minimal 1.34 percent of households use other unspecified sources of finance. This data underscores the financial vulnerability many households face when dealing with health expenses, with a notable proportion having to deplete savings, incur debt, or liquidate assets.

Coverage of Health Insurance

The analysis of health insurance coverage based on households' demographic and socio-economic conditions shows notable variations across different categories. In terms of caste, OBC households have the highest coverage at 79.31 percent, followed closely by ST households at 78.57 percent, SC households at 75.56 percent, and General category households at 71.05 percent. When examining income levels, households earning between ₹15,000-20,000 per month have the highest insurance coverage at 80.00 percent, while those with incomes above ₹30,000 show the lowest coverage at 70.49 percent. This suggests that insurance coverage does not consistently increase with income, indicating potential gaps in coverage among higher-income groups.

Table 4
percent age of Health Insurance Coverage based on Households
Demographic and Socio-Economic Conditions

Category	Sub-Category	YES	%	NO	%	Total
Caste	General	54	71.05	24	31.58	78
	OBC	69	79.31	18	20.69	87
	SC	34	75.56	11	24.44	45
	ST	11	78.57	3	21.43	14
Monthly Income	below 15000	14	73.68	5	26.32	19
	15000-20000	24	80.00	6	20.00	30
	20000-25000	35	76.09	11	23.91	46
	25000-30000	52	76.47	16	23.53	68
	above 30000	43	70.49	18	29.51	61
Occupation	Regular Salaried	74	80.43	18	19.57	92
	Casual wage worker	54	72.00	21	28.00	75
	Self-Employee	40	70.18	17	29.82	57
Education	Illiterate	18	78.26	5	21.74	23
	Primary	28	70.00	12	30.00	40
	Secondary	81	77.88	23	22.12	104
	Higher	41	71.93	16	28.07	57

Source: Field Study

Occupationally, regular salaried workers have the highest health insurance coverage at 80.43 percent, followed by casual wage workers at 72.00 percent and self-employed individuals at 70.18 percent. This trend indicates that regular salaried employment is strongly associated with better health insurance access.

Educational attainment does not influence coverage, with secondary-educated individuals having the highest coverage at 77.88 percent, followed by illiterate individuals at 78.26 percent, those with higher education at 71.93 percent, and primary-educated individuals at 70.00 percent. The findings suggest that while education generally correlates with better insurance coverage, even illiterate individuals may have high coverage, potentially due to targeted health insurance schemes.

Overall, the data highlights disparities in health insurance coverage across different socio-economic groups, with some lower-income and less educated groups showing surprisingly high levels of coverage, while certain higher-income and more educated groups lag behind, pointing to the complex interplay of factors influencing health insurance access.

Results of Chi-Square Test

The Chi-Square test employed find the association between socio-economic variables and health expenditure. The results indicating varying levels

of association between health expenditure and socio-economic variables, Viz., Education, Income and Caste shows a significant association with health expenditure at 1 percent significant level with a chi-square value of 27.310, 49.001 and 14.513 respectively.

Table 5
Association of Socio-Economic Variables with Health Expenditure: Chi-Square Test Results

Variable	Chi-square value	Df	P-Value
Occupation	5.890	4	.208
Education	27.310	8	.001*
Income	49.001	8	.000*
Caste	14.513	6	.024

Note: *Significant at 1 percent level.

These findings suggest that education level, income, and caste are significant determinants of health expenditure, while occupation does not have a statistically significant impact.

Conclusion

Based on the analysis, it is evident that socio-economic factors play a significant role in determining health expenditure and access to health insurance among households. Education and income levels are strongly associated with health expenditure, indicating that higher education and income often correlate with increased healthcare spending. Caste also influences health expenditure, albeit to a lesser degree, while occupation does not show a significant impact.

Health insurance coverage is higher among certain demographic groups, such as regular salaried workers and those with secondary education, but disparities persist across income levels and occupational categories. Despite some lower-income groups showing relatively high insurance coverage, there remains a concerning portion of households across various strata that lack adequate coverage, leading to potential financial vulnerability in the face of health-related expenses.

Overall, these findings underscore the need for targeted interventions to address disparities in healthcare access and expenditure, particularly focusing on enhancing insurance coverage and financial protection for vulnerable populations.

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