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Trends and Patterns of Health Expenditure in India

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ABSTRACT

This study examines health expenditure trends in India from 2013–14 to 2021–22, focusing on the relationship between GDP and government health spending, and its impact on key health outcomes. It highlights the effects of COVID-19 on these trends and reveals regional disparities in spending across 21 states. The findings show a positive link between per capita GDP and public health expenditure, which contributes to improved life expectancy and reduced mortality. However, states like Bihar and Jharkhand lag behind, emphasizing the need for targeted reforms to advance SDG 3: Good Health and Well-Being.

Keywords: *Health Expenditure; Per capita; Government Health Expenditure; Out-of-Pocket Health Expenditure; Gross Domestic Product; Life Expectancy; Infant Mortality Rate; Maternal Mortality Rate; COVID 19; India.*

INTRODUCTION

Health is a fundamental component of human development, and a robust healthcare system is essential for improving population well-being and supporting economic progress. Around the world, governments invest in healthcare to ensure equitable access, reduce the burden of disease, and enhance overall quality of life. In India, health governance has undergone significant changes through various policy reforms and flagship programs such as the National Health Mission and Ayushman Bharat. Despite these efforts, the country continues to face challenges including limited healthcare resources, high out-of-pocket expenses for patients, and considerable regional disparities in health infrastructure and outcomes.

Healthcare spending plays a critical role in driving economic growth and improving health indicators. The World Health Organization recommends that countries allocate at least 5% of their GDP to health; however, India's total health expenditure was only around 3.3% of GDP in 2019–20, with the government's share being about 1.35%. The COVID-19 pandemic exposed gaps in the public health system and highlighted the urgent need for stronger healthcare infrastructure and preparedness.

Although health spending has increased over time, India's health outcomes such as the Infant Mortality Rate (IMR) at 27 per 1,000 live births and Maternal Mortality Ratio (MMR) at 154 per 100,000 live births indicate that there is still much progress to be made. States with higher public health investment, including Kerala, Tamil Nadu, and Karnataka, tend to achieve better health outcomes, with Kerala's average life expectancy reaching 75 years compared to the national average of 70 years.
This study explores India's health expenditure trends from 2013–14 to 2021–22, analyses the relationship between health spending and economic development, assesses the impact on key health outcomes, and investigates regional disparities in health investment. The findings aim to contribute to the achievement of Sustainable Development Goal 3, which focuses on ensuring good health and well-being for all.

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LITERATURE REVIEW

Baru et al. (2010) and Prinja et al. (2016) emphasized low public health funding and high out-of-pocket expenses. Berman et al. (2010) and Jain & Taneja (2023) showed regional disparities, with southern states spending more and achieving better outcomes. Devadasan et al. (2020) and Sundararaman (2022) noted inefficiencies in NHM fund utilization. Kumar (2022) observed temporary COVID-induced budget hikes. Rao et al. (2011) and Chakraborty (2023) linked health outcomes to sustained public spending. Mukherjee & Ghosh (2019) and Dasgupta & Qadeer (2019) warned of unequal decentralization benefits. Pandey et al. (2021) highlighted poor outcomes in the Northeast despite increased spending.

OBJECTIVES AND HYPOTHESIS OF THE STUDY

There are three main objectives of the study include-

1. To analyse the trends and patterns of health expenditure in India.
2. To study the interconnections between Gross Domestic Product, Government Health Expenditure and Health outcomes.
3. To compare the state-wise health expenditure patterns with national averages.

HYPOTHESIS

1. Gross Domestic Product has a significant impact on Government Health Expenditure in India.

2. Government Health Spending has a significant impact on selected health outcomes in India.

DATA AND METHODOLOGY

The research uses mixed methods which blend quantitative data analyses with comparative evaluation methods to study Indian health spending along with its economic growth and health outcome patterns in the period 2013–14 to 2021–22.

a. Data Collection: This research is based on secondary data from reliable sources obtained from Ministry of Health and Family Welfare, National Health Accounts , United Nations Development Programme and United Nations International Children's Emergency Fund.

b. Variable Classification: The research data systematically organizes different variables into Total Health Expenditure, Government Health Expenditure, Out- of-Pocket Expenditure, Gross Domestic Product, Life Expectancy at Birth, Infant Mortality Rate and Maternal Mortality Ratio.

c. Analytical Techniques:

i. Descriptive Statistics (Visualization of data through tables, graphs as well as charts) analysis of health outcomes together with expenditure patterns during the studied time frame.

ii. The strength and direction of relation is analysed using correlation.

d. Software and Tools Used:

i. Microsoft Excel provides data sorting capacities and generates charts and exe- cutes descriptive statistics via the Data Analysis Toolpak feature.

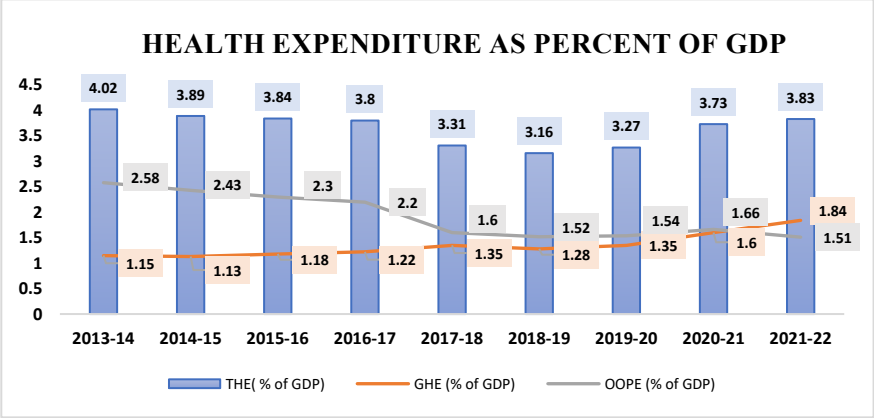
ii. R software is used to perform correlation analysis and generate the correlation graphs using trend lines.

FINDINGS AND DISCUSSIONS

i.National Health Expenditure Trends

- Total Health Expenditure doubled from ₹4.53 lakh crore (2013–14) to ₹9.04 lakh crore (2021–22) but remained low at 3.2–4% of GDP (WHO recommends 5–6%).

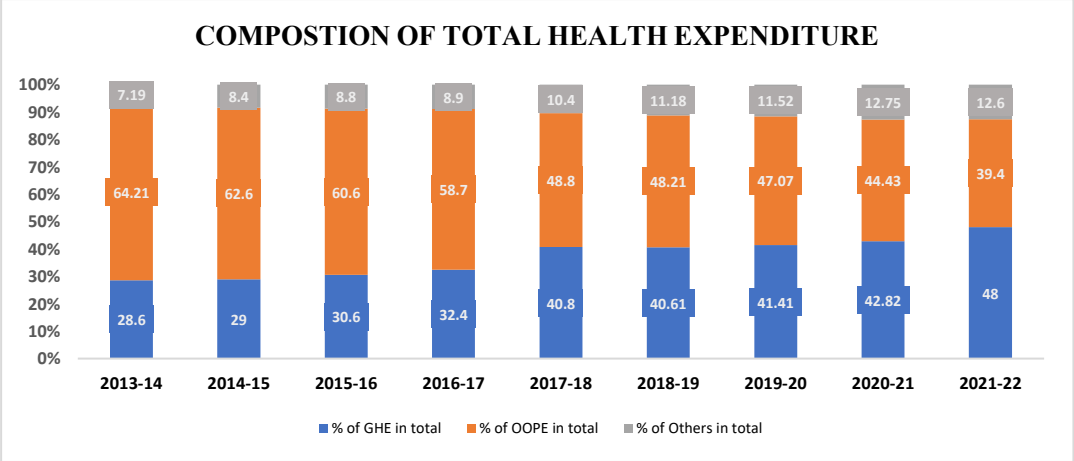
Graph 1: Health Expenditure as Percent of GDP



- Government Health Expenditure surged from 28.6% (2013–14) to 48% (2021–22) of Total Health Expenditure, driven by Ayushman Bharat.

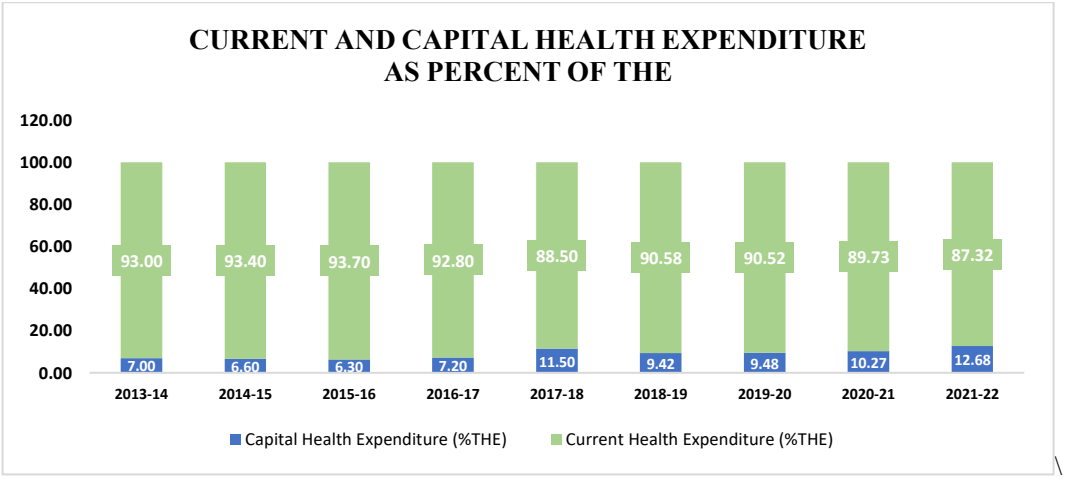
- Out-of-Pocket Expenditure declined from 64.2% (2013–14) to 39.4% (2021–22) but remained the primary financing source for households.

Graph 2: Composition Of Total Health Expenditure



- Capital vs. Current Expenditure: Over 87% of THE was recurrent (salaries, medicines). Capital spending spiked during COVID-19 (12.68% of THE in 2021–22) but lacked sustainability.

Graph 3:Current and Capital Health expenditure as percent of THE



ii.GDP and Public Health Spending

Correlation coefficient value of 0.95 indicates strong positive effects between per capita GDP variations and per capita GHE spending patterns. This reveals, economic expansion enables governments to maintain larger budgets that support health initiatives. The t value of 8.21 and p value of 0.00007(less than 0.05) leads to reject the null hypothesis concluding that per capita GDP has a significant impact on per capita GHE.

Table 1 : Correlation- Per Capita GDP and Per Capita GHE

PEARSON'S PRODUCT-MOMENT CORRELATION	
Statistic	**Value**
Correlation Coefficient (cor)	0.951798
t-value (t)	8.21
Degrees of Freedom (df)	7
p-value	0.00007722
95% Confidence Interval	(0.7819623, 0.9900803)

iii.Health Outcomes

a) ***Life Expectancy:*** Increased from 68.5 years (2013) to 70.9 years (2019) but dropped to 67.2 years (2021–22) post-COVID. The Pearson's correlation results indicate a strong and statistically significant positive relationship when excluding COVID years, with a correlation coefficient of 0.9603 (p = 0.00059) and a 95% confidence interval from 0.7483 to 0.9943. This means the two variables moved closely together during that period. However, when including COVID years, the correlation weakens considerably to -0.2633 and is not statistically significant (p = 0.4937), with a wide confidence interval crossing zero (-0.7894 to 0.4858). This suggests that the pandemic period disrupted the previous strong positive relationship, leading to an inconsistent or negligible association overall.

Table 2: Correlation - Life Expectancy and Per capita GDP

PEARSON'S PRODUCT-MOMENT CORRELATION		
Statistic	**Excluding Covid Years**	**Including Covid Years**
Correlation Coefficient (cor)	0.9603	-0.2633
t-value (t)	7.6925	-0.722
Degrees of Freedom (df)	5	7
p-value	0.0005921	0.4937
95% Confidence Interval	(0.7483, 0.9943)	(-0.7894, 0.4858)

b) ***Infant Mortality Rate (IMR):***

Fell from 40.46 (2013–14) to 26.78 (2021–22) with strong pre-pandemic correlation to GHE (r = -0.98). The Pearson's correlation results show a very strong and statistically significant negative relationship between the variables both excluding and including the COVID years. Excluding COVID years, the correlation coefficient is -0.984 (p = 0.00007), indicating a near-perfect inverse relationship. Including COVID years, the correlation remains strong at -0.931 (p = 0.00027), though slightly weaker than before. Both results confirm that as one variable increases, the other decreases significantly, with the relationship holding firmly even during the pandemic period. This suggests a consistent, strong negative association throughout the entire timeframe analysed.

Table 3: Correlation - Infant Mortality Rate and Per capita GDP

PEARSON'S PRODUCT-MOMENT CORRELATION		
Statistic	**Excluding Covid Years**	**Including Covid Years**
Correlation Coefficient (cor)	-0.9835742	-0.9308
t-value (t)	-12.184	-6.7374
Degrees of Freedom (df)	5	7
p-value	0.0000658	0.0002681
95% Confidence Interval	(-0.9976698, -0.8889547)	[-0.9856, -0.6984]

c) ***Maternal Mortality Ratio (MMR):***

Declined to 100.53 (2020–21) but spiked to 154.8 (2021–22) due to pandemic disruptions. The Pearson's correlation analysis reveals a strong and statistically significant negative relationship between the variables when COVID years are excluded (r = -0.974, p = 0.0002), indicating that higher health expenditure was associated with improved outcomes such as reduced mortality or OOPE before the pandemic. However, when COVID years are included, the correlation weakens dramatically and becomes statistically insignificant (r = -0.032, p = 0.9349), suggesting that the pandemic disrupted the established pattern—likely due to increased health spending failing to translate into proportional improvements, as the system faced unprecedented strain and inefficiencies during that period.

Table 4: Correlation - Maternal Mortality Rate and Per capita GDP

PEARSON'S PRODUCT-MOMENT CORRELATION		
Statistic	**Excluding Covid Years**	**Including Covid Years**
Correlation Coefficient (cor)	-0.9735364	-0.03196488
t-value (t)	-9.5256	-0.084614
Degrees of Freedom (df)	5	7
p-value	0.0002157	0.9349
95% Confidence Interval	(-0.9962294, -0.8261622)	(-0.6816168, 0.6458677)

d) **State-Level Disparities**:
The state-wise analysis shows Kerala had the highest per capita total health expenditure (₹13,343), far above the national average (₹4,205), followed by Himachal Pradesh and Maharashtra. Himachal Pradesh also led in per capita government health expenditure (₹5,581), while Bihar and Uttar Pradesh lagged with less than ₹1,500. Kerala reported the highest OOPE at ₹7,889, indicating limited financial protection despite high public spending. GHE as a share of GSDP was highest in Jammu & Kashmir (3%) and Bihar (2.5%), while Gujarat, Maharashtra, and Telangana spent less than 1.5%. OOPE as a share of GSDP fell nationally from 2.43% (2014–15) to 1.51% (2021–22), with Bihar and Madhya Pradesh reducing OOPE from over 70% to below 45%.

RECOMMENDATIONS

✓ Increase Public Health Spending: Raise GHE to at least 2.5% of GDP to align with National Health Policy goals.
✓ Strengthen Primary Healthcare: Target underperforming states with infrastructure and workforce investments.
✓ Boost Capital Expenditure: Allocate more funds to long-term infrastructure to reduce reliance on recurrent costs.
✓ Expand Financial Protection: Scale up Ayushman Bharat and regulate private healthcare to curb OOPE.

CONCLUSION

India's healthcare spending has increased significantly over the past decade, with Total Health Expenditure (THE) rising from ₹4.53 lakh crore in 2013–14 to ₹9.04 lakh crore in 2021–22. However, this remains below the WHO's recommended 5% of GDP, staying between 3.2% and 4%. Government Health Expenditure (GHE) also rose, from ₹1.29 lakh crore to ₹4.34 lakh crore, aided by initiatives like Ayushman Bharat and NHM, increasing the public share in THE from 28.6% to 48%. Out-of-Pocket Expenditure (OOPE), while reduced from 64.2% to 39.4% of THE, still dominates as the primary mode of healthcare financing, burdening households. Spending remains heavily skewed toward Current Expenditure (87–93%), with Capital Health Expenditure seeing brief growth during the COVID-19 period, but long-term investment in infrastructure remains insufficient. Per capita GHE grew from ₹1,042 to ₹3,169, with THE per capita at ₹4,205 in 2021–22, though public funding is still inadequate to significantly ease household costs.

A strong positive correlation (r = 0.95) between GDP and public health spending reflects the role of economic growth, but equitable allocation is essential. While the pre-COVID period saw improvements in health outcomes, including life expectancy and reductions in IMR and MMR, these gains temporarily reversed during the pandemic, revealing systemic vulnerabilities. Across states, wide disparities persist—Kerala and Himachal Pradesh outperform national averages, while Bihar and Jharkhand lag due to weaker administrative and infrastructure capacity. High OOPE levels in several states further indicate gaps in public service access and uneven implementation of financial protection. These imbalances hinder equitable access and challenge India's progress toward Universal Health Coverage (UHC).

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