Factors Affecting Health Insurance Adoption and Awareness in Uttar Pradesh, India: A Comprehensive Analysis

Naman Mishra[1*] , Manju Dahiya[2] , Steven Grima[3] , Simon Grima[3]

[1] Department of Economics, School of Arts and Humanities, FS University, 283135 Shikohabad, India
[2] Department of Economics, School of Liberal Education, Galgotias University, 201210 Greater Noida, India
[3] Department of Insurance and Risk Management, Faculty of Economics, Management and Accountancy, University of Malta, 2080 MSD, Malta

* Correspondence: Naman Mishra (mnaman225@gmail.com)

Abstract: Objective: This study aims to investigate the significance of health insurance in the context of India's growing population, with a particular focus on Uttar Pradesh, the country's most populous state. By examining various factors, such as the cost of health insurance in relation to its perceived benefits, the study seeks to understand the drivers behind health insurance uptake in the state. The importance of health insurance is underscored by the high cost of quality healthcare and the prevalent lack of awareness regarding its benefits. This paper emphasizes the need for health insurance and explores the reasons behind individuals' reluctance to prioritize its benefits over short-term gains.
Methods: A mixed-methods approach was employed in this study. Quantitative data was collected to gauge the impact of cost on health insurance adoption and to assess how an individual's income influences their perception of health insurance. Surveys using Google Forms were administered in urban areas to obtain numerical data reflecting the general population's views on the current situation and their willingness to purchase health insurance. The sample comprised 402 respondents from Uttar Pradesh, representing diverse age groups, social backgrounds, and income levels. Data from the National Family Health Survey and the National Sample Survey Office were used as reference points to determine the prevalence of insurance uptake and to evaluate the representativeness of the sample.
Results: The findings suggest that the cost factor, specifically the cost of health insurance premiums and the long-term returns they offer, remains the primary determinant of health insurance adoption.
Practical Implications: This research underscores the importance of health insurance in the Indian society and identifies the factors influencing individuals' decisions to purchase a policy. Furthermore, the study proposes that making health insurance more affordable and raising awareness among the population could address the issue of low uptake. Consequently, this work aims to heighten awareness of health insurance's importance among Uttar Pradesh residents and recommend that policy makers implement strategies to make it more accessible, thereby influencing public behavior.

Keywords: Health insurance; Health awareness; Insurance coverage; Income; Insurance; Health insurance uptake; Uttar Pradesh; India

1. Introduction

Understanding the concept of insurance is crucial before exploring the complexities of health insurance. Insurance involves a legal agreement between an entity (e.g., government or corporation) and an individual, in which the entity agrees to compensate for a specified loss, damage, disease, or death in return for a predetermined premium (Buchmueller et al., 2005). Health insurance applies this principle in the context of an individual's health and entails a contract between a health insurer and an insured party. The insurer commits to covering all or a portion of the insured's medical expenses under agreed-upon conditions (Levy & Meltzer, 2004). Coverage

typically encompasses costs related to medical, surgical, prescription drug, and, in some cases, dental treatments. The insurance company either reimburses the insured for expenses incurred due to illness or accident or directly pays the care provider (Silva & Markossian, 2017). Governments may incentivize health insurance through tax benefits, encouraging participation in such schemes.

Hospitalization can impose significant financial burdens and disrupt an individual's financial stability. Health insurance mitigates this risk by requiring an affordable annual premium, thereby alleviating the stress of medical emergencies (Devadasan et al., 2006). Despite its numerous benefits and the potential for financial stability during medical crises, health insurance coverage remains limited in India. Various factors contribute to this reluctance, including a lack of awareness and the perception of financial liability due to high premiums. This study aims to identify the primary reasons behind the hesitance to purchase health insurance among residents of Uttar Pradesh, India's most populous state.

This paper is structured as follows: Section 2 reviews relevant literature in the field, while Section 3 outlines the driving factors for this research, specifically the current situation in Uttar Pradesh. Section 4 presents the research objectives, followed by the working hypothesis in Section 5. Section 6 describes the methodology employed in the study, and Section 7 offers a detailed analysis of the collected data. Finally, Section 8 discusses the inferences drawn from the analysis, and Section 9 provides a conclusion.

2. Literature Review

Ho (2015) emphasized the necessity of health insurance as a safety net, highlighting the pressure individuals face in coping with healthcare costs and the relief provided by health insurance. Furthermore, the importance of monitoring the health insurance delivery system was underscored to ensure accountability and high performance. Tian et al. (2015) investigated the impact of health insurance policies on people's daily lives and the potential disruptions caused by policy changes. Indumathi et al. (2016) assessed public awareness and attitudes towards health insurance in the Bangalore region, focusing on how individuals value health insurance in the context of economic dynamics.

Vinoth et al. (2018) conducted an in-depth analysis of India's insurance sector, examining various health insurance policies, their evolution over time, and the effects of changing circumstances on premiums and claims. Singh & Singh (2020) explored the increasing trend of people benefiting from health insurance purchases and the factors influencing their decision-making. Singh & Singh (2020) compared healthcare policies and their impact on the public while examining the reasons behind escalating health insurance costs in the country. Luke & Vincent (2020) contributed to the field by assessing health insurance awareness in the southern part of India and its practical implementation.

Reshmi et al. (2021) focused on the Indian population's perception of health insurance and their attitudes towards obtaining coverage. Mantas et al. (2020) studied the economics of the health sector and its influence on people's lifestyles and overall health. Dutta (2020) conducted similar research, highlighting the performance of India's insurance industry. Although the sector experiences annual growth, it is insufficient considering population metrics. Cipra (2010) and Ellis et al. (2000) pointed out that, despite the importance of health insurance, awareness remains low among the general population, and many view it as an investment rather than a necessity.

Historically, health insurance has been regarded as a financial burden, and individuals have been hesitant to add it to their list of expenses (Subramanian & Rajendran, 2016). A lack of trust in healthcare facilities, insurance providers, and policies also contribute to the reluctance to purchase health insurance (Black & Skipper, 2000). Income levels further influence the decision to buy healthcare policies. In India, people tend to prioritize immediate needs and are less concerned about future uncertainties; when considering investments, they often focus on financial gains rather than health-related benefits. However, there is a research gap in explaining insurance uptake issues in Uttar Pradesh, which this study aims to address.

2.1 The Sample Selection

A total of 2156 research documents were initially screened from databases such as Scopus, ResearchGate, Google Scholar, Web of Science, and Academia, following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines. Upon manual examination, 1236 duplicate and redundant articles were removed. The remaining 920 articles were thoroughly assessed for their relevance to the study, and 685 irrelevant articles were subsequently discarded. The selection process was refined by focusing on the main keywords, reducing the sample size to 235. Ultimately, 10 articles that met all criteria were included in the study. Figure 1 illustrates the PRISMA flow, detailing the selection process and the final 10 articles chosen for the research.
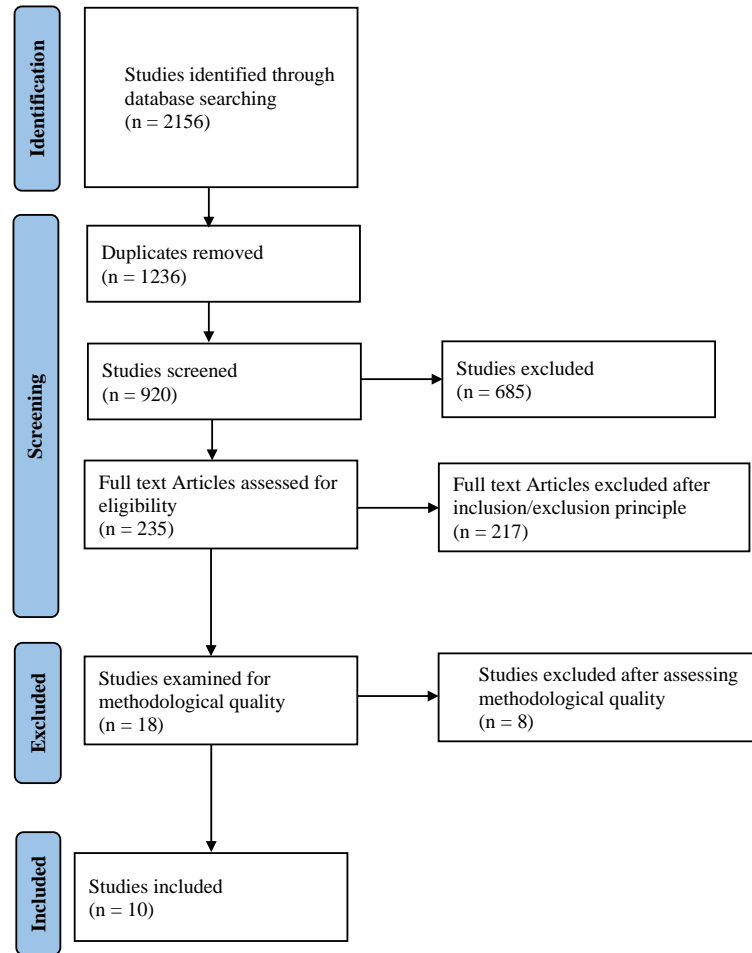
Figure 1. PRISMA flow diagram
Note: This figure was prepared by the authors

3. Theoretical Concerns

A considerable disparity exists between the country's population and the number of individuals covered by health insurance, as demonstrated in Table 1. This discrepancy between the total population and the insured population serves as the primary motivation for the research.

Table 1. A comparison of the insurance coverage

	Rural	*Urban*	*Total*
The whole country	38.1%	42.4%	41.0%
Delhi	25.0%	27.1%	25.0%
Uttar Pradesh	16.8%	15.5%	15.9%

Source: NFHS-5

Table 1 reveals that, at the national level, only 41% of the population is covered by health insurance policies, with negligible differences between rural and urban areas. A comparison of the coverage ratios in the capital of the country (25%) and the state of Uttar Pradesh (15.9%) indicates a significant variation (approximately 10%) in the proportions of individuals insured under healthcare schemes. Given Uttar Pradesh's large population, it would be expected that the state would exhibit higher coverage rates. This observation necessitates an investigation into the factors contributing to the reluctance to purchase health insurance in the region. Consequently, the study has been designed to focus on Uttar Pradesh in order to identify the underlying reasons and draw conclusions.

4. Research Objectives

The following objectives were formulated to guide the investigation:

- To analyze individuals' perceptions of health insurance and its perceived importance.
- To explore and understand the financial aspects of health insurance.
- To determine the reasons for the disparity in health coverage between Delhi and Uttar Pradesh populations.

These objectives facilitated the examination of people's perspectives on health insurance and various policies, as well as the assessment of the impact of cost on its perceived importance. Historical data demonstrates a lack of health insurance uptake, and examining the financial aspect of health insurance contributes to a comprehensive understanding of the subject. This examination enables a better understanding of the economic effects of health insurance in India and, in conjunction with the final objective, provides a clearer explanation. Lastly, the objectives aimed to uncover the reasons behind the disparity in health coverage between Delhi and Uttar Pradesh populations, facilitating an understanding of the factors influencing the variation in health insurance uptake in these regions. This contrast highlights the varying importance placed on health insurance and allows for generalizations about the reasons for low coverage across the country. Additionally, these objectives elucidate people's attitudes towards the age at which health insurance should be obtained, which is crucial in understanding the need for health insurance.

5. Working Hypothesis

To make inferences about the objectives, the following hypotheses were formulated:

H_{0A} = There is no relation between Financial Cost and Health insurance.
H_{1A} = The cost of health insurance affects the uptake of health insurance.
H_{0B} = In an ideal situation, most people aren't inclined to take health insurance.
H_{1B} = In an ideal situation, more than 60% are inclined to take health insurance.

These hypotheses are suitable for inferring the various objectives and for understanding the relationship between health insurance uptake and financial considerations among Uttar Pradesh citizens. The second hypothesis allows for an assessment of people's awareness and attitudes towards health insurance in ideal scenarios.

6. Methodology

To analyze the sentiments of Uttar Pradesh residents, a self-administered survey was conducted, featuring statements and questions related to insurance choices and presenting ideal situations to understand public opinions on insurance policies. Survey responses were categorized as "Yes", "No", or "Maybe", providing a sufficient basis for evaluating public awareness. In the subsequent section, an exploratory data analysis was performed to better understand the behavior of the state's residents. Google Forms and village surveys were employed to independently collect numerical data reflecting public opinions on the current scenario and their level of awareness. The data from both methods were combined in an Excel file, resulting in a total of 402 respondents. The rationale for using both methods was to maximize the number of participants from diverse backgrounds, targeting urban residents with Google Forms and rural residents with surveys. The NFHS data was employed qualitatively to compare the results and draw inferences. Since the data was primarily categorical in nature, the Chi-squared method was utilized to test the hypotheses, using a sample size of approximately 150 from the pool of 400 responses to ensure the data was feasible for testing and free of redundant data.

7. Data Analysis
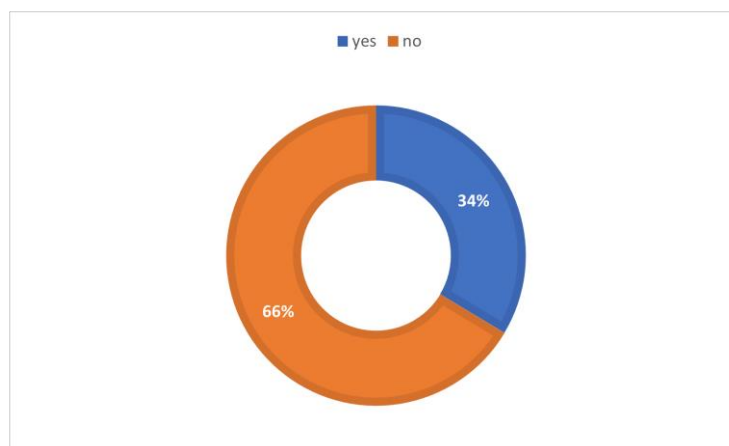
**Figure 2.** Graph showing coverage of health insurance
Note: This figure was prepared by the authors

Figure 2 illustrates that among the surveyed participants, 66% do not possess a health insurance policy. When inquired about the presence of an active health insurance policy, most respondents provided negative responses, indicating a lack of perceived necessity for health insurance. This finding is consistent with NFHS data and suggests a low level of awareness regarding the importance of health insurance. The prioritization of present circumstances over future security appears to be a common attitude, as demonstrated by the low ranking of health insurance compared to other types of insurance.

Figure 3 reveals the uncertainty and reluctance among the population to acknowledge the benefits of health insurance. Despite lacking an active health plan, a significant proportion of respondents remain uncertain about the importance of having one, indicating a need for increased awareness. This finding underscores the first objective, highlighting the need to change public perception and promote the importance of health insurance in future planning.
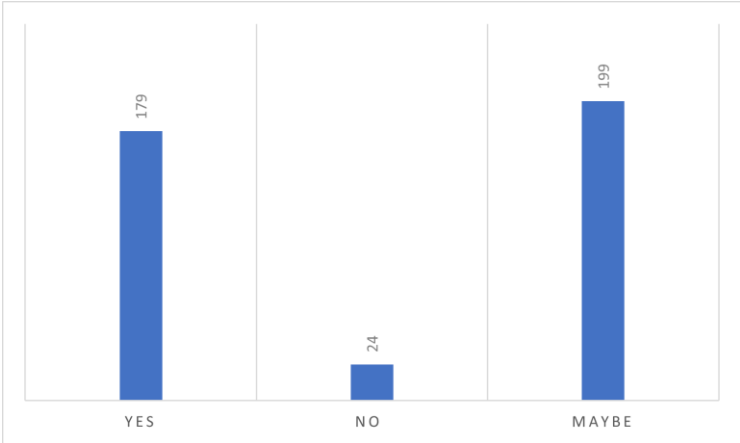
Figure 3. Graph showing doubtfulness of people regarding health insurance
Note: This figure was prepared by the authors
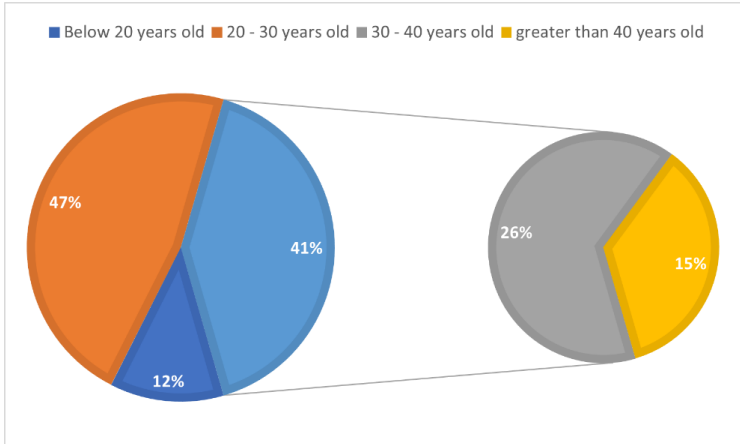
Figure 4. Graph showing doubtfulness of people regarding health insurance
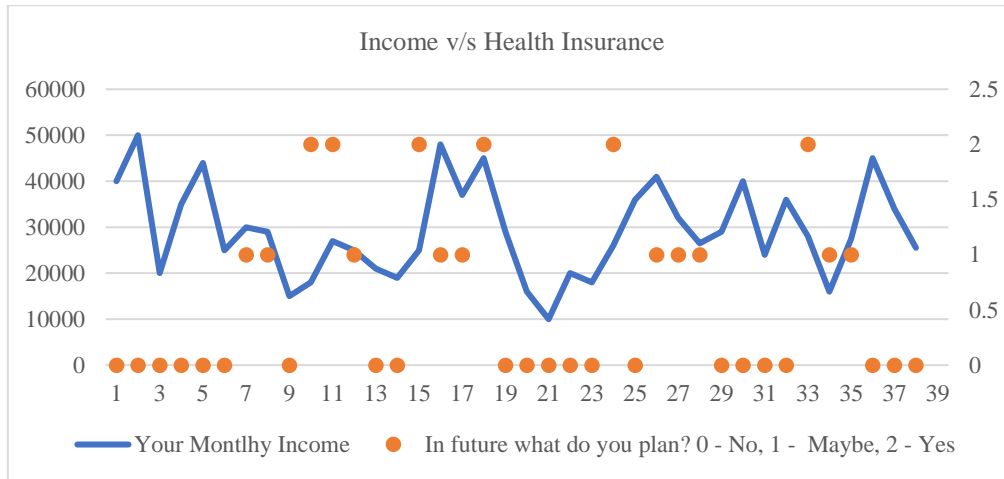Note: This figure was prepared by the authors

Figure 4 presents the distribution of preferred age groups for enrolling in health schemes. A total of 47% of respondents believe that individuals should enroll in health insurance between the ages of 20 and 30, while 41% suggest enrollment above the age of 30, and 12% advocate for enrollment below the age of 20. Although many respondents lack health insurance themselves, they desire better security for future generations. This finding suggests a need to educate the current generation on the importance of health insurance and to challenge existing mindsets.

Income v/s Health Insurance

Figure 5 portrays respondents' opinions on the clarity of health insurance importance. Interestingly, individuals with higher incomes expressed reluctance to adopt health insurance, preferring alternative investment platforms. This finding demonstrates that financial status does not necessarily influence the decision to obtain health

insurance, as preconceived notions often take precedence. In the context of Uttar Pradesh, individuals with higher incomes are more likely to consider health insurance, but as income decreases, health insurance is perceived as a financial burden and is thus less appealing. This financial consideration contributes to the disparity in health insurance coverage between the two states, addressing the second objective.

Table 2 demonstrates that the cost of health insurance is a primary factor influencing uptake. Monetary considerations are particularly significant among Uttar Pradesh residents, who tend to evaluate their options carefully before committing to an investment. Consequently, this finding is essential in determining the barriers to health insurance adoption.

Figure 5. Graph relating income and health insurance preferences
Note: This figure was prepared by the authors

Table 2. Hypothesis testing

Question If the cost of purchasing health insurance were less, would you have purchase a cover?	Observed Frequency (O_i)	Expected Frequency (E_i)	$O^i - E^i$	$(O^i - E^i)^2$	$\dfrac{(O^i - E^i)^2}{E^i}$
Yes	50	39	11	121	3.1025
No	30	39	-9	81	2.0769
Maybe	37	39	-2	4	0.1025
Sum					5.2819

Calculations:

H_{0A} = There is no relation between Financial Cost and Health insurance.
H_{1A} = The cost of health insurance affects the uptake of health insurance.
Degree of freedom = 3-1 = 2.
The P-Value is 0.07129.

As the p-value is considerably small, the null hypothesis is rejected, suggesting that the cost of health insurance plays a significant role in its uptake. Lower costs are more likely to encourage adoption, addressing the third objective concerning the reasons for inadequate health insurance coverage.

The hypothetical scenario presented in Table 3 seeks to understand respondents' perceptions of insurance in an ideal, cost-free context. This approach allows for the evaluation of health insurance's perceived importance in relation to uncertain future health crises and insurance awareness.

Table 3. Hypothesis testing

Question	Observed Frequency (O_i)	Expected Frequency (E_i)	$O^i - E^i$	$(O^i - E^i)^2$	$\dfrac{(O^i - E^i)^2}{E^i}$
Yes	46	35.6	10.4	108.16	3.0382
No	23	35.6	-12.6	158.76	4.4595
Maybe	37	35.6	-1.4	1.96	0.0550
Sum					7.5527

Calculations:
We are testing whether on average more than 60% of the population is inclined to take health insurance.
H_{0B}: $\mu \leq 60$.
H_{1B}: $\mu > 60$.
Degree of freedom = 3-1 = 2.
The P-Value is 0.02291.

Given the small P value, the null hypothesis is rejected, indicating that a substantial portion of the population would be inclined to purchase health insurance in an ideal scenario. This finding suggests that awareness is relatively high, but the primary factor influencing health insurance uptake is financial, as previously discussed.

8. Inference

The survey results indicate that despite a lack of health insurance coverage among the state's population, there is a prevailing preference for future generations to be insured. Respondents demonstrate an understanding of the role health insurance plays in managing potential health crises and mitigating financial risks associated with illnesses or ailments. These findings support the first research objective, highlighting the population's consideration of health insurance and its perceived importance. However, the actual uptake of health insurance is largely influenced by financial constraints, with many individuals unable or unwilling to bear the associated costs.

The data suggests that if health insurance were more affordable and within the income range of the majority, most respondents would be inclined to obtain coverage. This highlights the significant role of financial factors in driving health insurance adoption. For individuals in lower income brackets, insurance premiums are often perceived as an additional burden on their limited resources. Conversely, those with average incomes face uncertainty in deciding whether to allocate their funds to insurance premiums or other investments with growth potential. Consequently, only the higher-income population appears to be more inclined towards obtaining health insurance, while others remain skeptical or unconvinced of its benefits.

The disparity in health insurance coverage between Delhi and Uttar Pradesh can be attributed to differences in income levels, with families' financial status determining their propensity to invest in insurance schemes. The per capita income gap between the two states is considerable, with Delhi at USD 6582 and Uttar Pradesh at USD 1064, according to the Ministry of Statistics and Programme Implementation for the year 2020-21. This income disparity, in conjunction with the study's findings, elucidates the relationship between financial factors and insurance coverage across the two states. The issue of awareness appears to be secondary to the cost of premiums, as the discrepancy between rural and urban areas is relatively minor. This suggests that policy reforms should prioritize addressing cost barriers and promoting affordable insurance options, followed by targeted awareness campaigns.

9. Limitations

As with any study, this research has limitations. First, the sample size, albeit large enough to facilitate generalization, could be expanded in further studies to gain a more comprehensive understanding of the health insurance landscape in Uttar Pradesh. A sample size exceeding 384 is required to achieve 95% confidence in generalizing the results to the entire population of the state.

Second, the study is based on a self-administered survey designed specifically for this research, which may raise questions regarding the validity of some questions and statements. Future research could employ alternative methodologies or refine the survey instrument to address potential concerns about the validity and reliability of the findings.

10. Conclusions and Suggestions

The uncertainty surrounding health insurance poses a significant challenge for many individuals, as they grapple with the trade-off between current financial stability and future health security. This dilemma is exacerbated by the financial pressures associated with contemporary society, which often compel individuals to reevaluate the prioritization of fundamental needs, such as health.

It is imperative that the importance of health insurance be recognized and taken seriously. The survey data underscores the fact that residents of Uttar Pradesh, despite acknowledging the significance of health insurance, are hesitant to invest in it due to their lower incomes. It can be inferred that such individuals perceive health insurance as an investment rather than a protective measure and are reluctant to allocate their resources to a policy that may not be claimed within a specified timeframe. Consequently, health insurance is often viewed as a financial burden by the population of Uttar Pradesh.

To shift this perspective and encourage the adoption of health insurance as a necessity rather than an investment, economic reforms and policy-making must take into account the average income levels and aim to improve

healthcare coverage across the nation. Such efforts, while challenging, are crucial for addressing the healthcare needs of a vast and diverse population.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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