"ASSESSMENT OF HEALTHCARE FINANCIAL BURDEN AMONG BPL HOUSEHOLDS: A CROSS-SECTIONAL STUDY IN SULTANPUR DISTRICT, UP"

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Dissertation submitted in partial fulfilment of the requirements for the award of the degree of Master of Public Health

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JUNE 2025

DECLARATION

I hereby declare that this dissertation entitled **"Assessment of Healthcare Financial Burden among BPL Households: A Cross-sectional Study in Sultanpur District, UP"** is a bona fide record of my original research work. This dissertation has not been submitted, either in part or in full, to any other university or institution for the award of any degree or diploma. All sources of information, including published and unpublished works of other authors, have been appropriately cited and acknowledged within the text.

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CERTIFICATE

This is to certify that the dissertation entitled **"Assessment of Healthcare Financial Burden among BPL Households: A Cross-sectional Study in Sultanpur District, UP"** is a Bonafide record of the research work carried out by Dr. Vartika Shukla under my guidance and supervision. This dissertation is submitted in partial fulfilment of the requirements for the award of the Master of Public Health degree.

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List of Abbreviations

Abbreviation	Full Form
WHO	World Health Organization
SDGs	Sustainable Development Goals
UHC	Universal Health Coverage
NFHS	National Family Health Survey
NSSO	National Sample Survey Office
OOPE	Out-of-pocket expenditure
CHE	Catastrophic Health Expenditure
MoHFW	Ministry of Health and Family Welfare
BPL	Below Poverty Line
IPD	Inpatient Department
OPD	Outpatient Department
UNDP	United Nations Development Programme
HWCs	Health and Wellness Centres
PMJAY	Pradhan Mantri Jan Arogya Yojna
PMJAK	Pradhan Mantri Jan Ausadhi Kendra
NHA	National Health Authority
SD	Standard Deviation
IQR	Inter quartile range
SC/ST	Scheduled caste/Scheduled tribe
PLB	Poverty Line Basket
UORs	Unadjusted Odds Ratio

PMAY	Pradhan Mantri Awas Yojna
SIFPSA	State Innovations in Family Planning Services Project Agency
CTP	Capacity To Pay

Abstract

Background: Universal Health Coverage (UHC) is necessary to guarantee access to high-quality treatment without financial hardship, as the right to health is a fundamental human right. In low- and middle-income (LMIC) nations like India, inadequate public health expenditures lead to higher out-of-pocket (OOP) expenses. Poor people's access to healthcare in India is made worse by a lack of insurance and differences between rural and urban areas. Excessive OOP expenditure exacerbates poverty and results in catastrophic health expenditures (CHE). Therefore, the present study estimates BPL households' out-of-pocket (OOP) and catastrophic health expenditures and their associated factors in the Sultanpur district of Uttar Pradesh, India.

Methods: A cross-sectional study was conducted among 145 BPL (Below Poverty Line) head of households in Sultanpur district, Uttar Pradesh. A structured questionnaire was used to collect data, with a head of household providing information on all family members. Using a multistage random sampling procedure, two tehsils were randomly selected from the district; one block from each tehsil was selected and from each selected block 2 villages were selected at random, resulting in a total of 4 villages.

Results: Out of 145 BPL households surveyed, 37.9 percent had at least one member hospitalized within the past year, whereas 46.9 percent sought outpatient services during the 30 days prior to the survey. The mean Out-of-Pocket Expenditure (OOPE) for hospitalization was INR 49,624.62 (SD± 96,433.38) and the mean OOPE for outpatient care was INR 38,067.00 (SD± 53,661.16). Among those hospitalized, 74.5 percent faced Catastrophic Health Expenditure (CHE) at the 10 percent threshold and 41.8 percent at the 40 percent threshold. For those who used outpatient services, 76.5 percent experienced CHE at the 10 percent threshold and 47.9 percent at the 40 percent threshold. In terms of

expenditure distribution, Inpatient care accounted for 51 percent of the total OOPE, while Outpatient care made up 49 percent of the total OOPE.

Discussion: A significant proportion of households with hospitalization and outpatient care experienced catastrophic health expenditure (CHE) at the 10 percent threshold, with a notably higher percentage at the 40 percent threshold for outpatient care compared to inpatient care. These findings are consistent with existing literature at the 40 percent threshold, but at the 10 percent threshold, the burden was more pronounced in this study. This suggests that, while inpatient care is more expensive, the frequency of outpatient visits, combined with the absence of financial protection for outpatient services, contributes to a considerable financial burden on households.

Conclusion: Inpatient care resulted in higher out-of-pocket expenses; however, outpatient care contributed to a higher proportion of catastrophic health expenditure. This emphasises the need for strong financial risk-protection systems, particularly for outpatient treatments, which are more popular and presently not adequately covered by public health programs.

CHAPTER 1

INTRODUCTION AND REVIEW OF LITERATURE

1.1 INTRODUCTION

The ‘Right to Health’ has been considered a universal human right globally since the According to the constitution of the World Health Organisation (WHO), "every individual has the fundamental right to obtain the best possible state of health.” (WHO, 1948). The right to health, which promoted the idea that everyone should have equal access to medical care, was then reiterated (International Covenant on Economic, Social and Cultural Rights, 1966; Declaration of Alma-Ata, 1978). Doing this requires Universal Health Coverage (UHC), ensuring that everyone, especially the poor and the most vulnerable access essential quality health services without the risk of financial impact (World Bank Group, 2024). Since then, UHC has evolved into one of the primary targets of the SDGs. In particular, SDG 3.8 highlights the key role of UHC in achieving financial protection, access to safe, efficient, high-quality, and reasonably priced medication and vaccinations for everyone, as well as access to key care services (UNDP,GOAL 3, 2015). Moreover, health status relates directly to SDG 1, which is about eradicating poverty because people suffering from high out-of-pocket (OOP) expenditures on health will often face impoverishment (UNDP, GOAL 1, 2015; UNDP,GOAL 3, 2015).

Despite world commitment towards UHC, health care financing remains a major challenge, particularly in low and middle-income countries (LMICs) where public investment in health is negligible (Mcintyre, Meheus and Røttingen, 2017; Kodali, 2023). Based on the most recent forecast from The World Bank, during the next five years, there will most likely be stalling or declining public expenditure on health in 41 LMICs because a substantial number of these countries spending less than 2 percent of gross domestic product on health as opposed to higher income countries which have an average above 5 percent (World Bank,

2024). The global health expenditure database also states, 'a high-income country such as United States (10.7 percent), Australia (13.82 percent), France (8.92 percent) presents substantially lower OOP than low-and middle-income countries like Bangladesh (72.99 percent), Nigeria (76.24 percent), India (49.82 percent), or Sudan with (56.86 percent) (Global Health Expenditure Database, 2014; World Bank Open Data, 2024).

These out-of-pocket payments (OOP) in LMICs are a major driver of catastrophic health expenditures (CHE), defined as total healthcare spending that exceeds a specific budget line, usually a certain fraction of household income defined to lead to financial distress or loss from poverty (WHO, 2017; WHO, 2019). CHE affects more than 2 billion people worldwide, most of whom are in low- and middle-income countries (LMICs), where they face financial protections to accessing essential health services. By comparison, in high-income countries, the additional financial risk protection reduces CHE incidence and, in turn, alleviates poverty risk (WHO, 2019).

In India, households incur a substantial financial burden as more than 50 percent of healthcare is paid out-of-pocket. Healthcare-related expenditure per household in an Indian family was Rs 3632 in the financial year 2018 and has increased marginally to Rs 3638 by the financial year 2022. More than one in two OOP costs are associated with medicines, diagnostic tests, and medical equipment (Chawla, 2023). Data from the study indicate that outpatient treatment had a higher CHE rate than hospitalisation and that nearly half of all families seeking care using outpatient or hospitalisation services experienced CHE. Users of private healthcare facilities incur about five times more OOP expenses for hospitalisation and approx. 2 times higher expenses for outpatient services than public healthcare facility users (Nanda and Sharma, 2023a).

This emerging OOP expenditure burden in India significantly affects health equity and poverty. According to a study that examined National Sample Survey (NSS) data

throughout 1994–2014, found that 55 million people were driven into poverty by healthcare payments, while 38 million experienced CHE when defined as those whose health expenditures exceeded 10 percent of total household consumption expenditure (S. P. Singh and Khokhar, 2023; National Health Accounts, 2023). In rural areas, the situation is alarming as rural areas have minimal access to healthcare services (Rao, 2017).The shortage of trained and skilled healthcare providers, coupled with a low healthcare infrastructure, precipitates poor access to health services and less uptake of preventive services (Rao, 2017; Thakur and Faizan, 2024).

In Uttar Pradesh, out-of-pocket expenditure on health as a share of total health expenditure is 71.3%, which means that access to affordable healthcare is highly challenging for economically disadvantaged households (Deol, 2022).

To address these issues and to provide financial risk protection, the Indian government has introduced various schemes to reduce health costs, including Rastriya Swasthya Bima Yojana (RSBY) and Ayushman Bharat Scheme. The RSBY scheme focused on inpatient services to curb OOP costs but it faced multiple shortcomings like fragmented risk pooling, inequitable enrolments, outpatient care, low coverage and the absence of a grievance redress and transparency system (Narayana, 2010; Giedion, Alfonso and Díaz, 2013; Thakur, 2016; Dubey et al., 2023). These barriers compromised the potential for the program to provide adequate financial protection, and there was no notable reduction in CHE amongst participating households (Karan, Yip and Mahal, 2017). To address these, the government introduced Ayushman Bharat in 2018, which is based on two components: the Pradhan Mantri Jan Arogya Yojana (PMJAY) that provides health coverage for secondary and tertiary hospitalizations, and the Health and Wellness Centres (HWCs) which seeks to fortify primary care through delivery of preventive and basic health services (PM-JAY - National Health Authority | GOI, 2019). However, it continues to fall behind

in certain core areas such as availability of services, access to care for the most vulnerable, outpatient care, and cost coverage (Dubey et al., 2023).

1.2 REVIEW OF LITERATURE

The goal of this literature study is to identify useful studies and papers in respected journals which examine at the influence of healthcare expenditures on households. Additionally, the overall assessment will highlight any gaps in the literature on healthcare financial burden in low-income settings and suggest directions for future research.

1.2.1 Evolution of the Concept of Catastrophic Health Expenditure

The concept of Catastrophic Health Expenditure (CHE) emerged to capture the burden of high out-of-pocket (OOP) healthcare spending on households, particularly when such spending threatens their ability to maintain a basic standard of living. The earliest formalization of this idea was by Berki, who argued that health expenditures could be considered catastrophic when they constitute a large share of a household's budget, thereby affecting their capacity to afford basic needs (Berki, 1986). Building on this, Russell observed that wealthier households might cut down on non-essential consumption in response to health expenses, while poorer households might be forced to sacrifice essential needs such as food or education (Russell, 1996).

A more empirical approach was taken by Wagstaff and van Doorslaer, who defined CHE as health expenditures exceeding a fixed proportion typically 10 percent of total household expenditure, a method that has been widely used across countries (Wagstaff and van Doorslaer, 2003). However, this fixed-threshold method has been criticized for its inability to account for differences in household wealth; richer households are more likely to exceed the threshold simply because they have more resources to spend (O'Donnell *et al.*, 2005).

To address this, Xu et al. introduced a capacity-to-pay (CTP) approach, where CHE is calculated as health spending exceeding 40 percent of a household's non-subsistence

income, income left after meeting basic food needs (Xu *et al.*, 2003). While this method reflects a more equitable threshold, it has also faced criticism. Wagstaff highlighted that the approach could misclassify very poor households as having a higher capacity to pay than slightly better-off ones, which undermines its accuracy (Wagstaff, 2008).

Later, Flores and colleagues proposed refining the CHE definition by incorporating the sources of financing, such as borrowing or asset sales, to better reflect the financial stress households face. This method acknowledges that the same level of OOP expenditure could have different implications depending on how it is financed. However, it still retains some subjectivity due to the choice of threshold (Flores *et al.*, 2008).

1.2.2 Global Trends in Out-of-Pocket Payments and Catastrophic Health Expenditure

There has been considerable increase in catastrophic health spending worldwide over the last 20 years indicating poor coverage protection in terms of health expenditures. In accordance with World Health Organisation (WHO) projections and World Bank, the number of people experiencing catastrophic health expenditure, increased from 571 million in the year 2000 to 927 million in 2015 (WHO, 2019; Néill et al., 2021).

This trend became particularly evident from 2010 to 2015 with an annual increase rate of 2.4 percent at the 10 percent threshold, indicating a worsening trend in global financial protection against healthcare spending. All regions have witnessed an increase on health care expenditures, with the exception of North America, which has seen a little decline. (WHO, 2019).

By 2017, the proportion of the population experiencing CHE increased to 13.2 percent, with approximately 996 million people who spend over ten percent of their household income on healthcare expenses, an increase from 12.7 percent (940 million) in 2015. This rise can be attributed to two primary factors: an increase in per capita healthcare spending and a faster growth rate of out-of-pocket (OOP) expenses compared to the growth in private

consumption. The burden of healthcare costs falls particularly heavily on low-income populations, with 83 percent to 89 percent of individuals facing health-related financial hardship coming from poorer households, who are spending more on healthcare than their monthly income allows (World Health Organization and World Bank, 2021).

1.2.2 Out-of-Pocket Expenditure (OOPE) and Catastrophic Health Expenditure (CHE) in India

OOPE in India is growing, and institutional health care spending is increasing rapidly, particularly in rural areas. The economic burden is more among lower socioeconomic strata as well as underprivileged groups such as scheduled castes (SC) and scheduled tribes (ST), showing differences in costs and accessibility of medical care. Catastrophic health expenditure (CHE) remains a serious concern for vulnerable populations, even in the context of public health interventions (Manchanda and Chaudhary, 2015). A significant dependence on out-of-pocket payments is evident from the fact that OOPE accounted for 47.1 percent of all health expenditures. (National Health Accounts Estimates for India (2019-20) released, 2019). By 2021, OOPE contributed 49.82 percent of India's current health expenditure, reflecting limited public healthcare financing and low insurance coverage (World Bank Open Data, 2021).

A study from 2018 that used data from a nationwide sample survey looked at the economic burden that OOPE placed on healthcare in India between 1993 and 2014. The findings indicated a substantial rise in healthcare spending by households. Specifically, OOPE as a proportion of total household consumption increased from 4.8 percent in 1993-94 to nearly 7 percent in 2011-12, with medicines making up 67 percent of this expenditure in the later years. The study also revealed that Catastrophic Health Expenditure (CHE) was a significant issue, affecting 17.9 percent of households at the 10 percent consumption

threshold, and a major driver of this financial burden was outpatient care (Selvaraj, Farooqui and Karan, 2018).

1.2.3 State-Level Disparities in CHE and OOPE

A study that investigated OOPE and CHE differences at the state level in India between 2004 and 2014, found significant regional and socio-economic differences. Nationally, CHE increased from 21.2 percent to 24.9 percent over this period, with higher rates observed in states undergoing more advanced epidemiological transitions (ETLs), such as Delhi (30.3 percent) and Karnataka (76 percent). OOPE also saw a substantial rise, increasing by 62 percent, with Delhi experiencing a 3.91-fold surge in per capita healthcare payments. Importantly, the distribution of CHE shifted over the decade. The burden of CHE was heavier in richer households at the beginning of the period, being more evenly distributed by 2014 and bearing more heavily on the poor. The increase in incidence of CHE for the lower income quintiles was 35.9 percent compared to 11.8 percent for the richer, highlighting the rise in financial inequalities in health care across states in India (Pandey et al., 2018).

1.2.4 Inpatient and Outpatient Care

Although the government has made efforts to improve public health systems and expand insurance coverage to rural and vulnerable populations; however, the financial health payment burden has grown disproportionately over time. The inpatient share of health spending has increased sharply, especially in rural areas, where per capita inpatient health spending rose faster compared to urban areas. The share of non-institutional (outpatient) health expenditure has also recorded a sharp rise, particularly in rural India, where the average share of outpatient expenditure in total consumption expenditure for the rural differentials rose quite sharply from 2009-10 to 2011-12 (Manchanda and Chaudhary, 2015). Likewise, a study in 2012 also highlighted the fact that removing OPD OOPE could

significantly lower the impoverishing effect of healthcare and could bring down the rise in the poverty headcount from 3.5 percent to 0.5 percent (Shahrawat and Rao, 2012). Using National Sample Survey (NSS) data from 2014 and 2018, study highlighted the disproportionately high OOPE associated with private inpatient care, with catastrophic health expenditure (CHE) being especially prevalent among patients with chronic conditions (Thomas, Dash and Sahu, 2023). Supporting this, another study found that Indian households allocated nearly 11 percent of their monthly consumption expenditure to inpatient healthcare (Panda, Rout and Jakovljevic, 2024).

Outpatient care, while often perceived as less severe than hospitalization, also contributes significantly to household financial distress. For example, one study reported an average outpatient visit cost of INR 400 in public facilities in Chhattisgarh, with direct OOPE averaging INR 202 (Garg et al., 2021). Another study conducted in Aliganj observed high OOPE and CHE incidence among urban households, with 60.6 percent of total healthcare spending occurring out-of-pocket and over half in private facilities (S. P. Singh and Khokhar, 2023).

Analysing two NSS rounds 71st and 75th studies evaluated that outpatient care was more likely to cause CHE and impoverishment than inpatient care. Notably, both studies identified cancer as the most financially devastating condition, causing the highest levels of hardship financing and catastrophic expenditure among both inpatients and outpatients(Nanda and Sharma, 2023a; Thomas, Das, and Sahu, 2023).

Studies have reported that medicines constituted the highest proportion of OOPE for both inpatient and outpatient services (Bose and Dutta, 2018; Ambade et al., 2022). Nonmedical costs of transport and stay also made substantial contributions and outpatient costs represented a larger share of household income than inpatient charges, with doctor and diagnostic fees increasing with socioeconomic status (Ambade et al., 2022).

1.2.5 Out-of-Pocket Expenditure and Catastrophic Health Expenditure in Inpatient and Outpatient Care in Uttar Pradesh

Uttar Pradesh experiences a significant financial burden related to both inpatient and outpatient healthcare services, particularly among its rural and low-income populations. Based on the National Sample Survey's 71st round, a study reported that the state had among the highest OOPE for hospitalisations in public healthcare facilities, with most costs driven by direct medical expenses such as medicines, diagnostics, and service fees. These expenses were most acute for poorer households in which a high proportion of total healthcare spending was borne by OOPE, thus demonstrating insufficient public health provision and financial risk protection (Dash and Mohanty, 2019). According to NSS 75th round data, rural households in Uttar Pradesh predominantly relied on private facilities for inpatient care, despite the presence of public infrastructure (Jha, 2024). Outpatient consultations in rural areas involved considerable OOPE due to limited public availability and a growing dependence on private providers (Singh and Malik, 2024).

1.2.6 Factors contributing to Out-of-Pocket Expenditure (OOPE) and Catastrophic Health Expenditure (CHE)

Numerous studies have examined sociodemographic factors that impact healthcare expenses, with particular focus on inpatient and outpatient OOPE and CHE. A study examined the trends in OOPE in India, revealed that economic status, place of residence, religion, gender, age and caste played an important role in influencing OOPE and financial hardship (Manchanda and Chaudhary, 2015). A longitudinal analysis conducted in 2014 revealed a sharp rise in Catastrophic Health Expenditure (CHE) from 2000 to 2012, particularly among marginalised communities such as scheduled castes/scheduled tribes (SC/ST) and Muslim households.

Households in rural areas and those in lower-income brackets were especially vulnerable, with the financial burden of healthcare being most pronounced in socioeconomically weaker states like Bihar and Assam, where the impact of health expenditures on poverty was more severe (Karan, Selvaraj and Mahal, 2014). Similar findings were made by a research in Uttar Pradesh, which showed that the impact of OOPE on poverty was greater in rural regions, increasing the number of people living in poverty by 3.8 percent as compared to 2.7 percent in urban areas (Garg and Karan, 2009).

Another important consideration is the problem of healthcare spending disparities among rural and urban areas. Several study found that urban residents generally experienced higher OOPE compared to rural residents, influenced by better income and education levels (Kastor and Mohanty, 2018; Vasudevan, Akkilagunta and Kar, 2019). However, this contrasts with earlier findings that demonstrated the poverty impact of OOPE was more severe in rural areas (Garg and Karan, 2009).

Similar findings reported a higher incidence of CHE among rural households, particularly those with multiple elderly members or from lower-income quintiles (Behera and Pradhan, 2021). Furthermore, a study focusing on Koderma district in Jharkhand, highlighted that rural households, particularly those with chronic illnesses or belonging to disadvantaged groups such as SC/ST families or temporary housing dwellers, faced the most significant financial hardships (Sinha et al., 2016).

Several studies evaluated the impact of the type of healthcare facilities, whether private or public in shaping the economic burden of healthcare found that private sector healthcare was a major contributor to CHE compared to public sector facilities (Yadav, Menon and John, 2021; Nanda and Sharma, 2023a; Thomas, Das, and Sahu, 2023), particularly affecting marginalized groups such as OBC and SC households (Philip and Panda, 2023). Another study reinforced this by describing wide cost variations for outpatient non-

communicable diseases (NCD) care in Chhattisgarh. Public primary care centres were the most affordable whereas private care, both formal and informal, was substantially more expensive, emphasizing the importance of strengthening public healthcare systems to mitigate the financial strain on households (Garg, Tripathi and Bebarta, 2024).

1.2.7 Rationale

Uttar Pradesh has one of the highest out-of-pocket health expenditures in India, and rural and low-income households are disproportionately affected. Previous research has indicated that OOPE is high in public facilities, there is an over-dependency on private providers in the system, and catastrophic health spending is prevalent across the state. But no such study has been carried out in the Sultanpur district despite having similar vulnerability. Hence, present study is significant to estimate the financial strain of healthcare among BPL households of this underserved region**.**

1.2.8 Objectives

- **Primary objectives**
  - To estimate Out-of-Pocket Expenditure (OOPE) for inpatient and outpatient healthcare services among BPL households in Sultanpur District.
  - To study Catastrophic Health Expenditure (CHE) in inpatient and outpatient cases among BPL households.
- **Secondary objectives**
  - To identify and analyse key factors influencing Out-of-Pocket Expenditure (OOPE) and Catastrophic Health Expenditure (CHE) for inpatient and outpatient services among BPL households.

CHAPTER 2

METHODOLOGY

A detailed description of the methods used to achieve the two goals of the current study is provided in this chapter. Design, study setting, data collection and analysis are described in this chapter.

2.1 Study design

The design used in the present study is a community based cross-sectional design. A survey conducted among the BPL (Below Poverty Line) households of Sultanpur district. The list was generated by the Department of Food and Civil Supplies, Sultanpur.

2.2 Study setting

The study was carried out in rural areas of Sultanpur district, Uttar Pradesh, India. According to the 2011 census, Sultanpur district has a population of 37,97,117. The total number of households in Sultanpur district is 623,523. Among this, 5.26 percent reside in urban regions and 94.74 percent in rural regions.

2.2.1 Inclusion criteria

- Any member of a family who is a permanent resident or has resided for a minimum period of one year in the villages.
- Below Poverty Line (BPL) households with a valid ration card.

2.2.2 Exclusion criteria

- Families not giving consent to participate.
- Those who were terminally ill.
- Exclude any hospitalization or outpatient visits related to childbirth or maternal care, including antenatal care, delivery, and postnatal care.

2.3 Sample size

Open Epi version 3 software was used to calculate the sample size, with a major focus on families that fall below the poverty line (BPL). Past studies showed that 49.0 percent of households that sought hospitalization and/or outpatient care incurred catastrophic health expenditure (CHE) (Nanda and Sharma, 2023b). Due to the unavailability of segregated data on CHE prevalence among BPL households, the study assumed an estimated CHE prevalence of 50 percent among BPL households in Sultanpur to consider the unavailability of specific data. Sampling was performed using a confidence level of 95 percent, and an absolute precision of 10 percent, with an adjustment of 1.5 for the design effect to account for the cluster effects of the multistage sampling design. Using these parameters, the sample size was estimated at 145 households.

2.4 Sampling selection procedures

The sampling technique employed was multistage random sampling**.** In the first stage, two tehsils were randomly selected using computer-generated random numbers through simple random sampling. From each selected tehsil, one block was randomly chosen, resulting in a total of two blocks. In the next stage, two panchayats were chosen randomly from each block, making total of four panchayats. A list of below poverty line households belonging to these panchayats was obtained from the Department of food and Civil Supplies, Sultanpur. From this list, 36–37 households were selected from each panchayat using a random sampling technique, resulting in a total sample of 145 households. The flowchart is shown in figure 1.

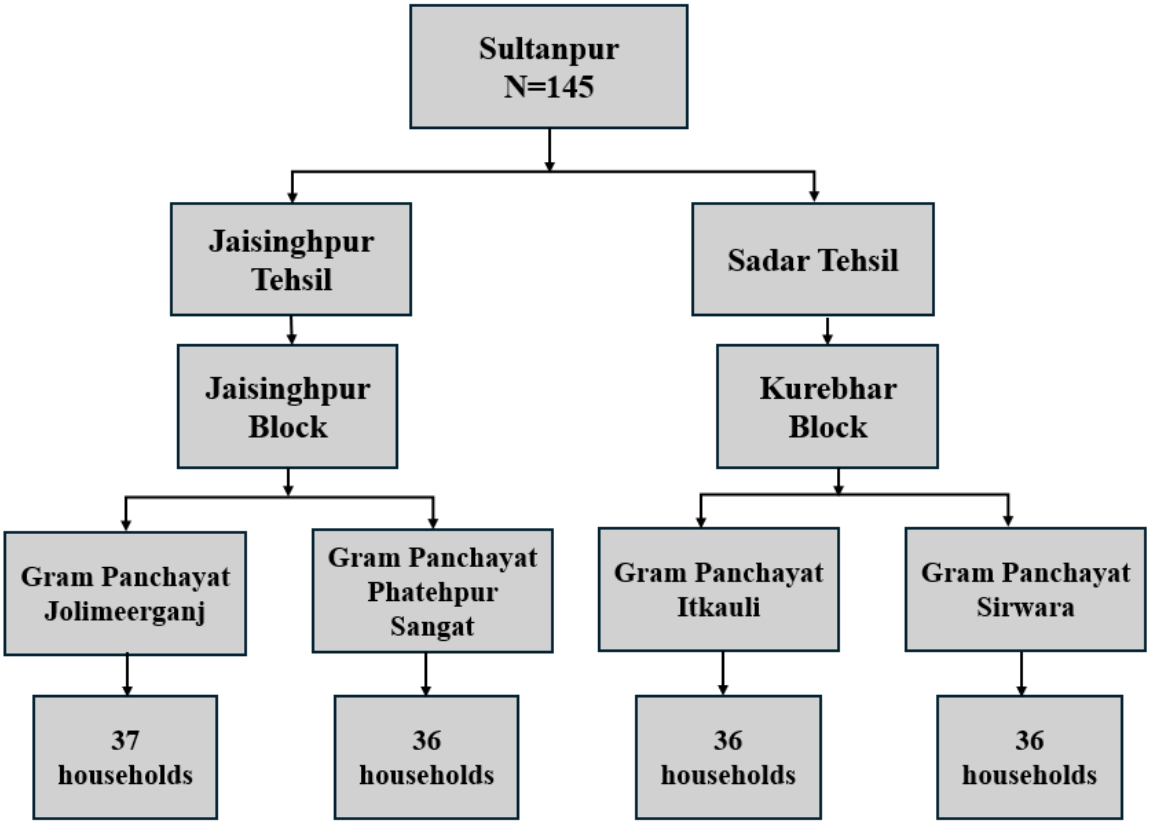


Figure 1: Flowchart of sampling strategy

2.5 Data collection techniques

For this survey translated structured interview schedule from English to Hindi was used. The details presented in the information sheet were communicated to the respondents before the interview. Consent of the head of the household was obtained and signed. There were 5 sections of the interview schedule.

Section 1 & 2: Covered socio-demographic characteristics of the household and the head of the household (age, sex, marital status, religion, caste category, education, occupation, type of family, house ownership, ration card type, insurance status)

Section 3: Data were collected on household economic indicators such as annual family income and annual household consumption expenditure

Section 4: Hospitalisation details of all household members including reason for hospitalisation, type of facility visited, length of stay, number of inpatient episodes, distance to facility, and treatment costs.

Section 5: This part contained information on the outpatient care accessed, type of illness, type of facility accessed, number of outpatient visits, distance to facility and related expenditure on the treatment.

2.6 Data collection

The present study randomly included 145 households of rural Sultanpur. Data were collected by the principal investigator and one field assistant using a structured interview schedule between 18th January to 1st March, 2025. The response rate was 100 percent, and all 145 households were interviewed.

Data collection started after explaining the details mentioned in the participant information sheet and obtaining written informed consent from the head of the household. Furthermore, all interviews took place within the respondents; residences. Participants received assurance that the data they provided would be kept entirely confidential and used only for research.

2.7 Variables used

2.7.1 Dependent variables

2.7.1.1 Out-of-Pocket Expenditure

Out-of-Pocket Expenditure (OOPE) was considered as one of the primary dependent variables in this study and assessed separately for inpatient and outpatient cases. OOPE refers to the health-related expenses borne directly by Below Poverty Line (BPL) households without any third-party reimbursement or insurance coverage.

Data on hospitalization-related expenditures for any member of the household in the last 365 days before the survey were collected for inpatient care. These costs include direct medical cost, direct non-medical cost and indirect cost.

Outpatient care: Participants were asked to report all healthcare expenses incurred in the 30 days preceding the interview. The costs from OOPE were then multiplied by 12 to annualize them and obtain a yearly figure. The household annual OOPE was calculated as the sum of annual expenditure for Inpatient services, and Outpatient services.

2.7.1.1.1 OOPE for Inpatient Care

For inpatient care, OOPE encompassed all direct and indirect costs incurred during hospitalization. These costs were grouped into three categories:

- Medical expenses: Hospital admission charges, doctor's fees, medicines, diagnostic tests, bed charges, and other treatment-related costs such as physiotherapy, blood, oxygen, etc.
- Non-medical expenses: Transportation to and from the healthcare facility, food, and lodging for both the patient and accompanying bystander during the hospital stay.
- Indirect expenses: Loss of income for the patient and the bystander due to inability to work during the hospitalization period.

In order to assess financial burden of BPL households, inpatient OOPE was estimated by two methods:

1. Across all households, including those that did not incur any expenditure; This analysis was on the full sample irrespective of healthcare usage. Households which did not have an expenditure were assigned a value of 0.

2. Among only those households that actually incurred OOPE for inpatient services; The analysis included only households with at least one hospitalization reported.

Statistical methods

Summary statistics (mean, median, SD, IQR)

Bivariate analysis

Binary outcome (incurred inpatient OOPE: yes/no) associations with sociodemographic variables were examined using cross-tabulations with Chi-square or Fisher's tests. And bivariate logistic regression was performed to obtain crude odds ratios (UORs) for each of the variables and the binary OOPE outcome. In the bivariate results tables, only the factors that were statistically significant were included.

Analysis Based on Median OOPE Threshold

In order to explore the factors related to greater financial burden among these households who had incurred inpatient expenditure, a median-based threshold method was employed. It splits households into two groups for analysis: Households with above median threshold and Households with less than or equal to median threshold. As per this classification, a comparative analysis is done of factors which might be responsible for spending more than median level.

Statistical methods

Summary statistics (mean, median, SD, IQR)

Bivariate Analysis:

To evaluate the relationship between several hospitalization-related and sociodemographic factors and the binary outcome, cross-tabulation technique was employed. These associations were evaluated using Chi-square or Fisher's exact tests. Bivariate logistic regression was utilized to get unadjusted odds ratios (UORs) for every variable. In the

bivariate study, only the factors that were substantially linked to greater OOPE were listed in the results table.

Individual-Level Analysis

Along with household-level estimates, individual-level data from analysis were used to explore risk factors for hospitalization and the corresponding financial burden. They were analysed for length of stay, distance travelled for care, type of facility accessed (public or private), among other parameters. Furthermore, for improved insight in the disease burden the diseases have been aggregated to more general categories such as gastrointestinal, cardiovascular, respiratory, injury, etc.

We have studied the mode of financing for hospitalization with a particular focus on:

- Sources of payment (savings, borrowing, selling assets, or help from relatives)
- Utilization and denial of government support schemes like PMJAY

A component-wise contribution analysis was conducted to identify major cost drivers that allotted the OOPE into major heads such as admission charges, medicines, diagnostics, transport, and food.

2.7.1.1.2 OOPE for Outpatient Care

OOPE for outpatient care was similarly estimated by summing all expenditures associated with medical consultation and treatment that did not require hospitalizations. And these costs were grouped into three categories:

- Medical costs: Consultation charges, medicines, diagnostic tests, OPD procedures, and any other medical spends.
- Non-medical costs: These include transport, food and lodging expenses related to seeking outpatient treatment.

- Indirect costs: Lost earnings of both the patient and the accompanying bystander for the time taken to seek care.

OOPE for outpatient care was also calculated in two ways:

Across all surveyed households, regardless of whether they incurred any expenditure.

This analysis included the entire sample, regardless of whether Out-patient healthcare services were utilized. For households with no expenditure, a value of 0 was assigned.

Statistical methods:

Descriptive statistics (mean, median, SD, IQR)

Bivariate analysis:

Binary outcome (incurred out-patient OOPE: yes/no) associations with sociodemographic variables were examined using cross-tabulations with Chi-square or Fisher's exact tests. Bivariate logistic regression was performed to get crude odds ratios (UORs) for each of the variables and the binary OOPE outcome. The bivariate statistics tables only included the factors that were statistically significant. Among only those households that reported actual OOPE for outpatient services. For this analysis, only households that reported at least one OPD visit were included.

Analysis Based on Median OOPE Threshold

To explore the factors related to greater financial burden among these households who had incurred outpatient expenditure, a median-based threshold method was employed. It splits households into two groups for analysis:

- Households with above median threshold
- Households with less than or equal to median threshold

As per this classification, a comparative analysis is done of factors which might be responsible for spending more than median level.

Statistical methods

Descriptive statistics (mean, median, SD, IQR)

Bivariate Analysis:

Association between sociodemographic hospitalisation-related variables and the binary outcome was tested by cross-tabulation. Statistical testing for these associations was performed using Chi-square and Fisher's exact tests. Bivariate logistic regression was used to get unadjusted odds ratios (UORs) for each variable. Only the variables significantly related to greater OOPE in bivariate analysis were listed in the result table.

Individual level out-patient care utilization

In addition to household-level estimates, individual-level data were analysed to understand outpatient care-seeking behaviour and the associated out-of-pocket expenditure among BPL individuals. Out of all participants, those who accessed outpatient services in the past year were identified for further assessment.

The outpatient utilization analysis considered key parameters such as the number of episodes, distance travelled for treatment, and type of healthcare facility visited (public or private). Illness episodes were also categorized based on their nature—acute or chronic.

To assess the disease burden, each outpatient consultation was classified by primary diagnosis. These conditions were grouped into broader categories including infections, musculoskeletal disorders, gastrointestinal diseases, respiratory illnesses, cardiovascular conditions, and others, to examine the pattern of OPD morbidity.

To identify major cost contributors to OPD spending, a component-wise analysis of OOPE was conducted. This broke down the expenditure into specific heads such as:

- Medicines (from hospital and outside pharmacies)
- Diagnostic investigations
- Doctor consultation fees

- Transportation
- Food and other miscellaneous expenses

2.7.1.2 Catastrophic health expenditure

Catastrophic Health Expenditure (CHE) was the second key outcome variable in the present study. It was used to understand whether the out-of-pocket expenditure (OOPE) incurred by BPL households had crossed a critical limit, leading to serious financial hardship. In order to assess this, two commonly used approaches were applied: the Budget Share Approach and the Capacity to Pay (CTP) Approach.

- **Budget Share Approach**

In this method, CHE was calculated by

Out of pocket payments÷ Total households consumption expenditure > threshold

For this approach, 10 percent threshold were taken:

- **Ten percent threshold**

If a household's OOPE exceeded 10 percent of its total consumption expenditure, it was marked as having incurred CHE.

- **Capacity to Pay (CTP) Approach**

  In this method, CHE was calculated by,

  Out of pocket payments÷ Total consumption expenditure-food spending > threshold

  For this approach, a 40 percent threshold was taken

- **OOPE exceeded 40 percent of a household's capacity to pay**

  That is, if OOPE was more than 40 percent of the household's non-food consumption expenditure, it was categorized as catastrophic.

How was CHE analysed?

- CHE among those who sought hospitalisation and outpatient care.

- For the inpatient care, CHE was measured only among households in which there had been at least one hospitalisation.
- For the outpatient care, CHE was evaluated among households with at least one outpatient visit.
- The same definitions and thresholds (10 percent and 40 percent) for these households were used.
- For analysing factors associated with CHE, households that had used healthcare services were included.
- For these selected households, both healthcare utilization factors (like number of visits, distance, type of facility, and other variables.) and sociodemographic factors (like income, household size, and other variables.) were analysed. The aim was to see which factors were associated with a higher chance of facing CHE.

Statistical methods

1. Bivariate Analysis

Fisher's exact test or chi-square was the technique used to cross-tabulate all available sociodemographic and healthcare-use variables with CHE status. Unadjusted Odds Ratios (UOR) were computed to investigate individual associations. Only variables found to be significantly associated were included in result tables.

2.7.2 Independent variables

This study included a range of independent variables to assess factors associated with Out-of-Pocket Expenditure (OOPE) and Catastrophic Health Expenditure (CHE) for both inpatient and outpatient care. These were categorized into sociodemographic characteristics and healthcare utilization-related factors.

a) Sociodemographic Characteristics

Sociodemographic information was collected for all 145 BPL households and used in both inpatient and outpatient analyses. The following variables were included:

1. Tehsil
2. Religion
3. Caste category
4. Type of family
5. Education of the head of the household
6. Occupation of the head of the household
7. House ownership
8. Household size
9. Ration card
10. Annual Family Income
11. Annual Household Consumption Expenditure

These variables were used to assess overall patterns in healthcare expenditure and to identify groups more vulnerable to financial hardship due to illness.

b) Inpatient Utilization-Related Variables

In addition to the sociodemographic variables, for households that reported at least one hospitalization, the following hospitalization-related variables were also included to examine their association with OOPE and CHE:

1. Reason for hospitalization: grouped into broad categories like medical conditions, surgery etc
2. Duration of stay: Measured in days, representing the length of the hospital admission.
3. Type of facility accessed: Categorized into public or private healthcare/both.

4. Distance to facility: Reported distance (in kilometres) travelled to reach the hospital.
5. Number of hospitalization episodes: Count of admissions during the recall period (last 12 months).

c) Outpatient Utilization-Related Variables

For households that had at least one outpatient visit, outpatient visit-specific factors were included along with sociodemographic variables:

1. Distance to facility: Reported distance (in kilometres) travelled to access outpatient care.
2. Type of facility visited: Categorized into public or private hospital/both.
3. Number of outpatient episodes: Total number of OPD visits.
4. Type of illness: Grouped into acute or chronic illness, based on the nature of the condition.

These independent variables were included in bivariate analysis to examine factors associated with out-of-pocket expenditure (OOPE) and catastrophic health expenditure (CHE). Additionally, bivariate logistic regression was conducted to get crude odds ratios (CORs) for every variable.

2.8 Data entry

We used a pen-and-paper method. The obtained responses were later entered manually in Microsoft Excel. SPSS Version 25 was utilised to import the data before cleaning and get it ready for statistical analysis. The data were coded and categorized accordingly.

2.9 Data cleaning

Data was inspected for missing values, and any values missing were removed from the dataset before analysis. Using SPSS Version 25, a frequency analysis was performed to

check for any inconsistencies or irregularities in the data. The dataset was then curated according to this cleaning procedure, and essential changes were implemented to obtain the preparation of the dataset for preliminary analysis.

2.10 Data analysis

First, descriptive statistics were performed to summarise the characteristics of the study sample. Percentages and frequencies have been calculated for variables that are categorical.; for continuous variables, calculation of dispersion (standard deviation, interquartile range) and central tendency (mean, median) were computed. Variables that did not have a normal distribution are given the median value and interquartile range (IQR) because they provide a more precise measure of central tendency and dispersion.

Furthermore, the association of independent variables with both the outcomes: OOPE and CHE were tested in the bivariate analysis using Chi-square or Fisher's exact test as appropriate. Next bivariate model was performed for inpatient and outpatient services to calculate unadjusted odds ratios (UOR), 95percent confidence intervals (95% CI), and p-values.

2.11 Data storage

The P.I. has kept hard copies of the interview schedules and signed consent forms in a secure place. A unique respondent identification number was assigned to each household to maintain confidentiality and privacy. These identification numbers are only known to principal investigator and research guide.

Under no circumstances were any personal details of any participant shared. All data collected, besides personal identifiers, were used solely for analysis. The data will be stored for five years, from the time of collection, and then destroyed permanently.

2.12 Ethical consideration

An ethical clearance to conduct this study had been obtained from the Institutional Ethics Committee of Sree Chitra Tirunal Institute of Medical Sciences and Technology, Trivandrum, Kerala (IEC Regn. and No. ECR/189/Inst/KL/2013/RR-24). Information sheet details were clarified and written informed consent was attained from all participants before conducting the interview schedule. Respondents could also choose not to participate at the outset or at any moment through the interview schedule. There was no expected risk in relation to taking part in the study.

2.13 Operationalization of terms

a) Below poverty line

Below Poverty Line (BPL) refers to the economic threshold used to identify individuals or households that lack sufficient financial resources to afford a basic minimum standard of living. In India, this is determined by measuring per capita consumption expenditure against a defined Poverty Line Basket (PLB)—a set of goods and services deemed essential to satisfy basic human needs. Households whose consumption expenditure falls below this poverty line are classified as BPL and are considered "poor." The BPL framework, as estimated in India, incorporates data from the National Sample Survey Office (NSSO) on household consumption expenditure, which is compared to the defined poverty line to measure the incidence, depth, and severity of poverty (Gaur, 2020).

b) National Criteria (BPL Census 2011):

At the national level, the identification of BPL households in rural areas was carried out through the BPL Census 2011, led by the Ministry of Rural Development. The classification followed a three-stage process. In the first stage, households were automatically excluded if they met any of the 13 exclusion criteria, such as ownership of motorized vehicles, large

landholdings, or having a government employee in the household. In the second stage, certain vulnerable groups such as homeless households and destitutes were automatically included. Remaining households were assessed using a deprivation-based scoring system.

c) Uttar Pradesh State Criteria (Food and Civil Supplies Department, 2023 & District Supply Office Etah, 2025)

In Uttar Pradesh, the identification of Below Poverty Line (BPL) households for welfare entitlements—particularly for the issuance of Ration Cards under the provisions of the National Food Security Act (NFSA), 2013—is carried out in accordance with the state-specific guidelines issued by the Food and Civil Supplies Department, Government of Uttar Pradesh. As per these guidelines (2023), households with an annual income exceeding ₹2,00,000 are automatically excluded from the BPL category (होम:उतर प्रदेश खाद्य एवं रसद विभाग की आधिकारिक वेबसाइट, 2023).

Further clarification provided by the District Supply Office, Etah (March 2025), highlights that a Ration Card is considered an essential document for economically vulnerable households. Under the NFSA, it makes it possible to obtain subsidised food grains and essentials like rice, wheat, sugar and kerosene oil. Only households meeting the BPL eligibility conditions are entitled to these benefits.

Key eligibility conditions in Uttar Pradesh include:

- The candidate must be a permanent resident of Uttar Pradesh.
- The Applicant should come in the BPL List.
- Only one Ration Card is issued per household, in the name of the head of the family(‘Ration card | District Etah , Government of Uttar Pradesh | India’, 2025).

d) Household

A household is defined as a group of individuals who usually live together and share meals from a common kitchen. It can consist of one or more persons, and the members may or may not be related by blood, marriage, or adoption. In special cases like hotels, hostels, or boarding houses, each individual is considered a separate household unless they pool their income and expenses, in which case they are treated as one household. Inmates of institutions like jails or hospitals are excluded from household surveys, but residential staff living on-site are included as households ('NSS', 2001).

e) Financial burden

According to NCI, Financial burden means the economic strain a patient has to go through regarding the costs of medical treatment, especially those expenses not compensated by health insurance. The burden could be due to high, out-of-pocket expenses with insurance denial of payment or charges in excess of what one can afford resulting in allowable debt (or bankruptcies). A patient's ability to experience wellness or access care can be severely affected by financial burden, as some patients may forgo their medications or appointments in an effort to reduce costs. This has also been referred to as economic burden, economic hardship, financial distress, financial hardship, financial stress or even financial toxicity (Definition of financial burden - NCI Dictionary of Cancer Terms - NCI, 2011).

Building on this conceptual understanding, the literature identifies two primary approaches to empirically examine health-related financial burden: catastrophic health expenditure (CHE) and hardship financing. These frameworks are widely used to measure the extent and severity of economic hardship faced by households in meeting healthcare needs (Thomas, Das, and Sahu, 2023).

f) Catastrophic health expenditure occurs when a household's out-of-pocket spending on health exceeds a specified share of their income or consumption typically set at 10% of total income or 40% of capacity to pay. Households crossing these thresholds are

considered to have experienced financial shock due to medical costs (Nanda and Sharma, 2023b; Thomas, Das, and Sahu, 2023).

There are two methods used to estimate Catastrophic Health Expenditure (CHE):

1. **Budget Share Approach**:

This method considers CHE to occur when out-of-pocket (OOP) health payments exceed a certain proportion of a household's total income or expenditure within a defined period. Common thresholds are 10 percent or 25 percent of total household income or expenditure (Nguyen, Ahmed and Turner, 2023; Universal Health Coverage as a Sustainable Development Goal, 2023).

2. **Capacity-to-Pay Approach**:

This approach calculates CHE as OOP payments exceeding a defined percentage (typically 40 percent) of a household's "capacity to pay," which is total expenditure minus essential spending on basic needs (for example food and utilities) (Nguyen, Ahmed and Turner, 2023).

g) Out of pocket payments

The term out-of-pocket payments are all types of actual payment made by individuals upon the provision of any kind of service (preventive, curative, rehabilitative, palliative and long-term care) received from any type of provider. These consist of cost-sharing (the out-of-pocket component not covered by a third party such as an insurer) and informal payments (e.g. shadow payments) but do not consist of insurance premiums. Households could pay for it with their income or money they receive in remittances, save, borrow. They do not include any reimbursement of expenses by a third party, such as the State, a private insurance provider or a health insurance fund (World Health Organization and World Bank, 2017).

Direct medical cost: It includes all annual medical expenditure toward treatment, which includes doctor's fee, purchase of medicine, diagnostic charges, and hospital charges (Ghosh, 2011; WHO, global TB programme, 2015).

Direct non-medical cost: Expenses not related to medical treatment but necessary for accessing healthcare, such as transportation, accommodation, meals, parking fees, and informal payments to medical staff (WHO, global TB programme, 2015; Sabermahani et al., 2021).

Indirect cost: Loss of income due to illness, including wages lost by the patient and their caregivers during the period of treatment or recovery (WHO, global TB programme, 2015; Sabermahani et al., 2021).

h) Inpatient care: Inpatient care refers to medical treatment provided in a hospital, clinic, or similar facility that requires the patient to stay for at least one night (Lenz, 2008).

i) Outpatient care: Outpatient care refers to various medical services, such as doctor visits, diagnostic tests, minor surgeries, and rehabilitation, that are provided without admitting the patient for an overnight stay in a hospital (Outpatient Care - an overview, 2016).

CHAPTER 3

RESULTS

3.1 INTRODUCTION

Results of the cross-sectional survey are presented in this chapter. The results are split into three parts. The identifiable characteristics of the heads of the BPL households along with the health care utilization pattern of the surveyed households are presented in section 1. Section 2 describes the OOPE borne by households for inpatient and outpatient care and investigates the determinants of OOPE in these settings. Section 3 discusses the burden of Catastrophic Health Expenditure (CHE) in such households and the determinants associated with CHE.

Section 1

3.1.1 Socio-demographic details

As discussed in the methodology chapter, 145 households covering 721 participants were interviewed. The socio-demographic details of the head of the households are presented in table 1.

Table 1: Socio-demographic details of household head

Age of head of household (years)	**Frequency, N=145**
<=44 years	40(27.6%)
45-64 years	69 (47.6%)
>=65 years	36(24.8%)
*Mean age=52.79 years; SD=±12.7; Max=80; Min=25; Median=55	
Sex of head of the household	

Male	102 (70.3%)
Female	43 (29.7%)
Marital status	
Currently married	118 (81.4%)
Widow/Widower/never married	27 (18.6%)
Religion	
Hindu	83 (57.2%)
Muslim	62 (42.8%)
Caste category	
General	58 (40.0%)
OBC/SC	87 (60.0%)
Education of head of the household	
No formal schooling	58 (40%)
Formal schooling	80 (55.2%)
Graduation and above	7 (4.8%)
Occupation of the head of the household	
Self employed	23 (15.9%)
Casual labour	49 (33.8%)
Salaried in the informal sector	25 (17.2%)
Unemployed	26 (17.9%)
Pensioners	22 (15.2%)
Type of family	
Nuclear	83 (57.2%)
Joint family/extended	62 (42.8%)

House ownership	
Personally owned houses	119 (82.1%)
Government houses	26 (17.9%)
Ration Card Type	
Patragrahsthi	111 (76.6%)
Antyodaya	34 (23.4%)
Number of family members	
1-4 member	54 (37.2%)
5+ member	91 (62.8%)
Mean 4.97±1.84; Median =5; Max =13; Min =1; Range =12	
Yearly Family income	
INR <=1,00,000	79 (54.5%)
INR >1,00,000	66 (45.5%)
MEAN (INR 1,01,406 ± ₹37,028) Median= 96000	
Yearly Consumption Expenditure	
INR <=1,00,000	71 (49.0%)
INR >1,00,000	74 (51.0%)
Mean (INR 1,25,362.30 ± ₹97,389.35) Median=102065	
Insurance Status	
No insurance	112 (77.2%)
PMJAY	33 (22.8%)

The socio-demographic profile of the 145 BPL households interviewed reveals that the mean age of the heads of households was 52.79 years, with the majority aged between 45 and 64 years. Males constituted 70.3 percent of the household heads, and 81.4 percent were currently married. In terms of religion, 57.2 percent were Hindu and 42.8 per cent Muslim, while the caste distribution showed 40 per cent from the General category, and 60 percent from the OBC/SC category. Educationally, 40 percent had no formal schooling, and only 4.8 percent had education up to graduation or above. A significant portion were engaged in casual labour (33.8 percent), while 17.9 percent were unemployed. Nuclear families accounted for 57.2 percent of households. Notably, 82.1 percent lived in personally owned houses, while 17.9 percent resided in government-provided housing under the Pradhan Mantri Awas Yojana (PMAY). Most households held a Patragrahsthi ration card (76.6 per cent), and 62.8 percent had 5 and above members, with a median family size of 5. Regarding income, 45.5 percent earned above ₹1,00,000 annually, with a mean income of ₹1,01,406, while 51 percent reported consumption expenditure above ₹1,00,000, with a mean of ₹1,25,362. Only 22.8 percent of households were covered under PMJAY.

3.2 Healthcare Utilization Pattern of Households

Among the 145 households, 37.9 percent (n=55) reported experiencing hospitalization in the past year prior to data collection, 46.9 percent (n=68) had sought outpatient consultation in the last 30 days before data collection. Overall, 71.7 percent (n=104) of households accessed at least one form of healthcare service-either hospitalization, outpatient consultation, or both prior to data collection.

A total of 51 percent of total Out-of-Pocket Expenditure (OOPE) among the surveyed below-poverty-line (BPL) households was on Inpatient care (IPD) and 49 per cent of total OOPE was on Outpatient care (OPD).

Section 2

3.2.1 Out-of-pocket expenditure

3.2.1.1 OOPE across all households (n=145)

As discussed in the methodology section, out-of-pocket expenditure (OOPE) was calculated across all 145 households. Table 2 presents the out-of-pocket expenditure (OOPE) for inpatient and outpatient services across all 145 households. The mean OOPE for inpatient care was INR 18,823.13 (SD ± ₹63,805.02), while for outpatient care, it was INR 17,852.11 (SD ± ₹41,269.37). The trimmed mean and interquartile range (IQR) are also reported to account for the skewed distribution of costs.

Table 2: Annual Out-of-Pocket Expenditure (OOPE) for Inpatient and Outpatient Care Among All Households

Type of expenditure	Mean, SD	Trimmed mean	IQR	95% CI
Inpatient care	18,823.13 ± 63,805.02	8,477.74	11,601	8,349.82 – 29,296.45
Outpatient care	17,852.11 ± 41,269.37	10,973.61	20,400	11,077.92 – ₹24,626.30

3.2.1.2 Factors contributing to Inpatient OOPE (All Households)

To identify the determinants of out-of-pocket expenditure for inpatient care among all households, A bivariate analysis was performed to assess whether socio-demographic characteristics were associated with the use of inpatient healthcare services. The results are summarised in Table 3.

Table 3: Association of Socio-Demographic Characteristics with Inpatient Healthcare Utilization Among all Households

Variable	Category	Not used inpatient services n (%)	Used inpatient services n (%)	Test statistic	p-value	Unadjusted odds ratio	p-value
Tehsil	Tehsil 1 Tehsil 2	39(43.3%) 51(56.7%)	34(61.8%) 21(38.2%)	4.666[a]	**0.04***	2.11(1.06-4.20) 1	**.032** -
Religion	Hindu Muslim	55(61.1%) 35(38.9%)	28(50.9%) 27(49.1%)	1.45[a]	0.22*	1.51(0.77-2.98) 1	0.2 -
Education	No formal schooling Formal schooling Graduation and above	41(45.6%) 44(48.8%) 5(5.6%)	17(30.9%) 36(65.5%) 2(3.6%)	3.718	0.15**	1 1.97(0.96-4.04) 0.96(0.17-5.46)	- 0.06 0.96
Age	<=44 years 45-64 years 65years+	21(23.3%) 45(50.0%) 24(26.7%)	19(34.6%) 24(43.6%) 12(21.8%)	2.169[a]	0.33*	1 0.58(0.26-1.30) 0.55(0.21-1.40)	- 0.19 0.21

***chi-square **fisher-exact test**

Among all factors examined, in the bivariate analysis, only the tehsil was found to be significantly associated with inpatient service utilisation (p = 0.032). Households in Tehsil 1 were 2.11 times more likely to use inpatient services than those living in Tehsil 2 (OR = 2.11; 95 percent CI: 1.06–4.20). Religion, education, age, and other socio-demographic factors were not statistically significant at 0.05 significance level.

3.2.1.3 Factors contributing to Outpatient OOPE (All Households)

To identify the determinants of out-of-pocket expenditure for outpatient care among all households, A bivariate analysis was performed to assess whether socio-demographic characteristics were associated with the use of outpatient healthcare services. The results are summarised in Table 4.

Table 4: Association of Socio-Demographic Characteristics with Outpatient Healthcare Utilization among all households

Variable	Category	Not used outpatient services n (%)	Used out-patient services n (%)	Test statistic	p-value	Unadjusted odds ratio	p-value
Tehsil	Tehsil 1 Tehsil 2	28(36.4%) 49(63.6%)	45(66.2%) 23(33.8%)	12.839[a]	**<0.01***	3.42(1.72-6.78) 1	**<0.01** -
Gender	Female Male	12(15.6%) 65(84.4%)	31(45.6%) 37(54.4%)	15.583[a]	**<0.01***	4.53(2.08-9.89) 1	**<0.01** -
Consumption expenditure	<=1,00,000 >1,00,000	48(62.3%) 29(37.7%)	23(33.8%) 45(66.2%)	11.749[a]	**<0.01***	0.309(0.156-0.611) 1	**<0.01**
Age	<=44 years 45-64 years	21(27.3%) 31(40.3%)	19(27.9%) 38(55.9%)	5.718[a]	**.057***	2.05(0.80-5.27)	0.13 **0.01**

	65years+	25(32.4%)	11(16.2%)			2.78(1.18-6.53) 1	-

***chi-square**

Outpatient service utilisation was significantly associated with several socio-demographic factors in bivariate analysis. Compared to households in Tehsil 2, households in Tehsil 1 were more likely to access outpatient services (OR = 3.42, $p < 0.01$). females had significantly higher odds of using outpatient care than males (OR = 4.53, $p < 0.01$). Concerning annual consumption expenditure, households in the <=1,00,000 category (OR = 0.30, $p < 0.01$) had a far lower likelihood of using outpatient treatments than those who spent more than ₹1,00,000.The overall chi-square test for age was marginally non-significant ($p = 0.057$), but unadjusted odds ratios indicated significantly greater odds of use for those aged 45–64 years as compared to those 65 and above (OR = 2.78, $p = 0.01$), though for individuals aged ≤44 years there was non-significant difference in use by age (OR = 2.05, $p = 0.13$). Other socio-demographic factors were not statistically significant at 0.05 significance level.

3.3 OOPE Among hospitalised households

As discussed in the methodology section, out-of-pocket expenditure (OOPE) was also calculated for households who reported at least one hospitalization / at least one OPD visits prior to data collection.

3.3.1 Inpatient Care Expenditure

Among households that reported hospitalization in the past year (n = 55), the mean OOPE was INR 49624.62 ± 96433.38. Households with a single episode of illness (n = 40) had a mean expenditure of INR 35,748.25 ± 78,461.95, while those with more than one episode

(n = 15) had a higher mean expenditure of INR 86,628.40 ± 129,237.06. The mean per person OOPE among these 55 households was INR 10,116.19 (SD ± ₹17,507.91), with a median of ₹4,750. The following results are presented in table 5.

Table 5: Annual Inpatient OOPE Based on Number of Illness Episodes Among Households with Hospitalization

Hospitalization status	n (%)	Mean Expenditure (INR ± SD)	Trimmed mean (5%)	Median	IQR	95% CI
Hospitalized in last 365 days	55(37.9%)	INR 49624.62 ± 96433.38	32,349.96	21350.00	45,150	23,555.03 – ₹75,694.21
One episode of illness	40(72.7%)	INR 35,748.25 ± 78,461.95	22,651.61	14850.50	31,227	10,654.84 – ₹60,841.56
More than one episode of illness	15(27.3%)	INR 86,628.40 ± 129,237.06	66,210.33	52750.00	62,901	15,059.30 – ₹1,58,197.50

3.3.1.1 Cost Breakdown of Hospitalization Episodes

The hospitalization-related costs were categorized into direct medical costs, direct non-medical costs, and indirect costs. The breakdown of cost distribution for one-time and multiple hospitalization cases is presented in figure 2.

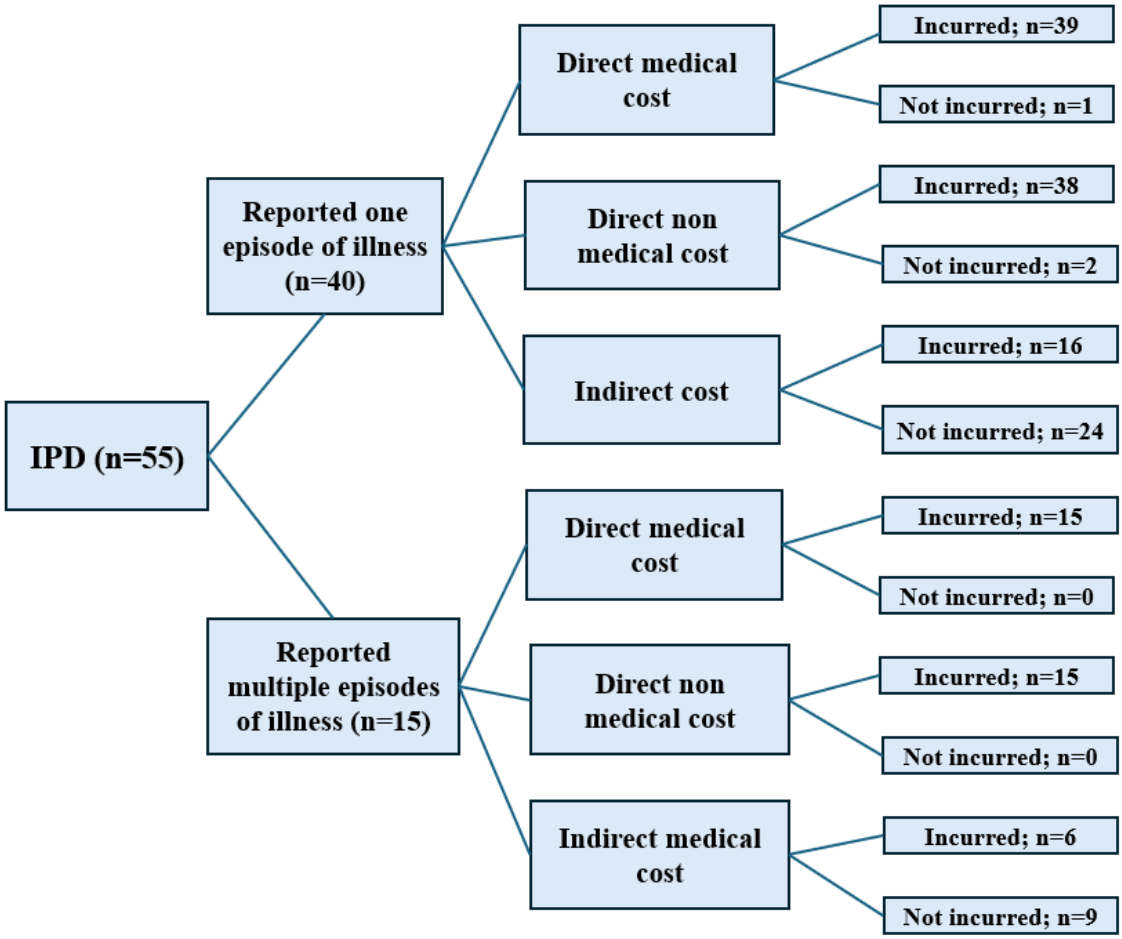


Figure 2: Cost distribution of hospitalization episodes

Table 6: Breakdown of Direct and Indirect Costs of Inpatient Care by Number of Illness Episodes

Hospitalization type	Cost type	n (%)	Mean Expenditure (INR ± SD)	Trimmed mean (5%)	Median	IQR

One episode of illness (n=40)	Direct medical cost	39	32,891.2± 69,139.3	21,330.71	14700	31740
	Direct non-medical cost	38	1,575.5 ± 3,413.30	1,004.27	725	1,028
	Indirect cost	16	5,456.2 ± 10992.8	3,545.83	2500	2,650
More than one episode (n=15)	Direct medical cost	15	77,070.40± 125,818.88	57,111.56	50250	62,350
	Direct non-medical cost	15	4,738.00 ± 5,763.38	4,103.33	2300	5,150
	Indirect cost	6	12,050.00±8,989.27	11,805.56	11800	16,525

The cost breakdown of hospitalization episodes revealed substantial variation between households with a single episode and those with multiple episodes of illness as mentioned in table 6. Among households with one episode (n=40), the mean direct medical cost was INR 32,891.2 (SD ± INR 69,139.3), direct non-medical cost was INR 1,575.5, and indirect cost was INR 5,456.2. In contrast, households with more than one episode (n=15) incurred significantly higher costs, with a mean direct medical cost of INR 77,070.4 (SD ± INR 1,25,818.9), non-medical cost of INR 4,738.0, and indirect cost of INR 12,050.0.

3.3.1.2 Factors contributing to High Inpatient OOPE (hospitalized Households)

As discussed in methodology chapter, median inpatient care threshold was taken as binary outcome in analysis and results are presented in table 7.

Table 7: Bivariate Analysis of Factors contributing to High Inpatient Out-of-Pocket Expenditure

Variable	Category	OOPE median <=21350 n (%)	OOPE median >21350 n (%)	Test statistic	p-value	Unadjusted odds ratio	p-value
Caste category	General OBC/SC	5(17.9%) 23(82.1%)	15(55.5%) 12(44.5%)	8.442[a]	**<0.01***	5.750(1.682-19.661) 1	**<0.01**
Consumption expenditure	<=1,00,000 >1,00,000	20(71.4%) 8(28.6%)	3(11.1%) 24(88.9%)	20.554[a]	**<0.01***	0.050(0.012-0.214) 1	**<0.01**
No of episodes	1 >1	26(92.9%) 2(7.1%)	14(51.9%) 13(48.1%)	11.652[a]	**<0.01***	0.083(0.016-0.420) 1	**<0.01**
Duration of days	1-3 days 4 days+	18(64.3%) 10(35.7%)	4(14.8%) 23(85.2%)	14.017[a]	**<0.01***	0.097(0.026-0.359) 1	**<0.01**
Type of facility	Public hospital Private hospital/ both	13(46.4%) 15(53.6%)	2(7.4%) 25(92.6%)	10.552[a]	**<0.01***	0.092(0.018-0.467) 1	**<0.01**
Distance	<=20kms >20kms	20(71.4%) 8(28.6%)	7(25.9%) 20(74.1%)	11.388[a]	**<0.01***	0.140(0.043-0.460) 1	**<0.01**

***chi-square**

In the bivariate analysis of inpatient OOPE above the median value (₹21,350), several factors showed significant associations. Households belonging to the General caste category had a substantially higher likelihood of high inpatient OOPE than OBC/SC (OR: 5.750, $p<0.01$). Households with annual consumption expenditure ≤ ₹1,00,000 were less likely to incur high OOPE compared to those whose consumption expenditure was > ₹1,00,000 (OR: 0.050, $p<0.01$). Patients with 1 episode of hospitalization and with 1–3 days of hospitalisation had lower odds of having high OOPE compared with patients with more episodes and longer stays. Households utilising public hospitals and those located within 20 km of the hospital were less likely to incur high OOPE than those using private/both hospitals and those farther away. Other sociodemographic variables and hospitalization related factors did not show statistically significant associations at the 0.05 level.

3.3.1.3 Individual-Level Inpatient Care Utilization (n = 721)

Among 721 individuals, 67 were hospitalized in the past one year prior to the data collection. Most had a single episode (89.6 percent), and more than half stayed over four days. About 64 percent received care within 20 km. Private hospitals/mixed facility were preferred by 71.7 percent. Medical conditions were the leading cause of hospitalization (68.7 percent). To cover costs, 40.3 percent relied on help from relatives, while 34.3 percent used savings. Although 23 individuals were PMJAY beneficiaries, only 5 availed services, and 9 were denied by hospitals and the results are shown in table 8.

Table 8: Individual-Level Patterns of Inpatient Care Utilization and Financing Mechanisms

Variables (n=721)	Category	N (%)
Hospitalized in last 365 days	• Yes • No	67 (9.3%) 654 (90.7%)
No. of episodes	• 1episodes • > 1episodes	60 (89.6%) 7(10.4%)
Duration of inpatient care episodes	• 1-3 days • 4 days and above	28 (41.8%) 39 (58.2%)
Distance	• <=20kms • >20 kms	43 (64.2%) 24 (35.8%)
Type of hospital	• Public hospital • Private hospital/both	19 (28.3%) 48 (71.7%)
Reason for hospitalization	• Medical condition • Surgery • Both	46 (68.7%) 18 (28.9%) 3 (4.5%)
Sources of financing	• Income and savings • Contribution from friends and relatives • Loan from friends and relatives	23 (34.3%) 27 (40.3%) 10 (14.9%)

	• Borrowings, sold of physical assets	7 (10.4%)
Insurance status	• No insurance • PMJAY	43 (65.7%) 23 (34.3%)
Among PMJAY holders (n=23)	• Availed • Not availed • Hospital refused	5 (21.7%) 9 (39.1%) 9 (39.1%)

3.3.1.4 Distribution of Diseases of Inpatient care Participants

Among the hospitalized participants, Gastrointestinal illnesses were the leading cause of hospitalization, accounting for 20 percent of admissions. This was followed by infections (13.3 percent) and genito-urinary conditions (12.1 percent). Injuries (12.0 percent), psychiatric and neurological disorders (9.3 percent), and cardiovascular conditions (9.3 percent) were also common. Respiratory illnesses made up 8 percent of cases, while eye-related conditions and musculoskeletal disorders contributed 5.3 percent and 4 percent, respectively. A smaller number of hospitalizations were due to endocrine, metabolic, and nutritional disorders (2.7 percent), cancer (2.7 percent), and blood diseases (1.3 percent). The distribution of these conditions is visually represented in the figure 3.

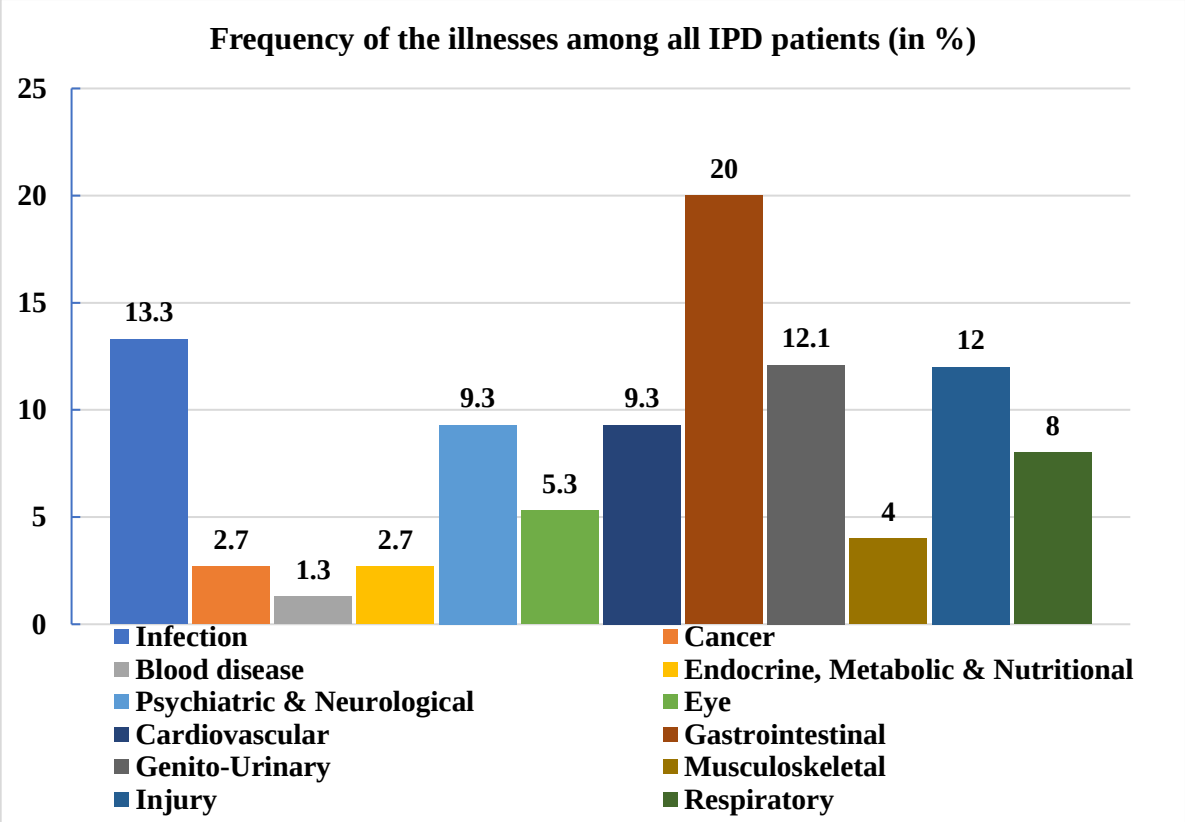


Figure 3: Frequency of the illnesses among all IPD patients

3.3.1.5 Contribution of Different Cost Components to Total Inpatient OOPE

The average out-of-pocket expenditure (OOPE) per hospitalisation was INR 35,317 (SD ± INR 68,584), with a median of INR 16,550. The total expenditure was disaggregated into specific cost components to identify major areas of spending. Admission charges constituted the largest share at 46 percent, followed by expenses on medicines purchased outside the hospital (11.6 percent), diagnostics (11.1 percent), and medicines provided by the hospital (10.9 percent). Additional costs included food (2.7 percent), bed charges (2.4 percent), transport (1.6 percent), doctor's fees (0.7 percent), and miscellaneous expenses (13 percent). In figure 4, bar chart b visually represents the percentage-wise distribution of OOPE across different cost categories.

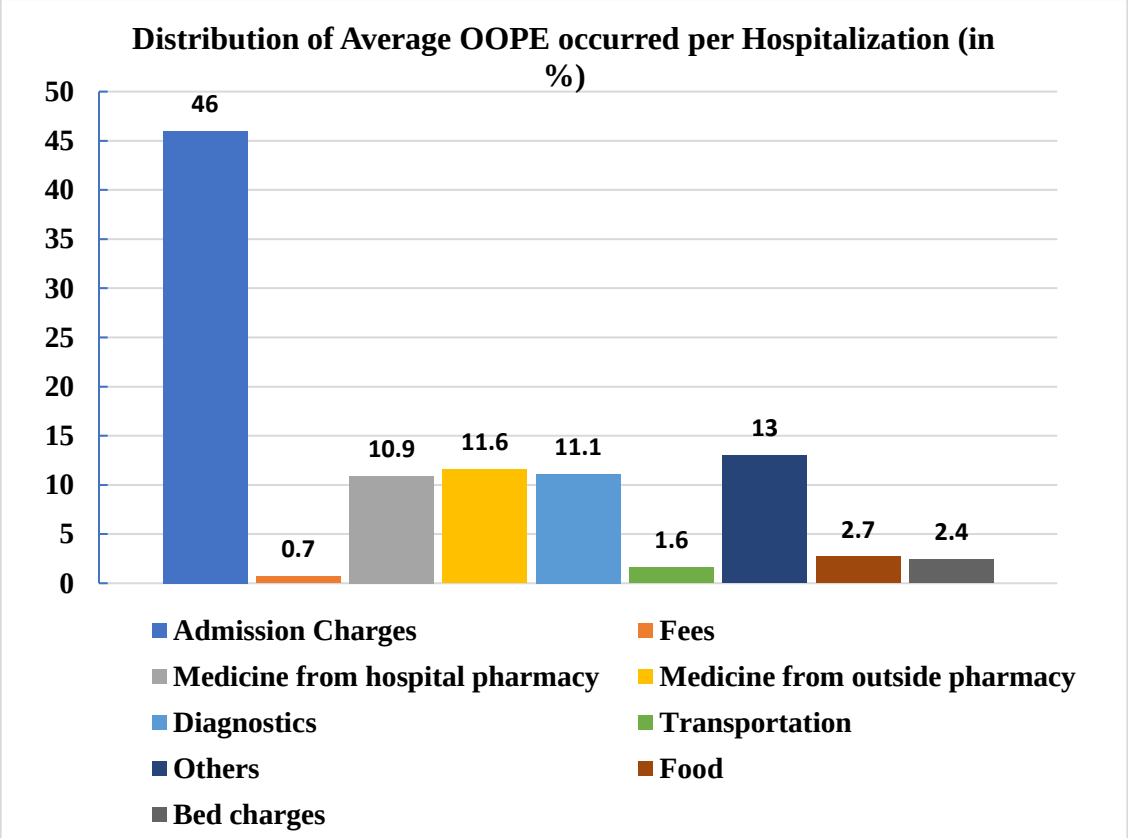


Figure 4: Distribution of average OOPE occurred per hospitalization

3.3.2 Out-patient care expenditure

Among the 145 surveyed households, 46.9 percent (n=68) sought OPD consultations in the last 30 days prior to data collection, with a mean expenditure of INR 38,067.00 ± 53,661.16. Of these, 77.9 percent (n=53) had one OPD consultation, while 22.1 percent (n=15) reported more than one consultation as mentioned in table 9. Households with multiple OPD consultations incurred significantly higher costs compared to those with a single visit. The yearly mean per person Out-of-Pocket Expenditure (OOPE) among these 68 households for outpatient (OPD) services was INR 9,020.62, with a median of INR 5,100.00. The standard deviation was INR 13,981.63.

Table 9: Annual outpatient expenditure by number of OPD visits

OPD Consultation Status	n (%)	Mean Expenditure (INR ± SD)	Trimmed mean (5%)	Median	IQR
Sought OPD consultation	68(46.9%)	INR 38,067.00±53,661.16	28,720.39	21000	35,991
One OPD consultation	53(77.9%)	INR 32,977.13 ± 41,380.82	27,354.21	20880.00	31,608
More than one OPD consultation	15(22.1%)	INR 55,843.20 ± 83,641.88	46,713.33	21120.00	43,008

3.3.2.1 Cost Breakdown of OPD Consultations

The OPD-related costs were categorized into direct medical costs, direct non-medical costs, and indirect costs. The breakdown of cost distribution for one-time and multiple OPD cases is presented in Figure 5.

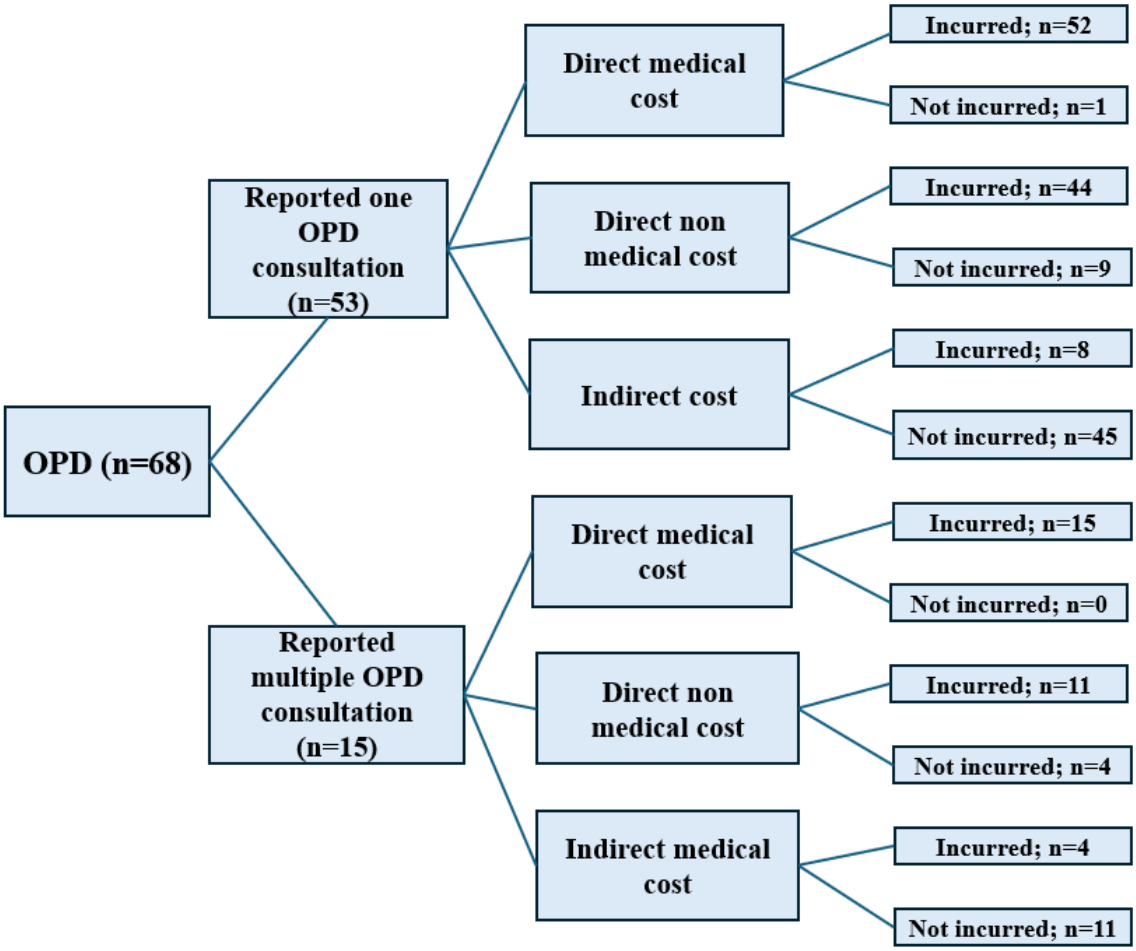


Figure 5: Cost distributions of OPD consultations

3.3.2.2 Cost Breakdown of OPD Consultations

Households with multiple OPD consultations had substantially higher healthcare costs compared to those with a single visit. The mean direct medical cost for a single OPD visit was INR 2,418.6, whereas for multiple consultations, it rose to INR 3,788.9. Similarly, indirect costs were higher in households experiencing multiple OPD visits as given in table 10.

Table 10: Direct and Indirect Costs for OPD Consultations Based on Visit Frequency

OPD type	Cost type	n	Mean Expenditure (INR ± SD)	Trimmed mean (5%)	Median	IQR

One OPD visit (n=53)	Direct medical cost	52	29,023.62± 36,092.06	24,458.46	17,400.00	32,337
	Direct non-medical cost	44	3,553.64 ± 6,734.15	2,395.76	1,200.00	2,040
	Indirect cost	8	10,275.00± 11,144.22	9,350.00	7,200.00	8,850
More than one OPD visit (n=15)	Direct medical cost	15	45,467.20± 66,539.89	38,085.11	20,400.00	36,000
	Direct non-medical cost	11	10,003.64± 20,400.73	7,168.48	3,840.00	5,280
	Indirect cost	4	11,400.00 ± 4,849.74	11,266.67	10,200.00	9,000

3.3.2.3 Factors contributing to high Outpatient care OOPE (n=68)

As discussed in methodology chapter, median out-patient care threshold was taken as binary outcome in analysis. The following results are presented in table 11.

Table 11: Bivariate Analysis of Factors contributing to High outpatient Out-of-Pocket Expenditure

Variable	**Category**	**OOPE Median <=21000 n (%)**	**OOPE median >21000 n (%)**	**Test statistic**	**p-value**	**Unadjusted odds ratio**	**p-value**
Income	<=1,00,000	13(38.2%)	22(64.7%)	4.769[a]	**0.029***	2.962(1.104-7.942)	**0.031**
	>1,00,000	21(61.8%)	12(35.3%)			1	-

Consumption expenditure	<=1,00,000 >1,00,000	16(47.0%) 18(53.0%)	7(20.6%) 27(79.4%)	5.322[a]	**0.021***	0.292(0.100-0.850) 1	**0.024** -
Type of facility	Public hospital Private hospital/both	14(41.2%) 20(58.8%)	6(17.6%) 28(82.4%)	4.533[a]	**.033***	0.306(0.100-0.934) 1	**0.037** -
Distance	<=20kms >20kms	29(85.3%) 5(14.7%)	21(61.8%) 13(38.2%)	4.836[a]	**0.028***	0.279(0.086-0.901) 1	**0.033** -

***chi-square**

Among the 68 households who sought outpatient care in the 30 days before data collection, socio-demographic variables such as age, gender, caste, education, employment, insurance status, ration card type, and family type were not statistically significant at 0.05 significance level for high outpatient OOPE. However, income, consumption expenditure, type of facility, and distance to the facility were significantly associated with higher OOPE in the bivariate analysis. Households with annual income ≤ ₹1,00,000 had significantly more odds of incurring high outpatient OOPE than those with income > ₹1,00,000 (OR: 2.962, $p<0.05$). In contrast, having an annual consumption expenditure of ≤ ₹1,00,000 had a significantly reduced odds of having a high OOPE as compared to the previously mentioned households (OR: 0.292, $p<0.05$). Households using public facilities were less likely (OR: 0.306, $p<0.05$) to incur high outpatient OOPE than those using private or mixed facilities. Likewise, respondents who lived within 20 km of healthcare institutional were significantly

less likely to incur high OOPE compared to those who lived outside this distance (OR: 0.279, $p<0.05$).

3.3.2.4 Individual-Level Outpatient Care Utilization (n = 721)

Among the 721 study participants residing in 145 households, 81 individuals sought OPD care in the last one month prior to data collection. Among them, most (93.8 percent) having a single episode of illness. Acute conditions were more common (65.4 percent) than chronic ones (34.6 percent). The majority (81.5 percent) travelled ≤20 km for healthcare, while 18.5 percent covered over 20 km. Notably, private healthcare/mixed facilities were preferred by 70.4 percent of individuals, compared to 29.6 percent who visited public hospitals as depicted in table 12.

Table 12: Individual-Level Outpatient Care Utilization Patterns

Variables (n=721)	**Category**	**N (%)**
Sought for OPD consultation in last 30 days	• Yes • No	81 (11.2%) 640(88.8%)
No. of episodes	• 1episodes • > 1episodes	76(93.8%) 5(6.2%)
Type of illness	• Acute • Chronic	53(65.4%) 28(34.6%)

Distance	• <=20kms • >21 kms	66(81.5%) 15(18.5%)
Type of hospital	• Public hospital • Private hospital/both	24(29.6%) 57(70.4%)

3.3.2.4.1 Distribution of disease of Outpatient care Participants

Out of 81 participants, the most frequently reported issue was infections, affecting 23 percent of the cases. This was followed by musculoskeletal disorders in 13.8 percent of participants, gastrointestinal diseases in 11.5 percent, and genitourinary conditions in 8 percent. psychiatric and neurological disorders, were seen in 7.2 percent, while cardiovascular diseases affected 6.9 percent of the individuals. Conditions related to the respiratory system, endocrine/metabolic/nutritional disorders, eye, and skin diseases were each reported in 5.7 percent of cases. Injuries accounted for 3.4 percent, whereas ear diseases were the least common, occurring in 1.1 percent participants. Some other conditions made up 2.3 percent of the total cases as in figure 6, bar chart gives a visual representation of the disease distribution among the participants.

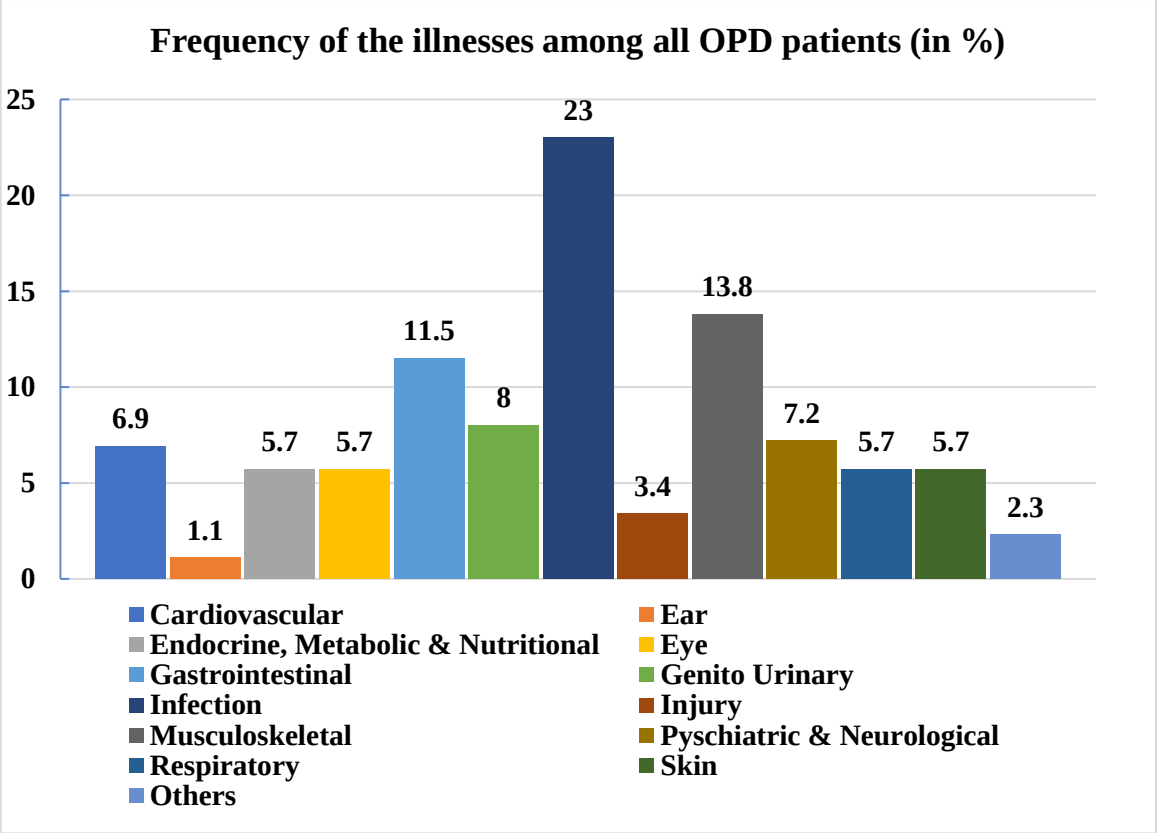


Figure 6: Frequency of the illnesses among all OPD patients

3.3.2.4.2 OOPE distribution for OPD consultation

Considering a median of INR 18,600, the mean out-of-pocket payment per outpatient consultation remained INR 31,380 (SD ± INR 45,558). Hospital pharmacy medicines were the main source of expense, contributing about 27 percent of the total. 22 percent came from diagnostic testing, and 14 percent occurred from outside-purchased medications. Doctor's consultation fees formed 7 percent of the cost. Transportation expenses stood at 8 percent, food was minimal at 2 percent, and the remaining 20 percent was attributed to miscellaneous expenses. Figure 7 shows the distribution of OOPE among OPD patients, highlighting the key areas where individuals bear financial costs.

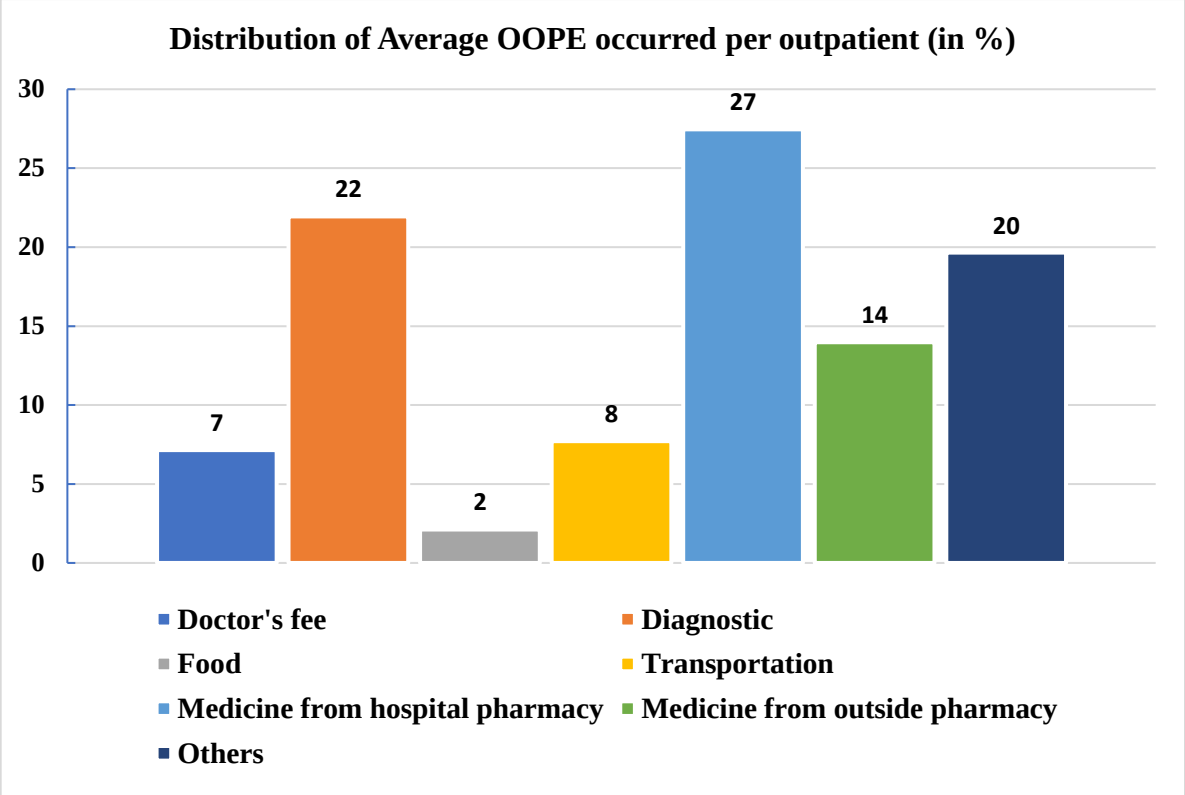


Figure 7: Distribution of average OOPE occurred per hospitalization

3.3.3 Comparison of Annual Mean and Median OOPE for Inpatient and Outpatient Services Among Households with Single and Multiple Illness Episodes

The mean and median annual out-of-pocket expenditure (OOPE) per household for inpatient (IPD) and outpatient (OPD) services are shown in figure 8. For households that experienced a single episode of illness, the mean OOPE for IPD was INR 35,748.25**,** while the median was INR 14850.50. In contrast, households with multiple episodes of illness incurred a higher mean OOPE of INR 86,628.40**,** with a median of INR 52,750. The OPD expenditure followed a similar trend, with higher OOPE observed among households experiencing multiple illness episodes with the mean OOPE was INR 55843.20, and the median was 21,120 compared to a single episode in which the mean was INR 32,977 and the median was 20,880. When considering the total burden (both single and multiple

episodes combined), the mean annual OOPE per household was INR 49,624.62 for IPD and INR 38,067 for OPD.

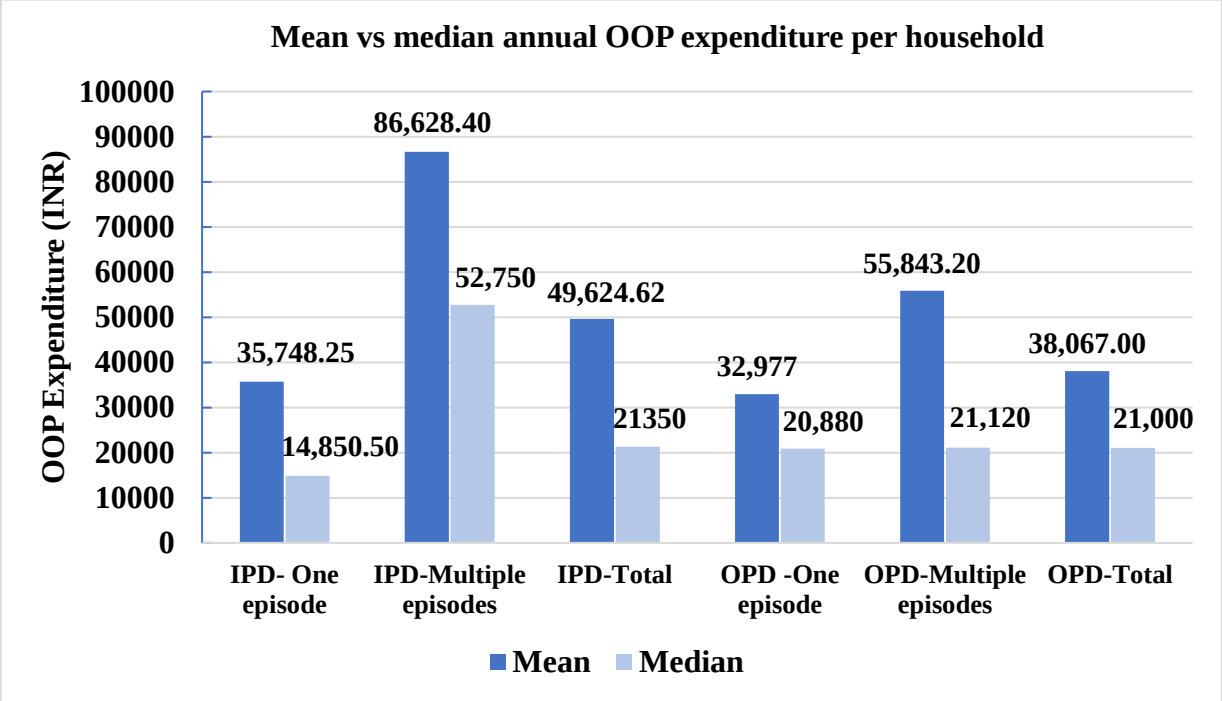


Figure 8: Comparison of Annual Mean and Median OOPE for Inpatient and Outpatient Services Among Households with Single and Multiple Illness Episodes

3.4 CATASTROPHIC HEALTH EXPENDITURE

As discussed in the methodology section, Catastrophic Health Expenditure (CHE) was assessed using both the Budget Share and Capacity to Pay (CTP) approaches.

3.4.1 Catastrophic Health Expenditure (CHE) Among households with at least one hospitalization and at least one outpatient visit based on 10% and 40% thresholds

Among the 55 households that reported hospitalization (IPD), 74.5 percent incurred CHE at the 10 percent threshold, and 41.8 percent at the 40 percent CTP threshold. Similarly, out of 68 households that sought outpatient care (OPD), 76.5 percent experienced CHE at the 10 percent threshold, and 47.9 percent at the 40 percent threshold. The table 13 below

presents the distribution of CHE based on budget share approach, i.e. 10 percent, and the capacity to pay approach, i.e. 40 percent threshold.

Table 13: Catastrophic Health Expenditure Among Households Utilizing Inpatient and Outpatient Services

Variables	**CHE < 10% (N, %) (not incurred CHE)**	**CHE > 10% (N, %) (incurred CHE)**	**CHE < 40% (N, %) (not incurred CHE)**	**CHE > 40% (N, %) (incurred CHE)**
CHE among households who sought hospitalization (n=55)	14(25.5%)	41(74.5%)	32(58.2%)	23(41.8%)
CHE among households who sought OPD consultation (n=68)	16(23.5%)	52 (76.5%)	36(52.9%)	32(47.9%)

Figure 9 represents the percentage of catastrophic health expenditure among BPL Households by Type of Service Utilization (IPD vs OPD).

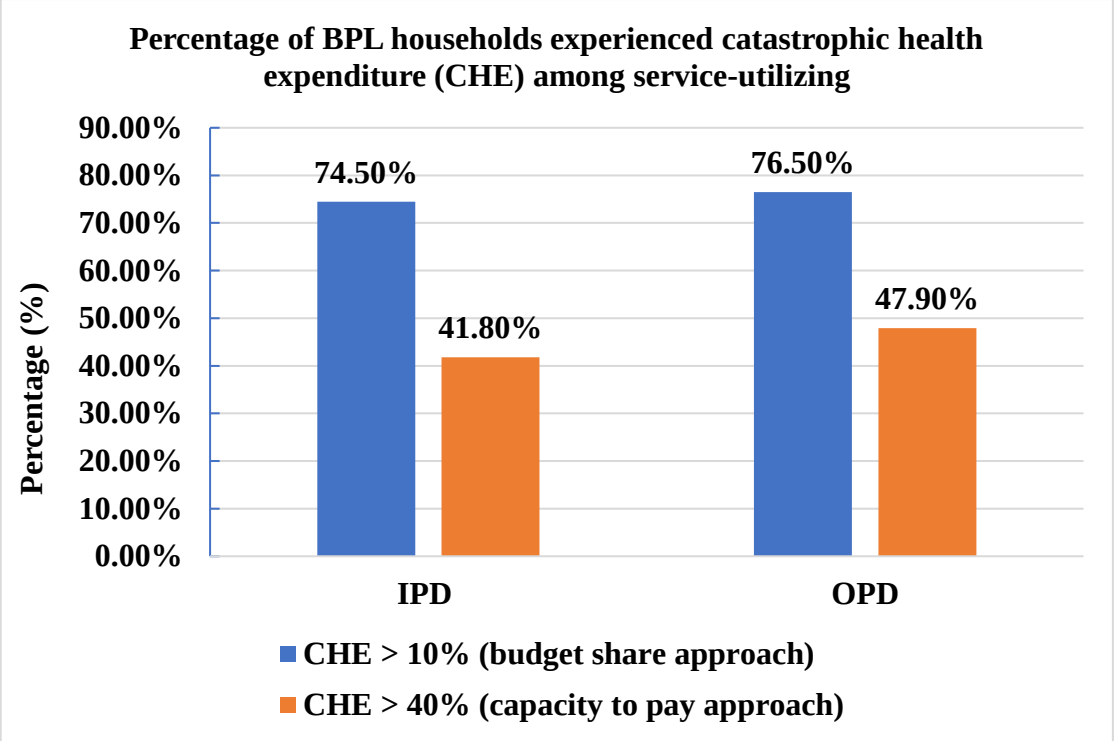


Figure 9: Percentage of Catastrophic Health Expenditure among BPL households by type of service utilization

3.4.2 Factors contributing to Catastrophic Health Expenditure among households with at least one hospitalization at both budget share approach and capacity to pay approach

a) At 10 percent threshold

Bivariate analysis identified significant associations among hospitalised households between CHE and consumption expenditure, duration of stay, facility type, and distance to the hospital. At the 10 percent Budget Share threshold, several factors were significantly associated with the likelihood of incurring Catastrophic Health Expenditure (CHE) among inpatient care utilising households. Households with lower annual consumption expenditure (≤ INR 1,00,000) were less likely to incur CHE than those spending > INR 1,00,000, although the association was marginally significant (OR: 0.288, 95% CI: 0.081–1.025, p=0.055). Results are presented in table 14, where Prevalence of CHE was

significantly lower in patients with shorter hospital stays (1–3 days) as compared to longer hospital stays (4+ days) (OR: 0.100, 95% CI 0.023–0.427, p<0.01). In addition, households using public healthcare facilities had a lower risk of developing CHE than those using private or mixed facilities (OR: 0.095, 95% CI: 0.024–0.384, p<0.01). Moreover, distance to the healthcare facility was a strong factor, with households living within 20 km of a hospital having significantly lower odds of CHE than those living farther away (OR: 0.096, 95% CI: 0.019–0.489, p<0.01).

Other sociodemographic and hospitalisation-related variables, such as age, gender, religion, caste, household size, reason for hospitalisation, etc., were not statistically significant for CHE at the 0.05 significance level.

Table 14: Bivariate Analysis of Factors contributing to CHE at 10% Threshold Among Households with Hospitalization

Variable	**Category**	**CHE at 10% threshold n (%) (not incurred)**	**CHE at 10% threshold n (%) (incurred)**	**Test statistic**	**P-value**	**Unadjusted odds ratio**	**p-value**
Consumption expenditure	<=1,00,000 >1,00,000	9(64.3%) 5(35.7%)	14(34.1%) 27(65.9%)	3.896[a]	**0.048***	0.288(0.081-1.025) 1	**0.055** **-**

Duration of stay	1-3 days 4+days	11(78.6%) 3(21.4%)	11(26.8%) 30(73.2%)	11.642[a]	**<0.01***	0.100(0.023-0.427) 1	**<0.01** **-**
Type of facility	Public hospital Private hospital/ Both	9(64.3%) 5(35.7%)	6(14.6%) 35(85.4%)	12.971[a]	**<0.01***	0.095(0.024-0.384) 1	**<0.01** **-**
Distance	<=20kms >20kms	12(85.7%) 2(14.3%)	15(36.6%) 26(63.4%)	10.079[a]	**<0.01***	0.096(0.019-0.489) 1	**<0.01** **-**

***chi-square**

b) At 40 percent threshold

The incidence of CHE for inpatient care utilising households was significantly associated with multiple factors at the 40 percent Capacity to pay (CTP) threshold. Households with shorter lengths of hospital stay (1–3 days) had significantly lower odds of reporting CHE compared to those with longer lengths of stay (4+ days) (OR: 0.245, 95% CI: 0.073–0.822, p=0.023) as mentioned in table 15. Likewise, individuals using public hospitals had significantly lower odds of CHE than those utilising private or mixed facilities (OR: 0.139, 95% CI: 0.028–0.698, p=0.017). Households with only one or fewer episodes of hospitalisation also had much lower odds of experiencing CHE than those with multiple episodes (OR: 0.156, 95% CI: 0.041–0.589, p<0.01). Households that lived within 20 km of a hospital, faced much lower odds of CHE than those that lived farther away from a hospital (OR: 0.126, 95% CI: 0.036–0.437, p<0.01). Other sociodemographic and hospitalisation-related variables, such as age, gender, religion, caste, household size, reason

for hospitalisation etc, were not found to be statistically significant for CHE at the 0.05 significance level.

Table 15: Bivariate Analysis of Factors contributing to CHE at 40% Threshold Among Households with Hospitalization

Variable	Category	CHE at 40%threshold n (%) (not incurred)	CHE at 40 % threshold n (%) (incurred)	Cross tabulation	p-value	Unadjusted odds ratio	p-value
Duration of stay	1-3 days 4+days	17(53.2%) 15(46.8%)	5(21.7%) 18(78.3%)	5.493[a]	**0.019***	0.245(0.073-0.822) 1	0.023 -
Type of facility	Public hospital Private hospital/ Both	13(40.6%) 19(59.4%)	2(8.7%) 21(91.3%)	6.878[a]	**<0.01***	0.139(0.028-0.698) 1	**0.017** **-**
No of episodes	<= 1 >1	28(87.5%) 4(12.5%)	12(52.2%) 11(47.8%)	8.419[a]	**<0.01***	0.156(0.041-0.589) 1	**<0.01** **-**
Distance	<=20kms >20kms	22(68.7%) 10(31.2%)	5(21.7%) 18(78.3%)	11.834[a]	**<0.01***	0.126(0.036-0.437) 1	**<0.01** **-**

***chi-square**

3.4.3 Factors contributing to Catastrophic Health Expenditure among households with at least one outpatient visits at both budget share approach and capacity to pay approach

a) At 10 percent threshold

For the 10 percent threshold of outpatient Catastrophic Health expenditure (CHE), we found that the odds of incurring CHE, were higher among households with annual income ≤ INR 1,00,000, compared to those with an income of > INR 1,00,000 (OR: 4.429, 95% CI: 1.256–15.611, p=0.021) as shown in table 16. Similarly, nuclear families showed 3.821 higher odds to develop CHE when compared to joint families (OR: 3.821, 95% CI: 1.153–12.666, p=0.028); and households with only one earning member had significantly more experience of outpatient CHE compared to households with more than one earner (OR: 5.909, 95% CI: 1.501–23.269, p=0.011).Other sociodemographic and out-patient visits-related variables, such as age, gender, religion, caste, household size, type of illness, type of facility, etc, were not found to be statistically significant for CHE at the 0.05 significance level.

Table 16: Bivariate Analysis of Factors Contributing to CHE at 10% Threshold Among Households with Outpatient Visits

Variable	Category	CHE at 10% threshold n (%) (not incurred)	CHE at 10 % threshold n (%) (incurred)	Cross tabulation	p-value	Unadjusted odds ratio	p-value
Income	<=1,00,000	4(28.6%)	31(59.6%)	5.869[a]	**0.015***	4.429(1.256-15.611)	**0.021**

	>1,00,000	12(85.7%)	21(40.4%)			1	-
Family type	Nuclear Joint family	5(31.2%) 11(68.8%)	33(63.5%) 19(36.5%)	5.149[a]	.023*	3.821(1.153-12.666) 1	**0.028** -
No of member earning	1 member >1 member	3(18.7%) 13(81.3%)	30(57.7%) 22(42.3%)	7.428[a]	**<0.01***	5.909(1.501-23.269) 1	**0.011** -

***chi-square**

b) At 40 percent threshold

Two factors were significantly associated with Catastrophic Health Expenditures (CHE) at the 40 percent Capacity to Pay threshold for outpatient care. Households having only one earning member have greater odds of outpatient CHE as compared to multiple earning members' households (OR: 2.949, 95% CI: 1.099–7.914, p=0.032). Households in close proximity to a healthcare facility (within 20 km) were also significantly less likely to incur outpatient CHE than households that lived more than 20 km away (OR: 0.236, 95% CI: 0.073–0.766, p=0.016).Other sociodemographic and out-patient visits-related variables, such as age, gender, religion, caste, household size, type of illness and type of facility were not found to be statistically significant for CHE at the 0.05 significance level as mentioned in table 17.

Table 17: Bivariate Analysis of Factors Contributing to CHE at 40% Threshold Among Households with Outpatient Visits

Variable	**Category**	**CHE at 40 % threshold**	**CHE at 40 % threshold**	**Cross tabulation**	**p-value**	**Unadjusted odds ratio**	**p-value**

		n (%) (not incurred)	**n (%) (incurred)**				
No of member earning	1member	13(36.1%)	20(62.5%)	4.723[a]	**.030***	2.949(1.099-7.914)	0.032
	>1member	23(63.9%)	12(37.5%)			1	-
Distance	<=20 kms	31(86.1%)	19(59.4%)	6.222[a]	**.013***	0.236(0.073-0.766)	**0.016**
	>20kms	5(13.9%)	13(40.6%)			1	-

CHAPTER 4

DISCUSSION

4.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

This study aimed to assess the healthcare financial burden among Below-poverty-line (BPL) households in the Sultanpur district of Uttar Pradesh. This study collected data from 145 below poverty line households. In Sultanpur, the socio-demographic profile of BPL households shows layers of vulnerability. Household heads were older, above 50 years, and nearly half were in the age group of 45–64 years, while the study done in urban Delhi showed, only about one- third belonged to this age group (S. Singh and Khokhar, 2023). About two-third of household heads were male and married. The religious composition shows that more than half were Hindu, and the rest belonged to the Muslim. Socially disadvantaged groups (OBC/SC) comprised nearly two-third of the sample, reflecting similar patterns found in study conducted in Himachal Pradesh (Gupta *et al.*, 2016).

The average household size was 4.5 in the study sample and according to Census 2011 the average household size in Sultanpur district was 6.09 (*Sultanpur-District Census*, 2011). Healthcare insurance coverage was found to be less than one-fourth while the study done in urban setting of Delhi found that about one-third of households are insured (S. Singh and Khokhar, 2023).

4.2 HEALTHCARE UTILIZATION PATTERN OF HOUSEHOLDS

The present study found that, above one-third of households reported at least one hospitalization, which is considerably lower than the findings from the National Sample Survey (NSS) 71st and 75th rounds, where nearly three-fourths of households had reported hospitalization (Mohanty *et al.*, 2020, 2022a).This indicates a significant gap in hospitalization coverage when comparing the rural BPL households in Sultanpur to

national-level trends. One major reason for this gap is the inclusion of maternal health care—such as childbirth-related hospitalizations—in the NSS data, which significantly increases the overall hospitalization figures. In contrast, the present study excluded maternal healthcare-related admissions, leading to a lower hospitalization proportion.

Other possible reasons include differences in study design and sample characteristics, as the NSS rounds are nationally representative and cover all socioeconomic strata, while the present study focuses exclusively on Below Poverty Line (BPL) households in a rural district. Additionally, limited access to healthcare facilities, variations in recall period, definitions used, and health-seeking behaviour further explain the difference.

In our data, nearly half of the households reported outpatient visits in the last 30 days before data collection compared to the figures reported in the NSS 71st and 75th round surveys. While the NSS data reflect relatively lower outpatient utilization, the present findings suggest a greater reliance on outpatient services among BPL households in Sultanpur (Mohanty *et al.*, 2020, 2022a). This higher outpatient care-seeking could be attributed to combination of frequent and repeated episodes of illness, chronic conditions, or the avoidance of hospitalization due to financial constraints. The increased availability of private clinics, informal providers, or local pharmacies in rural areas may also contribute to more frequent outpatient visits.

Differences in study population, regional disease burden, and health-seeking behaviour may also explain the variation. The NSS surveys cover a broad national sample, while the present study focuses on financially vulnerable rural households, who may be more likely to seek outpatient care due to lack of insurance coverage or inadequate public health infrastructure.

Overall, more than two-thirds of households accessed at least one form of healthcare service either hospitalization or outpatient consultation or both prior to data collection compared

to more than four-fifths of households in rural Puducherry (Vasudevan, Akkilagunta and Kar, 2019).

4.3 OUT OF POCKET EXPENDITURE FOR INPATIENT CARE

In the current study, (67 of 721) were hospitalized in the past year prior to data collection, yielding a hospitalization rate of 93 per 1,000 population. This figure is much higher than the national average of 58.2 per 1,000 population based on (Garg, Bebarta and Tripathi, 2022), from 75th Round data of NSS. The high hospitalization rate in our study area despite being a resource-constrained rural district of Uttar Pradesh may speak of inadequate preventive care and over-dependence on hospitalization as a mode of treatment. Interestingly, the hospitalization rates are more in tune with the trends suggested by Kerala, although it is often highlighted for its advanced healthcare indicators and access to institutional care (Dilip, 2010). Contrasting with the national trend where nearly three-fifths of hospitalizations occurred in public facilities, about two-thirds of BPL respondents in the present study sought care from private facilities in Sultanpur.

The mean OOPE per hospitalization was ₹35,318 (SD ± ₹68,584), with a median of ₹16,550 which is much higher than the Uttar Pradesh rural average of ₹18,646 and national rural average of ₹14,473 ('NHSRC- State fact sheets', 2014). Recent national estimates for inpatient OOPE are also lower at US$301 (~₹19,601) (Mohanty *et al.*, 2022b), indicating a higher financial burden in this district's BPL households.

In this study the OOPE mean per person was ₹ 10116.19 (SD ± ₹ 17507.91), among hospitalized households. In comparison, The SIFPSA (2016) study reported Rs. 18,607 per person for OOPE in Uttar Pradesh which is much higher than we found in this study (State Innovations in Family Planing Services Project Agency, 2016).

Of the diseases reported, gastrointestinal ailments were the leading cause of hospitalization accounting for one-fifths of cases, almost twice the rural all-India average of one in ten

cases. Infections accounted for one in eight cases, much lower than the national rural average of nearly, one-third. Conditions affecting the Genito-urinary system (one in eight) and psychiatric/neurological disorders (nearly one in ten) were also higher than the national averages (one in eighteen for each). Injuries (one in eight) and cardiovascular conditions (nearly one in ten) were slightly above the rural averages (one in eight and one in twelve, respectively). Similar or elevated trends were noted for respiratory (one in twelve), eye (one in twenty), and musculoskeletal disorders (one in twenty-five) (NSS 75th Round (July 2017–June 2018), 2019). The findings highlight the need for disease specific health interventions based on regional morbidity in Sultanpur. While the current study did not estimate costs on a disease basis, the overall level of OOPE highlights how common conditions can become financially catastrophic when adequate financial risk protection is lacking.

The high reliance on distress financing mechanisms among hospitalized patients clearly shows the reasons behind the vicious cycle of poverty. While nationally, four-fifths of rural households' fund hospitalizations through income and savings, only one-third in Sultanpur could do so. Instead, two-fifths depended on contributions from friends and relatives a rate twelve times higher than the national average—and one-fourth resorted to loans or asset sales (NSS 75th Round (July 2017–June 2018), 2019). The consequences are multidimensional. First, the sale of productive assets (reported by one-tenth of households) reduces the ability to earn in future and causes more deprivation. Second, high interest borrowing used by one in seven households leads to permanent levels of debt overhangs that consume precious resources that could have been otherwise used for things like nutrition and education. Third, over-reliance on informal networks may deplete social capital, making households more fragile in the face of future shocks (Bloxham, 2023).

4.4 OUT OF POCKET EXPENDITURE FOR OUTPATIENT CARE

The present study found that the households seeking Out Patient Department (OPD) services are under considerable financial strain. Out of the surveyed households, nearly half of the households availed OPD consultations with a considerable mean expenditure of INR 38,067.00 reflecting the high costs of outpatient care in the region. The OOPE per person per year was INR 9,020.62, which is higher than the OOPE per year of INR 5628 based on monthly INR 469 for households with sick/member(State Innovations in Family Planing Services Project Agency, 2016). This sharp contrast indicates that outpatient care is placing a greater financial burden on households in the current study. The differences could be due to several reasons, such as health costs in regions, the nature of consultations, and the kind of care being sought. Such disproportionate spending, as a major component of healthcare, further reiterates the inherent inequality as reflected in the average expenditure, which is much higher than the median expenditure (INR 38,067.00 versus INR 21,000).

Of the 721 participants in this study, 81 sought outpatient (OPD) care. Based on the available nationwide NHSRC 2014 data, the study captures that an average of 68 out of 1,000 individuals suffer from sickness in rural UP, while the national average is 89 per 1,000 ('NHSRC- State fact sheets', 2014). Still, the percentage in our study (81 out of 721) was a higher rate of healthcare seeking behaviour than the per-thousand figures, which seemed to suggest a lower relative need or accessibility to outpatient care compared to all our participants, especially in the rural population context. Acute conditions were more common than chronic conditions. Private healthcare facilities remained the preferred institution for more than two-thirds of the households compared to public hospitals.

These findings fit into broader trends seen in another research. According to a Mint report based on the data from the NSSO, more than two third of rural seeks treatment using private hospitals (Punj, 2015). Likewise, according to the Centre for Public Policy Research, over

two-third of respondents including from low-income groups preferred private healthcare services for treatment of acute conditions such as sickness, trauma and injury though public hospitals were mainly used for preventive/ routine care (Patrick, 2017). Such inclination towards private healthcare, especially for acute conditions, highlights the unavailability or partial availability of access to and trust in public healthcare services for non-routine treatment. These findings are indicative of a broader reliance on private healthcare providers for acute and urgent care and of the continuing trend for healthcare services to be privatized at times of greatest need.

The present study found that, Infections were the most described condition in outpatient consultations accounts for below one-third of all cases throughout a 30-day period prior to data collection. This is lower than the national average of above one-third, as reported in the(NSS 75th Round (July 2017–June 2018), 2019). Musculoskeletal disorders in this study was slightly higher than the national estimate while cardiovascular diseases in this study is less than the national estimate and respiratory illnesses were almost half of the national estimates. In this area, psychiatric and neurological disorders cases were higher than the national average.

The mean OOPE for each outpatient visit was ₹31,380. Medication accounted for just above one-third, much lower than the national average of over two-thirds. Diagnostic tests made up just under one-fourth, nearly double the national average of about one-eighth. Doctor's consultation fees were just above one-twentieth, about half the national average of about one-eighth (NSS 75th Round (July 2017–June 2018), 2019). These findings suggest that although medicine expenditure was relatively controlled, increased expenditure on diagnostics and the financial burden continued to be high among patients from BPL households seeking outpatient care.

4.5 Catastrophic health expenditure

This study found that outpatient care led to more catastrophic health expenditure than inpatient care, a result consistent with findings from other studies (Shahrawat and Rao, 2012; Manchanda and Chaudhary, 2015; Nanda and Sharma, 2023a).

In this study, nearly three-fourths of households with at least one hospitalization experienced catastrophic health expenditure (CHE) using the 10 percent budget share threshold, and about two-fifths at the 40 percent capacity-to-pay approach. Of all households with at least one outpatient visits, over three-fourths incurred CHE at the 10 percent level, and nearly half at the 40 percent level. The findings of this study are consistent with those of (Nanda and Sharma, 2023c), particularly at the 40 percent threshold, but this study reveal a higher burden at the 10 percent threshold compared to studies by (Ranjan *et al.*, 2018) and (Yadav, Menon and John, 2021).

The higher prevalence of CHE at the 10 percent threshold in the current study might be explained by a variety of factors, such as higher frequency of outpatient visits for ongoing health issues, which can gradually accumulate significant costs, even if each visit is individually low-cost. In addition, the absence of reimbursement for outpatient care and dependence on private health providers for outpatient services add to these higher out-of-pocket costs.

The study identified key factors contributing to Catastrophic Health Expenditure (CHE) among households using inpatient and outpatient services. For inpatient care, longer hospital stays, use of private or mixed facilities, and living more than 20 km away from a health facility significantly increased the risk of CHE under both the budget share and capacity-to-pay approaches. In outpatient care, factors such as lower household income, nuclear family structure, and having only one earning member were significantly associated with higher CHE.

The only common factor between inpatient and outpatient care was distance to the healthcare facility, with households living farther away facing greater financial burden. These findings highlight the need to improve access to nearby public health services, reduce travel-related costs, and provide financial protection to low-income families to reduce the risk of CHE, especially for those with limited income sources and poor geographic access.

CHAPTER 5

CONCLUSIONS

The objective of this study was to assess the health care financial burden among BPL households in Sultanpur district of Uttar Pradesh. Most of the households were Hindu, followed by Muslim. More than two-thirds of respondents belongs to low socio-economic status.

A large proportion of households reported using health care services in which more than one-third had at least one hospitalization in the past year, and almost half had any outpatient care. These figures suggest a considerable burden of illness in this rural setting especially while seeking care from private healthcare facilities for inpatient and outpatient services.

Outpatient care put a big financial burden on people, as the average yearly out-of-pocket spending per person was higher than the state average. A large part of this spending was on tests and doctor consultations. This shows that government health facilities may not be providing enough outpatient services, so many people have to depend on private clinics and hospitals. For poor households, especially those living below the poverty line, this can be a serious problem, as they often cannot afford these repeated expenses.

Using both the budget share and capacity-to-pay methods, it was found that households using outpatient services were more likely to face catastrophic health expenditure (CHE) than those who were hospitalized. This shows that outpatient care can cause major financial strain, especially since it is common but not well-covered by public health programs, putting more pressure on BPL households with low incomes.

RECOMMENDATIONS

1. Strengthen Coverage of PMJAY for Inpatient Care

Enhancing the coverage and utilization of PMJAY for inpatient care (IPD) can substantially reduce Out-of-Pocket Expenditure (OOPE) and Catastrophic Health Expenditure (CHE) among BPL households. Increased awareness, enrollment, and access to empanelled facilities are crucial for improving financial protection.

2. Strengthening the Use of Public Hospitals

Strengthening the infrastructure and service quality of government hospitals will help increase their utilization, particularly among lower-income households, ensuring that health care is more affordable and less likely to result in catastrophic health expenditure.

3. Sufficient Transportation Assistance for Remote Households

Given the transport difficulties of living farther away from healthcare facilities, low-cost or subsidised modes of transport, such as community shuttle services or tying up with local transport vendors could be considered by local governments. Such services would refer to patients who needed routine outpatient care and/or inpatient care, conveniently mitigating travel cost and providing more equitable care to health services.

4. Increase the Availability of Low-Cost Outpatient Services

To decrease the out-of-pocket cost of outpatient care, especially for drugs and diagnostics, dedicated outpatient support mechanisms should be strengthened beyond in-patient-oriented schemes. Increasing the number of subsidised diagnostic centres and pharmacies, particularly in rural areas, could reduce out-of-pocket costs and improve health.

5. Enhance the Implementation and Outreach of Jan Aushadhi Kendras

Scale up essential medicines' availability through PMJAK, by opening these pharmacies in underserved areas. Greater attention to their availability and coverage will lower out of pocket costs for both inpatient and outpatient care.

STRENGTH AND LIMITATIONS

- This is the first known study to my knowledge in Sultanpur district, Uttar Pradesh which looks at the financial burden of health care among BPL households, filling an important gap in regional research.
- Primary data collection with field-level verification of hospital bills, prescriptions, discharge summaries, and other documents wherever available, enhancing data reliability.
- The study presents a detailed disaggregation of expenses into three categories: direct, indirect, and non-direct medical which could inform specific health financing interventions.
- This captures the financial implications of both hospitalised and non-hospitalised care, offering a more integrated view of healthcare use and OOPE.

LIMITATIONS

- The sample in our study was small (145 households) and covered only two tehsils of Sultanpur district which may influence the generalisability of the findings.
- With a relatively small sample size, we were not able to perform any robust multivariate analysis to look at deeper associations.
- Recall bias may be possible, as information about outpatient and hospitalisation costs was self-reported by the household head.
- While information was collected for all family members, only household head was interviewed, introducing underreporting or over-reporting of healthcare utilisation and expenditure.

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ANNEXURE 1

STRUCTURED INTERVIEW SCHEDULE

Assessment of Healthcare Financial Burden Among BPL Households: A cross-sectional study in Sultanpur District"

Achutha Menon Centre for Health Science Studies,

Sree Chitra Tirunal Institute for Medical Sciences & Technology,

Trivandrum, Kerala, 695011

All information obtained from this interview will remain confidential and will be used for research purposes only. Individual information will not be disclosed to anyone under any circumstances.

Date: __ /___ /202

Time: ___am/__pm

Contact no. ____

S.no	A- SURVEY INFORMATION	
A01	Panchayat	
A02	Name of village	
A03	Ward No.	
A04	Unique ID of household	

Section 1

B. Household details

S.no B01	Name of a household member B02	Age B03	Sex B04	Marital status B05	Occupation B06	Education B07	Relationship with the head of the household B08	Whether hospitalized in last 365 days? (Yes-1, No-2) If yes, Fill "Section 4" B09	Whether sought for OPD consultation in last 30 days? If yes, Fill "Section 5" B10	Type of insurance B11	If covered under insurance any co-payment or deductible amount paid during healthcare utilization (If yes, what was the amount in the past one year or/and in the last month) B12

SECTION 2

C. To be administered to head of household

C01	What's your religious affiliation	☐ Hindu ☐ Muslim ☐ Christian ☐ Sikh ☐ Others ☐ Prefer not to say
C02	What is your caste Category	☐ General ☐ OBC ☐ Sc ☐ St

C03	Family type	☐ Nuclear ☐ Joint ☐ Extended
C04	Ownership of house	☐ Own ☐ On Rent ☐ On Lease
C05	what type of ration card do you have?	☐ PATRAGRAHSTHI ☐ ANTYODAYA

Section- 3

D. Household Monthly Income Information

D01	How many people in your household are currently earning an income?	
D02	What is the monthly income of the head of the household?	
D03	What are the different sources of income your household receives monthly except for head of household please specify the amount received from that source in a typical month **(select all that apply)**	☐ Salaries or wages from formal employment AMOUNT_____ ☐ Income from self-employment or small business (e.g., selling goods, local services) AMOUNT_____ ☐ Income from farming or agricultural activities (e.g., crop sales, livestock sales) AMOUNT_____ ☐ Pension or social security

		(e.g., government pension, old-age allowance) AMOUNT_____ ☐ Remittances from family members working outside the village or abroad AMOUNT_____ ☐ Rental income from land, property, or equipment AMOUNT_____ ☐ Others Specify_____ AMOUNT_____
D04	How many people are currently dependent on the household income (i.e., children, elderly, unemployed members)?	

E. Household Consumption Expenditure Details

What is the total amount spent by your household on the following food items each month? (Please provide monthly expenditure for each item.)

S.NO		Monthly	Yearly
E01	Cereal and Cereal substitutes (chawal, genhu, oats, millets (Bajra), jowar, or sabudana etc)		
E02	Gram, Pulses and pulse products (chana, arhar dal, urad dal, moong dal, besan etc)		
E03	Sugar & Salt		
E04	Milk and milk products (milk, ghee, cheese, curd, paneer, milk powder etc)		
E05	Vegetables and Fruits		

E06	Egg, fish & meat		
E07	Edible oil and Spices		
E08	Beverages, processed food, etc (tea, coffee, biscuits etc)		

What is the total amount spent by your household on the following non-food items each month? (Please provide monthly expenditure for each item.)

E09	Pan, tobacco & intoxicants (gutkha, cigarettes, beedi, alcohol etc)		
E10	Fuel and light (electricity bill, kerosene, LPG gas)		
E11	Toilet articles & other household items (soap, detergent, toothpaste, matchsticks, candles, sanitary pads, razor, shaving creams etc)		
E12	Education fees and supplies		
E13	In general, medical expenditure related to health in a common month (buying OTC drugs etc)		
E13.1	Medical expenditure on hospitalization		
E13.2	Medical expenditure on non-hospitalization		
E14	Transportation costs (bus fare, taxi fare, fuel(petrol/diesal), vehicle maintenance, parking fee, toll, vehicle insurance etc)		
E15	Consumer services like cleaning help, domestic help, or pest control each month		
E16	Entertainment like movies, eating out etc		
E17	Rent, if applicable		
E18	Property management/house maintenance (repairs, renovations, upkeep, plumbing, painting, or maintenance		

	of structures such as walls, roofs, and floors.)		
E19	Any taxes or government fees? For example, property taxes or road taxes.		
E20	Clothing and bedding (clothes, bedsheets etc)		
E21	footwear (shoes, sandals, etc.)		
E22	Goods like washing machines, TVs, furniture, purchase of motorcycle, bicycles, mobile phone etc		
E23	Total consumption expenditure in last one month for full household		

Household Non-Consumption Expenditure

E24	Total amount spent on agricultural activities in the past month (seeds, fertilisers, pesticides, irrigation, equipment maintenance, etc.)		
E25	Total amount spent on livestock-related expenses in the past month (animal feed, veterinary care, vaccinations, breeding, labour costs, etc.)		
E26	Total amount spent on social or religious events in the past month (Weddings, religious offerings, rituals, festivals, and ceremonies.)		
E27	Do you have any ongoing loans or EMIs? (if yes then answer)	☐ Yes ☐ No	☐
E28	What is the purpose of the loan (select all that apply)	☐ Home loan ☐ Personal ☐ Vehicle ☐ Education	

		☐ Agricultural loan ☐ Others Specify_____	
E29	What is the total monthly EMI payment?		
E30	Insurance premiums or prepaid health plans	☐ Govt Amount_____ ☐ Private Amount_____	

Section -4

F. PARTICIPANT'S HOSPITALIZATION DETAILS AND TREATMENT EXPENDITURES

How many times have you been hospitalized in the past year (last 12 months) -_____

Episode no **F01**	**Name of illness** **F02**	**Reason for hospitalization** **F03**	**Onset of illness** **F04**	**Duration of stays (in days)** **F05**	**Place of treatment** **F06**	**On medication** **F07**	**Type of investigation during hospitalization** **F08**	**Distance from home to hospital** **F09**
		Medical conditions Specify **Surgery Specify**	**Year__** **Month__**		**Primary hospital (PHCs/FHCs/CHCs) Specify _____** **Secondary hospital(govt) Specify_____**	**Yes** **No**		

		Accident and trauma Specify Other procedure Specify	Day _____		Tertiary hospital (govt) Specify_____ Private hospital Specify			
		Medical conditions Specify Surgery Specify Accident and trauma Specify Other procedure Specify	Year__ Month__ Day _____		Primary hospital (PHCs/FHCs/CHCs) Specify _____ Secondary hospital(govt) Specify_____ Tertiary hospital (govt) Specify_____ Private hospital Specify	Yes No		
		Medical conditions Specify Surgery Specify Accident and trauma Specify Other procedure Specify	Year__ Month__ Day _____		Primary hospital (PHCs/FHCs/CHCs) Specify _____ Secondary hospital(govt) Specify _____ Tertiary hospital (govt) Specify _____ Private hospital Specify	Yes No		

G-Hospitalisation Expenditures direct -indirect cost

Episode no	Hospital admission charges G01	Doctor's/ surgeon's fee G02	Medicines (in Rs) G03	diagnostic tests G04	bed charges G05	other medical expenses (attendant charges, physio therapy, personal medical	Home nurse/paid care giver/servant G07	Others G08	Loss of income for patient G09	Loss of income for bystander G10

						appliances, blood, oxygen, etc.) **G06**				
			Medicines from hospital pharmacy_ ____ **Medicines from pharmacies outside the hospital__ _____**							
			Medicines from hospital pharmacy_ ____ **Medicines from pharmacies outside the hospital__ _____**							
			Medicines from hospital pharmacy_ ____ **Medicines from pharmacies outside the hospital__ _____**							

lodging expenses for the patient or family G11	food expenses for patient and family G12	Transportation cost (to and from the hospital) G13	Any unofficial /extra payments (in Rs) G14	Sources of financing G15	type of medical Insurance do you have? G16	Total Amount reimbursed or eligible to be received from government health insurance, if any? G17	Total Amount reimbursed or eligible to be received from Pvt health insurance, if any? G18	How much did you pay extra for the healthcare services, even after reimbursement? G19
				Insurance household income/ savings borrowings sale of physical assets contributions from friends and relatives other sources specify-------	Pradhan Mantri Jan Arogya Yojana. Health insurance schemes of states specify the scheme) …… Pvt insurance No insurance Others Specify			
				Insurance household income/ savings borrowings sale of physical assets contributions from friends and relatives other sources specify-------	Pradhan Mantri Jan Arogya Yojana. Health insurance schemes of states specify the scheme) …… Pvt insurance No insurance Others Specify			
				Insurance	Pradhan Mantri Jan Arogya Yojana.			

				household income/ savings borrowings sale of physical assets contributions from friends and relatives other sources specify-------	Health insurance schemes of states specify the scheme) …… Pvt insurance No insurance Others Specify			

The total amount spent including all expenses for episode -1 _____

The total amount spent including all expenses for episode -2 _____

The total amount spent including all expenses for episode-3 _____

Section 5

H- Outpatient details

How many times have you sought for Outpatient consultation in the last one-month (last 30 days) _____

Episode no H01	Name of illness H02	Reason for OPD visit H03	Onset of illness H04	Where did you seek care H05	On medication H06	Type of investigation during hospitalization H07	Did you undergo any outpatient procedure? H08	Distance from home to hospital H09
				Primary hospital	Yes		Yes	

				(PHCs/FHCs/CHCs) Specify____ **Secondary hospital(govt) Specify ____** **Tertiary hospital (govt) Specify _____** **Private hospital Specify**	**No**		**No**	
				Primary hospital (PHCs/FHCs/CHCs) Specify _____ **Secondary hospital(govt) Specify _____** **Tertiary hospital (govt) Specify ____** **Private hospital Specify**	**Yes** **No**		**Yes** **No**	
				Primary hospital (PHCs/FHCs/CHCs) Specify _____ **Secondary hospital(govt) Specify _____** **Tertiary hospital (govt) Specify _____**	**Yes** **No**		**Yes** **No**	

				Private hospital Specify				

I- Outpatient consultation- Direct indirect cost

Episode no	**Doctor's/ surgeon's fee I01**	**Medicine I02**	**diagnostic tests I03**	**Outpatient procedure charges I04**	**Others I05**	**Transportation cost I06**	**Loss of income for patient I07**	**Loss of income for bystander I08**	**lodging expenses for the patient or family I09**	**Food expense for the patient and family I10**
		Medicines from hospital pharmacy _____ **Medicines from pharmacies outside the hospital_ _____**								
		Medicines from hospital pharmacy _____ **Medicines from pharmacies outside the hospital_ _____**								

		Medicines from hospital pharmacy _____ **Medicines from pharmacies outside the hospital_ _____**								

The total amount spent including all expenses for episode -1 _____

The total amount spent including all expenses for episode -2 _____

The total amount spent including all expenses for episode-3 _____

ANNEXURE 2

PARTICIPANT INFORMATION SHEET AND CONSENT FORM

PARTICIPANT'S INFORMATION SHEET (English)

I am Dr. Vartika Shukla, a final year Master of Public Health (MPH) student from Sree Chitra Tirunal Institute of Medical Sciences and Technology, Trivandrum, Kerala. As a part of my course, I am doing a thesis titled "**Assessment of Healthcare Financial Burden Among BPL Households: A cross-sectional study in Sultanpur District**". For this purpose, I am conducting a survey among the BPL households of Sultanpur. This study is being done under the supervision of Dr Kannan Srinivasan, Professor of the AMCHSS. Please feel free to ask any questions or doubt related to this study to me.

PURPOSE OF THE STUDY:

The purpose of this study is to quantitatively assess the financial burden associated with healthcare expenses among below-poverty-line (BPL) households in Sultanpur District. By evaluating both hospitalization and non-hospitalization cases, the study aims to provide insights into the magnitude of healthcare-related financial stress experienced by these vulnerable populations. Additionally, the study seeks to identify key factors contributing to the financial burden, such as socio-economic conditions, type of health care facility, and insurance coverage.

PROCEDURE:

The survey would take approximately 30 - 45 minutes of your valuable time. You will be asked questions in private. These will pertain to details about your socio-demographic, socio-economic profile, and details of illness. You will be asked questions

on the expenses that you incurred both for the hospitalization preceding 1 year as well as for the outpatient visit in the past 30 days. You will be asked questions regarding your household income and general household expenses over the past one year to serve as a comparison. This collected data will be used for research purposes only. I may contact you again if the collected information was found to be incomplete.

RISKS AND DISCOMFORTS:

Participation in this study imposes no risk to your health. However, you would be asked questions which you may find personal in nature**.**

BENEFITS:

There may not be any direct benefit for you from this study. The information collected from you and from other participants will help in assessing the financial burden that impose on our households.

CONFIDENTIALITY:

You will be interviewed in private. All information related to you will be kept confidential and at no stage will your identity be revealed. A respondent identification number will be assigned to each participant that will help in maintaining the confidentiality of the data collected. Access to this respondent identification number will be restricted to those analyzing the data only.

VOLUNTARY PARTICIPATION:

Your participation in this study is purely voluntary, which means you can decide whether to participate in the study or not. If at any stage you wish to discontinue, you are free to do so without any adverse consequences.

CONTACT INFORMATION:

If you have any research-related questions or you would like to verify my credentials,

you may contact me or a member of our institute's Ethics Committee at the following address.

Dr Srinivas G

Member Secretary

Institutional Ethics Committee

SCTIMST, TRIVANDRUM- 695011

DR. SRINIVASAN K

Professor

0471-2524243

“Assessment of Healthcare Financial Burden Among BPL Households: A cross-sectional study in Sultanpur District

CONSENT FORM

Unique ID of household

I_____ have read the previous mentioned information or it has been read to me. I realize that the study will not cause any harm to me, and I have no direct benefits from participating in the study. Also, I understand that my identity/personal information will be kept confidential.

By signing, I confirm my voluntary participation in this study. I agree to be contacted again if any missing information or further clarification is needed. I understand my right to withdraw from the interview at any time without any obligation.

Signature of Participant: _____

Thumb impression of participant (if unable to sign):

Date: / /

If the participant is unable to sign, a witness must sign below:

A literate witness must sign (if possible, this person should be selected by the participant and should have no connection to the research team).

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Name of witness: _____

Signature of witness: _____ Date: / /

Statement by the researcher/person taking consent

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily. If the participant is illiterate, I confirm that the contents of this consent form have been read out to them in a language they understand, and I have ensured they have comprehended the information before giving consent.

Name of Researcher/person taking the consent_____

Signature of Researcher /person taking the consent_____

Date: / /

Place: _____

ANNEXURE 3

ENGLISH TO HINDI TRANSLATED STRUCTURED INTERVIEW SCHEDULE

"बीपीएल परिवारों में स्वास्थ्य देखभाल वित्तीय बोझ का आकलन: सुल्तानपुर जिले में एक क्रॉस-सेक्शनल अध्ययन"

अच्युता मेनन सेंटर फॉर हेल्थ साइंस स्टडीज,

श्री चित्रा तिरुनल इंस्टीट्यूट फॉर मेडिकल साइंसेज एंड टेक्नोलॉजी,

त्रिवेंद्रम, केरल, 695011

इस साक्षात्कार से प्राप्त सभी जानकारी गोपनीय रहेगी और इसका उपयोग केवल शोध उद्देश्यों के लिए किया जाएगा। किसी भी परिस्थिति में व्यक्तिगत जानकारी किसी को नहीं बताई जाएगी।

दिनांक: _/__/2022

समय: सुबह/__शाम

संपर्क नंबर। _____

क्र.सं.	**ए- सर्वेक्षण जानकारी**	
अ 01	**पंचायत**	
अ 02	**गांव का नाम**	
अ 03	**वार्ड संख्या.**	

अ 04	परिवार की विशिष्ट पहचान	

खंड 1

बी- परिवार का विवरण

क्र. सं. बी0 1	परिवार के सदस्य का नाम बी02	आयु बी 03	लिंग बी 04	वैवाहिक स्थिति बी 05	व्यवसाय बी 06	शिक्षा बी 07	परिवार के मुखिया के साथ संबंध बी 08	क्या पिछले 365 दिनों में अस्पताल में भर्ती हुए? (हाँ-1, नहीं-2) यदि हाँ, तो "अनुभाग 4" भरें। बी 09	क्या पिछले 30 दिनों में ओपीडी परामर्श लिया?यदि हाँ, तो "अनुभाग 5" भरें। बी10	बीमा का प्रकार बी 11	यदि बीमा के तहत कवर किया गया हो, तो स्वास्थ्य सेवा का उपयोग करते समय कोई सह-भुगतान या कटौती योग्य राशि का भुगतान किया गया (यदि हां, तो पिछले एक वर्ष या/और पिछले महीने में भुगतान की गई राशि क्या थी?) बी12

खंड 2

सी-परिवार के मुखिया से पूछे जाने वाले प्रश्न

सी 01	आपका धार्मिक संबद्धता क्या है?	□ हिंदू □ मुस्लिम □ ईसाई □ सिख □ अन्य □ बताना नहीं चाहते
सी 02	आपकी जाति श्रेणी क्या है?	□ सामान्य □ ओबीसी □ एससी □ एसटी
सी 03	परिवार का प्रकार	□ एकल परिवार (न्यूक्लियर) □ संयुक्त परिवार □ विस्तारित परिवार
सी 04	घर का स्वामित्व	□ अपना □ किराए पर □ लीज पर
सी 05	आपके पास किस प्रकार का राशन कार्ड है?	□ पात्र गृहस्थी □ अंत्योदय

खंड -3

डी. परिवार की मासिक आय जानकारी

डी 01	आपके घर में वर्तमान में कितने लोग आय कमा रहे हैं?	
डी 02	घर के प्रमुख की मासिक आय कितनी है?	
डी 03	आपके घर को मुखिया के अलावा हर महीने किन-किन स्रोतों से आय मिलती है? कृपया हर स्रोत से सामान्यत: एक महीने में मिल रही राशि बताएं। (सभी सही विकल्प चुनें)	□ औपचारिक रोजगार से वेतन या मजदूरी राशि_____ □ स्व-रोजगार या छोटे व्यापार से आय (जैसे, सामान बेचना, स्थानीय सेवाएं) राशि_____

		□ कृषि या कृषि गतिविधियों से आय (जैसे, फसल बिक्री, पशु बिक्री) राशि_____ □ पेंशन या सामाजिक सुरक्षा (जैसे, सरकारी पेंशन, वृद्धावस्था भत्ता) राशि_____ □ गांव के बाहर या विदेश में काम करने वाले परिवार के सदस्य से प्रेषण राशि_____ □ भूमि, संपत्ति, या उपकरण से किराये की आय राशि_____ □ अन्य विवरण_____ राशि_____
डी 04	घर की आय पर फिलहाल कितने लोग निर्भर हैं (जैसे बच्चे, बुजुर्ग, बेरोजगार सदस्य)?	

ए. परिवार की उपभोग व्यय विवरण

आपके घर द्वारा निम्नलिखित खाद्य पदार्थों पर हर महीने कुल कितनी राशि खर्च होती है? (कृपया प्रत्येक वस्तु के लिए मासिक व्यय प्रदान करें।)

S.NO		मासिक	वार्षिक
ए 01	अनाज और अनाज के विकल्प (चावल, गेहूं, ओट्स, बाजरा, ज्वार, या साबूदाना आदि)		

ए 02	दाल, दाल और दाल उत्पाद (चना, अरहर दाल, उरद दाल, मूंग दाल, बेसन आदि)		
ए 03	चीनी और नमक		
ए 04	दूध और दूध उत्पाद (दूध, घी, चीज, दही, पनीर, दूध पाउडर आदि)		
ए 05	सब्जियाँ और फल		
ए 06	अंडा, मछली और मांस		
ए 07	खाद्य तेल और मसाले		
ए 08	पेय पदार्थ, प्रसंस्कृत खाद्य आदि (चाय, कॉफी, बिस्किट आदि)		

आपके घर द्वारा निम्नलिखित गैर-खाद्य वस्तुओं पर हर महीने कुल कितनी राशि खर्च होती है? (कृपया प्रत्येक वस्तु के लिए मासिक व्यय प्रदान करें।)

ए 09	पान, तंबाकू और मादक पदार्थ (गुटखा, सिगरेट, बीड़ी, शराब आदि)		
ए 10	ईंधन और प्रकाश (बिजली बिल, केरोसिन, एलपीजी गैस)		
ए 11	शौचालय सामग्री और अन्य घरेलू वस्तुएं (साबुन, डिटर्जेंट, टूथपेस्ट, माचिस, मोमबत्तियां, सेनेटरी पैड, रेजर, शेविंग क्रीम आदि)		

ए 12	शिक्षा शुल्क और आपूर्ति		
ए 13	सामान्य रूप से स्वास्थ्य संबंधित चिकित्सा खर्च (OTC दवाइयाँ खरीदना आदि)		
ए 13.1	अस्पताल में भर्ती पर चिकित्सा खर्च		
ए 13.2	गैर-हास्पिटलाइजेशन पर चिकित्सा खर्च		
ए 14	परिवहन खर्च (बस का किराया, टैक्सी का किराया, ईंधन (पेट्रोल/डीजल), वाहन की देखभाल, पार्किंग शुल्क, टोल, वाहन बीमा आदि)		
ए 15	उपभोक्ता सेवाएं जैसे सफाई सहायता, घरेलू सहायता या कीट नियंत्रण हर महीने		
ए 16	मनोरंजन जैसे मूवी, बाहर खाना आदि		
ए 17	किराया, यदि लागू हो		
ए 18	संपत्ति प्रबंधन/घर की मरम्मत (मरम्मत, नवीनीकरण, रखरखाव, प्लम्बिंग, पेंटिंग, या दीवारों, छतों, और फर्श की मरम्मत आदि)		
ए 19	कोई भी कर या सरकारी शुल्क? उदाहरण के लिए, संपत्ति कर या सड़क कर।		
ए 20	वस्त्र और बिस्तर (कपड़े, बिस्तर की चादर आदि)		
ए 21	जूते, चप्पल (जूते, सैंडल आदि)		
ए 22	वस्तुएं जैसे वॉशिंग मशीन, टीवी, फर्नीचर, मोटरसाइकिल, साइकिल, मोबाइल फोन आदि की खरीदारी		
ए 23	पिछले एक महीने में पूरे घर का कुल उपभोग व्यय		

परिवार का गैर-उपभोग व्यय

ए 24	पिछले महीने में कृषि गतिविधियों पर कुल खर्च (बीज, उर्वरक, कीटनाशक, सिंचाई, उपकरण रखरखाव आदि)		
ए 25	पिछले महीने में पशुपालन संबंधित खर्चों पर कुल खर्च (पशु आहार, पशु		

	चिकित्सा देखभाल, टीकाकरण, प्रजनन, श्रमिक लागत आदि)		
ए 26	पिछले महीने में सामाजिक या धार्मिक आयोजनों पर कुल खर्च (शादियाँ, धार्मिक अर्पण, अनुष्ठान, त्योहार और समारोह)		
ए 27	क्या आपके पास कोई चल रहे ऋण या ईएमआई हैं? (यदि हां तो उत्तर दें)	□ हां □ नहीं	□
ए 28	ऋण का उद्देश्य क्या है? (सभी उपयुक्त विकल्प चुनें)	□ गृह ऋण □ व्यक्तिगत □ वाहन □ शिक्षा □ कृषि ऋण □ अन्य विवरण_____	
ए 29	कुल मासिक ईएमआई भुगतान क्या है?		
ए 30	बीमा प्रीमियम या पूर्व भुगतान स्वास्थ्य योजनाएं	□ सरकारी राशि_____ □ निजी राशि_____	

खंड -4

ऍफ़. प्रतिभागी के अस्पताल में भर्ती होने का विवरण और उपचार खर्च

पिछले वर्ष (पिछले 12 महीनों) में आपको कितनी बार अस्पताल में भर्ती होना पड़ा -

_____

प्रकरण संख्या **ऍफ़01**	**बीमारी का नाम**	**अस्पताल में भर्ती होने का कारण** **ऍफ़ 03**	**बीमारी की शुरुआत**	**अस्पताल में रहने की अवधि (दिनों में)**	**इलाज का स्थान**	**दवाइयाँ ले रहे हैं** **ऍफ़07**	**अस्पताल में भर्ती के दौरान किए**	**घर से अस्पताल तक**

	ऍफ़ 02		ऍफ़04	ऍफ़ 05	ऍफ़06		गए परीक्षण का प्रकार ऍफ़08	की दूरी ऍफ़ 09
		चिकित्सा स्थितियाँ विवरण दें सर्जरी विवरण दें दुर्घटना और आघात विवरण दें अन्य प्रक्रिया विवरण दें	वर्ष__ माह__ दिन ———		प्राथमिक अस्पताल (PHCs/FHCs/CHCs) निर्दिष्ट करें माध्यमिक अस्पताल (सरकारी) निर्दिष्ट करें तृतीयक अस्पताल (सरकारी) निर्दिष्ट करें निजी अस्पताल निर्दिष्ट करें	हाँ नहीं		
		चिकित्सा स्थितियाँ विवरण दें सर्जरी विवरण दें दुर्घटना और आघात विवरण दें अन्य प्रक्रिया विवरण दें	वर्ष__ माह__ दिन ———		प्राथमिक अस्पताल (PHCs/FHCs/CHCs) निर्दिष्ट करें माध्यमिक अस्पताल (सरकारी) निर्दिष्ट करें तृतीयक अस्पताल (सरकारी) निर्दिष्ट करें निजी अस्पताल निर्दिष्ट करें	हाँ नहीं		
		चिकित्सा स्थितियाँ विवरण दें सर्जरी विवरण दें	वर्ष__ माह__ दिन ———		प्राथमिक अस्पताल (PHCs/FHCs/CHCs) निर्दिष्ट करें माध्यमिक अस्पताल (सरकारी) निर्दिष्ट करें	हाँ नहीं		

		दुर्घटना और आघात विवरण दें अन्य प्रक्रिया विवरण दें			तृतीयक अस्पताल (सरकारी) निर्दिष्ट करें निजी अस्पताल निर्दिष्ट करें			

ग- अस्पताल में भर्ती खर्च - प्रत्यक्ष और अप्रत्यक्ष लागत

प्रकरण संख्या	अस्पताल में भर्ती शुल्क ग 01	डॉक्टर/ सर्जन की फीस ग 02	दवाइयाँ (रुपयों में) ग 03	नैदानिक परीक्षण ग 04	बिस्तर शुल्क ग 05	अन्य चिकित्सा खर्च (अटेंडेंट शुल्क, फिजियोथेरेपी, व्यक्तिगत चिकित्सा उपकरण, रक्त, ऑक्सीजन, आदि) एफ 06	होम नर्स/भुगतान किए गए देखभालकर्ता/ नौकर ग07	अन्य ग08	मरीज के लिए आय की हानि ग 09	देखरेख करने वाले के लिए आय की हानि ग 10
			अस्पताल की फार्मेसी से दवाइयाँ_____ अस्पताल के बाहर की फार्मेसी से दवाइयाँ_____							
			अस्पताल की फार्मेसी से दवाइयाँ_____							

			अस्पताल के बाहर की फार्मेसी से दवाइयाँ__ _____							
			अस्पताल की फार्मेसी से दवाइयाँ__ ___ अस्पताल के बाहर की फार्मेसी से दवाइयाँ__ _____							

मरीज या परिवार के लिए आवास खर्च ग 11	मरीज और परिवार के लिए भोजन खर्च ग12	परिवहन खर्च (अस्पताल जाने और वापस आने) ग13	कोई अनौपचारिक/अतिरिक्त भुगतान (रुपयों में) ग 14	वित्तपोषण के स्रोत ग 15	आपके पास किस प्रकार का चिकित्सा बीमा है? ग 16	सरकारी स्वास्थ्य बीमा से प्राप्त या प्राप्त करने के योग्य कुल राशि, यदि कोई हो ग17	निजी स्वास्थ्य बीमा से प्राप्त कुल राशि, यदि कोई हो ग 18	उपचार सेवाओं के लिए, रिफंड के बाद भी, आपने कितना अतिरिक्त भुगतान किया? ग 19
				बीमा परिवार की आय/बचत ऋण भौतिक	प्रधानमंत्री जन आरोग्य योजना राज्य के स्वास्थ्य बीमा योजनाएँ (योजना का नाम निर्दिष्ट करें)			

				संपत्तियों की बिक्री मित्रों और रिश्तेदारों से योगदान अन्य स्रोत (निर्दिष्ट करें)	निजी बीमा कोई बीमा नहीं अन्य (निर्दिष्ट करें)			
				बीमा परिवार की आय/बचत ऋण भौतिक संपत्तियों की बिक्री मित्रों और रिश्तेदारों से योगदान अन्य स्रोत (निर्दिष्ट करें)	प्रधानमंत्री जन आरोग्य योजना राज्य के स्वास्थ्य बीमा योजनाएँ (योजना का नाम निर्दिष्ट करें) ..... निजी बीमा कोई बीमा नहीं अन्य (निर्दिष्ट करें)			
				बीमा परिवार की आय/बचत ऋण भौतिक संपत्तियों की बिक्री	प्रधानमंत्री जन आरोग्य योजना राज्य के स्वास्थ्य बीमा योजनाएँ (योजना का नाम निर्दिष्ट करें)			

				मित्रों और रिश्तेदारों से योगदान अन्य स्रोत (निर्दिष्ट करें)	निजी बीमा कोई बीमा नहीं अन्य (निर्दिष्ट करें)			

प्रकरण-1 के लिए सभी खर्चों सहित कुल राशि _____

प्रकरण-2 के लिए सभी खर्चों सहित कुल राशि _____

प्रकरण-3 के लिए सभी खर्चों सहित कुल राशि _____

खंड 5

ह - ओपीडी विवरण

पिछले एक महीने (पिछले 30 दिनों) में आपने कितनी बार ओपीडी परामर्श लिया_____

प्रकरण संख्या ह01	बीमारी का नाम ह 02	ओपीडी परामर्श के लिए जाने का कारण ह03	बीमारी की शुरुआत ह 04	आपने इलाज कहाँ लिया? ह 05	दवाइयाँ ले रहे हैं ह 06	ओपीडी विजिट के दौरान जांच का प्रकार ह 07	क्या आपने कोई ओपीडी प्रक्रिया करवाई? ह08	घर से अस्पताल तक की दूरी ह 09
				प्राथमिक अस्पताल (PHCs/FHCs/CHCs) निर्दिष्ट करें	हाँ		हाँ	

				माध्यमिक अस्पताल (सरकारी) निर्दिष्ट करें तृतीयक अस्पताल (सरकारी) निर्दिष्ट करें निजी अस्पताल निर्दिष्ट करें	नहीं		नहीं	
				प्राथमिक अस्पताल (PHCs/FHCs/CHCs) निर्दिष्ट करें माध्यमिक अस्पताल (सरकारी) निर्दिष्ट करें तृतीयक अस्पताल (सरकारी) निर्दिष्ट करें निजी अस्पताल निर्दिष्ट करें	हाँ नहीं		हाँ नहीं	
				प्राथमिक अस्पताल (PHCs/FHCs/CHCs) निर्दिष्ट करें माध्यमिक अस्पताल (सरकारी) निर्दिष्ट करें तृतीयक अस्पताल (सरकारी) निर्दिष्ट करें	हाँ नहीं		हाँ नहीं	

				निजी अस्पताल निर्दिष्ट करें				

एच - ओपीडी परामर्श - प्रत्यक्ष और अप्रत्यक्ष लागत

प्रकरण संख्या	डॉक्टर /सर्जन की फीस इ 02	दवाइयाँ इ 03	नैदानिक परीक्षण इ 04	ओपीडी प्रक्रिया शुल्क इ 05	अन्य इ 06	परिवहन लागत इ 07	मरीज के लिए आय की हानि इ 08	देखरेख करने वाले के लिए आय की हानि इ 09	मरीज या परिवार के लिए आवास खर्च इ 10	मरीज और परिवार के लिए भोजन खर्च इ 11
		अस्पताल की फार्मेसी से दवाइयाँ____ अस्पताल के बाहर की फार्मेसी से दवाइयाँ_____								
		अस्पताल की फार्मेसी से दवाइयाँ____ अस्पताल के बाहर की फार्मेसी से दवाइयाँ_____								
		अस्पताल की								

		फार्मेसी से दवाइयाँ____ **अस्पताल के बाहर की फार्मेसी से दवाइयाँ_____**								

प्रकरण-1 के लिए सभी खर्चों सहित कुल राशि _____

प्रकरण-2 के लिए सभी खर्चों सहित कुल राशि _____

प्रकरण-3 के लिए सभी खर्चों सहित कुल राशि _____

ANNEXURE 4

ENGLISH TO HINDI TRANSLATED PARTICIPANT INFORMATION SHEET AND CONSENT FORM

प्रतिभागी की सूचना पत्रक

मैं डॉ. वर्तिका शुक्ला, श्री चित्रा तिरुनल इंस्टीट्यूट ऑफ मेडिकल साइंसेज एंड टेक्नोलॉजी, त्रिवेंद्रम, केरल से मास्टर ऑफ पब्लिक हेल्थ (एमपीएच) की अंतिम वर्ष की छात्रा हूं। अपने पाठ्यक्रम के एक भाग के रूप में, मैं "**बीपीएल परिवारों के बीच स्वास्थ्य देखभाल वित्तीय बोझ का आकलन सुल्तानपुर जिले में एक क्रॉस-सेक्शनल अध्ययन**"" शीर्षक से एक थीसिस कर रही हूं। इस उद्देश्य के लिए, मैं सुल्तानपुर के बीपीएल परिवारों के बीच एक सर्वेक्षण कर रही हूं। यह अध्ययन एएमसीएचएसएस के प्रोफेसर डॉ. कन्नन श्रीनिवासन की देखरेख में किया जा रहा है। कृपया मुझसे इस अध्ययन से संबंधित कोई भी प्रश्न या संदेह पूछने के लिए स्वतंत्र महसूस करें।

अध्ययन का उद्देश्य:

इस अध्ययन का उद्देश्य सुल्तानपुर जिले में गरीबी रेखा से नीचे (बीपीएल) परिवारों के बीच स्वास्थ्य देखभाल खर्च से जुड़े वित्तीय बोझ का मात्रात्मक रूप से आकलन करना है। इस अध्ययन का लक्ष्य अस्पताल में भर्ती होने और अस्पताल में भर्ती न होने की स्थिति का विश्लेषण करके इन वंचित लोगों द्वारा झेले जाने वाले स्वास्थ्य सेवा से संबंधित वित्तीय तनाव की सीमा पर प्रकाश डालना है। इसके अतिरिक्त,

अध्ययन वित्तीय बोझ में योगदान करने वाले प्रमुख कारकों की पहचान करना चाहता है, जैसे कि सामाजिक-आर्थिक स्थितियां, स्वास्थ्य देखभाल सुविधा का प्रकार और बीमा योजना ।

प्रक्रिया:

सर्वेक्षण में आपके मूल्यवान समय का लगभग 30 - 45 मिनट लगेगा। आपसे निजी में सवाल पूछे जाएंगे। इसमें आपकी सामाजिक-जनसांख्यिकी, सामाजिक-आर्थिक स्थिति और बीमारी के इतिहास के बारे में जानकारी शामिल होगी।आपसे उन खर्चों पर प्रश्न पूछे जाएंगे जो आपने 1 वर्ष से पहले अस्पताल में भर्ती होने के साथ-साथ पिछले 30 दिनों में आउट पेशेंट विज़िट के लिए किए थे। तुलना के रूप में काम करने के लिए आपसे पिछले एक वर्ष में आपकी घरेलू आय और सामान्य घरेलू खर्चों के बारे में भी प्रश्न पूछे जाएंगे। इस एकत्रित डेटा का उपयोग केवल अनुसंधान उद्देश्यों के लिए किया जाएगा। यदि एकत्रित जानकारी अधूरी पाई गई तो मैं आपसे फिर से संपर्क कर सकती हूँ।

जोखिम और असुविधाएं:

इस अध्ययन में भागीदारी आपके स्वास्थ्य के लिए कोई जोखिम नहीं लगाती है। हालाँकि, आपसे ऐसे प्रश्न पूछे जाएंगे जो आपको व्यक्तिगत प्रकृति के लग सकते हैं।

लाभ:इस पढ़ाई से आपको कोई प्रत्यक्ष लाभ नहीं हो सकता है। आपसे और अन्य प्रतिभागियों से एकत्र की गई जानकारी हमारे घरों पर पड़ने वाले वित्तीय बोझ का आकलन करने में मदद करेगी।

गोपनीयता:

आपको निजी तौर पर साक्षात्कार दिया जाएगा। आपसे जुड़ी सभी जानकारी गोपनीय रखी जाएगी

और किसी भी स्तर पर आपकी पहचान उजागर नहीं की जाएगी। प्रत्येक प्रतिभागी को एक प्रतिवादी पहचान संख्या सौंपी जाएगी जो एकत्र किए गए डेटा की गोपनीयता बनाए रखने में मदद करेगी। इस प्रतिवादी पहचान संख्या तक पहुंच केवल डेटा का विश्लेषण करने वालों तक ही सीमित होगी।

स्वैच्छिक भागीदारी:

इस अध्ययन में आपकी भागीदारी विशुद्ध रूप से स्वैच्छिक है जिसका अर्थ है कि आप यह तय कर सकते हैं कि अध्ययन में भाग लेना है या नहीं। यदि किसी भी स्तर पर आप बंद करना चाहते हैं, तो आप बिना किसी प्रतिकूल परिणाम के ऐसा करने के लिए स्वतंत्र हैं।

संपर्क जानकारी:

यदि आपके पास शोध से संबंधित कोई प्रश्न हैं या आप मेरी साख को सत्यापित करना चाहते हैं, तो आप मुझसे या हमारे संस्थान की आचार समिति के किसी सदस्य से निम्नलिखित पते पर संपर्क कर सकते हैं।

डॉ. श्रीनिवास जी

सदस्य सचिव संस्थागत आचार

समिति एससीटीआईएमएसटी,

डॉ. श्रीनिवासन के.

प्राध्यापक

0471-2524243

"बीपीएल परिवारों के बीच स्वास्थ्य देखभाल वित्तीय बोझ का आकलन: सुल्तानपुर जिले में एक क्रॉस-सेक्शनल अध्ययन"

सहमति प्रपत्र

घर की यूनिक आईडी

मैंने_____ पिछली उल्लिखित जानकारी पढ़ी है या यह मुझे पढ़कर सुनाई गई है। मुझे एहसास है कि अध्ययन से मुझे कोई नुकसान नहीं होगा, और अध्ययन में भाग लेने से मुझे कोई प्रत्यक्ष लाभ नहीं है। साथ ही, मैं समझता/ समझती हूं कि मेरी व्यक्तिगत पहचान गोपनीय रखी जाएगी।

हस्ताक्षर करके, मैं इस अध्ययन में अपनी स्वैच्छिक भागीदारी की पुष्टि करता/ करती हूं। यदि कोई गुम जानकारी या आगे स्पष्टीकरण की आवश्यकता है तो मैं फिर से संपर्क करने के लिए सहमत हूं। मैं बिना किसी दायित्व के किसी भी समय साक्षात्कार से हटने का अपना अधिकार समझता/ समझती हूँ।

प्रतिभागी के हस्ताक्षर: _____

प्रतिभागी के अंगूठे का निशान (यदि हस्ताक्षर करने में असमर्थ है):

दिनांक: / /

यदि प्रतिभागी हस्ताक्षर करने में असमर्थ है, तो एक गवाह को नीचे हस्ताक्षर करना होगा:

एक साक्षर गवाह को हस्ताक्षर करना चाहिए (यदि संभव हो तो, इस व्यक्ति को प्रतिभागी द्वारा चुना जाना चाहिए और अनुसंधान टीम से कोई संबंध नहीं होना चाहिए)।

मैंने संभावित प्रतिभागी को सहमति फॉर्म की सटीक रीडिंग देखी है, और व्यक्ति को प्रश्न पूछने का अवसर मिला है। मैं पुष्टि करती हूं कि व्यक्ति ने स्वतंत्र रूप से सहमति दी है।

गवाह का नाम: _____

गवाह के हस्ताक्षर: _____

तारीख: / /

सहमति लेने वाले शोधकर्ता/व्यक्ति द्वारा वक्तव्य

मैं पुष्टि करती हूँ कि प्रतिभागी को अध्ययन के बारे में प्रश्न पूछने का अवसर दिया गया था, और प्रतिभागी द्वारा पूछे गए सभी प्रश्नों का उत्तर सही ढंग से और मेरी सर्वोत्तम क्षमता के अनुसार दिया गया है। मैं पुष्टि करती हूं कि व्यक्ति को सहमति देने के लिए मजबूर नहीं किया गया है, और सहमति स्वतंत्र रूप से और स्वेच्छा से दी गई है। यदि प्रतिभागी निरक्षर हैं, तो मैं पुष्टि करता/करती हूँ कि इस सहमति पत्र की सामग्री उन्हें उनकी समझ की भाषा में पढ़कर सुनाई गई है, और मैंने यह सुनिश्चित किया है कि उन्होंने जानकारी को समझने के बाद ही अपनी सहमति दी है।

शोधकर्ता का नाम/ सहमति लेने वाला व्यक्ति _____

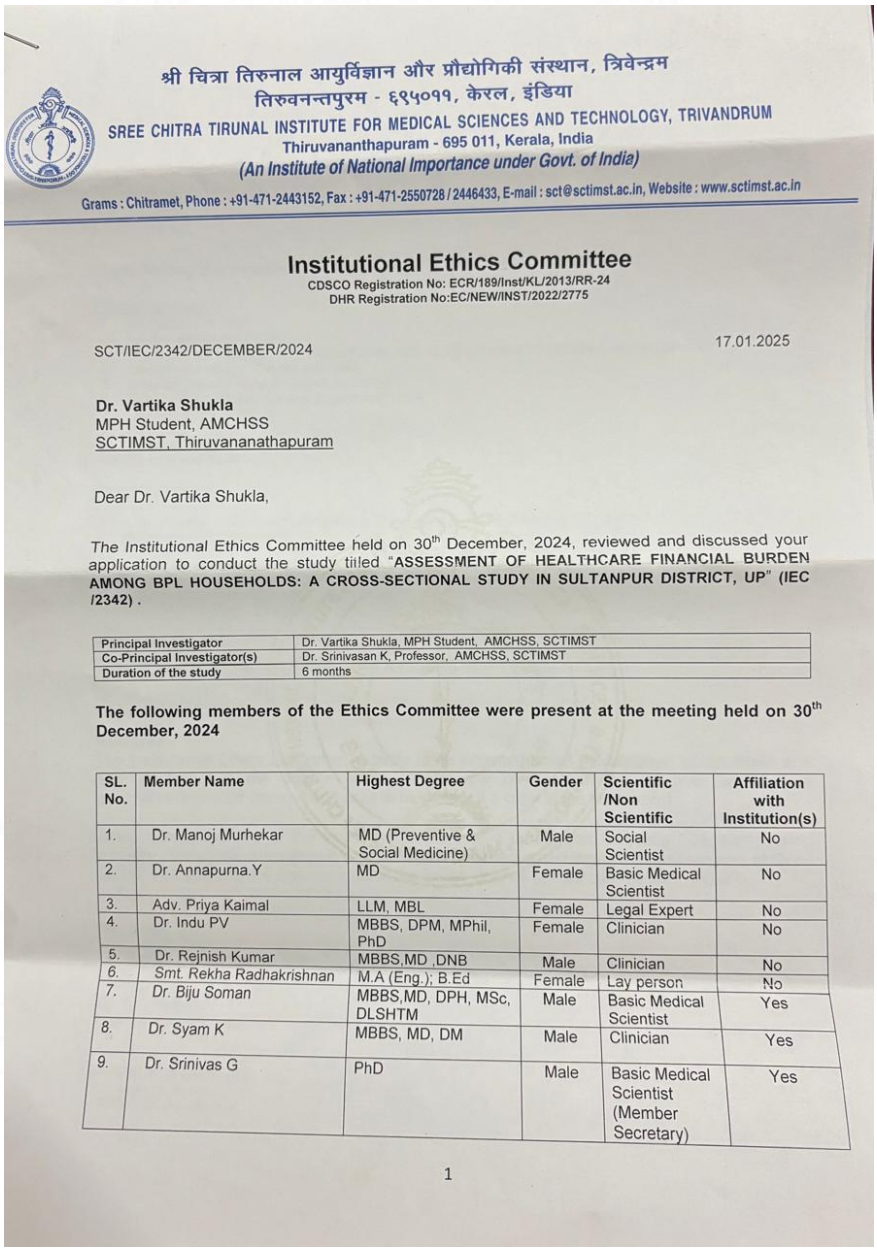
शोधकर्ता/ सहमति लेने वाला व्यक्ति के हस्ताक्षर _____

दिनांक: / /

स्थान:_____

ANNEXURE 5

IEC CLEARANCE CERTIFICATE



श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम
तिरुवनन्तपुरम - ६९५०११, केरल, इंडिया

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM
Thiruvananthapuram - 695 011, Kerala, India
(An Institute of National Importance under Govt. of India)

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Institutional Ethics Committee

CDSCO Registration No: ECR/189/Inst/KL/2013/RR-24
DHR Registration No:EC/NEW/INST/2022/2775

SCT/IEC/2342/DECEMBER/2024 17.01.2025

Dr. Vartika Shukla
MPH Student, AMCHSS
SCTIMST, Thiruvananathapuram

Dear Dr. Vartika Shukla,

*The Institutional Ethics Committee held on 30th December, 2024, reviewed and discussed your application to conduct the study titled "***ASSESSMENT OF HEALTHCARE FINANCIAL BURDEN AMONG BPL HOUSEHOLDS: A CROSS-SECTIONAL STUDY IN SULTANPUR DISTRICT, UP" (IEC /2342) .**

Principal Investigator	Dr. Vartika Shukla, MPH Student, AMCHSS, SCTIMST
Co-Principal Investigator(s)	Dr. Srinivasan K, Professor, AMCHSS, SCTIMST
Duration of the study	6 months

The following members of the Ethics Committee were present at the meeting held on 30th December, 2024

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Dr. Manoj Murhekar	MD (Preventive & Social Medicine)	Male	Social Scientist	No
2.	Dr. Annapurna.Y	MD	Female	Basic Medical Scientist	No
3.	Adv. Priya Kaimal	LLM, MBL	Female	Legal Expert	No
4.	Dr. Indu PV	MBBS, DPM, MPhil, PhD	Female	Clinician	No
5.	Dr. Rejnish Kumar	MBBS,MD ,DNB	Male	Clinician	No
6.	Smt. Rekha Radhakrishnan	M.A (Eng.); B.Ed	Female	Lay person	No
7.	Dr. Biju Soman	MBBS,MD, DPH, MSc, DLSHTM	Male	Basic Medical Scientist	Yes
8.	Dr. Syam K	MBBS, MD, DM	Male	Clinician	Yes
9.	Dr. Srinivas G	PhD	Male	Basic Medical Scientist (Member Secretary)	Yes

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The following documents were reviewed:

Original submission

1. *IEC Application Form*
2. *Funding details and Budget*
3. *Covering letter addressed to the Chairperson, IEC, SCTIMST dated 07.12.2024 forwarded by HOD*
4. *Interview schedule in English and Hindi*
5. *Informed Consent Form in English and Hindi*
6. *Participant Information Sheet in English and Hindi*
7. *Checklist Form*
8. *Proposal*
9. *Declaration Form*
10. *CV of PI and Co-PI*

Revised submission

1. *Covering letter addressed to the Member Secretary, IEC, SCTIMST dated 12.01.2025*
2. *Response to IEC comments*
3. *IEC Recommendation letter dated 09.01.2025*
4. *Proposal*
5. *Participant Information Sheet in English and Hindi*
6. *Informed Consent Form in English and Hindi*
7. *Interview schedule in English and Hindi*

IEC Decision
The IEC approved the conduct of the study in the present form.

Remarks:
The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,

Dr. G. Srinivas
Member Secretary, IEC

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST, THIRUVANANTHAPURAM

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST
THIRUVANANTHAPURAM

ANNEXURE 6

Plagiarism Report

Assessment of healthcare financial burden among...
By: Vartika Shukla
As of: Apr 28, 2025 2:34:50 PM
13,759 words - 134 matches - 69 sources

Similarity Index
9%

Mode: Similarity Report

paper text:

"Assessment of Healthcare Financial Burden Among BPL Households: A cross-sectional Study in Sultanpur District, UP" By Vartika Shukla Abstract Background: Universal Health Coverage (UHC)

is necessary to guarantee access to high- quality 22

treatment without financial hardship, as

the right to health is a universal **human right. In** low- **and** 5

middle-income (LMIC) nations like India, inadequate public health expenditures lead to higher out-of-pocket (OOP) expenses. Poor people's access to healthcare in India is made worse by a lack of insurance and differences between rural and urban areas. Excessive OOP expenditure exacerbates poverty and results in catastrophic health expenditures (CHE). Therefore,

the present study estimates BPL households' **out-of-pocket** (OOP) and catastrophic **health** 15

expenditures and their associated factors in the Sultanpur district of

Uttar Pradesh, India. Methods: A cross-sectional study was conducted among 47

145 BPL (Below Poverty Line) head of households in Sultanpur district, Uttar Pradesh.

ANNEXURE 7

PHOTOGRAPHS









