Burden of Distress Financing for Hospitalization in India: Prevalence and Patterns from Household Health Care Consumption Survey, 2017-18

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The Indian health system is predominantly characterized by out-of-pocket healthcare expenditure and limited insurance coverage. While affluent households typically finance treatment through income and savings, economically disadvantaged households to rely on distressed sources like selling assets and borrowing to meet the healthcare needs. This study examines the levels and patterns of distress financing for hospitalization care in India across various demographic and socioeconomic groups. Furthermore, it compares the prevalence of distress financing across major ailment categories. The analysis utilizes data from the 75th round of the National Sample Survey 2017-18 to examine the overall prevalence of distress financing and the final analytic sample consists of 66237 participants. The key respondents include individuals who were hospitalized within the last 365 days. The binary outcome variable indicates whether patients funded their inpatient care through household income/savings (0), or distress means borrowings, sale of physical assets, contributions from friends and relatives, and other sources. The explanatory variables include MPCE quintiles, education, and place of residence. Four ailment categories were cancer, cardiovascular diseases, diabetes, and accidents. The analysis indicates that overall, 43.9% of inpatient cases relied on distress means of financing as either primary or secondary source. Across private and public facilities, the prevalence of distress financing was 35.9% and 49.4% respectively. Within private hospitalization facilities, a sharp gradient was observed across MPCE quintiles with a prevalence of 58.5% amongst the poorest as compared to 35.0% amongst the richest households. These findings highlight the need for strengthened social protection policies and expanded healthcare coverage to alleviate the reliance on distressed healthcare financing. Furthermore, prioritizing insurance-based healthcare systems is critical to achieving equitable and sustainable reductions in the financial burden of healthcare.

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Rising healthcare costs impose a significant financial burden, particularly on low-income households, who are disproportionately vulnerable. In developing countries, over one-third of healthcare expenditure is financed through out-of-pocket (OOP) expenditure by households. The rising burden of out-of-pocket health expenditure is one of the prominent health policy concerns, particularly in low-income and densely populated countries like India. Universal Health Coverage is, therefore, is one of the primary health agendas to achieve two fundamental objectives: (a) equity in healthcare access, and (b) financial protection from the high treatment cost of non-communicable diseases (NCDs). Additionally, studies before the implementation of the National Health Mission (NHM) have shown a distinct pro-rich bias towards access and utilization of healthcare facilities in India. Moreover, the OOP healthcare expenditure for those seeking care in private facilities has increased exponentially in India, thereby worsening the economic challenges faced by financially disadvantaged households. It is important to highlight that the treatment cost of chronic diseases like cancer and cardiovascular diseases (CVDs) is substantially higher, often driving households into economic hardship and compelling them to distress modes of financing. Distressed financing encompasses borrowings, contributions (with or without repayment obligations), and the sale of assets by households to address healthcare expenses. Previous studies indicate that approximately 60% and 32% households in India rely on borrowings and contributions from friends and relatives, respectively, for financing cancer hospitalization in India (Joe, 2015). The widespread reliance on distress modes of financing reflects the regressive nature of the healthcare system and calls for urgent policy intervention. Similar findings from other low-income countries corroborate that unpredictable and high OOP payments on healthcare lead to severe financial distress among households (Bonu et al., 2005; Bonu et al., 2009; Narayan et al., 2000a; Narayan et al., 2000b; Sauerborn et al., 1996; Damme et al., 2004).

In response to the critical need to address these challenges, the Government of India has formulated policies emphasising financial protection and equitable access to healthcare services. The National Health Policy (NHP), 2017, accorded 'affordability' as a key principle. For instance, the NHP states that "[a]s costs of care increase, affordability, as distinct from equity, requires emphasis. Catastrophic household health care expenditures, defined as health expenditure exceeding 10% of its total monthly consumption expenditure or 40% of its monthly non-food consumption expenditure, are unacceptable" (MoHFW, 2017). One crucial issue requiring immediate policy attention is the financing of healthcare, particularly for the elderly population, who are disproportionately exposed to chronic non-communicable diseases (NCDs). The rise in healthcare expenditures is primarily driven by the combined effects of an increasing aging population and the growing prevalence of NCDs. The age factor in the increasing prevalence of NCDs is inevitable, as adults and the elderly are more susceptible to chronic diseases. Moreover, the

treatment of NCDs, particularly cardiovascular diseases (CVDs), is not only prolonged in duration, but also incurs high costs, with comparatively lower survival rates. In addition to the fact that India, like many other developing countries, lacks infrastructure to accommodate the increasing burden, policymakers must prioritize addressing the issue of skyrocketing health spending by households, financed through distress modes of financing at the household level.

There is a dearth of studies examining the incidence of distress financing for healthcare for both public and private health facilities. Although previous studies have underscored the significant burden of OOP expenditure, there is a notable lack of evidence investigating distress financing patterns independently for public and private health care facilities in India, particularly on a nationwide basis. In addition to this, given the wide array of improvements in health system financing and infrastructure, it is critical to examine the patterns in distress modes of financing healthcare separately for public and private hospitals. Although the NHP 2017 explicitly prioritizes healthcare affordability, it is essential to assess the role of both public and private health facilities in the overall burden of healthcare-related borrowings in India. Furthermore, it will also help determine whether investments in public health care have significant protective effects on household health financing and whether these interventions need to be further strengthened.

Drawing on the data from the health round of the National Sample Survey (2017-18), this paper aims to examine the incidence and modes of hospitalization financing at the household level. Beyond examining prevalence, the study explores how key socioeconomic correlates are associated with distressed healthcare financing (borrowings, sale of assets, and contributions from friends or relatives). The analysis uncovers the complex dynamics of distress modes of financing across the intersections of multiple factors, including gender, social categories, and economic status, that can have a significant impact while deciding upon the use of various sources of healthcare financing (Van Doorslaer et al., 2007). In this regard, a small area study on Koppal district in Karnataka in India provides compelling evidence that economically challenged men had better access to credit markets and were more likely to take loans or sell assets to finance healthcare expenses (Sen & Iyer, 2012). Even though the prevailing evidence comes from small-area studies, from a policy perspective, it is essential to analyse the broader scope, proportionate impact, and correlates of distressed healthcare financing.

Data and Methods

- **Data**

This study draws upon nationally representative data from Social Consumption: Health survey (75th round) of India (NSSO, 2018). The survey was conducted in 2017-18 by the National Sample Survey Organization (NSSO), Ministry of Statistics

and Program Implementation, Government of India. The Social Consumption: Health survey collects information on morbidity, treatment-seeking, and financing of hospitalization (inpatient) and ambulatory (outpatient) care services for reference periods of 365 days and 15 days, respectively. The survey also details ailments treated through medical care, the extent of utilization of Government hospitals, and treatment-related expenditures in public and private sectors. Additionally, the survey provides household-level characteristics on demographics and access to services and utilities as well as individual-level data on age, sex, education, monthly per capita expenditure, and primary occupation.

- **Survey Design**

The Social Consumption: Health Survey covers a representative sample of households adopting a stratified multi-stage survey design covering India. A rural/urban stratification is created within clusters called state regions, which constitute a contiguous group of districts within a State or union territory with similar features. Within each district of a State/Union Territory, rural and urban strata are formed. The first-stage units are selected using the circular systematic sampling system of census-identified villages (rural sector) and urban frame survey blocks (urban sector) of each district. Villages and blocks with larger sample sizes are divided into multiple "hamlet groups" or "sub-blocks" and households belonging to only two "hamlet groups" and one randomly selected "sub- blocks" are selected as part of the second stage sampling process. The households within each village are further categorized into two strata based on their level of affluence and are then circular systematically selected to form the final sample. The 75th round of the Morbidity and Healthcare Survey covers a sample of 113822 households and 555351 individuals.

- **Outcomes**

We investigated the percentage of individuals largely relying on distress financing mechanisms to receive inpatient treatment. The survey collects information on the major source of financing to capture whether the majority of out-of-pocket expenditure was incurred through distressed means or not. Components such as borrowings (with or without interest), contribution from friends and relatives (with or without repaying option), and sale of assets are together defined as distressed financing. We further categorize it into "First source" and "Second source" to highlight the differences in cases that rely on distress mechanisms as the primary mode of financing and those that do so as a supplementary source. "Either source" reflects the total burden of distress financing.

- **Socioeconomic Indicators**

The study focuses on indicators of socioeconomic status including household monthly per capita expenditure (MPCE) quintile, education, and social group of

the patient. Years of education was used to categorize the patients as illiterate (no formal schooling), upto primary education (1–5 years), upto middle school education (6–10 years), secondary education (11–12 years) and higher education (graduate school and above). Social group was categorized into the three historically marginalized groups of scheduled tribes (ST), scheduled castes (SC), other backward classes (OBC), alongside other castes. In addition, we also include information on place of residence (urban vs. rural), sex of the patient, religion (Hinduism, Muslim, Christianity, others), and region.

Statistical Analyses

The study reports the of prevalence of distress financing for inpatient care across socioeconomic categories. The concentration index (CI) is used to discern the socioeconomic gradient in inpatient care (Wagstaff et al., 1991; Erreygers, 2009) with a focus on public and private hospitals separately. The value of CI ranges between +1 and –1 with zero depicting no inequality and large positive values indicating greater concentration of distress financing cases among the richer households. Further, we employ logistic regression (adjusting for state and community-level fixed effects) to understand the mutually adjusted associations of distress financing prevalence with various socioeconomic indicators in a multivariate framework. The logistic regression estimates are reported in the form of Odds Ratio (OR) with 95 percent confidence intervals. These OR are the relative measure of effect which allows comparisons of groups relative to the reference group. The analysis was carried out in Stata 15 (StataCorp, 2013; Leckie & Charlton, 2013). All the analyses use multipliers as prescribed by the NSSO (NSSO, 2018).

Results

About 45.7% of inpatient cases were reported to resort to distress modes of financing with 18.9% and 29.2% as a primary and secondary source respectively (Table 1). Compared to the highest MPCE quintile, resorting to distress financing was more common among poorer sections. For instance, 37% of inpatient cases in the fifth quintile against 49.5% in the first quintile went for distress financing sources.

Across public and private facilities, 37.8% and 51.2% of hospitalization cases were financed through distress sources respectively (Table 2). For private hospitals, a clear gradient was observed across MPCE quintiles with 60.6% prevalence among the poorest households and 37.6% among the richest households. However, such a gradient was not observed in the case of public hospitals. We could not find notable differences in the prevalence across genders in both public and private

facilities. For private hospitalization cases, socially affluent sections are less prone to finance through distress modes compared to categories with social reservations. For example, the prevalence among cases from ST households and unreserved households was 56.9% and 43.2% respectively. Such a pattern was missing in the case of inpatient cases in public hospitals. Interestingly, private inpatient cases also depict a stark difference across rural (57.2%) and urban (42.0%) areas in the prevalence of distress financing.

Across states, Andhra Pradesh reported to have the highest percentage (64.2%) of inpatient cases resorting to distress sources of financing followed by Manipur (62.3%), Goa (59.5%), Arunachal Pradesh (59.4%), and Karnataka (59.3%) (Fig1 - All). On the other hand, states like Himachal Pradesh (23.5%), Gujarat (30.3%) and Madhya Pradesh (31.1%) had relatively much lower burden. These findings were consistent across public and private facilities with higher magnitude in private hospitalization cases. For instance, the north-eastern states of Nagaland (Public: 63.9%; Private: 82.6%), and Manipur (Public: 59.8%; Private: 72.2%) had a much higher burden of distress financing.

We also quantified the magnitude of distress financing burden across major ailment groups for inpatient treatment, i.e., CVDs, Diabetes, Cancer, and Accidents. The prevalence of distress financing was highest for Cancer (67.8%), followed by accidents (52.6%), diabetes (47.4%), and CVDs (47.4%) (Fig 2). This pattern was consistent for both the first source and the second source. For private hospitals, the magnitude of burden was relatively higher for all groups with 72.9% of cases with distress financing for cancer, 61.2% for accidents, 53.4% for CVDs, and 50.7% for diabetes. In the case of public hospitals as well, distress financing was highest for cancer inpatient cases, followed by accidents and CVDs.

Estimates from the concentration index depict a pro-rich bias with a higher burden of distress financing for inpatient cases among poor households (Fig3). Econometric estimates from logistic regression reflect higher odds of distress financing for the treatment of adults (OR: 1.30; 95% CI: 1.24; 1.36) and the elderly population (OR: 1.24; 95% CI: 1.15; 1.31) compared to the younger cohort (Table 3). Across the MPCE quintiles, the likelihood of relying on borrowings and other distress means for adult hospitalization was significantly higher among households in the poorest (OR: 1.53; 95% CI: 1.44; 1.63) and poorer households (OR: 1.48; 95% CI: 1.39; 1.57) compared to those in the richest quintile.

These observations were consistent for both public and private facilities. For inpatient treatment of cancer, distress financing was reported as two times more likely than those with any other ailments (OR: 2.71; 95% CI: 2.36; 3.12). The probability of distress financing for inpatient treatment was reported significantly higher for rural areas (OR: 1.24; 95% CI: 1.19; 1.29) compared to urban areas. We also assessed the econometric association of distressed financing cases with the

Table 1. Prevalence (%) of Distress Modes of Financing Hospitalization Care by Socioeconomic Background, India, NSS 2017–18

	First Source			Second Source			Either Source		
Characteristics	**Proportion (%)**	**Standard Error**	**Sample (N)**	**Proportion (%)**	**Standard Error**	**Sample (N)**	**Proportion (%)**	**Standard Error**	**Sample (N)**
Age group (years)									
0–15	16.75	1.01	11207	25.96	0.50	11207	41.22	0.65	11207
15–60	19.24	0.43	41170	29.75	0.28	41170	46.60	0.33	41170
60+	19.93	0.97	13860	29.82	0.58	13860	46.74	0.68	13860
MPCE Quintiles									
Poorest	18.59	0.80	9030	33.54	0.59	9030	49.46	0.66	9030
Poorer	19.59	0.76	11139	31.94	0.54	11139	49.04	0.63	11139
Middle	21.58	0.79	13070	31.06	0.50	13070	49.46	0.60	13070
Richer	19.68	0.82	16415	28.09	0.48	16415	45.61	0.58	16415
Richest	15.48	1.07	16583	23.08	0.47	16583	37.04	0.55	16583
Education									
Illiterate	21.56	0.61	18864	29.38	0.41	18864	48.14	0.49	18864
Primary	14.35	3.36	463	33.44	2.73	463	45.68	3.01	463
Secondary	17.82	3.81	351	25.75	3.29	351	42.27	3.61	351
Higher	17.86	0.48	46559	29.03	0.28	46559	44.69	0.33	46559
Gender									
Male	20.25	0.57	34589	29.57	0.33	34589	46.95	0.39	34589
Female	17.64	0.48	31642	28.70	0.32	31642	44.49	0.37	31642
Social Group									
Scheduled Tribes	16.74	0.71	7425	30.73	0.62	7425	44.34	0.69	7425
Scheduled Castes	20.77	0.89	11090	31.35	0.60	11090	49.15	0.68	11090
Other Backward Classes	20.30	0.64	26641	30.52	0.37	26641	48.38	0.43	26641
Others	16.51	0.70	21081	25.63	0.38	21081	40.35	0.47	21081
Religion									
Hinduism	18.85	0.43	50204	29.24	0.26	50204	45.81	0.31	50204
Islam	19.92	1.09	8997	28.89	0.62	8997	46.17	0.78	8997
Others	18.58	1.08	7036	28.55	0.74	7036	44.17	0.86	7036
Sector									
Rural	20.54	0.48	36862	31.27	0.32	36862	49.00	0.37	36862
Urban	16.12	0.57	29375	25.25	0.32	29375	39.81	0.38	29375
All	18.98	0.37	66237	29.15	0.23	66237	45.76	0.27	66237

Table 2. Prevalence (%) of Distress Modes of Financing (First or Second) by Public and Private Hospital Facilities across Socioeconomic Background, India, NSS 2017-18

	Public			Private		
Characteristics	**Proportion (%)**	**Standard Error**	**Sample (N)**	**Proportion (%)**	**Standard Error**	**Sample (N)**
Age group (years)						
0–16	33.14	1.02	5432	46.81	0.80	5775
15–60	38.25	0.43	19222	52.52	0.43	21948
60+	40.44	0.98	5935	50.91	0.85	7925
MPCE Quintiles						
Poorest	38.98	0.80	5221	60.64	0.95	3809
Poorer	38.63	0.76	6115	59.26	0.92	5024
Middle	38.87	0.80	6586	57.67	0.79	6484
Richer	36.56	0.83	7569	51.83	0.75	8846
Richest	35.75	1.07	5098	37.36	0.61	11485
Education						
Illiterate	38.59	0.61	9399	55.87	0.67	9465
Primary	35.11	3.52	280	57.95	4.81	183
Secondary	35.59	3.81	194	48.79	6.01	157
Higher	37.57	0.48	20716	49.24	0.41	25843
Gender						
Male	39.30	0.58	15608	52.27	0.48	18981
Female	36.44	0.48	14977	50.06	0.51	16665
Social Group						
Scheduled Tribes	37.51	0.72	5369	56.86	1.43	2056
Scheduled Castes	40.21	0.90	5951	58.06	0.89	5139
Other Backward Classes	38.57	0.65	10855	54.45	0.53	15786
Others	35.01	0.71	8414	43.16	0.58	12667
Religion						
Hinduism	37.41	0.43	21938	51.61	0.39	28266
Islam	38.57	1.10	4743	52.63	1.01	4254
Others	43.21	1.09	3908	44.57	1.29	3128
Sector						
Rural	38.83	0.48	19225	57.20	0.51	17637
Urban	35.63	0.58	11364	42.01	0.47	18011
All	37.88	0.38	30589	51.22	0.35	35648

intersection of social category and MPCE quintiles (Fig 4). A clear gradient was observed with a significantly higher likelihood of resorting to distress means among the socially deprived and poorest MPCE quintile households in both public and private hospitals (Fig 4). Further, compared to the patients with the highest education from the richest households, the odds for patients from less educated backgrounds from poorer households have a significantly higher probability of resorting to borrowings and other (Fig 5).

Figure 1: Prevalence of Distress Modes of Financing for Hospitalization Care by Type of Facilities and States, India, NSS, 2017-18

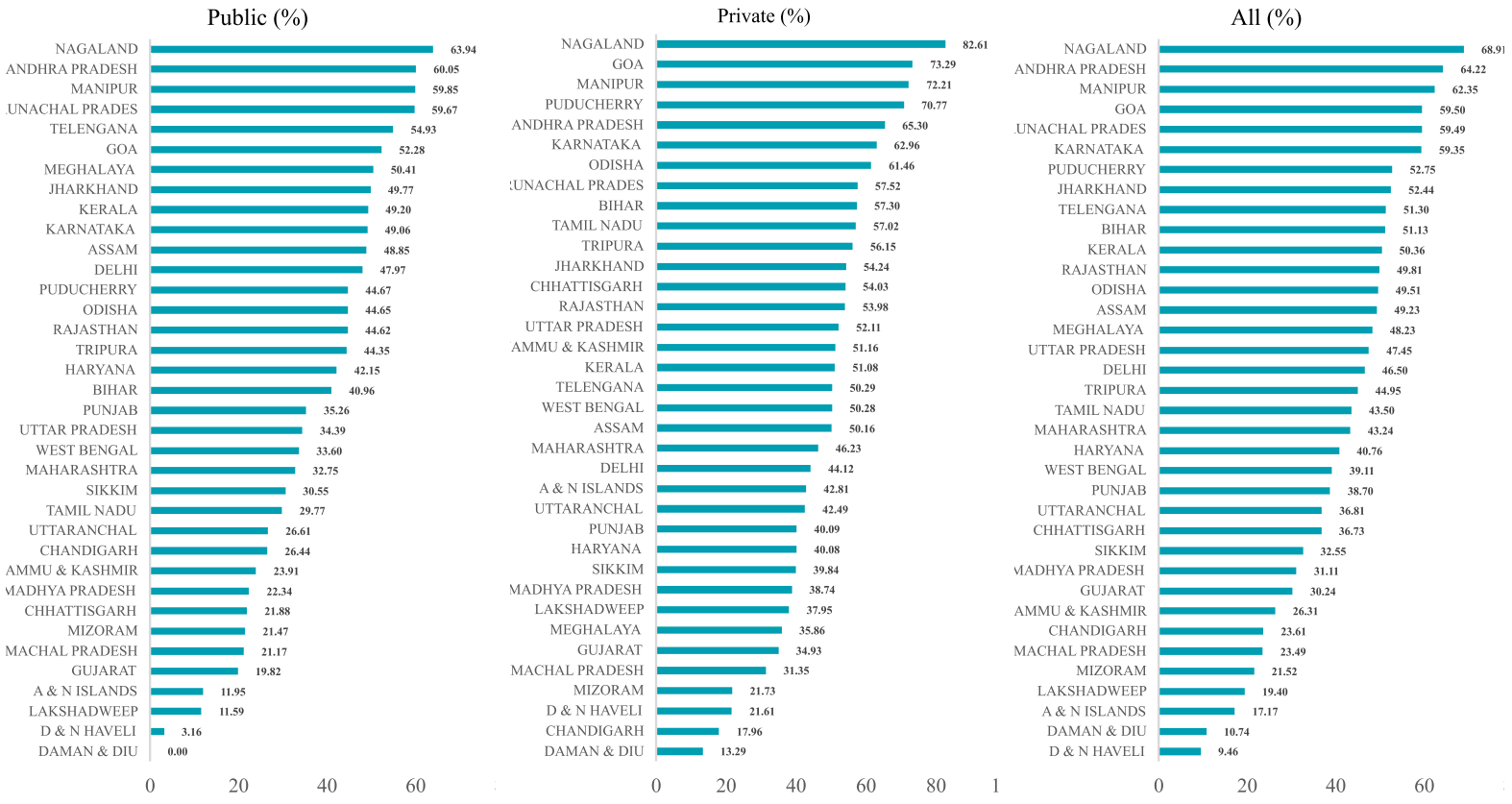


Figure 2: Prevalence (%) of Distress Modes of Financing Hospitalization Care by Broad Ailment Categories, India, NSS 2017-18

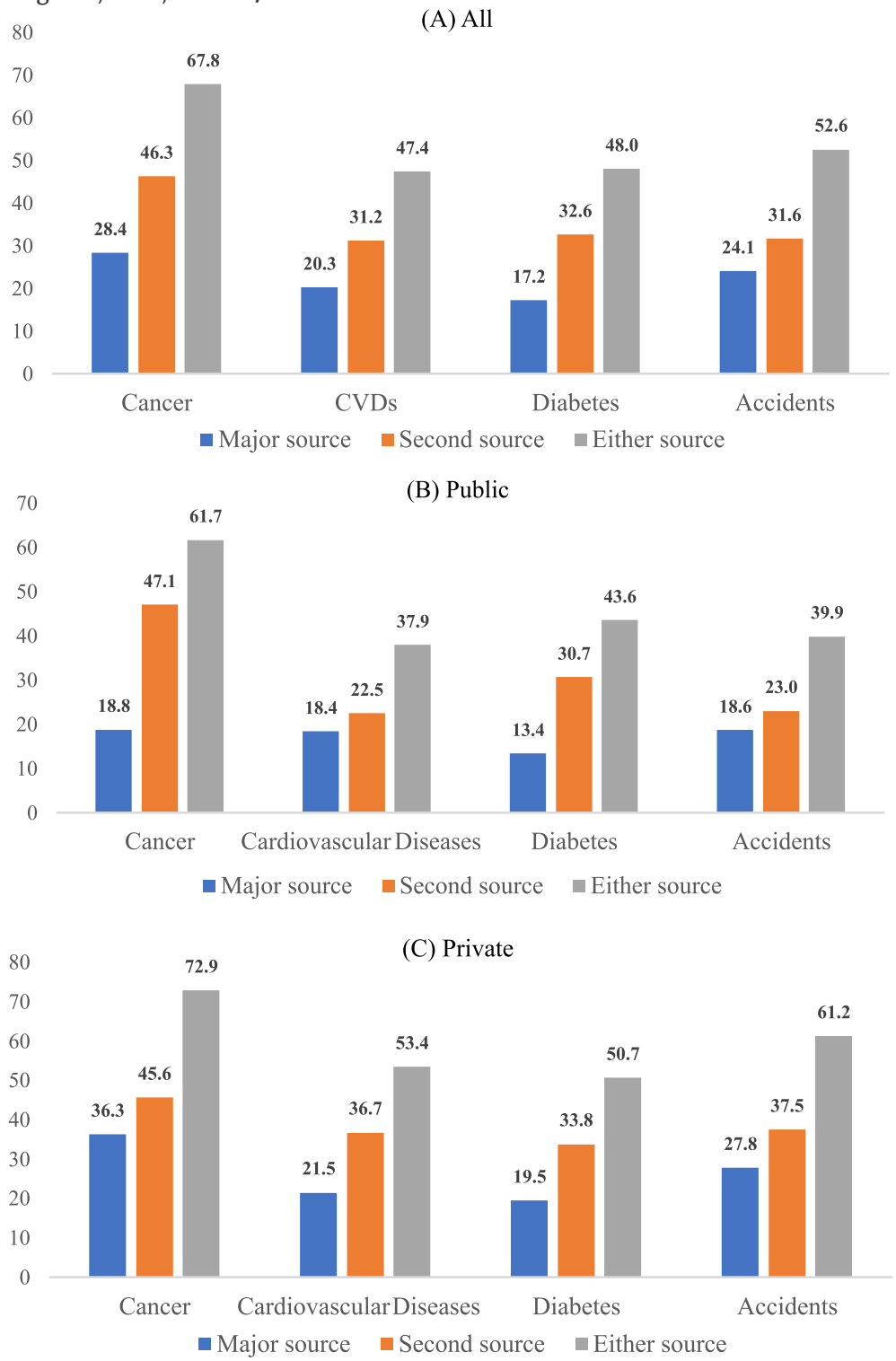


Figure 3: Prevalence (%) of Distress Modes of Financing by Public and Private Hospital Facilities across Rural and Urban sectors, India, NSS 2017–18

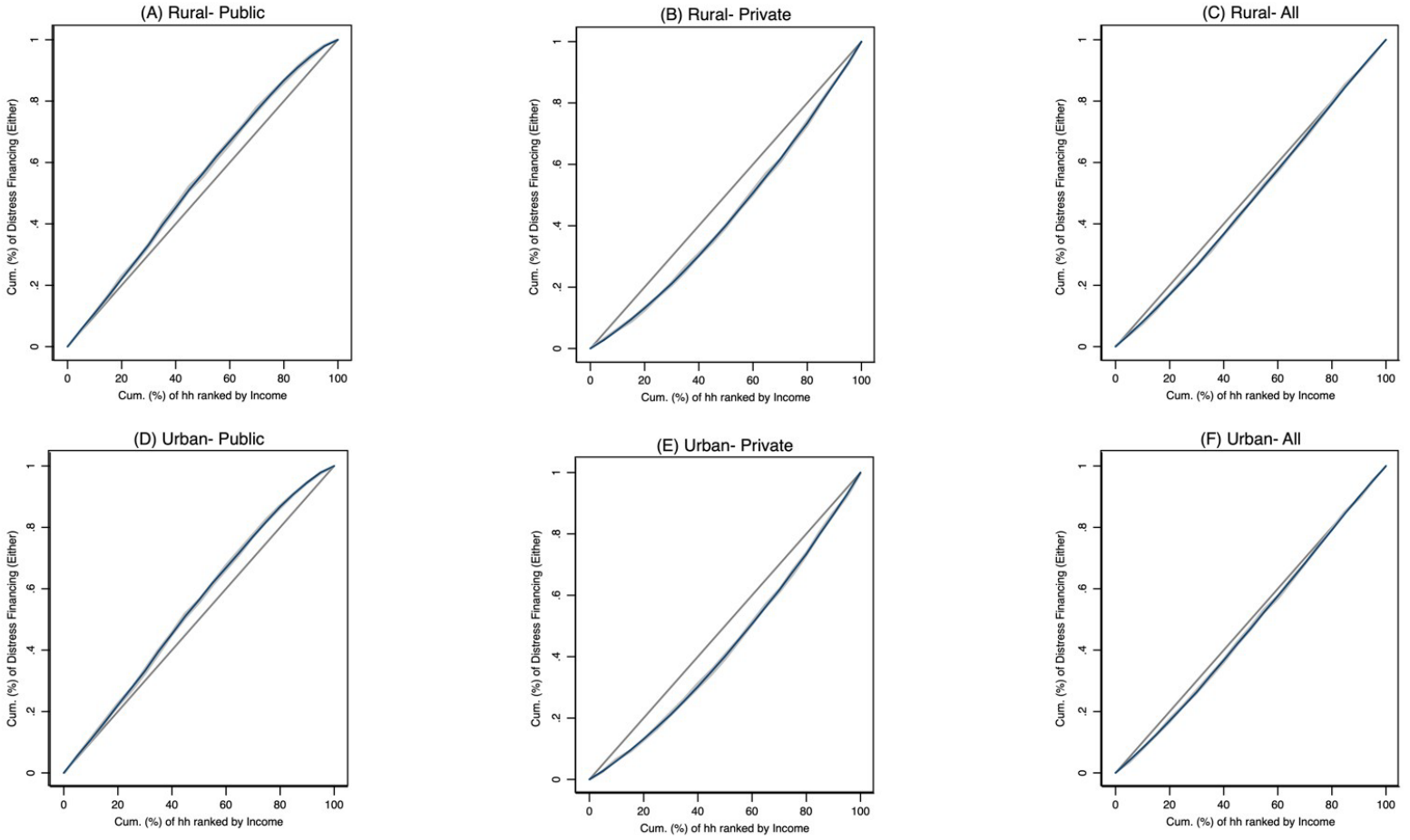


Table 3. Econometric association between distress financing for hospitalization and socio-economic correlates, by public and private hospitals, India, NSS 2017-18

Correlates	Public		Private		All	
	Odds Ratio	95% CI	Odds Ratio	95% CI	Odds Ratio	95% CI
Age group (years)						
0-15 ®	-	-	-	-	-	-
15-60	1.24***	[1.16 ; 1.33]	1.39***	[1.30 ; 1.48]	1.30***	[1.24 ; 1.36]
60+	1.28***	[1.07 ; 1.40]	1.26***	[1.16 ; 1.36]	1.24***	[1.16 ; 1.31]
Gender						
Female ®	-	-	-	-	-	-
Male	1.13***	[1.07 ; 1.87]	1.15***	[1.10 ; 1.21]	1.15***	[1.11 ; 1.19]
Sector						
Urban ®	-	-	-	-	-	-
Rural	1.17***	[1.10 ; 1.24]	1.36***	[1.29 ; 1.43]	1.24***	[1.19 ; 1.29]
MPCE Quintiles						
Richest ®	-	-	-	-	-	-
Poorest	1.63***	[1.48 ; 1.80]	1.78***	[1.62 ; 1.95]	1.53***	[1.44 ; 1.63]
Poorer	1.53***	[1.39 ; 1.68]	1.69***	[1.56 ; 1.83]	1.48***	[1.39 ; 1.57]
Middle	1.41***	[1.29 ; 1.54]	1.61***	[1.50 ; 1.74]	1.43***	[1.35 ; 1.51]
Richer	1.20***	[1.10 ; 1.30]	1.38***	[1.29 ; 1.47]	1.25***	[1.19 ; 1.31]
Education						
Higher ®	-	-	-	-	-	-
Illiterate	1.03	[0.97 ; 1.09]	1.23***	[1.16 ; 1.30]	1.12***	[1.07 ; 1.16]
Primary	1.25	[0.97 ; 1.61]	1.29	[0.95 ; 1.76]	1.18	[0.97 ; 1.43]
Secondary	1.29	[0.95 ; 1.74]	1.14	[0.80 ; 1.61]	1.13	[0.90 ; 1.42]
Social Group						
Others ®	-	-	-	-	-	-
Scheduled Tribes	1.12	[1.02 ; 1.22]	1.51***	[1.36 ; 1.68]	1.14***	[1.07 ; 1.22]
Scheduled Castes	1.17***	[1.08 ; 1.27]	1.12	[0.99 ; 1.25]	1.36***	[1.29 ; 1.43]
Other Backward Classes	1.19***	[1.12 ; 1.28]	0.96	[0.87 ; 1.07]	1.40***	[1.34 ; 1.46]
Diseases						
Cancer- No ®	-	-	-	-	-	-
Cancer- Yes	3.03***	[2.45 ; 3.75]	2.45***	[2.04 ; 2.95]	2.71***	[2.36 ; 3.12]
Cardiovascular Diseases- No ®	-	-	-	-	-	-
Cardiovascular Diseases- Yes	1.16***	[1.05 ; 1.27]	1.22***	[1.13 ; 1.32]	1.20***	[1.12 ; 1.27]
Diabetes- No ®	-	-	-	-	-	-
Diabetes- Yes	1.17	[0.89 ; 1.29]	0.93	[0.80 ; 1.09]	1.00	[0.89 ; 1.13]
Accidents- No ®	-	-	-	-	-	-
Accidents- Yes	1.07***	[1.08 ; 1.26]	1.47***	[1.37 ; 1.58]	1.34***	[1.28 ; 1.41]
N	27,526		31,732		58,209	

Note: Odds ratios are estimated employing logistic regression, adjusting for insurance status, chronic ailment (any), religion, and state-fixed effects. Estimations are *significant at 0.10, ** at 0.05, *** at 0.01 level. ® refers to the reference category for the correlates.

Figure 4: Econometric association between distress financing for hospitalization and Social category*MPCE Quintiles, by public and private hospitals, India, NSS 2017–18

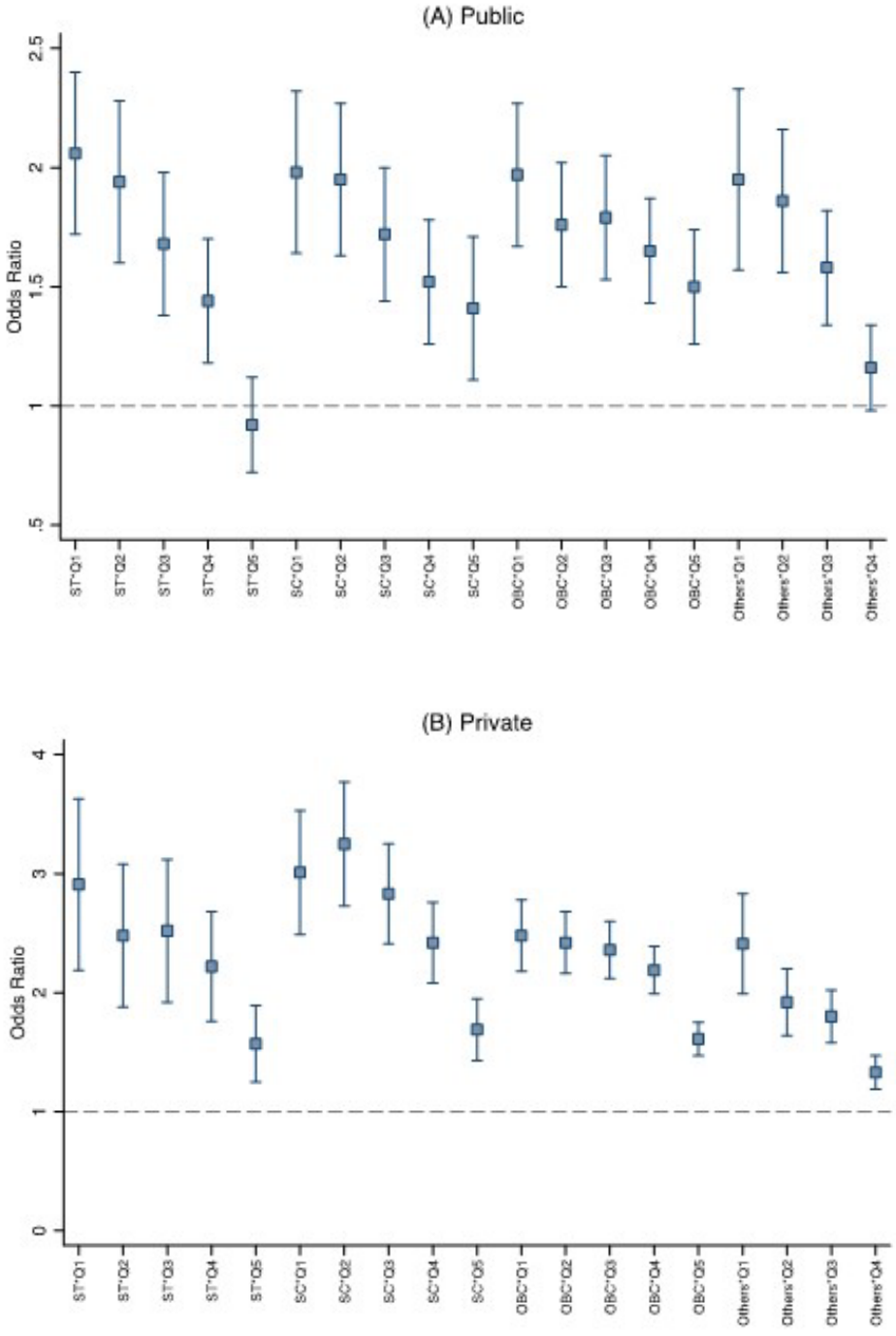
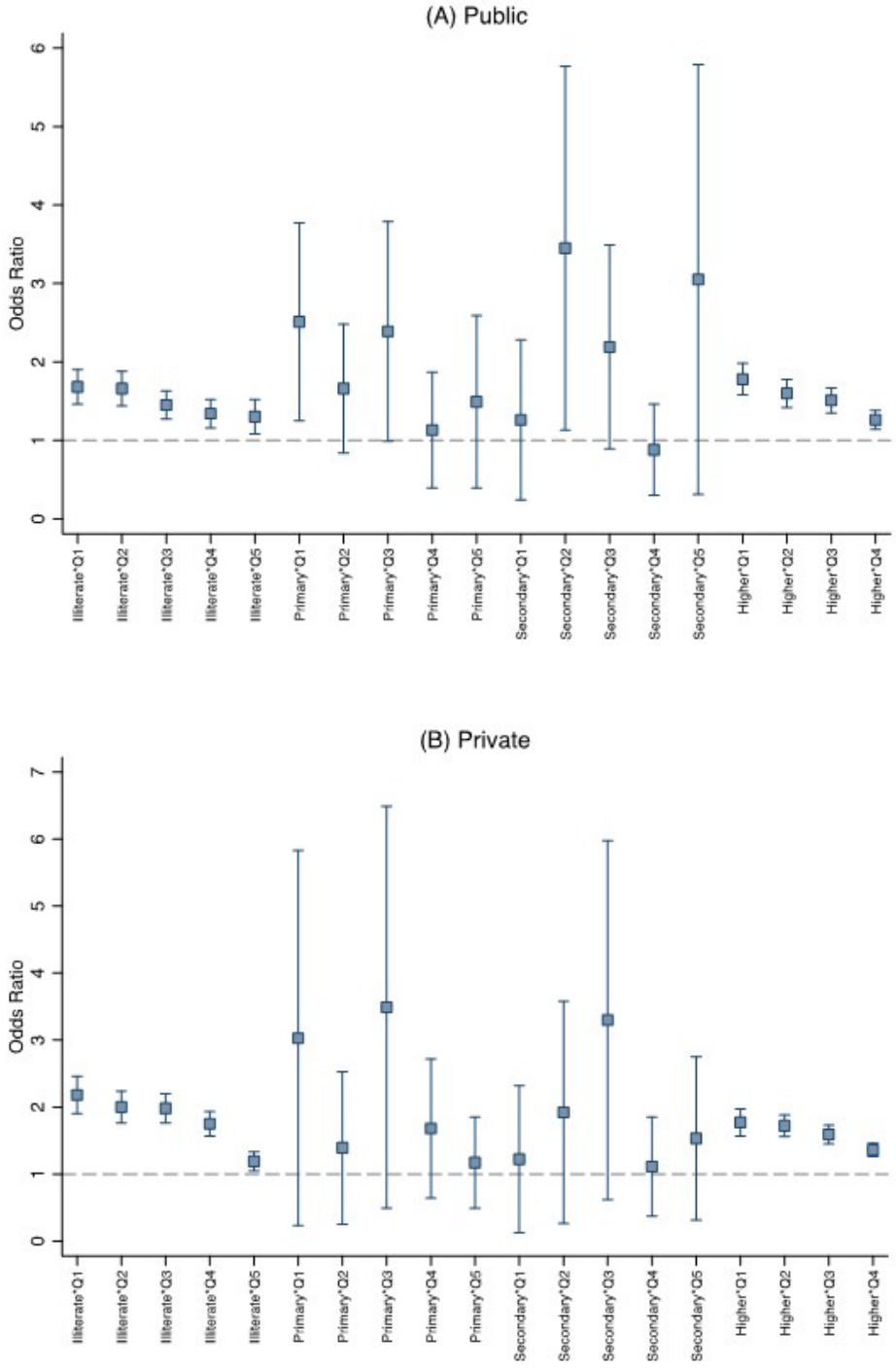


Figure 5: Econometric association between distress financing for hospitalization and Education Groups*MPCE Quintiles, by public and private hospitals, India, NSS 2017-18



Discussion

The study identifies four key findings. First, nearly half of the inpatient cases in India rely on distress financing mechanisms to meet healthcare expenses, with a disproportionately higher burden in rural areas. Second, the reliance on distress financing is substantially more pronounced for treatments sought in private hospitals compared to public ones, a trend that remains consistent across various demographic and socioeconomic strata. Third, the econometric analysis reveal a significantly higher probability of resorting to distress financing for inpatient treatment among socioeconomically vulnerable households, indicating borrowing as a potential marker of economic vulnerability. Fourth, the burden for distress financing was particularly higher for hospitalization related to cancer treatments across the broad ailment categories. Notably, inpatient treatment for accident cases also exhibited a substantial reliance on distress financing. This could be attributed to the fact that cancer treatment often entails prolonged and expensive medical care, which burdens households with limited financial resources, thereby rising their dependence on distress financing. Whereas, accident injuries necessitate immediate and unplanned medical interventions, leading to sudden financial pressures that force households to resort to distress financing mechanisms.

Our findings are consistent with previous studies on the subject matter. Existing literature from low-income countries highlights that a notable proportion of households incur financial debt or sell household assets to manage healthcare expenses (Sauerborn et al., 1996; Wagstaff et al., 1991; Leive & Xu, 2008; Kruk et al., 2009). For instance, the World Health Survey (2002-04) conducted across several low- and middle-income countries, reported a mean prevalence of borrowing and asset sales at 22% and 10%, respectively (Kruk et al., 2009). In light of these figures, it is expected that households in a low-income and densely populated country like India would rely heavily on distress financing mechanisms to access health care, particularly inpatient care.

From a policy perspective, it is crucial to note that a substantial proportion of household indebtedness in India can be attributed to a general preference for private-sector hospitals (Dilip & Duggal, 2002). Our findings further indicate that indebtedness associated with financing hospitalization care was significantly higher for private healthcare facilities. The data also reveal that the average OOP expenditure in private hospitals is considerably higher than that is incurred at public hospitals. These findings are in line with existing literature on in-patient care in India showing that public facilities and publicly funded insurance programmes such as the Rashtriya Swasthya Bima Yojana (RSBY) and PMJAY have demonstrated protective effects against distress modes of financing (Thomas et al., 2024). In light of these observations, it is apparent that the situation of healthcare financing could worsen if the public health system is unable to address the increasing burden of

NCDs in India (Reddy et al., 2005). Such cautionary evidence has emerged from our results, as households seeking care for cancer or CVD are much more likely to incur substantial medical debt (Mahal et al., 2013; Rahman et al., 2013). In this context, although a few social insurance policies (such as Ayushman Bharat, RSBY, and Rajiv Arogyasri Community Insurance Scheme) focus on providing financial protection in India, there remains a lack of comprehensive data on their effectiveness in reducing distressed financing. Nevertheless, given such initiatives, there is a pressing need for investments to expand the public provision of tertiary healthcare, with an exclusive focus on essential diagnostics, drugs and non-medical costs.

The present study, however, is not without limitations, which warrant acknowledgement. First, the non-medical costs associated with treatment-seeking, which can be substantially high, where not captured in the analysis. Additionally, the analysis presented here does not include OOP expenditures related to institutional deliveries. Moreover, several critical but unresolved policy questions remain unaddressed. For instance, there is a lack of information regarding the interest rates and costs associated with borrowing for healthcare expenses. Similarly, the implications of borrowings on basic investments in food and education, as well as the various trade-offs between investing in other competing alternatives, are not well understood. Consequently, deeper insights into coping mechanisms and determinants of successful coping are essential for designing social protection policies, to improve fairness in health care financing.

In conclusion, the heavy reliance on distressed modes of financing, such as borrowings, contributions, and sale of assets, indirectly implies that patients from only affluent sections are reported to afford to access tertiary care, whereas economically vulnerable households might have to compromise with both quantity and quality of care. Furthermore, the findings from this study raise concerns that the situation may worsen with the rising burden of NCDs and the increasing share of aging population.

• **Funding:** None

• **Conflict of Interest:** None

• **Acknowledgement:** We are thankful to Ms. Neelima VP for support with formatting of the manuscript. We are very grateful to FLAME University, Pune, for supporting the study.

• **Author Contributions:** SR contributed to the conception and design of the study, acquisition of data, and provided supervision and project administration. SR and SG were responsible for the analysis of data. SR, SG, and SRon handled the interpretation of data and the drafting and writing of the manuscript. The critical revision of the manuscript was carried out by SR and SRon. All authors (SR, SG, and SRon) approved the final version to be published and agreed to be accountable for all aspects of the work.

• **Supplementary Material:** Visit https://healthempirics.org/ for more information

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