



Healthcare Expenditure and Household Financial Hardship among Public and Private Hospital Patients in Haryana

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Abstract:

Treatment payments can disrupt household needs even when a hospital bill appears modest. Financial responses from 350 adult patients in five Haryana districts were examined through expenditure summaries, household coping responses and reported facility-clustered models. Mean combined reported payments were ₹1,269.14 in the public group and ₹3,359.14 in the private group. Public patients spent more on outside medicines and tests, while private patients paid more at the hospital. Financial hardship affected 127 patients, or 36.29%; 103 reduced essential household spending and 75 borrowed money. Private-sector use was associated with ₹1,859.46 higher payments after adjustment. Income below ₹20,000 was associated with higher hardship odds, whereas named scheme coverage was associated with lower odds. The payment-hardship association did not remain significant under the four-outcome Holm adjustment. Priorities include dependable medicine supplies, clear billing and assistance for financially vulnerable families. Future monitoring should connect payments with household circumstances over time.

Keywords: healthcare expenditure; household hardship; medicines; financial protection; insurance.

1. Introduction

Paying for treatment draws on the same money that households need for food, education, housing and transport. Financial pressure depends on both the charge and the resources available when payment becomes due. In India, inequalities in income, location and service access have made this relationship central to the question of fair healthcare (Balarajan et al., 2011).

According to the National Health Accounts estimates for 2022-23, placed household out-of-pocket expenditure at 43.4% of total health expenditure. The corresponding share was 64.2% in 2013-14. Government health expenditure reached approximately ₹3.85 lakh crore and accounted for 43.7% of the total in 2022-23. These figures describe national financing shares; household financial difficulty still requires direct attention to what families pay and how they cope (Ministry of Health and Family Welfare, 2025).

Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana was launched on 23 September 2018. It provides eligible families with hospitalisation coverage of up to ₹5 lakh annually for covered secondary and tertiary care through empanelled public and private hospitals. The programme brought the relationship between publicly financed benefits and patient payments into routine hospital administration (Press Information Bureau, 2025).

Haryana extended this policy direction through CHIRAYU, the Comprehensive Health Insurance of Antyodaya Units, launched on 21 November 2022. At launch, the extension included families with annual income up to ₹1.80 lakh and offered annual family coverage of ₹5 lakh. Its introduction widened the state's financial-protection arrangements and made treatment expenditure among eligible households an important local concern (Government of Haryana, 2022).

Hospital charges are only one part of household spending. Medicines purchased elsewhere, diagnostic payments and other components can change the burden substantially. Separating these components makes it easier to identify where protection is incomplete, rather than treating every rupee as part of a single hospital bill (Ambade et al., 2022).

Medicine expenditure deserves particular attention because prescriptions may continue after a consultation or discharge. Repeated National Sample Survey comparisons have identified medicines as an important contributor to household financial burden. A low consultation charge can therefore coexist with substantial spending at pharmacies (Selvaraj et al., 2018).

Recent synthesis of Indian expenditure evidence also describes variation across illnesses, settings and expenditure components. This variation makes local payment summaries useful, particularly when outside purchases and hospital payments are recorded separately. (Kamath et al., 2025).

Household resources affect the meaning of a payment. Measures of catastrophic health expenditure relate spending to the household's capacity to pay, rather than classifying hardship from an absolute charge alone. The same amount can be manageable for one family and deeply disruptive for another (Xu et al., 2003).

Within India, the incidence and distribution of catastrophic expenditure have varied across states. Such differences reflect the value of examining district and household circumstances alongside national financing trends. A sector-wide average may conceal important variation in the population using its services (Pandey et al., 2018).

Families also spread the consequences of illness over time. Borrowing, using savings or selling assets can make

immediate payment possible while placing pressure on later household spending. Recording these responses adds information that a bill alone cannot provide (Flores et al., 2008).

Insurance coverage also needs to be examined through both service use and financial consequences. Indian evaluations have linked publicly financed coverage with greater utilisation more consistently than with reduced expenditure. Enrolment and financial protection are therefore separate outcomes (Prinja et al., 2017).

Later evidence continued to describe uncertain financial protection across public-funded schemes. Differences in benefits, implementation and patient circumstances mean that a named scheme cannot be assumed to remove every payment faced by a household (Reshmi et al., 2021).

The earlier Rashtriya Swasthya Bima Yojana experience also did not establish an overall reduction in out-of-pocket spending from extending insurance to poorer households. The practical question remains whether the package reaches the expenses that people actually face (Karan et al., 2017).

More recent Haryana evidence found lower direct medical expenditure among PM-JAY beneficiaries than among comparison patients. This strengthens the reason to examine scheme coverage within the state's treatment settings, while keeping the different patient groups and expenditure definitions clear (Kumar et al., 2025). By contrast, evaluations in Chhattisgarh found no adjusted reduction in expenditure or catastrophic spending associated with PM-JAY enrolment. (Garg et al., 2024).

2. Objective of the Study

To examine treatment payments and household financial hardship among public- and private-sector patients in five Haryana districts, accounting for income, scheme coverage and treatment setting.

3. Methodology

Financial responses were available for 350 adults, comprising 175 patients from each sector, across Jhajjar, Charkhi Dadri, Rohtak, Sonapat and Bhiwani. Hospital payment referred to the day of treatment; outside medicine and test purchases referred to the illness. Their sum was termed combined reported payments. Transport costs were excluded because they were recorded in bands. Hardship referred to borrowing or reduced household needs during the preceding three months. Descriptive tables showed all 350 responses. Reported adjusted models included 346 patients after excluding four undisclosed-income responses, with standard errors clustered across 34 facilities and inference using 33 degrees of freedom. Models included sector, district, visit type, coverage, grouped income and residence; the hardship model additionally included payments per ₹1,000. Holm adjustments were retained.

4. Results

Table- 1. Payment amounts by component and sector.

Payment Component	Sector	Mean ₹	SD ₹	Median ₹
Hospital payment	Public	290.86	668.18	50.00
	Private	2,760.00	5,040.94	900.00
Outside medicines/tests	Public	978.29	1,722.68	450.00
	Private	599.14	1,533.07	0.00
Combined reported payments	Public	1,269.14	1,897.61	700.00
	Private	3,359.14	5,641.45	1,250.00

(Source: Primary Survey)

Note: n = 175 per sector. Means include zero payments. The two payment questions use different reference periods.

The private-group combined mean exceeded the public-group mean by ₹2,090.00. Hospital payments explained this difference, while outside purchases followed the opposite direction. Public patients spent an average of ₹978.29 outside the facility, compared with ₹599.14 among private patients. Large standard deviations, particularly in the private group, indicate considerable variation between patients. The medians were lower than the means, so the average alone would give an incomplete impression of the typical payment.

Table- 2. Where patients made payments?

Payment Pattern	Public n (%)	Private n (%)	Combined n (%)
Neither location	34 (19.43)	15 (8.57)	49 (14.00)
Hospital only	45 (25.71)	107 (61.14)	152 (43.43)
Outside only	43 (24.57)	7 (4.00)	50 (14.29)
Both locations	53 (30.29)	46 (26.29)	99 (28.29)

(Source: Primary Survey)

Note: Sector denominators are 175; the combined denominator is 350.

Fifty patients paid for outside medicines or tests despite recording no hospital payment. Forty-three belonged to the public group. Conversely, payment at the hospital alone was the most common private-sector pattern, affecting 61.14%. These patterns identify different places where financial protection needs attention.

Table- 3. Household hardship and coping responses.

Response	Public n (%)	Private n (%)	Combined n (%)
Any hardship	58 (33.14)	69 (39.43)	127 (36.29)
Reduced essential needs	45 (25.71)	58 (33.14)	103 (29.43)
Borrowed money	39 (22.29)	36 (20.57)	75 (21.43)

Sold assets	8 (4.57)	7 (4.00)	15 (4.29)
Other coping response	10 (5.71)	8 (4.57)	18 (5.14)

(Source: Primary Survey)

More than one-third of patients reported hardship. Among the 127 affected patients, 81.10% reduced essential household spending and 59.06% borrowed money. Asset sales were less frequent. Other responses included using savings reserved for necessities and delaying rent or utility payments. The private hardship share was 6.29 percentage points higher but borrowing was slightly more frequent in the public group.

Table- 4. Financial hardship across monthly household-income groups.

Monthly Income ₹	Public: n / hardship	Private: n / hardship	All Patients	Hardship n (%)
Below 10,000	32 / 13	11 / 6	43	19 (44.19)
10,000-19,999	55 / 28	52 / 25	107	53 (49.53)
20,000-39,999	52 / 12	59 / 20	111	32 (28.83)
40,000-79,999	24 / 4	32 / 11	56	15 (26.79)
80,000-1,49,999	7 / 0	14 / 4	21	4 (19.05)
1,50,000 and above	3 / 1	5 / 3	8	4 (50.00)
Undisclosed	2 / 0	2 / 0	4	0 (0.00)

(Source: Primary Survey)

The ₹10,000-19,999 group contained the largest number of hardship cases, with 53 among 107 patients. Its hardship share was 49.53%, compared with 28.83% in the ₹20,000-39,999 group. The highest-income category contained only eight patients. National evidence on hospitalisation spending also identifies unequal financial pressure across economic groups, supporting attention to relative household circumstances (Sriram et al., 2024).

Table- 5. Selected sector comparisons of financial responses.

Measure	Test statistic	df	Nominal p	Holm-adjusted p
Hospital-payment categories	$\chi^2 = 126.822$	5	1.124×10^{-25}	8.994×10^{-25}
Outside-payment categories	$\chi^2 = 23.853$	5	0.000170	0.001020
Combined payments	U = 10,555.5	-	4.825×10^{-7}	3.378×10^{-6}
Household hardship	$\chi^2 = 1.495$	1	0.221387	0.885549
Unexplained charges	$\chi^2 = 10.636$	1	0.001109	0.005545

(Source: Primary Survey)

Note: Adjustment retains the eight financial comparisons. Outside-payment p uses 99,999 fixed-margin Monte Carlo samples.

Payment categories and combined payments differed significantly between sectors after adjustment. Unexplained charges also differed: 21 private patients reported them, compared with five public patients. The hardship comparison was not significant after adjustment, with $p = 0.885549$. Higher payments in one group therefore did not establish an equivalent sector difference in the proportion experiencing hardship.

Table- 6. Adjusted associations with combined reported payments.

Predictor	Coefficient ₹	Clustered SE ₹	95% CI ₹	p-value
Private versus public	1,859.46	306.81	1,235.25 to 2,483.67	8.072×10^{-7}
Inpatient versus outpatient	4,258.03	804.57	2,621.12 to 5,894.95	0.000008
Emergency admission versus outpatient	4,073.22	1,366.94	1,292.17 to 6,854.28	0.005379
Emergency discharge versus outpatient	1,380.44	956.10	-564.77 to 3,325.64	0.158217
Named scheme versus none/unknown	-1,470.68	458.37	-2,403.24 to -538.11	0.002966

(Source: Primary Survey)

Note: Selected coefficients from the adjusted model: $n = 346$; 34 clusters; $R^2 = 0.2812$; adjusted $R^2 = 0.2552$; maximum VIF = 1.837.

Private-sector use remained associated with higher payments after adjustment. The difference was ₹1,859.46, with its confidence interval entirely above zero. Inpatient and emergency-admission groups also had higher payments than outpatients. Named scheme coverage was associated with ₹1,470.68 lower payments.

Table- 7. Adjusted associations with household hardship.

Predictor	Adjusted odds ratio	95% CI	p
Private versus public	1.413	0.914-2.184	0.115583
Named scheme versus none/unknown	0.540	0.377-0.773	0.001365
Income below ₹20,000 versus ₹20,000-39,999	3.392	1.867-6.161	0.000212
Income $\geq$ ₹40,000 versus ₹20,000-39,999	0.946	0.440-2.033	0.883410

Rural versus urban/peri-urban	1.025	0.642-1.635	0.915847
Combined payments: per ₹1,000	1.077	1.001-1.157	0.046077

(Source: Primary Survey)

Note: n = 346; hardship cases = 127; 34 clusters; McFadden's pseudo- R^2 = 0.1146; AIC = 430.757. Confidence intervals are unadjusted. Payment-hardship Holm-adjusted p = 0.138231.

Income below ₹20,000 had an adjusted odds ratio of 3.392 relative to ₹20,000-39,999. Named coverage was associated with lower hardship odds. The private-sector estimate was above one but its interval included one and its p-value exceeded 0.05. Each additional ₹1,000 had a nominal odds ratio of 1.077; however, the four-outcome adjustment increased its p-value to 0.138231. Accordingly, the payment-hardship relationship was not statistically significant under that adjustment.

5. Findings of the Study

The financial contrast had two parts: higher hospital payments among private patients and higher outside purchases among public patients. Household hardship was common in both sectors and was concentrated numerically in the lower-income groups. Recorded coverage was associated with lower payments and hardship odds, while the adjusted sector-hardship association remained uncertain.

Together, the results favour connected attention to service availability, household vulnerability and scheme implementation. Financing changes work within a wider delivery system, where administrative and institutional barriers can weaken access to benefits (Kalita et al., 2023).

6. Suggestions

A number of scholars point out that public facilities should track prescriptions and tests that patients must purchase elsewhere. Medicine stock monitoring, clear information about available tests and referral arrangements should address the points where expenditure leaves the hospital. Outpatient and continuing medicine needs also warrant attention in financial-protection planning.

Hospitals should explain expected charges before treatment and provide itemised bills, including tests, consumables and additional procedures. Scheme desks should check entitlements early and explain uncovered expenses. Regular review of billing complaints and package compliance would connect financial protection with accountable purchasing and administration (Angell et al., 2019).

Assistance should prioritise families already borrowing or reducing essential spending. Future follow-up should record payments over a common illness period, including repeat visits and revisit household coping after treatment. This would clarify whether immediate support prevents prolonged pressure on essential needs.

7. Conclusion

Private patients recorded higher combined payments but hardship was not explained by the sector alone. Outside purchases remained important among public patients and low income had a strong adjusted association with hardship. The payment-hardship association did not survive the multiplicity adjustment. Dependable medicines, clear charges and timely assistance offer practical directions for reducing the financial difficulties identified in the patient responses.

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