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DETERMINANTS OF OUT-OF-POCKET HEALTH EXPENDITURE IN RAJASTHAN: A COMMUNITY-BASED CROSS-SECTIONAL STUDY.

Community Medicine

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ABSTRACT

Background: Out-of-pocket health expenditure (OOPE) continues to impose a significant financial burden on households in India, even with the expansion of publicly funded health insurance schemes. **Objectives:** To estimate the magnitude of OOPE and identify its key determinants among households. **Methods:** A community-based cross-sectional study was conducted among 384 households between January and December 2023. Data were collected using a semi-structured interviewer-administered questionnaire. OOPE included direct payments for consultations, medicines, diagnostics, bed charges, procedures, and transport. Determinants of OOPE were assessed using multivariable regression analysis. **Results:** The median annual household OOPE was INR 6,100 (IQR: 2,600-14,200). Medicines constituted the largest share of expenditure (47.3%). Households using private healthcare facilities and those with chronic illness incurred significantly higher OOPE. Health insurance coverage was associated with lower OOPE, though insured households continued to make direct payments. **Conclusions:** OOPE remains substantial, with limited financial protection from existing insurance schemes. Strengthening public healthcare services and expanding insurance coverage for outpatient care and medicines may help reduce household financial burden.

KEYWORDS

Universal Health Care; Financial Protection; Healthcare Costs

INTRODUCTION

Out-of-pocket health expenditure (OOPE) is a major form of healthcare financing in India, despite recent policy efforts to expand financial risk protection under Universal Health Coverage. Household OOPE continues to account for a substantial portion of total health spending, contributing to catastrophic expenditure and impoverishment for many families. A national analysis found that nearly half of total health expenditure is financed directly by households, and the burden persists even as government health spending increases.[1,2]

Published literature has shown that OOPE varies by socioeconomic status, type of healthcare utilised, and the presence of chronic illnesses. Studies highlight that households in both urban and rural settings incur significant direct payments for consultations, medicines, diagnostics, and bed charges, particularly when care is sought from private providers.[1,3-6]

Health research in Rajasthan underscores ongoing disparities in health literacy and access, especially among older adults, which may indirectly influence healthcare seeking and associated costs.[7,8] Understanding district-specific determinants of OOPE is crucial to inform policy design and targeted financial protection mechanisms. This study aimed to estimate the magnitude and determinant of OOPE among households in Ajmer district, Rajasthan.

METHODS

A community-based cross-sectional study was conducted in Ajmer district of Rajasthan, India, from January 2023 to December 2023.

Study Population

Households residing in Ajmer district for at least six months prior to the survey were eligible for inclusion. Households with at least one member who had utilised any healthcare service during the specified recall periods were included. Vacant households and those refusing consent were excluded. One adult respondent per household was interviewed.

Sample Size and Sampling Technique

The sample size was calculated assuming 50% prevalence of out-of-pocket health expenditure, 5% type 1 error and 5% precision. It came out to be 384. A systematic random sampling was used, every 4th house in selected colony was interviewed.

Data Collection and Study Tool

Data were collected using a pre-tested, semi-structured, interviewer-administered questionnaire. The tool consisted of household socio-demographic characteristics, socioeconomic status, health insurance coverage, morbidity profile, healthcare utilisation, and out-of-pocket health expenditure.

Out-of-pocket expenditure was defined as direct payments made by households for healthcare services without reimbursement. Respondents were asked about expenses incurred on consultations, medicines, diagnostic tests, bed charges, procedures, and transportation related to healthcare use. Wage loss and other indirect costs were not included. Expenditure related to outpatient care was assessed for the preceding 15 days, while hospitalization-related expenditure was collected for the previous 12 months.

Statistical Analysis

Data were analysed using R-4.5.2. Descriptive statistics were used to summarise household characteristics and expenditure patterns. Continuous variables were presented as mean with standard deviation or median with interquartile range, as appropriate. Determinants of out-of-pocket health expenditure were identified using multivariable regression analysis. A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee prior to the study. Written informed consent was obtained from all participants.

RESULTS

A total of 384 households were included in the analysis. The mean household size was 4.6 (SD ±1.5). Urban households constituted 52.1%. The caste distribution showed 41.7% belonging to Other Backward Classes, 23.4% to Scheduled Castes, and 7.8% to Scheduled Tribes. (Table1)

Morbidity Profile and Healthcare Utilisation

At least one episode of illness requiring healthcare utilisation during the reference periods was reported by 298 households (77.6%). Chronic illness affecting at least one household member was reported by 30.7% of households. For outpatient care, 61.9% of households sought treatment from private healthcare providers. Whereas, among households reporting hospitalization in the preceding 12 months, 55.6% utilised public sector facilities and 44.4% sought care from private hospitals.

Out-of-pocket Health Expenditure

The median annual household out-of-pocket health expenditure was INR 6,100 (interquartile range [IQR]: 2,600- 14,200). Medicines formed the largest component of expenditure, accounting for 47.3% of total OOPE. This was followed by consultation fees (18.2%), diagnostic investigations (14.6%), bed charges and procedures (11.9%), and transportation costs (8.0%).

Households utilising private healthcare facilities reported higher OOPE. The median expenditure among these households was INR 10,800 (IQR: 5,900- 21,300), compared to INR 3,100 (IQR: 1,400 6,400) among households using public facilities.

Households in the lowest socioeconomic quintile reported a median OOPE of INR 4,000, which represented a higher proportion of their household consumption expenditure. Households with at least one member suffering from a chronic illness incurred significantly higher OOPE (median INR 12,400) compared to households without chronic illness (median INR 4,700). Rural households spent relatively more on transportation, whereas urban households reported higher expenditure on consultations and diagnostic services.

Health Insurance Coverage and OOPE

Health insurance coverage was reported by 38.5% of households, primarily through publicly funded schemes. Despite insurance coverage, insured households continued to incur out-of-pocket payments. However, the median OOPE among insured households (INR 5,100) was lower than that among uninsured households (INR 7,600), particularly for hospitalization-related expenses.

Determinants of out-of-pocket Health Expenditure

In multivariable regression analysis, utilisation of private healthcare facilities, presence of chronic illness, larger household size, and greater distance to the nearest health facility were independently associated with higher out-of-pocket health expenditure. Health insurance coverage and use of public sector facilities were associated with lower OOPE after adjustment for socioeconomic and demographic factors.

Table 1. Socio-demographic Characteristics of Study Participants (n = 384)

Characteristic	Number (%)
Place of residence	
Urban	200 (52.1)
Rural	184 (47.9)
Mean household size (SD)	4.6 (±1.5)
Sex of household head	
Male	313 (81.5)
Female	71 (18.5)
Education of household head	
No formal schooling	76 (19.8)
Primary education	98 (25.5)
Secondary education	121 (31.5)
Higher secondary and above	89 (23.2)
Caste category	
Scheduled Caste	90 (23.4)
Scheduled Tribe	30 (7.8)
Other Backward Classes	160 (41.7)
Others	104 (27.1)
Socioeconomic status	
Lowest & second quintile	157 (40.9)
Middle quintile	96 (25.0)
Fourth & highest quintile	131 (34.1)

Table 2: Distribution and Components of Out-of-pocket Health Expenditure (OOPE)

Expenditure variable	Value
Median annual household OOPE, INR (IQR)	6,100 (2,600-14,200)
OOPE by type of facility, median INR (IQR)	
Public facilities	3,100 (1,400-6,400)
Private facilities	10,800 (5,900-21,300)
OOPE by chronic illness status, median INR	
Household with chronic illness	12,400
Household without chronic illness	4,700
Component-wise distribution of OOPE (%)	
Medicines	47.3
Consultation fees	18.2
Diagnostic investigations	14.6
Bed charges & procedures	11.9
Transportation	8.0
OOPE by insurance status, median INR	
Insured households	5,100
Uninsured households	7,600

Table 3: Multivariable Linear Regression Analysis of Determinants of Out-of-pocket Health Expenditure (n = 384)

Variable	Adjusted β (95% CI)	p-value
Place of residence		
Rural (ref: Urban)	0.07 (-0.04 to 0.18)	0.21
Household size (per additional member)	0.06 (0.02 to 0.10)	0.004
Socioeconomic status		
Lowest quintile (ref)	-	-
Middle quintile	0.11 (0.01 to 0.21)	0.03
Highest quintile	0.19 (0.08 to 0.30)	<0.01
Presence of chronic illness in household		
Yes (ref: No)	0.42 (0.31 to 0.53)	<0.01
Type of healthcare facility used		
Private (ref: Public)	0.58 (0.46 to 0.70)	<0.01
Distance to nearest health facility (>5 km)		
Yes (ref: ≤5 km)	0.15 (0.04 to 0.26)	0.01
Health insurance coverage		
Yes (ref: No)	-0.18 (-0.29 to -0.07)	0.002

DISCUSSION

In this study, we found that out-of-pocket health expenditure remains a significant financial burden. The median annual OOPE observed was in line with district-level surveys and comparable Indian studies.[2] Expenditure on medicines was the largest component, mirroring national patterns where drug costs contribute a substantial share of direct health payments.[2]

Our findings highlight the role of provider choice in shaping OOPE. Households that utilised private healthcare facilities had significantly higher expenditure, consistent with prior studies showing private care drives OOPE due to higher consultation and procedural costs.[2,9]

Chronic illness, larger household size and greater distance to the nearest health facility were determinants of higher OOPE, which aligns with evidence from India and other low- and middle-income contexts where long-term conditions increase healthcare utilisation and financial burden.[5,11]

Health insurance coverage was associated with lower OOPE. This partial protective effect reflects OOPE, especially for outpatient care and medicines not comprehensively covered.[2] Moreover, low insurance penetration remains a barrier to financial risk protection in many Indian districts.[2]

A few limitations must be acknowledged. The cross-sectional design precludes causal inference. Expenditure estimates may be subject to recall bias, although we used standard recall periods for outpatient and inpatient services.

CONCLUSION

OOPE remains a substantial financial burden for households, with medicines, private healthcare utilisation, and chronic illness emerging as key drivers. Although health insurance provides partial financial protection, significant direct payments persist. Strengthening public healthcare services and expanding insurance coverage for outpatient care and medicines are essential to reduce household financial hardship.

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