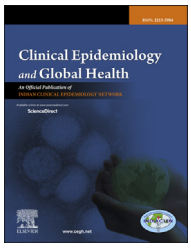
Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/cegh



Original Article

Assessing the magnitude, distribution and determinants of catastrophic health expenditure in urban Lucknow, North India

Saumya Misra [a,*], *Shally Awasthi* [b], *Jai V. Singh* [a], *Monica Agarwal* [a], *Vishwajeet Kumar* [c]

[a] *Department of Community Medicine and Public Health, Lucknow, Uttar Pradesh, India*
[b] *Department of Pediatrics, King George's Medical University, Lucknow, Uttar Pradesh, India*
[c] *Community Empowerment Lab, Lucknow, Uttar Pradesh, India*

ARTICLE INFO

Article history:
Received 12 August 2013
Accepted 24 October 2013
Available online 16 November 2013

Keywords:
Catastrophic health expenditure
Determinants
Out of pocket payment
Hospitalization
India

ABSTRACT

Introduction: To assess the magnitude, distribution, and determinants of catastrophic health expenditures (CHE) of households in urban Lucknow, North India.
Methods: A cohort of 400 households was selected by 2-step cluster sampling and baseline demographic survey was done followed by two six-monthly health surveys. CHE was defined as health expenditures ≥10% of household's capacity to pay, measured by non-subsistence spending.
Results: From December 2011 to June 2012, 157/400 (39.25%) households reported ≥1 episodes of illness, with households suffering sickness in the first survey at increased risk for it in the second (Crude Odd's Ratio = 3.33, 95% CI: 2.02–5.45; p value <0.0001). Mean sickness days without hospitalization were 13.13 ± 36 per household. In 24 (6%) households, there was ≥1 hospitalization. Health expenditure was entirely met through out of pocket payments (OOP). CHE occurred in 45 (11.25%) households, with statistically significant differences across per capita income quintiles ($p = 0.036$) and 60% falling in the lower two. On logistic regression model, adjusting for per capital income quintile, CHE was associated with hospitalization (Adjusted OR = 100, 95% CI: 25.00–333.33; $p < 0.0001$) and >13 sickness days without hospitalization (Adjusted OR = 4.21, 95% CI: 1.862–9.524; $p = 0.001$).
Conclusions: Since not only hospitalization but also prolonged sickness days without hospitalization was associated with increased risk of CHE, and since almost half the households have sickness, steps should be taken to protect all households from financial hardship through tax based health financing, social health insurance or other forms of prepayment, as currently all health expenses were met through OOP payments.

* *Corresponding author*. 'Pushkal', B-49, Sector E, Aliganj, Lucknow, Uttar Pradesh 226024, India. Tel./fax: +91 9923134272.
E-mail address: saumyamisra16@yahoo.co.in (S. Misra).
2213-3984/$ – see front matter
http://dx.doi.org/10.1016/j.cegh.2013.10.003

1. Introduction

Out of pocket payments (OOP) are the primary source through which health expenditure is met in many developing countries like India. Catastrophic health expenditure (CHE) occurs in both rich and poor economies, but over 90% of the affected people reside in low-income countries.[1] Any health expenditure that threatens a household's financial capacity to meet its subsistence needs is termed as catastrophic and does not merely imply high magnitude health expenditure.[2,3] Hence the term catastrophic is used for any expenditure that risks impoverishing a household.[1,4–6]

A study covering 5 districts in Rajasthan, India showed that medical expenses are an important factor pushing people into poverty.[7] A nationally representative sample survey indicated that an additional 37 million Indians (3.7% of total population) were impoverished in the year 1999 because of health care costs; increasing poverty head counts by 12%.[8] Still other studies show that 17–34% of hospitalized Indian patients are impoverished because of medical costs.[9] Globally it is estimated that 150 million people suffer financial catastrophe each year on account of incurring health expenditure and about 100 million are pushed into poverty because of OOP payments for health.[10]

Hence, there is an urgent need to provide some form of financial protection to the population of developing countries, like India, with reference to health financing While considering policy options to increase financial protection, policy makers need to understand whether any characteristics make people more vulnerable to catastrophic payments. Knowledge is also necessary of which households are more vulnerable for any set of system characteristics. Therefore, this study aims to fulfill this purpose. The objective of the current study was to determine the magnitude of CHE, its distribution and determinants among households in urban Lucknow, North India.

2. Methods

The study was conducted in Lucknow city. Lucknow is the capital city of Uttar Pradesh, a state in Northern India with a population of 4,588,455 in 2011.[11] There are public and private hospitals for inpatient and outpatient care as well as a wide network of private health care providers in the city.

2.1. Design

This was a prospective cohort study.

2.2. Sample size

In a study conducted in urban slums of Bijapur, Karnataka State in Southern India, almost all the households incurred CHE for childhood illnesses.[12] Since we were collecting data on any family illness, therefore we assumed that 50% of the households would have had CHE and to estimate this with a confidence level of 95%, precision level of 5%, and follow-up loss of 5%, 400 households were to be included on calculating the sample size. This sample size would be adequate to assess with the same confidence level and precision CHE proportions below and above 50%.

3. Sampling strategy

The city of Lucknow is traversed by the river Gomti. The study was conducted by randomly selecting one zone on either side of Gomti River, according to the latest map. All the wards in each zone were alphabetically listed and given a serial number. Between 1 and the highest serial number, 4 numbers were randomly generated by MS-EXCEL and these 4 wards per zone were selected for the study. From each ward two colonies or "*mohallahs*" in local dialect, were then randomly selected. Total number of household in each "*mohallah*" was obtained, divided by 25 to get the sampling frequency (*n*) and then every nth household was included in the study. Thus a total of 400 households were included, 200 households from each zone. These 200 households from each zone, comprised 25 households from each of the four wards in a zone.

3.1. Data collection

Data was collected using a pre-structured, validated questionnaire in local language, Hindi. A pre-test was done in 12 households in 4 locations to validate cognitive suitability, and corrections were made as necessary after the pre-test.

A baseline demographic survey was done in which data was collected on household characteristics which includes household size, education of the head of household and all the members, occupation, total family income, fixed assets owned by the family, any type of health insurance coverage available for any family member, loans taken for health care or selling of fixed assets for health care in the last 3 months. Data was also collected on demographic variables for each member of the household and on food and non-food expenditure incurred by households. Food expenditure was calculated by summating expenditure on food items like ration/groceries, milk, special food items, poultry etc. Non-food expenditure was calculated by summating expenditure on rent, electricity, vehicle fuel expenditure, clothes etc.

Thereafter, two health surveys were done at an interval of six months. Questions were asked about illnesses episodes in the preceding 3 months in any family members, and whether the sick person/s availed out patient care or in patient care. For treated illness episodes, data was collected on expenditures incurred as.

(i) direct health expenditures, like doctors fees, medicines, diagnostics (investigations and procedures) and hospital charges; (ii) indirect health expenditures like transportation to seek care for the sick, special diets, hiring of special staff as care providers and (iii) direct non-medical expenditure like wages lost due to sickness either of the ill person or any family member. However for calculation of CHE, only direct health expenditure was included. Total household expenditure was calculated as a summation of health expenditure, food and non-food expenditure.