Journal of Integrated Community Health
Volume 11, Issue 1 - 2022, Pg. No. 11-21
Peer Reviewed & Open Access Journal

Research Article

Health and Poverty Linkages for Population just above the Poverty Line: A Study done in Slums of Jaipur, India

Neha Awasthi[1], Monika Chaudhary[2]

[1]SIHFW, Jaipur, Rajasthan, India.
[2]Associate Professor, IIHMR University, Prabhu Dayal Marg, Jaipur, India.
DOI: https://doi.org/10.24321/2319.9113.202202

I N F O

Corresponding Author:
Neha Awasthi, SIHFW, Jaipur, Rajasthan, India.
E-mail Id:
awa.neha@gmail.com
Orcid Id:
https://orcid.org/0000-0002-5930-9147
How to cite this article:
Awasthi N, Chaudhary M. Health and Poverty Linkages for Population just above the Poverty Line: A Study done in Slums of Jaipur, India. J Integ Comm Health. 2022;11(1):11-21.

Date of Submission: 2022-01-06
Date of Acceptance: 2022-05-07

A B S T R A C T

Introduction: Underdeveloped and developing countries are unable to provide essential healthcare to all of their inhabitants, and those who remain uninsured are at a huge risk of financial hardship. It's never easy to divide limited resources.

Method: This study attempts to examine that, If urban poors, a vulnerable section of the society is protected against catastrophic health expenditure. Is there any deepening of poverty among urban poor of the city of Jaipur due to catastrophic health expenditure? 426 households in Jaipur's urban slums were surveryed.

Results: The incidences of Catastrophic Health Expenditure were 8.1% among urban slum households. The mean positive overshoot was 33%. Poverty increased by 1% at National Poverty Line and by 2.6% at International Poverty Line estimates. The increase in the normalised mean positive poverty gap from 29.8% to 45.3% suggests that the existing poor are becoming more impoverished. There was a significant association between increasing health spending and household cuts in food and apparel spending, at p = 0.0001 and p = 0.05, respectively.

Conclusion: The results show a huge disparity between poverty estimates based on national poverty standards (2.8%) and international poverty standards (37.1%) indicating the necessity for developing sensitive poverty criteria. It is also vital to make an evidence-based decision on whether to employ assurance, insurance, or a combination of the two healthcare delivery systems. The assurance approach might expand accessibility while also lowering healthcare expenditures for the entire community. Rather than creating two distinct insurance or assurance systems, the government should pool its resources and efforts into one.

Keywords: Urban Slum, Out-of-pocket Expenditure, CHE, Impoverishment

Background

'Leading a healthy life' has been the prime concern among humans since the beginning of civilisation. The development of various health systems such as aryurveda, allopathy, homoeopathy, naturopathy, unani, siddha, and others in different parts of the world, strengthens the argument. Science and technological advancement has helped the human race to prevent and cure many diseases and has improved the span and quality of life, but the advancement in treatment has come along with a price tag.

The economic implication of diseases or ill-health is evident around the world. However, the intensity of economic consequences varies. Globally, 150 million people suffered a financial catastrophe and 100 million people were pushed under the poverty level annually (1990-2003) because they paid for the healthcare they used. Ninety per cent of these people belong to low-income countries.[1] In the year 2010, an estimated 1.4% (97 million people) of the world's population was impoverished (PPP $ 1.90-a-day poverty line) due to ill health. Impoverishment was estimated to be 1.8% (122 million people) at PPP $ 3.10-a-day poverty line. The poverty rates in upper-middle-income countries and high-income countries are close to or equal to zero at these two international poverty lines.[2] People in Latin America and Asia have the greatest rates of out-of-pocket spending exceeding 10% or 25% of total household consumption or income.[3] At the $1.90-a-day poverty line in 2010, Asia and Africa and Asia had 1.9% and 1.4% poverty rates, respectively, accounting for 97% of the world's population impoverished by out-of-pocket health spending.[4] Due to expenditures for healthcare, 78 million people in 11 low/middle-income Asian countries, or 2.7% of the entire population, were driven below the very low threshold of $1 per day.[5]

Lack of social or private health insurance, low public spending on health and over-reliance on Out-of-Pocket expenditure lead to catastrophic health expenditure and impoverishment.[6,7] In parts of Asia, out-of-pocket (OOP) expenditures are the primary source of healthcare funding.[8] Out of 14 Asian countries; Bangladesh, China, India, and Vietnam have a high dependence on OOP financing, and a high prevalence of catastrophic payments with a huge poverty impact of these payments.[9] "Cost of healthcare may lead to delay or avoidance in seeking healthcare services."[10,11,12]

Inaccessibility to healthcare, when needed, defies human rights. World Health Organization describes the "Right to Health" as the responsibility of the government to create a system and environment in which everyone can be as healthy as possible. This implies that safe and healthy working conditions, proper housing, adequate nutritious food, and health services should be available and accessible for all.[13]Any government enables its citizens to exercise the Right to Health by enabling them to access essential healthcare services (availability of appropriate healthcare services), whenever needed (timeliness), at an affordable price.

The right to health was first stated internationally in the World Health Organization's (WHO) Constitution (1946), whose preamble defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". The preamble also mentions that "the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition". Again in 1966, in the International Covenant on Economic, Social and Cultural Rights, the right to health was recognised as a human right. Declaration of Alma Ata 1968, 'Health for All' is another step towards universal health coverage.[14] Sustainable development goal 3 again highlights good health and well-being. Its objective is to ensure and promote well-being for all ages with prominence on Universal Health Coverage as one of the targets.[15]

Universal Health Coverage encompasses three related objectives - Equity in access, Quality of healthcare, and Protection against financial hardship.[16] Of all these three objectives, financial protection is the most important and one of the final coverage goals.[17] Healthcare financing in the country plays a pivotal role in protecting people from impoverishment due to OOP on health. However, there is no predefined guiding framework for assisting poor countries in developing strategies to reduce OOP expenses, but the amount to which countries fund their health systems by prepayment in some form - taxes or insurances - is adversely connected with the occurrence of financial catastrophe.[18]

Universal Health Coverage - India and Rajasthan

As per the National Health Accounts of India 2018, Out-of-pocket Expenditure (OOPE) on health by households is Rs. 3,02,425 crores, which is 62.6% of total health expenditures and 2.4% of GDP. Out-of-pocket Expenditure (OOPE) on health was Rs. 2,394 for the year 2014-15. In the year 2007, the incidence of catastrophic health expenditure in India was 21.8%and impoverishment was 6.6%.[19] "Thirty-two and a half million people fell below the national poverty line by making out-of-pocket payments for healthcare in a single year (1999-2000)".[20]

The increase in the number of poor after accounting for OOP payments was 3.2%.[21] The incidence of catastrophic payment increased from 13.1% in 1993-94 to 15.4% in 2004. On the other hand, the number of people pushed into poverty increased from 35 million people in 1993-94 to 47 million people in 2004-05.[22]

ISSN: 2319-9113
DOI: https://doi.org/10.24321/2319.9113.202202

As per NSSO 68th round report, monthly per capita expenditure on medical care is rupees 95 and 146 in rural and urban areas respectively which constituted 6.7 and 5.5 per cent of total Monthly Per Capita expenditure. The analysis of constitution of Out-of-Pocket payment reveals that per cent share of total spending on medical care includes medicines - 71.17%, inpatient care - 12.94%, ambulatory care - 11.58%, and others - 4.31%.[23] In the year 2007, catastrophic health expenditure on health was incurred by 18.1% of households (more than 40% of capacity to pay) and impoverishment was 3.5% in Rajasthan State.[24] The mean household consumption was Rs. 9196/- and the mean OOP incurred on health was nearly Rs. 1000/-.[25]

In order to reduce out-of-pocket expenditure on health, a lot of efforts have been made by the Government of India. An increase in public spending on health from 1.74% to 2.5% of National GDP, from the 10th five-year plan (2002-07) to the 12th five-year plan (2012-17) is one of them. A lot of focus is being given to social insurance through many schemes such as Rashtriya Swasthya Bima Yojna (2008) and now on National Health Protection Scheme commonly known as 'Ayushman Bharat' (2018).

The State Government of Rajasthan has also introduced many programmes which focus on reducing OOPE on health, namely, Chief Minister Life Saving Fund (2009), Chief Minister free drug distribution through public healthcare facilities (2011), Chief Minister free diagnostics and investigation through public healthcare facilities (2013), and Bhamashah Swasthya Beema Yojnaa Social Insurance scheme (2015).

Rationale

As is widely accepted, Universal Health Coverage (UHC) does not imply free coverage for all available health interventions, regardless of cost, because no government can provide all services for free on a long-term basis.[26] All the programmes are designed in such a way that ensures the delivery of the most needed and most critical healthcare services to those who are vulnerable. This leads the Government to ration the type of healthcare services offered and who avail it for free and/ or subsidised rates. Most of the raiders are general and disregard regional concerns. These conditions sometimes become a hindrance to Universal Health Coverage.

The strength of any healthcare system is measured by its efficacy and efficiency to translate the efforts into benefits for the vulnerable, deprived, and underprivileged. "Vulnerability can be defined as a situation where the people are more prone to face negative situations and there is a higher likelihood of succumbing to them."[27]

This study was undertaken to assess whether the population of urban slums of Jaipur city is vulnerable to or protected against Catastrophic Health Expenditure and its impoverishment effect. Research work on micro-level data on out-of-pocket spending is not much in India. The need of the study was realised due to the literature gap in the availability of urban slum-specific data on poverty and health and poverty linkages.

As per a study in 2006, more than 25% of the urban population of India lived in urban slums. Their living conditions were inhuman and they were highly susceptible to diseases due to unhygienic living areas, poor access to healthcare facilities, dearth of educated and employed people, and the inability to demand better services.[28] The slums in Jaipur spend almost 8.27% on healthcare. On the other hand, slums in Rajasthan spend almost 3.33%.[29]

As per the census of 2011, 170 million populations resided in urban Rajasthan, out of which 2 million people belonged to urban slums. Jaipur is the most urbanised district of Rajasthan with the highest urban slum population.

Conceptual Framework

slums can be defined as "residential areas where dwellings are unfit for human habitation by reasons of dilapidation, overcrowding, faulty arrangements and design of such buildings, narrowness or faulty arrangement of streets, lack of ventilation, light, or sanitation facilities or any combination of these factors which are detrimental to the safety and health", Census of India. In this study, the definition of expenditure on health during the reference period includes the direct amount paid for availing healthcare services i.e. user charges (including registration charges), fees of medical and paramedical staff, expenditure on medicines and injectables, hospitalisation, operation and therapies, diagnostics, purchasing of materials or personal appliances, and others (blood/ oxygen etc. and transportation charges.[30] "Capacity to pay for the study is defined as non-subsistence expenditure i.e. non-food expenditure. Subsistence needs, in theory is defined, as the food spending associated with the household having the median food share of in total household spending in the country."[31] A household with catastrophic spending implies where OOP health payments are more than 40% of its total payment capacity (total spending minus estimated subsistence need). Observed non-food spending refers to the ability of payment of a household where the total spending is less than the estimated subsistence need.[32] A payment is considered catastrophic if it exceeds the specified threshold. Although a unanimous opinion about the specific threshold for defining financial catastrophe has not been reached, 40% is considered as the threshold level when "capacity to pay" (roughly, non-food expenditure/ non-subsistence expenditure) is used as the denominator.[33,34, 35,36] Ailment refers to any deviation from the state of physical and mental well-being. It may not require being confined to bed, hospitalisation, or restricted activities. An ailment may

ISSN: 2319-9113
DOI: https://doi.org/10.24321/2319.9113.202202

not cause any necessity of hospitalization, confinement to bed or restricted activity. A household member, who during the reference period, was suffering from any ailment, is considered to be an ailing member. In the present study, one who feels sick has been treated as sick. Pregnancy and childbirth are not treated as ailments but have been included in this study as they require medical attention. This study has not included cases of getting MTP, insertion of IUD, or sterilisation, and other similar cases. However, a spontaneous abortion has been considered to be a deviation from the normal health state and hence an illness.[37]

Methodology

The data were collected on a retrospective basis on Out-of-Pocket Spending during the last 365 days before the survey. Data were also collected on the total household expense made during the last 365 days before the survey inclusive of food and non-food expenses. The period of data collection was December 2017 - July 2018. Prior to data collection ethical approval was sought from ethical board of IHMR University, Jaipur. Informed consent was obtained from the participants.

The study findings are based on data collected from 426 households in 20 urban slums of Jaipur City. The sample size was determined by taking the prevalence of catastrophic health expenditure to be 15%,[38,39] at a 95% confidence interval with 5% precision and the design effect of 2.

Android-based mobile application ODK was used for the collection of primary data. Interviews were conducted using structured schedules.

Method of Data Analysis

The collected data were entered into SPSS and the analysis was done with the help of SPSS 20.0 version. ADePT software by the World Bank was used for estimating the following:

Catastrophic Healthcare Expenditure: Catastrophic payment can be measured as:

$$T/x\text{-}f(x) > z \quad (1)$$

Where T is out-of-pocket expenditure on healthcare, x is the total expenditure of the household, f(x)is expenditure on food by the household, and z is the threshold level of 40%.

Incidence and Intensity: Incidence of catastrophic payment may be called the headcounts of catastrophic payment made in the sample. The incidence of catastrophic payment can be measured as:

$$\mathbf{H}=\frac{1}{N}\sum_{i=1}^{N}\mathbf{E_i} \quad (2)$$

N is the sample size and E is an indicator which equals 1 if $T_i/x_i - f_i > z$, and is otherwise 0.

Overshoot can be measured by using the following equation):

$$\boldsymbol{O}=\frac{1}{N}\sum_{i=1}^{N}\boldsymbol{O_i} \quad (3)$$

Where $O_i = E((T_i/x_i) > z)$

H captures only the incidence of any catastrophes occurring, while O captures the intensity of the occurrence as well. They are related through the mean positive overshoot, which is defined as follows:

$$\mathbf{MPO} = \frac{\mathbf{O}}{\mathbf{H}} \quad (4)$$

Impoverishment Effect: The poverty impact of OOP payments refers to the difference between the average level of poverty pre and post-healthcare payments.[40] A comparison of the prevalence (headcount ratio) and the intensity of poverty prior to and post-OOP health payments is used to measure it.

The pre-OOP (or pre-payment) poverty headcount is calculated by comparing households' consumption expenditure gross of payments for healthcare with for National and International Poverty Line seperately. National Poverty Line National Poverty Line as defined by the Planning Commission of India (2011-12) i.e. for urban areas was Rs. 1407 ($21, as per exchange rate year 2017) monthly per capita and for a household of 5 members, it is Rs. 7035 ($108) monthly. [41] International poverty line is defined by the World Bank on the basis of prices of 2011 as $ 1.90 per person per day or $ 57 per month.[42]This can be measured as:

$$\mathbf{Pre\ Hp} = \mathbf{1/n}\sum \mathbf{1}\ (\mathbf{x_i} \leq \mathbf{PL}) \quad (5)$$

Where n refers to the number of individuals, x_i refers to the per capita consumption expenditure (in Rupees), and PL refers to the poverty line (in Rupees).

The post-OOP payment 'poverty headcount' can be calculated using the following formula:

$$\mathbf{Post\ Hp} = \mathbf{1/n}\sum (\mathbf{x_i} - \mathbf{OOP}) \leq \mathbf{PL}) \quad (6)$$

Similarly, the intensity of poverty (or poverty deepening), can be computed as follows:

$$\mathbf{Pre\ G} = \mathbf{1/n}\sum \mathbf{P_i}\ (\mathbf{PL} - \mathbf{x_i}) \quad (7)$$

$$\mathbf{Post\ G} = \mathbf{1/n}\sum \mathbf{P_i}\ (\mathbf{PL} - (\mathbf{x_i} - \mathbf{OOP})) \quad (8)$$

Where $P_i = 1$ if $x_i \leq PL$ else it is zero.

The number of individuals below the poverty line obtained from equation (6) is more than that obtained from equation (5) since OOP is positive. The additional number of individuals moving below the poverty line because of OOP expenditures is provided by HP = post HP pre HP Similarly, the 'average poverty gap', or poverty deepening in terms of the average amount by which people go below the poverty line because of OOP expenditures, as measured by G = post G - pre G.

Similarly, the 'average poverty gap', or poverty deepening in terms of the average amount by which people go below the poverty line because of OOP expenditures, is measured by:

ISSN: 2319-9113
DOI: https://doi.org/10.24321/2319.9113.202202

G = Post G - Pre G (9)

Results

Utilisation of Healthcare Facilities

The number of households surveyed in the urban slums was 426. Among these, the households who reported the utilisation of healthcare services in the last one year were 222, which was 52% of the total households.

Preference for utilising private healthcare services or combining both public and private healthcare facilities is evident in the urban slums of Jaipur (Table 1). For vaccination of children and family welfare services, the public facility was preferred, and for childbirths, both private and public facilities were equally preferred.

Average OOP Expenditure Incurred on Various Healthcare Services and its Constitution

Average per person out-of-pocket expenditure incurred on various healthcare services was pre/ postnatal services - Rs. 3693.25, childbirth - Rs. 7566.18, outpatient - Rs. 2620.35, and inpatient - Rs. 17212.82. The break up was as follows: Pre or postnatal services - user charges (11.2%), medicine and injectibles (37.2%), diagnostic (39.3%), and transportation charges (12.4%); Childbirth care - user charges (1.8%), payment to other staff (1.71%), delivery (69.7%), and transportation charges (4.6%); Outpatient care - user charges (6.1%), medicine and injectables (29.6%), diagnostic (34.4%), others personal appliances (21.6%), and transportation charges (8.3%); Inpatient care - user charges (1%), medicine and injectables (7.7%), diagnostic (4.1%), surgery (79.7%), other (blood, oxygen or personal appliances - 3%), and transportation charges (1%).

It is evident that inpatient services were the most common service on which out-of-pocket expenditure is incurred. This was due to the surgical process.

Expenditure on medicine, injectables, and diagnostics was high in pre or postnatal care and outpatient services. Transportation charges were high in case of pre or postnatal care.

Catastrophic Health Expenditure by Urban Slum Households

Incidences

It can clearly be inferred from Table 2 that of all the surveyed households, 8.3 (± 3.0) % of the households reported incurring catastrophic health expenditure (OOP > 40%). It is evident that poorer quintiles face more catastrophic health expenditures. Incidence of catastrophic health expenditure varies between 3% and 17.3% within the highest and lowest quintiles respectively.

Table 1.Types of Healthcare Facilities Visited for Seeking Healthcare Services

S. No.	Type of Services		Type of Healthcare Facilities Utilised (%)			
			Public facility	Private facility	Both	Services not availed
1.	Pre/ postnatal services		30.4	44.3	19.0	6.3
2.	Childbirth care services		50	50	-	-
3.	Outpatient services		30	40	28	2
4.	In-patient services		13.3	86.7	-	-
5.	Immunisation services		67.9	23.1	9	-
6.	FW services	Spacing	1.01	8.08	-	55.5
		Controlling	14.14	12.12	9.09	

Table 2.Incidence of Catastrophic Health Payments Using Non-food Expenditure

	Threshold Budget Share					
Headcount (H)	5%	10%	15%	25%	30%	40%
Total	34.1	24.4	18.0	13.0	10.3	8.3
SE; CI (95%)	± 4.9	± 4.4	± 4.0	± 3.5	± 3.3	± 3.0
Lowest quintile	33.1	28.5	25.4	19.6	19.6	17.3
2	34.9	28.0	21.5	19.2	15.3	10.0
3	39.9	27.8	19.0	8.4	6.1	6.1
4	26.7	17.2	10.3	10.3	6.5	5.3
Highest quintile	36.1	20.5	14.1	7.6	4.2	3.0

ISSN: 2319-9113
DOI: https://doi.org/10.24321/2319.9113.202202

Intensity

Urban slum households are economically vulnerable; the vulnerability is reflected in the deepening of poverty because of catastrophic health expenditure. The mean overshoot of catastrophic health expenditure amongst urban slum households in Jaipur was 2.7% (Table 3) and the mean positive overshoot was 33.0 (± 11.9) %. The variation in mean positive overshoot (Table 3) throughout the quintile may be explained by the ability to pay for healthcare services. MPO is low in the lowest quintile because the ability to pay is the lowest. High MPO in the 2nd and 3rd quintiles have an option to spend either on healthcare services or on non-food expenditure; consequently, cutting down the non-food expenditure to release funds for purchasing healthcare services. MPO was less in higher quintiles because their capacity to pay is higher, and, the 4th and 5th quintiles were having a higher capacity to pay than the lower quintiles, hence MPO was less.

Inequality

The concentration index of the incidence of catastrophic payments (C_E) is given in Table 4. A negative value of C_E shows that the poor have a greater tendency to exceed the threshold of health expenditure. Higher rank weighted headcounts (H W) (Table 4) for each threshold level in comparison to Headcounts (H) (Table 2) explains that urban slum households with lower incomes are more vulnerable to incur catastrophic health expenditure.

Not only the incidence of catastrophic healthcare payments but also the intensity of catastrophic healthcare payments affected poorer households more. A negative concentration index of overshoot (C_O) indicates that average payment exceeding the threshold is greater among poor households and the extent of excess health payment is greater among the poor as rank weighted overshoot (O_W) (Table 4) is greater than overshoot (O) (Table 3).

Table 3.Intensity of Catastrophic Health Payments using Non-food Expenditure

	Threshold Budget Share					
	5%	**10%**	**15%**	**25%**	**30%**	**40%**
Overshoot (O)						
Total	8.3	6.9	5.8	4.3	3.7	2.7
SE; CI (95%)	± 2.3	± 2.1	± 2.0	± 1.7	± 1.6	± 1.4
Lowest quintile	11.6	10.1	8.8	6.4	5.5	3.5
2	11.8	10.3	9.1	7.0	6.2	4.8
3	8.6	6.9	5.7	4.4	4.0	3.4
4	5.5	4.3	3.5	2.5	2.1	1.5
Highest quintile	4.4	3.0	2.1	1.2	0.9	0.5
Mean positive overshoot (MPO)						
Total	24.4	28.3	32.3	33.1	36.0	33.0
SE; CI (95%)	± 5.5	± 6.7	± 7.9	± 9.3	± 10.5	± 11.9
Lowest quintile	35.0	35.5	34.5	32.9	27.9	20.5
2	33.7	36.7	42.3	36.6	40.3	48.6
3	21.5	24.9	29.9	52.4	65.5	55.5
4	20.5	25.2	34.3	24.3	32.4	27.5
Highest quintile	12.1	14.5	15.1	15.8	20.4	17.1

Table 4.Distribution-sensitive Catastrophic Payments Measures using Non-food Expenditure

	Threshold Budget Share					
	5%	10%	15%	25%	30%	40%
Concentration index (C_E)	-0.008	-0.081	-0.139	-0.195	-0.303	-0.316
Rank-weighted headcount (H_W)	34.429	26.349	20.534	15.524	13.433	10.959
Concentration index (C_O)	-0.182	-0.214	-0.236	-0.253	-0.257	-0.236
Rank-weighted overshoot (O_W)	9.859	8.381	7.200	5.390	4.662	3.396

ISSN: 2319-9113
DOI: https://doi.org/10.24321/2319.9113.202202

Impoverishment due to Catastrophic Healthcare Payments (National Poverty Line)

Poverty in the urban slums of Jaipur is estimated to be 2.8% (Table 5) when it is assessed on the National Poverty Line. The percentage of the population pushed back to poverty due to out-of-pocket expenditure is 1%. This represents a substantial rise of 35% in the headcounts for poverty.

Table 5.Measure of Poverty based on Consumption Gross and Net Spending on Healthcare for all the Surveyed Households at the National Poverty Line

Poverty line = ₹ 1407 Monthly Per Capita/ Less than $1 per Person per Day	Gross Health Payments	Net Health Payments
Poverty headcount (%)	2.8	3.8
Poverty gap (INR)	11.8	23.9
Normalized poverty gap (%)	0.8	1.7
Normalized mean positive poverty gap (%)	29.8	45.3

The estimated poverty gap in the population is widened by ₹ 12.1 (from ₹ 11.8 to ₹ 23.9). The normalised poverty gap increases from 0.8% of the poverty line to 1.7%, and there was a significant rise in the normalised mean positive poverty gap (29.8 to 45.3). This indicates that the deepening of poverty of the already poor households is not the only reason why the mean positive poverty gap has been widened. Households which are above the poverty line also incur catastrophic expenditures that impact their household economy and make them vulnerable.

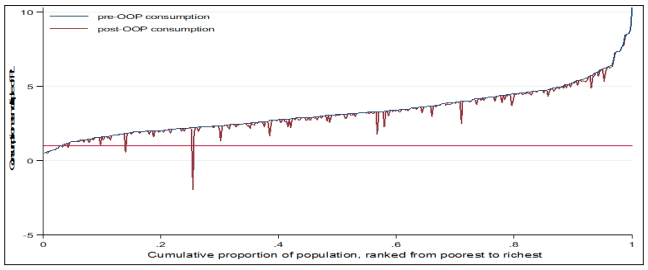

Figure 1.Effect of Health Payments on Pen's Parade of the Household Consumption of Households at the National Poverty Line

The pattern of impoverishment may further be understood from Figure 1. The straight line in the figure is the poverty line. Household consumption before out-of-pocket spending on health is plotted as the blue line in the graph. Household consumption after out-of-pocket spending on healthcare is plotted as the red line. As depicted by the spikes in the graph, it can be easily inferred that after incurring out-of-pocket expenditure on health some households are pushed back below the poverty line. The spikes in the graph crossing the poverty line indicate households who are pushed back to poverty.

Impoverishment due to Catastrophic Healthcare Payments (International Poverty Line)

When the same estimate is made on the basis of the International Poverty Line (as given by WHO for less developed countries), the headcount of urban slum households living below the poverty line was found to be 37.1% (Table 6). An increase of 2.7% of households below the poverty line is evident if OOP expenditure on health is netted out from household consumption. The estimated rise in poverty headcount is 7%. The estimated widening of the poverty gap is by Rs. 58.2. Deepening of poverty amongst already poor households is reflected in Figure 2.

Table 6

Poverty Line = $ 1.90 per Person per Day	Gross Health Payments	Net Health Payments
Poverty headcount (%)	37.1	39.7
Poverty gap (INR)	388.2	446.5
Normalised poverty gap (%)	10.5	12.0
Normalised mean positive poverty gap (%)	28.2	30.3

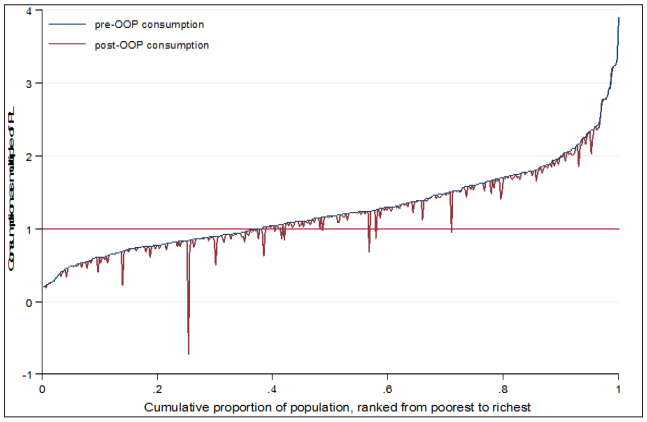

Figure 2.Effect of Health Payments on Pen's Parade of the Household Consumption of Households at the International Poverty Line

As is evident from the graph that more households are pushed below the poverty line if we take a different estimate of the poverty line. This explains the health vulnerability of the households which are just above the poverty line.

Mitigation of Catastrophic Expenditure and its Developmental Effects on Households

The pattern of expenditure among urban slum households shows that meeting the necessary expenditure on food remains the first and only priority (Table 7). The enhanced expense on health can compromise the expense on food. The curtailed expense on food due to an expense on health in each category is statistically significant F (DF = 5, n = 426) = 6.181 and p < 0.0001.

ISSN: 2319-9113
DOI: https://doi.org/10.24321/2319.9113.202202

Table 7.Distribution of Total Household Expenditure

Health Expenditure as a % of Total Household Expenditure	Average Distribution of Total Household Expenditure (%)						
	Food	Energy	Clothing	Footwear	Education	Durable	Misc goods & services
0	69.21	6.67	2.47	0.71	0.31	4.44	16.18
0.001-10	69.19	6.08	1.60	0.29	0.51	3.61	15.96
10-20	61.31	6.20	1.77	0.40	0.12	1.80	14.90
20-30	52.44	7.20	3.04	0.50	0.01	2.10	8.83
30-40	50.30	5.75	2.83	0.75	0.53	0.76	8.20
> 40	38.90	2.67	1.19	0.04	0.04	1.25	3.16

As urban slum households are vulnerable, the expense on things except food is negligible. When the expense on food becomes greater than the threshold of 40% of the total household expenditure, this expense on other items is found to be the lowest. The association between the increase in health expenditure and reduction in the expenditure on food and clothing has been found to be significant ($p < 0.0001$ and $p < 0.05$ respectively) ($n = 426$; f value = 6.181, and 2.35).

The reduction in catastrophic expenditures of the households in lower quintiles will enhance their likelihood and ability to increase their expenditure on necessary items such as food and clothing.

Discussion

To protect the vulnerable group by providing affordable, easily accessible and qualitative healthcare services, many schemes were launched, such as, 'Free drug distribution' through Government public healthcare facilities in the year 2011, and the scheme on free diagnostics in the year 2013. UPHCs are being operationalised near urban slums since the year 2013, but the utilisation of private healthcare facilities to date raises the question of the acceptability of the services offered. The services in the public domain are affordable and available, but our results indicate that they are not being utilised by the vulnerable groups and thus the catastrophic effect of health expenditures is visualised. Infrastructural gaps are better addressed by public service, but the acceptability of these services is low because of service delivery issues. Efficient health systems would help in making a more equitable and protected society and it will also push down the healthcare cost.

To provide acceptable services by private healthcare providers without facing any financial hardship, health insurance is being offered through 'Bhamashah Health Insurance Scheme' (Government Insurance)[43] since December 2015 under National Health Protection Scheme. As the largest publicly funded health insurance scheme in the world, National Health Protection Scheme (Ayushman Bharat) offers financial risk protection to the poorest and the vulnerable. It aims to cover almost 40% of India's population in the rural and urban areas.[44] Bhamashah Health Insurance Scheme in Rajasthan State claims to protect 45.45% of households, of which nearly one-fifth are urban households.[45] The evidence (produced by this study) of catastrophic health expenditure and resultant impoverishment in urban slums of the capital city of Jaipur, raises the query over coverage of vulnerable urban slums under the scheme. Some of the criteria for exclusions under this insurance scheme as per the guidelines of Ayushman Bharat (2018) are households having a fridge, landline phone, owning a two/ three/ four wheeler, house with three or more rooms with pucca walls and roof, any household member earning Rs. 10000 a month etc. The common criteria for exclusion under National Health Insurance, without considering disposable incomes per household, leaves a substantial pocket of vulnerable groups unprotected against financial hardship. The results of this study show that the population which is just above the poverty line as per national standard is found equally vulnerable and this group suffers from significant impoverishment due to health expenditures. Had there been specific exclusion criteria considering metropolitan city norms of living, there would have been better coverage of vulnerable groups.

Similarly, the definition of poverty line also plays an important role in identifying the vulnerable sections. The poverty line based on average estimates of a nation also dilutes the regional expenditure differences. A comparison of expenditure patterns between the urban slums of Jaipur and all India slums shows that spending among urban slums of Jaipur is higher than the all India average. The average expenditure of the people of slums in Jaipur on items like food, intoxicants, and tobacco is 3% more than that of people all over India. It was also reported that their expense on rent/ housing is half, on electricity, it is almost thrice, and on household appliances/ utensils, it

ISSN: 2319-9113
DOI: https://doi.org/10.24321/2319.9113.202202

is 1.2 times the national average. Their expense on water has been reported to be a little more than the national average.[46] Findings of this study show the estimates of poverty headcounts being approximately 35% more on the International poverty line than the National poverty line. When the evidence for catastrophic expenditures on healthcare and impoverishment is generated, then leaving a subset of the population which has a significant impact would result in policy gaps, and poor targeting of SDG goals. If not for other purposes, at least regional factors like the cost of living should be considered to establish the poverty line for such social insurance schemes to cater to the health needs of the vulnerable groups.

Conclusion

The vicious circle of poverty is formed in absence of affordable, attainable, and assured healthcare services. A blanket insurance policy for all is not going to produce the required outcome. Those who are poorest of the poor, require additional benefits apart from insurance. Benefits such as wage loss recovery and nutritional support to the family should be incorporated within the policy framework with an aim to break this vicious circle of poverty due to ill-health. Population lying just above the poverty line is as vulnerable as the one below it. Local aspects of the targeted population must be given special consideration while designing and implementing such schemes, otherwise, they will remain inequitable.

Source of Funding: None

Conflict of Interest: None

References

1. Xu K, Evans DB, Carrin G, Aguilar-Rivera AM, Musgrove P, Evans T. Protecting households from catastrophic health spending. Health Aff [Internet]. 2007 Jul [cited 2019 Mar 4];26(4):972-83. [PubMed] [Google Scholar]
2. World Health Organization [Internet]. Tracking universal health coverage: 2017 Global Monitoring Report; 2017 [cited 2019 Mar 4]. Available from: https://apps.who.int/iris/bitstream/handle/10665/259817/9789241513555-eng.pdf?sequence=1
3. Tracking Universal Health Coverage: 2017 Global Monitoring Report [Internet]. [cited 2019 Mar 4]. Available from: https://apps.who.int/iris/bitstream/handle/10665/259817/9789241513555-eng.pdf?sequence=1; chapter no. 2; Pg. No. 24
4. Tracking Universal Health Coverage: 2017 Global Monitoring Report [Internet]. [cited 2019 Mar 4]. Available from: https://apps.who.int/iris/bitstream/handle/10665/259817/9789241513555-eng.pdf?sequence=1; chapter no. 2; Pg. No. 24
5. Doorslaer E Van, O'Donnell O, Rannan-eliya RP, Somanthan A, Adhikari SR, Akkazieva B, Garg CC, Harbianto D, Herrin D, Herrin AN, Huq MN, Ibagimova S, Karan A, Lee T, Leung GM, Lu JR, Ng CW, Pande BR, Racelis R, Tao S, Tin K, Tisayaticom K, Trisnantoro L, Visasvid C, Zhao Y. Paying out-of-pocket for health care in Asia: catastrophic and poverty impact. 2005:1-51 Available from https://www.researchgate.net/publication/23778503_Paying_Out-of-Pocket_for_Health_Care_in_Asia_Catastrophic_and_Poverty_Impact [Google Scholar]
6. Xu K, Evans DB, Carrin G, Aguilar-Rivera AM, Musgrove P, Evans T. Protecting Households From Catastrophic Health Spending. Health Aff [Internet]. 2007 Jul [cited 2019 Mar 4];26(4):972-83. Available from: http://www.ncbi.nlm.nih.gov/pubmed
7. Aregbeshola BS, Khan SM. Out-of-pocket payments, catastrophic health expenditure and poverty among households in Nigeria 2010. Int J Health Policy Manag [Internet]. 2018 [cited 2019 Mar 28];7(9):798-806. [PubMed] [Google Scholar]
8. Doorslaer E Van, Donnell OO, Rannan-eliya RP, Herrin AN, Lee T, Leung GM, et al. Paying Out-Of-Pocket for Health Care in Asia : Catastrophic and Poverty Impact. 2005;1-51
9. Doorslaer E Van, Donnell OO, Rannan-eliya RP, Herrin AN, Lee T, Leung GM. Paying Out-Of-Pocket for Health Care in Asia : Catastrophic and Poverty Impact. 2005;1-51
10. Smith KT, Monti D, Mir N, Peters E, Tipirneni R, Politi MC. Access is necessary but not sufficient: factors influencing delay and avoidance of health care services. MDM Policy Pract [Internet]. 2018 [cited 2019 Mar 28];3(1):2381468318760298. [PubMed] [Google Scholar]
11. Taber JM, Leyva B, Persoskie A. Why do people avoid medical care? A qualitative study using national data. J Gen Intern Med [Internet]. 2015 Mar [cited 2019 Mar 28];30(3):290-7. [PubMed] [Google Scholar]
12. Collins SR, Robertson R, Garber T, Doty MM. Gaps in health insurance: why so many Americans experience breaks in coverage and how the Affordable Care Act will help: findings from the Commonwealth Fund Health Insurance Tracking Survey of U.S. Adults, 2011. Issue Brief (Commonw Fund) [Internet]. 2012 Apr [cited 2019 Mar 28];9:1-22. [PubMed] [Google Scholar]
13. World Health Organization [Internet]. Human rights and health; 2017 [cited 2019 Mar 28]. Available from: https://www.who.int/en/news-room/fact-sheets/detail/human-rights-and-health
14. World Health Organization [Internet]. The right to health; [cited 2019 Mar 28]. Available from: https://www.ohchr.org/Documents/Publications/Factsheet31.

pdf
15. World Health Organization [Internet]. Health - United Nations sustainable development; [cited 2019 Mar 28]. Available from: https://www.globalgoals.org/goals/3-good-health-and-well-being/
16. World Health Organization [Internet]. Universal health coverage; 2019 [cited 2019 Mar 28]. Available from: https://www.who.int/health_financing/universal_coverage_definition/en/
17. World Health Organization [Internet]. Financial protection; 2018 [cited 2019 Mar 28]. Available from: https://www.who.int/health_financing/topics/financial-protection/en/
18. Xu K, Evans DB, Carrin G, Aguilar-Rivera AM, Musgrove P, Evans T. Protecting Households From Catastrophic Health Spending. Health Aff [Internet]. 2007 Jul [cited 2019 Mar 4];26(4):972-83. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17630440
19. Catastrophic health expenditure and poor in India: new evidence from a nation-wide survey [Internet]; [cited 2019 Mar 28]. Available from: https://paa2012.princeton.edu/papers/121467
20. Garg CC, Karan AK. Reducing out-of-pocket expenditures to reduce poverty: a disaggregated analysis at rural-urban and state level in India. Health Policy Plan [Internet]. 2009 Mar [cited 2019 Mar 17];24(2):116-28. Available from: http://www.ncbi.nlm.nih.gov/pubmed/19095685 [PubMed] [Google Scholar]
21. Garg CC, Karan AK. Reducing out-of-pocket expenditures to reduce poverty: a disaggregated analysis at rural-urban and state level in India. Health Policy Plan [Internet]. 2009 Mar 1 [cited 2019 Mar 17];24(2):116-28. Available from: http://www.ncbi.nlm.nih.gov/pubmed/19095685
22. Ghosh S. Catastrophic payments and impoverishment due to out-of-pocket health spending. Econ Polit Wkly. 2011;46(47):63-70. [Google Scholar]
23. Ghosh S. Catastrophic payments and impoverishment due to out-of-pocket health spending . Econ Polit Wkly [Internet]. 2015 Jun 5 [cited 2019 Mar 28];50(23):7-8. Available from: https://www.epw.in/journal/2011/47/special-articles/catastrophic-payments-and-impoverishment-due-out-pocket-health
24. Catastrophic Health Expenditure and Poor in India: New Evidence from a Nation-wide Survey [Internet]. [cited 2019 Mar 28]. Available from: https://paa2012.princeton.edu/papers/121467
25. Catastrophic Health Expenditure and Poor in India: New Evidence from a Nation-wide Survey [Internet]. [cited 2019 Mar 28]. Available from: https://paa2012.princeton.edu/papers/121467
26. World Health Organization [Internet]. Universal health coverage (UHC); [cited 2019 Mar 28]. Available from: https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc)
27. Loughhead S, Mittal O, Wood G [Internet]. Urban poverty and vulnerability in India: DFID's experiences from a social policy perspective; 2001 [cited 2019 Mar 28]. Available from: https://www.researchgate.net/publication/238366282_Urban_Poverty_and_Vulnerability_in_India_DfID''s_Experiences_from_a_Social_Policy_Perspective''DfID
28. Agarwal S, Sanger K [Internet]. State of Urban Health in Rajasthan; 2006 [cited 2019 Mar 28]. Available from: https://www.researchgate.net/publication/275022298_State_of_Urban_Health_in_Rajasthan
29. State of Urban Health in Rajasthan [Internet]. [cited 2019 Mar 28]. Available from: https://www.researchgate.net/publication/275022298_State_of_Urban_Health_in_Rajasthan
30. National Sample Survey Organisation Ministry of Statistics and Programme Implementation Government of India [Internet]; 2006 [cited 2019 Mar 28]. Available from: http://mospi.nic.in/sites/default/files/publication_reports/507_final.pdf
31. Xu K, Evans DB, Carrin G, Aguilar-Rivera AM, Musgrove P, Evans T. Protecting Households From Catastrophic Health Spending. Health Aff [Internet]. 2007 Jul [cited 2019 Mar 4];26(4):972-83. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17630440
32. Xu K, Evans DB, Carrin G, Aguilar-Rivera AM, Musgrove P, Evans T. Protecting Households From Catastrophic Health Spending. Health Aff [Internet]. 2007 Jul [cited 2019 Mar 4];26(4):972-83. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17630440
33. Xu K, Evans DB, Carrin G, Aguilar-Rivera AM, Musgrove P, Evans T. Protecting Households From Catastrophic Health Spending. Health Aff [Internet]. 2007 Jul [cited 2019 Mar 4];26(4):972-83. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17630440
34. Mataria A, Raad F, Abu-Zaineh M, Donaldson C. Catastrophic healthcare payments and impoverishment in the occupied Palestinian territory. Appl Health Econ Health Policy. 2010;8(6):393-405. [PubMed] [Google Scholar]
35. Doorslaer E Van, Donnell OO, Rannan-eliya RP, Herrin AN, Lee T, Leung GM. Paying Out-Of-Pocket for Health Care in Asia : Catastrophic and Poverty Impact. 2005;1-51
36. Mataria A, Raad F, Abu-Zaineh M, Donaldson C. Catastrophic Healthcare Payments and Impoverishment in the Occupied Palestinian Territory. Appl Health Econ Health Policy [Internet]. 2010;8(6):393-405. Available from: http://link.springer.com/journal/volumesAndIssues/40258%5Cnhttp://search.

ISSN: 2319-9113
DOI: https://doi.org/10.24321/2319.9113.202202

ebscohost.com/login.aspx?direct=true&db=ecn&AN=1147327&site=ehost-live&scope=site
37. Pal R. Measuring incidence of catastrophic out-of-pocket health expenditure: with application to India. Int J Health Care Finance Econ [Internet]; 2012 Mar [cited 2019 Mar 28];12(1):63-85. Available from: http://link.springer.com/10.1007/s10754-012-9103-4 [PubMed] [Google Scholar]
38. National Sample Survey Organisation Ministry of Statistics and Programme Implementation Government of India [Internet]; 2006 [cited 2019 Mar 28]. Available from: http://mospi.nic.in/sites/default/files/publication_reports/507_final.pdf
39. Catastrophic Health Expenditure and Poor in India: New Evidence from a Nation-wide Survey [Internet]. [cited 2019 Mar 28]. Available from: https://paa2012.princeton.edu/papers/121467
40. Sahu KS, Bharati B. Out-of-pocket health expenditure and sources of financing for delivery, postpartum, and neonatal health in urban slums of Bhubaneswar, Odisha, India. Indian J Public Health [Internet]. 2017 [cited 2019 Mar 28];61(2):67-73. Available from: http://www.ncbi.nlm.nih.gov/pubmed/28721954 [PubMed] [Google Scholar]
41. Wagstaff A, O'Donnell O, Doorslaer E, Lindelow M. Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and their Implementation. World Bank Publication; 2007.
42. The World Bank [Internet]. FAQs: global poverty line update; 2015 [cited 2019 Mar 28]. Available from: http://www.worldbank.org/en/topic/poverty/brief/global-poverty-line-faq
43. [Bhamashah Health Insurance Scheme] [Internet]; 2017 [cited 2019 Mar 10]. Hindi. Available from: http://health.rajasthan.gov.in/content/dam/doitassets/Medical-and-Health-Portal/Bhamashah-Swasthya-Bima-Yojana/pdf/BSBY FAQ Phase-II.pdf
44. Mishra M, Mandal A. How equitable will Ayushman Bharat be? Econ Polit Wkly [Internet]. 2019 [cited 2019 Mar 9];50(23):7-8. Available from: https://www.epw.in/engage/article/how-equitable-will-ayushman-bharat-national-health-protection-scheme-be [Google Scholar]
45. Ayushmaan Bharat [Internet]; [cited 2019 Mar 9]. Available from: https://www.pmjay.gov.in/state?tid=31
46. PRIA [Internet]. Government led exclusion of urban poor greater contribution and lesser recipient; [cited 2019 Mar 10]. Available from: https://terraurban.files.wordpress.com/2014/01/jaipur-status-report.pdf

ISSN: 2319-9113
DOI: https://doi.org/10.24321/2319.9113.202202