Amity Journal of Healthcare Management
1(1), (21–32)

Financial Implication of Hospitalization and Willingness to Join Health Insurance Programme Among People living with HIV in India

Mayur Trivedi
Indian Institute of Public Health, Gandhinagar, Ahmedabad, India

A Venkat Raman
University of Delhi, Delhi, India

(Received: 22/04/2016; Accepted: 12/05/2016)

Abstract

The objectives of the present study were to assess the a) treatment seeking behaviour among PLHIV, b) financial burden of treatment due to hospitalization, and c) their willingness to pay for being part of a health insurance programme. The research involved cross-sectional descriptive study design using a sample survey of PLHIV who are accessing free ART. This was considered appropriate because information on factors and frequency related to illnesses, treatment seeking behaviour, expenditure and its coverage is to be compiled at a point in time. A purposive sampling technique was employed. However, all efforts were made to ensure the randomness in the sample whenever possible. Data was collected through interviews using a structured questionnaire from 528 respondents. A written informed consent was obtained. Ethical clearance for conducting the study was also obtained. One in every four PLHIV received inpatient treatment at least once during the preceding year. An estimated expense per hospitalization per PLHIV was Rs. 1834 per annum. Most indicated that the financial burden for hospitalization was higher for them, and expressed their willingness to join a health insurance programme. Respondents were willing to pay a maximum of Rs. 1571 per annum for such a hypothetical coverage. The findings of rate of hospitalization among surveyed PLHIV and its financial burden corresponds to other surveys among PLHIV. High willingness to participate and pay for health insurance was found. The study provides evidences that PLHIV face financial burden of treatment, and are willing to pay for alternative financing mechanism.

Keywords: HIV, AIDS, Health Insurance, Willingness to pay, India

JEL Classification: 110, I18, I13, I38, N35

Paper Classification: Research Paper

Introduction

Acquired Immuno Deficiency Syndrome (AIDS) is a chronic, lifelong ailment caused by Human Immunodeficiency Virus (HIV) infection with no specific cure. However, the disease could be managed through Anti-Retroviral therapy (ART). Three aspects of HIV and AID infections make the disease distinct, requiring special attention beyond clinical management alone. They are a) it has no definitive cure as yet, b) the treatment is expensive that can only prolong life after infection, and c) it affects the productive years of life thus creating huge social and economic impacts across generations (Over, 2004; Pharoah, Richter, & Killian, 2011; Simon, Ho, & Abdool Karim, 2006; Ward, 1993).

The economic impact of HIV at the household level has been well-documented (Bloom & Mahal, 1997; Kumarasamy, Venkatesh, Mayer & Freedberg, 2007; Piot, Greener, & Russell, 2007). Although HIV is present across wealth quintiles, there are evidences to indicate the linkages between poverty and vulnerability to HIV (Kalichman et al., 2006; WHO, 2005). The burden of HIV is felt because of multitude of reasons viz. a) loss of work and income because of morbidity and subsequent death of the infected member as well as care giving responsibilities of non-infected members, b) cost of expensive treatment; and c) funeral expenses. HIV and AIDS condition results in higher demand for health related goods and services. The financial expenses on medical treatment and related condition are the major cause of economic impact borne by People Living with HIV (PLHIV). While on one hand, the household income tends to shrink because of inability of the infected and affected family members to attend work, the demand for healthcare keeps rising. In this scenario, the households frequently borrow money or sell household assets (Pradhan, Sundar & Singh, 2006). In the hard hit areas of Asian countries like Cambodia, India, Thailand and Viet Nam, significant numbers of households those are not poor, are being pushed into poverty and households those are already poor, are being rendered destitute (ADB and UNAIDS, 2004). Such scenario called for adequate financial risk protection of PLHIV, especially in resource-constrained settings like India. Owing to the long-term financial burden of treatment and public health benefits of treatment of HIV, countries across the globe have responded by covering HIV related expenses. India does provide Supply Side Financing (SSF) options like provision of free ART, it is yet to confirm with the global standard of demand side financing (DSF) options like inclusion of HIV into existing health coverage options. This research thus explored a demand side issue of financial burden of illness and willingness to participate in financial protection among PLHIV in India.

Literature Review

According to latest available estimates, India has an adult HIV prevalence of 0.26% or around 2.11 million PLHIV in 2015 (NACO & NIMS, 2015). There has been a steady decline in new infections and deaths due to AIDS as well in recent years in India. One of the important reason for this reduction in death is the expansion of access to free ART that started in 2004 (NACO, 2011; NACO & NIMS, 2015). By 2014, the free ART programme of the Government of India has steadily expanded to cover more than 8.5 lakh eligible patients through more than 400 ART centres across the country (NACO & NIMS, 2015).

Even after roll-out of free ART, evidence indicate financial burden of treatment on PLHIV (Arur, Banke, Sulzbach & Selvaraju, 2009; Batavia et al., 2010; Gupta, Trivedi & Kandamuthan, 2009; Joglekar et al., 2011; Kumarasamy, et al., 2007; Pradhan, et al., 2006). Such financial burden is disproportionately high on the poor; an estimate suggests that the financial burden in the poorest quintile of Indian households with HIV is 82% of income as compared to over 20% among

the richest quintile (ADB and UNAIDS, 2004). Various recent studies in different parts of India confirmed this that financial burden is disproportionately high on poor households accessing free ART and reiterated called for financial protection and government support towards that end (Gupta & Trivedi, 2014; Sharma, Krishnaswamy & Mulay, 2015; Shukla et al., 2015).

HIV coverage has evolved in India in a piecemeal way. The first decade of 21st century saw a series of efforts for coverage for HIV, which culminated in strong advocacy for mainstreaming HIV into existing health insurance sector in India. There have been seven instances of covering PLHIV through different kinds of coverage in India during the decade of 2000s. Two of them were initiated by non-government organizations i.e. Freedom Foundation and Karuna Trust in Karnataka (Gupta et al., 2006; Trivedi & Gupta, 2012) . Four schemes were government sponsored for poor people, in which PLHIV were not excluded (state level coverage under schemes like Aarogyasri, Yeshasvini and Mukhya Mantri Jeevan Raksha Kosh (MMJRK) and a nationwide scheme Rashtriya Swasthya Bima Yojana (RSBY)). Lastly, a commercial health insurance scheme (Star Netplus) in partnership with an NGO called Population Service International (PSI) was also launched. Analysis of evolution and uptake of these scheme indicated limitation of disease-specific schemes as well as beneficiary-specific schemes (Gupta & Trivedi, 2014; Trivedi & Gupta, 2012).

Research Gap and Contribution of the Study

While such efforts have certainly generated momentum for larger policy-level efforts of mainstreaming HIV in the insurance sector, there still remains hesitation of mainstream insurance companies to cover HIV. One possible reason for this hesitation is lack of demand-side data on behaviour of PLHIV. For example, there is paucity of data on whether and to what extent the PLHIV would be willing to pay for such an insurance coverage if offered. Towards contributing to this research gap, this research assessed treatment seeking behaviour, financial burden of treatment, demand and willingness to pay for an insurance coverage for hospitalization expenses among PLHIV in Gujarat, India.

Objectives of the Study

The broad objective of the study was to empirically validate the treatment seeking behaviour among PLHIV, their willingness to pay for an insurance scheme that aims to lower the financial burden of treatment due to hospitalization. Various specific objectives were a) to measure the extent and implication of burden of hospitalization on PLHIV, b) to assess willingness of PLHIV to participate in commercial insurance programmes, c) to identify socioeconomic determinants of the willingness to pay, and d) to assess awareness of and willingness to join RSBY if offered to PLHIV.

Research Methodology

Type of study

The research involved cross-sectional descriptive study design using a sample survey of PLHIV.

Sampling

A purposive sampling technique was employed for the selection of PLHIV as respondents to

the survey. The survey population was restricted to adult PLHIV (irrespective of their age, gender, and place of residence) who were registered at selected free ART centres located in government hospitals, irrespective of whether they were 'on-therapy' or 'not-on-therapy'. The 'on-therapy' PLHIV are those who are ART-eligible and were being provided with free ART. The 'not-on-therapy' includes those PLHIV, who were not ART-eligible at the time of data collection but were visiting the centre for regular monitoring of the infection and management of opportunistic infections. Equal representation of both genders was ensured and some transgender PLHIV were also included in the sample. The survey was restricted to the state of Gujarat due to better access to the research setting during the study. The selection of sites and sample size was determined based on logistical feasibility, and in consultation with appropriate authority. At the end of the data collection, the researcher was able to collect data from 528 respondents from six ART centres spread across four cities of Gujarat viz. Ahmedabad, Mehsana, Surat, and Navsari.

Data Collection

The survey was carried out over a period of three months from May-July, 2015. Data was collected through interviews using a structured questionnaire. Variables studies: Questions included variables like a) demographics: age, occupation, education, marital status, economic status of PLHIV, b) duration of infection, c) history of illnesses that required outpatient visits and hospitalization, d) expense during hospitalization and source of financing to meet the expenses during hospitalization, e) financial burden and need for coverage, f) willingness to join health insurance programme that offers hospitalization coverage to PLHIV, and g) awareness of Rashtriya Swasthya Bima Yojana (RSBY), a national health insurance scheme of India and willingness to join RSBY if offered to PLHIV.

Ethical considerations

An informed written consent was obtained prior to the interviews. The ethical clearance for conducting the study was received from the Institutional Ethical Committee of the Indian Institute of Public Health Gandhinagar. Data management and analysis: After verification and quality check, the data was analyzed using STATA software version 12. At the outset, basic counts, frequencies and descriptive analysis of all variables were undertaken. The data was further processed to conduct bivariate as well as multivariate analyses.

Findings

Background details

The average age of the respondents was 36 years. More than 61% of respondents were married and living together with their partners and another one-fourth (24%) were widowed. Among women, this proportion was slightly skewed; around 41% of the female respondents were widowed, as compared to 9% men. A large majority (92%) was staying with their families indicating a strong social support within the family. Around 55% respondents have completed secondary school i.e. 6-10 standard and another one-fifth (19%) had primary education. Only 10% respondents were illiterate; among women nearly one-fifth (17%) were found illiterate. Around three-fourth respondents (72%) were currently working. Among the 451 respondents who had either worked or have ever worked, around 70% were self-employed. Nearly half of the men (46%) quit working because of illness. More than 70% of those who quit working did so in the last two years of the survey period, clearly indicating the economic impact of the epidemic (Table 1).

Table 1: Background details of respondents (n=528)			
Characteristics	**Categories**	**(n)**	**Proportion (%)**
Gender	Male	279	52.84
	Female	247	46.78
	Transgender	2	0.38
Marital Status	Currently married, living together	325	61.55
	Currently married, not living together	14	2.65
	Divorced/ separated	19	3.6
	Widowed	127	24.05
	Not married	43	8.14
Educational attainment	Not literate	57	10.8
	Literate, no formal education	7	1.33
	Primary school (1-5 standard)	98	18.56
	Secondary school (6-10 standard)	289	54.73
	Vocational course done after 10th	7	1.33
	Higher secondary (11-12 standard)	40	7.58
	Bachelor's degree	24	4.55
	Master's degree or above	6	1.14
Working Status	Currently working	382	72.35
	Currently not working	146	27.65
Living arrangements	Staying alone	39	7.39
	Staying with family	485	91.86
	Staying with friends	3	0.57
	Other (specify)	1	0.19

Economic Status and Economic Impact of HIV

Details of asset ownership and its sale were used to analyse the economic level of the respondents. Selling of asset is a direct indication of the economic impact of the HIV. The respondents were divided into asset quartiles based on ownership of assets which were coded after giving them due weights . Of the 528 respondents, 216 i.e. 41% reported sale of at least one asset, which in most of the cases was to support health expenses of the respondent or family members. Of the 216 respondents who sold assets, 65 respondents originally belonged to the low economic category (30%); after selling of the asset, the proportion in the low-income category doubled to reach 135 respondents (62%).

Evidence of movement across economic category was visible among the respondents who needed to sell their assets. Figure 1 describes such movements, in which comparison of quartiles of ownership of assets is made between a) original ownership and b) reduced ownership because they were sold. There is significant movement (96%, n=44) from 'low-moderate' category to 'low'. Similarly, there is a downward movement in the two higher categories as well. This movement across four economic categories indicates the possibility of poverty effects of HIV.

[1]B The weights were given as follows: a) 4 each for owning Car, Land, House, and ornaments, b) 3 each for VCR, Motorcycle, Refrigerator, Livestock and agriculture implements, c) 2 points for TV and d) 1 for cycle and any other items, not mentioned in the instruments. Thus, the weights can range from zero (no assets) to 37 (all assets)

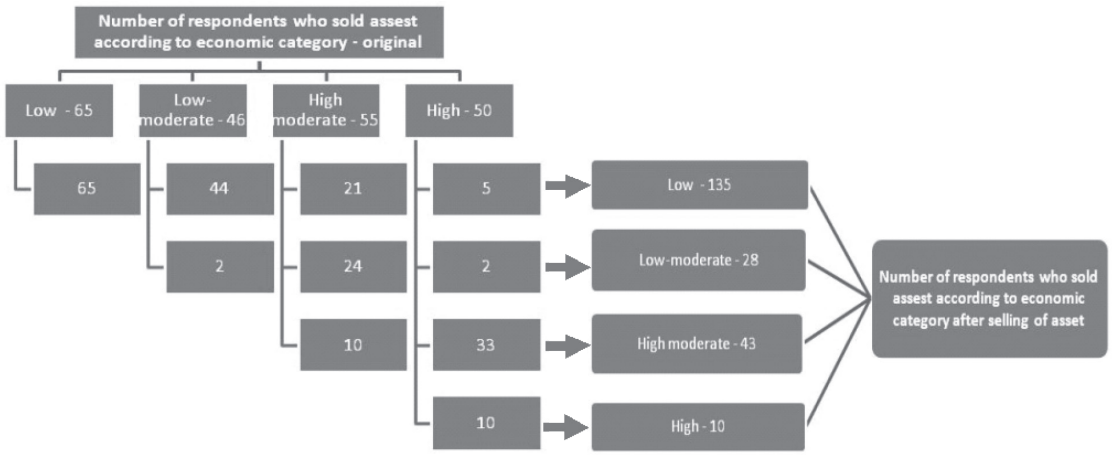

Figure 1. Movement across economic category due to selling of assets

Infection Status and Need for Treatment

The range of duration varied from recent infection (i.e. in the month of data collection) to more than 12 years (4.5%), with an average duration of infection of 45 months. Around 88% of the respondents were accessing ART at the time of data collection; among those who were on ART, average duration of accessing ART was around 33 months. Ninety-one percent reported not ever stopping ART once started and around 8% stopped it for once only, mostly because of financial difficulties in accessing it.

More than one-fifth (22%) of the respondents did not need any outpatient visit apart from their regular visits to ART centres. While around one-third (34%) had 1 to 3 visits, another one-fifth (17%) respondents needed frequent visits of more than seven times. Overall, hospitalization rate among PLHIV sample was around 24%. The high rate of hospitalization could be a reflection of purposive sampling from the ART centres. Details on 154 hospitalizations episode were collected. For each episode of hospitalization, respondents were asked to report the reasons for hospitalization. The most commonly reported condition was diarrhoea (19%), followed by general conditions like malaise and fatigue (commonly reported as 'weakness' by respondents) (17%).

Hospitalization Expenditure while on Treatment

Of all the 154 episodes of hospitalization, 152 responded with details of spending on treatment and 98% among them had non-zero expenses. After removing outliers, an estimated expense per hospitalization per PLHIV was Rs. 1834 per annum (n=122). The analysis of spending across various sub-items was conducted for hospitalization episodes. Medicine accounted for highest expense i.e. around 46%, followed by diagnostics (18%), Transportation cost (13%), and Hospital fees (14%). After removing outliers, there was a wide range of expense from Rs. 1440 to around Rs. 2393 across economic categories. The relatively low expense among the lower economic categories can also be a reflection of poor treatment seeking as well as choice of providers, details of which was not sought in the survey.

[2]This calculation takes into account all the responses where such sub-item wise expenses were reported and thus, the sum can be different from the overall average expenses.

Source of Finance and Need for Health Coverage

Around half of the respondents (46%) paid for the expenses from their 'savings', followed by one-fourth (25%) who needed to borrow funds (Figure 2). Of all the respondents who had at least one episode of illness, 80.5% indicated that the financial burden for hospitalization was higher for them. Nearly all (99.6%) respondents did not have any kind of insurance coverage to cover their hospitalization expenses. Out of 154 hospitalizations, 97% cases were financed through OOP spending indicating the urgent need for some kind of coverage across economic categories of PLHIV.

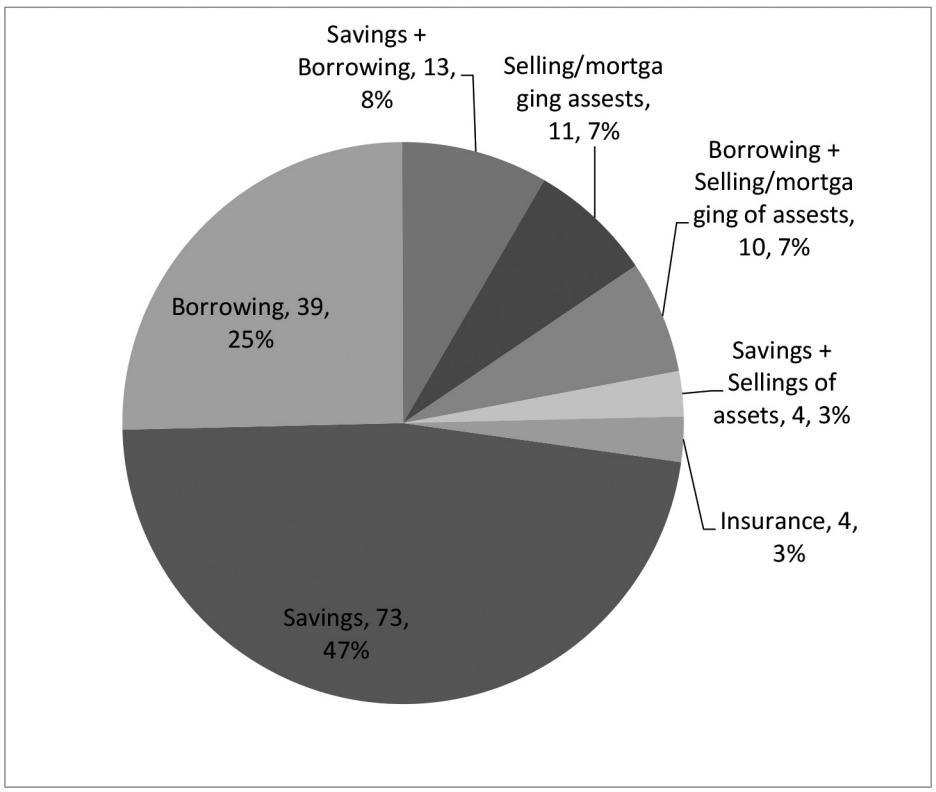

Figure 2. Source of financing for hospitalization expenses

Willingness to Pay for Health Insurance for PLHIV

All the respondents were asked to state their willingness to join an insurance programme that covers HIV related illnesses and reimburses hospitalization expenses of up to Rs. 30,000. Overall, 79% respondents expressed their willingness to join such a programme if offered. Pearson's chi-squared test was used to measure differences of willingness to join an insurance scheme with various sub-groups of determinants. A statistically significant difference was observed for gender, marital status, working status, occupation status and hospitalization status. The lesser proportion of women, widowed, currently unemployed, government employees, self-employed respondents, and those who did not experience any hospitalization during the year preceding the survey were relatively less willing to be a part of such an insurance coverage.

Among all the reasons for non-willingness to participate (n=141), nearly half (47%) were about 'financial constraints', one-fifth were about 'lack of decision-making ability' and, around 10% were about 'lack of faith in the insurance or in the system'. The lack of decision-making ability was expressed largely by the non-working respondents like women or the elderly, reflecting financial constraints of such respondents.

Respondents who showed willingness for coverage were asked to state the maximum annual premium they would be willing to pay for the coverage. After removing outliers, respondents were willing to pay a maximum of Rs. 1571 per annum for such a hypothetical coverage (n=412). ANOVA test was conducted to estimate the difference across various sub-groups in the amount of maximum annual premium. Very high statistically significant association for premium payment was found. Higher willingness to pay for higher economic status, and organized employer was found. Gender, working status, and hospitalization also showed a relatively higher degree of association.

More than 90% respondents indicated that they would be willing to pay the premium from their own saving. Only 33% were willing to pay an additional premium to get coverage of outpatient care as well.

PLHIV and RSBY

Respondents were asked details about their Below Poverty Line (BPL) status, awareness about RSBY and willingness to join RSBY, if offered. More than one-fourth (27%) respondents had a BPL card indicating their entitlement to RSBY scheme. Of all the BPL card holders, only 24% knew about the RSBY scheme. Relatively higher awareness was found among Male (26%), Educated respondents (Higher secondary and above – 38%, Bachelors and above – 50%) private sector workers (38%). Among those who knew about the scheme, around 79% were enrolled in the scheme. The major reason for non-enrolment was lack of information about the scheme.

All the non-BPL clients as well as those BPL clients who did not know about the scheme were introduced to the scheme and were asked about their willingness to get enrolled in RSBY. Around 88% indicated that they would like to be part of RSBY. Pearson's chi-squared test was used to measure differences of willingness to join an insurance scheme with various sub-groups of determinants. Statistical significance was found for categories like economic status, occupation, and history of hospitalization in last one year.

Multivariate Analysis

The willingness to participate in insurance programme and average premium was further explored through multivariate analysis. Logistic regression was run on variables like gender, marital status, education, working status, economic categories, history of hospitalization, occupation, number of positive members in the household and duration of HIV infection to check their association on willingness to pay for insurance for PLHIV. A linear regression was run using the same set of variables to measure the determinants of the average amount that the respondents are willing to pay for a health insurance program that covers HIV. The regression results indicate that younger, male, currently working, and salaried PLHIV tends to have higher willingness to buy such insurance (Table 2).

Table 2: Determinants of willingness to participate in insurance for PLHIV			
Variables	**Coefficient**	**[95% Conf. Interval]**	
Age	-0.03**	-0.06	0.00
History of hospitalization	1.11***	0.49	1.74
Female	-0.41	-0.94	0.11
Marital status	0.39	-0.88	0.10
Up to primary education	0.17	-0.55	0.88
Up to secondary education	0.35	-0.32	1.01
Working status	0.70**	0.15	1.24
Low economic category	-0.26	-0.86	0.34
Low-moderate economic category	-0.04	-0.75	0.67
High-moderate economic category	0.01	-0.63	0.65
Positive members in the Household	-0.06	-0.39	0.27
Duration of infection (in months)	0.00	0.00	0.01
Self-employed respondents	-0.52**	-1.04	-0.01
_cons	2.16	0.75	3.58
*The symbols *, ** and *** represent significant at 90, 95 and 99 % confidence interval respectively*			

The willingness to pay in terms of maximum annual premium is strongly associated with economic, occupation categories. Similarly, PLHIV from unorganized sector, i.e., who are self-employed, are likely to pay lesser amount as compared to those working in other sectors (Table 3).

Table 3: Determinants of willingness to pay for insurance for PLHIV: maximum amount that the respondents are willing to pay for health insurance for PLHIV (Maximum WTP)			
Variables	**Coefficient**	**[95% Conf. Interval]f**	
Age	-8.1	-18.9	2.7
History of hospitalization	47.1	-148.9	243.1
Female	-94.7	-299.4	110.0
Marital status	-77.9	-278.0	122.1
Up to primary education	81.2	-213.0	375.4
Up to secondary education	202.3	-45.6	473.5
Working status	277.9**	49.5	506.4
Low economic category	-648.6***	-885.6	-411.5
Low-moderate economic category	-576.8***	-843.1	-310.4
High-moderate economic category	-457.6***	-701.0	-214.3
Positive members in the Household	-85.8	-214.7	43.1
Duration of infection (in months)	0.4	-1.8	2.6
Self-employed respondents	-383.6***	-575.7	-191.4
_cons	2323.3	1772.3	2874.2
*The symbols *, ** and *** represent significant at 90, 95 and 99 % confidence interval respectively*			

Summary and Discussion

The discussion on mainstreaming HIV into the commercial insurance sector in India has by and large remained constrained within the circles of PLHIV or those working for PLHIV. Lack of data on demand for health insurance among PLHIV has remained a major argument that limited the efforts. Also, there had been very little research on the frequencies and the type of illness experienced by PLHIV, the financial burden of such illnesses and PLHIV's willingness to pay for alternative financing mechanism.

The research yielded few useful observations viz. a) around one-fourth needed at least one hospitalization, b) there is an OOP of around Rs. 1800 per hospitalization, c) there is considerable expenses of hospitalization and its financial burden on PLHIV, and d) there is high willingness to participate and pay for health insurance to cover such expenses. The rate of hospitalization among surveyed PLHIV corresponds to other surveys among PLHIV and indicates a declining trend (Gupta et al., 2011; IAI, 2013; and Sarna et al., 2008). The financial burden of hospitalization for PLHIV who are availing free ART is comparable – and relatively lesser - to other studies conducted in India and elsewhere (Bhavsarl & Srivastava; Gupta, et al., 2009; Pradhan, et al., 2006; Riyarto et al., 2010; and Wong, 2013). Although belonging to various economic strata, many PLHIV reported selling of assets due to financial needs, reflecting the potential impoverishing effect of the infection. The higher financial burden was felt by the vulnerable respondents, i.e., women who are either separated or are unemployed. While respondents indicated willingness to join an insurance programme, majority of those unwilling, did so owing to financial constraints, reiterating the role of financial protection as poverty alleviating measure. On the other hand, willingness for insurance was also higher among the vulnerable subgroups like women, less educated, poor and self-employed PLHIV. Also, most of the surveyed PLHIV were working in the unorganized sector has direct policy implications for schemes like RSBY which is meant for such workers. However, limited penetration of RSBY among PLHIV points to huge scope of improvement in expansion of coverage. However, there is a very high willingness to join RSBY scheme among all PLHIV. This clearly indicates that such schemes, if popularized and marketed well among this sub-population, can be of meaningful coverage use.

There are two important policy lessons for Government from this research. One, there are evidences that PLHIV face financial burden of treatment, but they are also willing to pay for alternative financing mechanism, if offered. It is up to Government to remove unfair practice of exclusion of HIV from health insurance sector in India . Second, majority of PLHIV continue to be from poor socio-economic background. Government must continue to fund the poor and other vulnerable PLHIV under their mass health insurance scheme at the state and national level.

Limitation of the Study

An important limitation of the research is the fact that the sample for the primary survey was drawn from purposeful sampling technique. Within specified time and resources, it was not feasible to select the sample using any systemic probability sampling techniques. However, all efforts were made to ensure the randomness in the sample wherever possible.

---

[3]As positive news in the discourse, The Standing Committee on Health and Family Welfare of the Rajya sabha recently submitted its report on the Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) (Prevention and Control) Bill, 2014 on April 29, 2015. The bill is now tabled in Lok sabha (Source; http://www.prsindia.org/uploads/media/HIV/SCR%20HIV%20and%20AIDS%20Prevention%20and%20Control%20Bill,%202014.pdf) . Among other things, the bill indicated that there should not be denial or unfair treatment in providing insurance cover to people living with HIV (PLHIV). The Committee has overruled this portion and recommended that '…all people living with HIV should be provided insurance cover without any discrimination, preferably at the normal rate of premium or could be slightly higher than normal, but not at exorbitant rates'.

References

ADB and UNAIDS. (2004). Asia-Pacific's Opportunity: Investing To Avert An HIV/AIDS Crisis. Manila: Asian Development Bank

Arur, A., Banke, K., Sulzbach, S., & Selvaraju, V. (2009). *Private sector utilization of HIV/AIDS services and health expenditures by people living with HIV/AIDS in India: Findings from five high-prevalence states*. Private Sector Partnerships-One project, Abt Associates Inc. Bethesda, MD. Retrieved from http://www.shopsproject.org/sites/default/files/resources/5360_file_FINAL_Private_Sector_Utilization_India.pdf

Batavia, A., Balaji, K., Houle, E., Parisaboina, S., Ganesh, A. K., Mayer, K., & Solomon, S. (2010). Adherence to Antiretroviral Therapy in Patients Participating in a Graduated Cost Recovery Program at an HIV Care Center in South India. *AIDS and Behavior, 14*(4), 794-798. doi: 10.1007/s10461-009-9663-6

Bhavsarl, A. B., & Srivastava, D. Economic burden of HIV/AIDS on households: Cross-sectional study in the context of Navi Mumbai, India. *Global Journal of Medicine and Public Health*, *4*(6), 1-11.

Bloom, D. E., & Mahal, A. S. (1997). Does the AIDS epidemic threaten economic growth? *Journal of Econometrics, 77*(1), 105-124.

Gupta, I., & Trivedi, M. (2014). Willingness to Pay for Health Insurance Among HIV-Positive Patients in India. *Applied Health Economics and Health Policy, 12*(6), 601-610.

Gupta, I., Trivedi, M., & Kandamuthan, S. (2009). Recurrent costs of India's free ART program. *HIV and AIDS in South Asia*, 191.

Gupta, I., Trivedi, M., Rudra, S., Joe, W., Peter, B., & Subiah, R. (2011). Implications and Feasibility of Commercial Health Insurance for PLHIV in India. In J. P. Narain (Ed.), *Three Decades of HIV/AIDS in Asia* (1 ed.). New Delhi: SAGE Publications Pvt. Ltd.

Gupta, I., Trivedi, M., Skill, C., Rau, A., Narang, A., & Mohan, H. (2006). Covering Treatment For HIV and AIDS in India: United Nations Development Programme.

IAI. (2013). Understanding demographic and medical needs of People living with HIV *An investigation report prepared by Research department, Institute of Actuaries of India*. Mumbai: Institute of Actuaries of India.

Joglekar, N., Paranjape, R., Jain, R., Rahane, G., Potdar, R., Reddy, K., & Sahay, S. (2011). Barriers to ART adherence & follow ups among patients attending ART centres in Maharashtra, India. *The Indian Journal of Medical Research, 134*(6), 954.

Kalichman, S. C., Simbayi, L. C., Kagee, A., Toefy, Y., Jooste, S., Cain, D., & Cherry, C. (2006). Associations of poverty, substance use, and HIV transmission risk behaviors in three South African communities. *Social Science & Medicine, 62*(7), 1641-1649.

Kumarasamy, N., Venkatesh, K. K., Mayer, K. H., & Freedberg, K. (2007). Financial burden of health services for people with HIV/AIDS in India. *Indian Journal of Medical Research, 126*(6), 509-517.

NACO. (2011). Annual Report 2010-11. New Delhi: Department of AIDS Control, Ministry of Health and Family Welfare.

NACO & NIMS. (2015). India HIV estimations 2015 - Technical Report. New Delhi: Ministry of Health and Family Welfare, Government of India.

Over, A. M. (2004). *HIV/AIDS treatment and prevention in India: modeling the costs and consequences*: World Bank-free PDF.

Pharoah, R., Richter, L., & Killian, B. (2011). *A Generation at Risk? HIV/AIDS, vulnerable children and security in Southern Africa*. Pretoria, South Africa: Institute of Security Studies (ISS).

Piot, P., Greener, R., & Russell, S. (2007). Squaring the circle: AIDS, poverty, and human development. *PLoS Medicine, 4*(10), e314. http://dx.doi.org/10.1371/journal.pmed.0040314

Pradhan, B., Sundar, R., & Singh, S. K. (2006). Socio-Economic Impact of HIV and AIDS in India. New Delhi: United Nations Development Programme.

Riyarto, S., Hidayat, B., Johns, B., Probandari, A., Mahendradhata, Y., Utarini, A., & Flessenkaemper, S. (2010). The financial burden of HIV care, including antiretroviral therapy, on patients in three sites in Indonesia. *Health Policy and Planning, 25*(4), 272-282.

Sarna, A., Pujari, S., Sengar, A., Garg, R., Gupta, I., & Dam, J. V. (2008). Adherence to antiretroviral therapy & its determinants amongst HIV patients in India. *Indian Journal of Medical Research, 127*(1), 28.

Sharma, V., Krishnaswamy, D., & Mulay, S. (2015). Consumption patterns and levels among households with HIV positive members and economic impoverishment due to medical spending in Pune city, India. *AIDS care, 27*(7), 916-920.

Shukla, M., Agarwal, M., Singh, J. V., Tripathi, A. K., Srivastava, A. K., & Singh, V. K. (2015). Catastrophic Health Expenditure amongst People Living with HIV/AIDS Availing Antiretroviral Treatment Services at Two Tertiary Care Health Facilities in District of Northern India. *National Journal of Community Medicine, 6*(3), 323-328.

Simon, V., Ho, D. D., & Abdool Karim, Q. (2006). HIV/AIDS epidemiology, pathogenesis, prevention, and treatment. *The Lancet, 368*(9534), 489-504.

Trivedi, M., & Gupta, I. (2012). HIV Insurability in India: Early History and Current Status. *Journal of Health Management, 14*(4), 435-450.

Ward, M. C. (1993). A different disease: HIV/AIDS and health care for women in poverty. *Culture, Medicine and Psychiatry, 17*(4), 413-430.

WHO. (2005). *What is the impact of HIV on families?* Copenhagen: WHO Regional Office for Europe.

Wong, M.-w. (2013). *Financial burden for HIV/AIDS patients to access antiretroviral therapy in Asian developing countries.* The University of Hong Kong (Pokfulam, Hong Kong).

Authors' Profile

Mayur Trivedi, Associate Professor, Indian Institute of Public Health, Gandhinagar, Ahmedabad, India has 13 years of experience in conducting and managing field research around thematic areas of health expenditure and health financing, economics of HIV and AIDS, costing of health interventions, and evaluation of healthcare interventions. He has co-authored some pioneering work around health insurance for people living with HIV in India. Currently, he is involved in teaching, training and research activities. He has keen interest in theater, photography, and film making. He explores opportunities to marry his hobby with his work. He has contributed to some innovative short films on contemporary health issues.

A Venkatraman, Associate Professor, Faculty of Management Studies, University of Delhi, Delhi, India has around two decades of organizational and academic experience. He is actively engaged in research, training, and consultancy in human resource development, and on health sector reform issues. He specializes in human resource management, public private partnership in provision of health services, and health services management. He has worked in an international NGO before joining academia. He has carried out research projects with WHO, World Bank, European Commission, and Population Council. He was awarded the Robert McNamara research fellowship of the World Bank in 2000-01. He has also been involved in training of government officials, corporate executives, and hospital administrators.