ITALIAN JOURNAL OF PUBLIC HEALTH

Pros & cons of micro health insurance to eradicate health problems in the Below Poverty Line (BPL) population: empirical evidence from India

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Abstract
Health insurance for poor people in the form of micro health insurance has emerged as a pathway to break the vicious circle of poverty in developing countries. Economists and policy analysts oppose micro health insurance on the grounds of the inherited feature of moral hazards in the insurance sector. In this paper we have tried to evaluate Rashtriya Swasthaya Bima Yojana (RSBY), an innovative mass level micro heath insurance initiative of the Indian Government that attempts to eradicate the healthcare problems of poor people. The results of the study shows that RSBY has helped to improve health outcomes of the poor population but, at the same time, the behavior of poor families towards the utilization of health care has also changed (a symptom caused by the presence of moral hazards). However, this changing behavior in the poor is morally and socially good and represents a step towards their attempt to improve their own living standard.

Key words: micro health insurance, India, below poverty line population

Introduction

Health security is increasingly being recognized as integral to any poverty eradication plan. Health risks probably pose the greatest threat to lives and livelihoods of poor households [1]. Typically, when a poor household experiences a health shock, their medical expenses rise and their contribution to household income and routine household expenditure declines [2-5]. Approximately 150 million people around the world experience financial catastrophe i.e. they are forced to spend more than 40% of their available income available on health care, after meeting their basic needs [6]. This low (nil) income and high medical expenses can also lead to debt, sale of assets, and removal of children from school in the poorest families. Thus, a short-term health shock can contribute to long-term poverty [7,8]. Due to scarcity and low income, these households generally avoid high-value care and often opt for low quality health care [9], which further leads to even poorer health outcomes and poverty.

Health insurance for poor people, in the form of micro health insurance, has addressed some of these problems in various developing countries [10-14]. By covering the cost of care after a health shock, health insurance cover does help to smooth consumption, reduce asset sales and reduce new debts, increase the quantity and quality of care sought, and to improve health outcomes [15]. But at the same time, while opting for micro health insurance, one has to consider the causal effects of health insurance on health outcomes.

The literature evaluating the impact of insurance in low-income countries is not just relatively limited but also rather unbalanced between different types of insurances [15]. The main emphasis in literature is on different types of health insurance schemes, and their impact on health care-utilization, out-of-pocket expenditure or social inclusion [1, 14, 16-23].

The impact of micro health insurance products can be measured in a number of dimensions: firstly, the level of protection the insurance provides when a shock occurs (ex-post) (for example, how well does a health insurance protect households from catastrophic spending in case of serious illness of a household member?). It directly impacts on households' ex-post risk coping mechanisms, and is the prime justification for households to undertake insurance. It helps households to keep consumption spending stable and avoid asset loss. The indicators for this practice may be represented by the penetration level of the micro-insurance product i.e. number of households insured, claim ratio and satisfaction level of the claimant after usage [24, 25]. Secondly, health insurance could impact on health seeking behavior of the insured which generally stems

from moral hazards in the insurance industry [26-28]. The Insurance markets' world-wide failure stems from either adverse selection or moral hazards [29]. Adverse selection generally occurs when a client undertakes insurance only when a problem is present or arises, and the insurer is unable to restrict this because of information asymmetry (the client knows something that s/he will not tell the insurer). Adverse selection is not much relevant in the micro health insurance schemes, as these products are designed only for the purpose of providing social security to the poor mass population [10, 11, 30]. However, moral hazards can cause serious impediments to the success of micro health insurance schemes, as experienced in some insurance schemes [13, 31].

Like several other developing (and industrialized) countries [10-14], the Indian Government has started a new health insurance scheme called Rashtriya Swasthaya Bima Yojana (RSBY) for those families and people Below Poverty Line (BPL) in the unorganized sector from April 1, 2008. The main objective of RSBY is to provide insurance cover to below poverty line (BPL) households that experience major health shocks that involve hospitalization [32]. In this paper we have tried to report the impact of the RSBY scheme in the initial phases since its implementation i.e. from April 2008 to April 2010.

The impact evaluation of RSBY reported below is not a full-blown official evaluation, but rather an opportunistic study based on both the primary and secondary data collected by the researchers, after looking into the irregularities that emerged during actual fieldwork, while carrying out a consulting assignment with an insurance company on the basis of above discussed parameters. Though it seems to be too early to assess the impact of the RSBY on the healthcare system in India, and if one takes a glance at the past record of the inability to achieve targeted results in various previous initiatives by the Indian Government and private health insurance schemes, it becomes a necessity to review the impact of RSBY. The findings of this study provide feedback on the government initiative and identifies the loopholes which can turn into moral hazards responsible for the ultimate failure of scheme.

The paper is organized as follows. Section II provides a brief description of the Indian Health Care System. Section III provides a brief description of RSBY scheme and its modus operandi Section IV summarizes the literature evaluating the impact of health insurance and outlines the methods used to estimate its impact. Section V presents the impact of the RSBY scheme in the form of targeting, utilization of scheme and healthcare services. Furthermore, we analyzed the results of the survey aimed at understanding the experiences, the satisfaction level of the beneficiaries and that of health service providers. These results shed light on the presence of the issue of moral hazards. The final section VI contains implications of the study and conclusions.

Healthcare system in India

The healthcare industry in India, comprising hospitals and allied sectors, is projected to grow 23 per cent per annum, with an estimated cost of US$ 35 billion in the year 2009 which is expected to touch US$ 77 billion by 2012 [33]. India's health care sector expenditure comprises 5.25% of the GDP and is the highest amongst developing countries [34]. The Health sector in India has registered a growth of 9.3% between 2000-2009, comparable to the sectoral growth rate of other emerging economies such as China, Brazil and Mexico [33]. The government's share in the healthcare delivery market is 20 percent while 80 percent is with the private sector [35].

After gaining independence in 1947, the Government of India (GOI) envisaged a national health system in which the state would play a leading role in determining its priorities and financing, and would provide services to the population [36]. The healthcare system in India is characterized by multiple systems of medicine, mixed ownership patterns and different kinds of delivery structures which range from world class hospitals to one room shacks. Public sector responsibility is divided between central and state governments, municipal and *Panchayat* local governments. Public sector health facilities include teaching, hospitals, secondary level hospitals, first-level referral hospitals [Community Health Centres (CHCs) or rural hospitals)], dispensaries; primary health centres (PHCs), sub-centres, and health posts. Other than the above-mentioned, public health facilities also include selected occupational groups like organized work force Employee State Insurance (ESI), Defence, Central Government Employees Health Scheme (CGHS), Railways, Post and Telegraph and Mines among others [37].

The Union Ministry of Health and Family Welfare (MoHFW) is responsible for the implementation of national programmes and sponsored schemes on healthcare, as well as providing technical assistance. There are three major departments that operate under MoHFW which are the Department of Health, Department of Family Welfare, and Department of Ayush. Department

of Health looks after health-related activities that include various immunization campaigns, control over various health bodies including National Aids Control Organisation (NACO), National Health Programme, Medical Education and Training, and international cooperation related to health issues. The Department of Family Welfare takes care of maternal and child health services; information, education and communication, rural health services; non-governmental organizations and technical operations, policy formulation, statistics, planning, autonomous bodies and subordinate offices, supply of contraceptives; international assistance for family welfare and urban health services, administration and finance for healthcare and family welfare department. The functional areas of the Department of Ayush includes an upgrading of the standards of education in the Indian system of medicines and homoeopathy colleges, and is involved in the strengthening of existing research institutions and ensuring a time-bound research programme for identified diseases for which these systems possess an effective treatment, drawing up schemes for promotion, cultivation and regeneration of medicinal plants used in these systems, and the evolution of pharmacopoeia standards for Indian systems of medicine and homoeopathy drugs [38].

In 2005, in the government healthcare services, there were 22,271 primary healthcare centers and 137,271 sub-centers in rural areas; 1,200 PSU (public sector units) hospitals, 4,400 district hospitals, and 2,935 community healthcare centers in smaller towns and cities as well as 117 medical colleges and tertiary care hospitals. The private healthcare providers mainly include private practitioners, for profit hospitals and nursing homes, and charitable hospitals. These private healthcare providers are numerous and fragmented. In the absence of a national regulatory body, some private providers practice without minimum standards and the quality of treatment varies from one provider to another. The average size of private hospitals/nursing homes is 22 beds, which is low compared to other countries (International Trade Administration, 2009).

The Government of India launched a 7 Year National Rural Health Mission (NRHM) (2005-12) in April 2005 aimed at improving the quality of life of rural citizens and at carrying out the necessary architectural correction in the basic health care delivery system. NRHM seeks to provide effective healthcare to the rural population throughout the country with a special focus on 18 states, which have weak public health indicators and/or weak infrastructure, and declares a commitment to rise public spending on health from 0.9% of GDP to 2-3% of GDP. Table 1 shows the key developments in Indian Healthcare System under NRHM from 2005 to 2009 [38].

No doubt that India's overall expenditure on health is comparable to most developing countries; but India's per capita healthcare expenditure is low due its large billion plus population and low per capita income. At the same time, healthcare infrastructure in India is still dominated by government hospitals; merely 15% of population is covered by a pre paid insurance scheme. Medical claim schemes have less than 3.5 million members; only 3.4% of the population is covered through ESI Scheme; only 5% population is covered by employer schemes; and 5% population is covered through community insurance schemes [39]. According to an estimate of World Bank (2005), 42% of India falls below the international poverty line of $1.25 a day (PPP, in nominal terms INR 21.6 a day in urban areas and INR 14.3 in rural areas). This means that a third of the global poor now reside in India [40]. This scenario is not likely to improve because of rising healthcare costs and India's growing population (estimated to increase from 1 billion to 1.2 billion by 2012). The Government of India has taken a landmark initiative to address these issues relating to poverty, promoting access to public health systems (especially for the vulnerable sections of the society) by launching a micro health insurance initiative called RSBY for the BPL families in the unorganized sector.

The Rashtriya Swasthya Bima Yojana (RSBY) scheme

The RSBY was launched by Ministry of Labour and Employment, to provide health insurance coverage to 60 million people living Below Poverty Line (BPL). The objective of the RSBY is to provide BPL households with protection from financial liabilities arising from health shocks that involve hospitalization. The RSBY brings together the Centeral (Federal) Government, State government, public and private hospitals, as well as insurance companies. Beneficiaries under RSBY are entitled to hospitalization coverage, up to approximately USD 667 (INR 30,000), for most of the diseases that require hospitalization. The Government has even fixed the package rates for the hospitals for a large number of interventions. Pre-existing conditions are covered from day one and there is no age limit. Coverage extends to five members of the family which includes the head of household, spouse and up to three dependents. Beneficiaries need to pay less than one USD (INR 30) as a registration fee while 75% of the premium is paid by Central Government and the remaining premium is paid

Table 1. Contributions of NRHM to the Indian Healthcare System (2005-2009). Adapted from [37].

Activity/Intervention	*Gain from NRHM*
Human Resources	7.49 lakhs Accredited Social Health Activists (ASHA) (community health workers) selected 7.05 lakhs ASHA trained up to 1st module and 5.65 Lakhs up to 4th Module; 5.20 lakhs ASHAs with drug kits in villages.
	8,624 MBBS Doctors , 2460 Specialist, 46,690 ANMs, 26,793 staff nurses, 7692 AYUSH Doctors , 3160 AYUSH paramedics added to the system under NRHM
Physical Infrastructure	9144 new health Sub Center buildings, 8997 up-grading of Sub Centre buildings, 1009 new PHC buildings, 2081 up-grading of PHC buildings, 435 new CHC buildings and 1255 up- grading of CHC building , 57 new District Hospitals and 387 up-gradating of District Hospitals have been taken up under NRHM.
Untied Grants for maintenance and local action.	All Health Sub Centers, PHCs, CHCs, Sub District and District Hospitals are provided untied grants to improve the facilities under the supervision of Panchayati Raj Institution and Rogi Kalyan Samitis at the facility levels. This has considerably improved the maintenance of facilities all over the country.
Pregnant Women Safety Scheme Janani Suraksha Yojana (JSY)	Considerable progress has been made in JSY. From 7.04 Lakhs women covered under JSY in 2005-06, the coverage in 2008-09 was 86.22 Lakhs, and 78.41 in 2009-10 so far, which is nearly one third of all deliveries in India every year
Mobile Medical Units	1031 MMUs under NRHM are working to provide diagnostic and outpatient care closer to hamlets and villages in remote areas
Emergency Medical transport and Ambulance systems	States have used NRHM funds to provide a variety of emergency transport systems and ambulances to improve timely attention hospital referral from households.
Doctors, Drugs and Diagnostics	NRHM has added doctors and paramedics on large scale leading to more care for patients. Availability of resources for drugs and diagnostics has improved with NRHM support to states.

by respective State Government. The selection of the insurer (a public or private insurance company licensed to provide health insurance by the Insurance Regulatory Development Authority (IRDA)) for a district or cluster of districts is effected by the respective State Government on the basis of a competitive bidding. The insurer is expected to cover the benefit package prescribed by the Indian Government through a cashless facility that in turn requires the use of smart cards which must be issued to all members. Insurance companies usually pledge to help those who qualify as smart card holders, in the form of a sub-contract to offer this service. The insurer is required to engage intermediaries which have a local presence, such as NGOs etc., in order to provide a grassroots outreach and assist members in utilizing the services after enrolment. The insurer is also required to provide a list of empanelled hospitals (both public and private hospitals) that have agreed to participate in the cashless arrangement. These hospitals are expected to meet certain basic

minimum requirements (e.g., size and registration) and must agree to set up a special RSBY desk that has a smart card reader and trained staff. The financial bid is essentially an annual premium per enrolled household. The insurer is compensated on the basis of the number of smart cards issued, i.e. households covered. Each contract is specified on the basis of an individual district in a state and the insurer agrees to set up an office in each district where it operates. While more than one insurer can operate in a particular state, only one insurer can operate in a single district at any given point in time.

The scheme has provided the participating BPL household with the freedom of choice between public and private hospitals. The scheme has been designed as a business model for a social sector scheme, with incentives built for each stakeholder that make the scheme expand and sustain it in the long run. The insurer is paid a premium for each household enrolled for RSBY. Therefore, the insurer has the motivation to enroll as many households as possible from the BPL list. This results in better coverage of targeted beneficiaries. A hospital has the incentive to provide treatment to large number of beneficiaries as it is paid per beneficiary treated. Even public hospitals have the incentive to treat beneficiaries under RSBY, as the money from the insurer is flowing directly to the concerned public hospital which they can then use for their own purposes. Insurers, in contrast, monitor participating hospitals in order to prevent unnecessary procedures or fraud resulting in excessive claims. The intermediaries, such as NGOs and MFIs, which have a greater stake in assisting BPL households, get paid for the services they render when reaching out to the beneficiaries. Overall, by paying only a maximum sum up to 17 USD (INR 750) per family per year, the Government is able to provide access to quality health care to the BPL population, and has created a healthy competition between public and private providers.

The scheme has used IT applications both for the rural setting and for the social sector on a large scale. Every beneficiary family has been issued with a biometric enabled smart card containing their fingerprints and photographs. All the hospitals empanelled under RSBY are IT enabled and connected to the server at the district Level. This will ensure a smooth data flow, allowing a monitoring of service utilization periodically. However, the OPD facilities are not covered under this scheme, but OPD consultation is free. Beyond consultation, if any expenditure is incurred in the OPD, which does not lead to hospitalization, it will be met by the beneficiaries. The scheme also includes transportation cost of approx. 2 USD (INR 100) per visit with an overall limit of approx 22 USD (INR 1,000) per annum. The scheme does not cover diseases that do not require hospitalization, like congenital external diseases, drug and alcohol induced illness, sterilization and fertility related procedures, vaccinations, war/nuclear invasion, suicide and naturopathy, *Unani, Siddha, and Ayurveda.* However, the aforementioned are only indicative in nature and it has been specified in the guidelines that there should be minimum exclusions and the list of exclusions would be negotiated between State and the Insurers and would be subject to assessment by the Approval and Monitoring Committee to ensure that the exclusion criteria would not be overly wide. So far, out of 29 states (including State of Delhi) in India, 26 States have initiated the RSBY program and 15,718,261 smart cards have been issued by May 31, 2010.

With a view to providing security to the beneficiaries, in terms of the charges levied for a particular treatment and standardization of the cost of each medical procedure, the listing of the medical procedures, and the cost thereof, have been set by the GOI. However, the cost of each medical procedure is not mandatory for the State, which can negotiate it separately with the insurance company who in turn would enter into a contract with the network hospitals accordingly. However, the States have been mandated to fix some cost. Therefore, there is no uniformity maintained throughout the country, but the cost has been fixed in each State with consideration of the suggestions given by the Central Government. Information on the transactions that take place each day at each hospital is uploaded through a phone line to a database on a district server. A separate set of pre-formatted tables are generated for the insurer and for the government respectively. This allows the insurer to track claims, transfer funds to the hospitals and investigate cases of suspicious claim patterns through on-site audits. Governments are able to monitor utilization of the program by members and, to some extent, begin to measure the impact of the program. Periodic reports are made publicly available on the internet and through published reports.

Literature review and research method

The literature review in this section is focused on reviewing the current state of health insurance research in terms of past evidence so as to measure the impact of health insurance. A special focus has been given to the studies where health insurance status is plausibly exogenous.

Unfortunately, rigorous evidence of the impact of health insurance is scarce. The majority of rigorous studies in this field are based on United States data and there are even fewer studies on the effects of health insurance in developing countries. We have followed Dercon [41], Levy and Meltzer [42, 43] and Levine [15] in both our choice of studies and in our main conclusions.

Several studies use changes in health insurance policy to measure the impact of health insurance on outcomes. A change in insurance status, due to a policy shift, can be considered exogenous to an individual, since the individual's actions do not affect policy. Earlier Fihn and Wicher [44] had studied insurance impact using the cancellation of some insurance benefits for former U.S. veterans in Seattle and some poor households in Los Angeles. In both cases, health status of the insured was not strongly correlated with the choice by the Seattle VA Medical Center and the state of California, respectively, to withdraw insurance coverage. They found that the cancellation of insurance for both groups of people was associated with reduced use of medical care and increases in blood pressure. Lichtenberg [45] and Card [46] studied the effect of Medicare by comparing health and health care outcomes of people just below 65 (many of whom lacking health insurance) to outcomes of those just over 65 (all of whom are covered by Medicare). Both papers found that the group with more insurance received more care and had better health outcomes (although the reductions in mortality were often not statistically significant in the Card, et al. study{44]). Finkelstein [47] found that health care utilization increased fastest in areas where Medicare caused the largest increase in health insurance coverage; Finkelstein and McKnight [48] did not find such areas experiencing a faster decline in mortality.

The RAND Health Insurance Experiment (from 1974 to 1982) in the United States is one of the unique randomized experiments that examined the effects of health insurance on health outcomes. It studied almost 4000 people in 2000 families. During the experiment, some of the families were randomly assigned to a free health care plan. At the same time, others were assigned health care plan with varying co-payment options. The study found that the group with a cost-sharing plan sought less treatment than those with full coverage [49]. Respondents covered with the cost-sharing plan were primarily using the health insurance service mainly for preventive visits to doctors and "elective" care such as mental health treatment as opposed to emergency care (e.g. Keller [51]).

Hanratty et al. [52] compared health outcomes across the Canadian provinces (that were early adopters of universal health insurance (1962)) to outcomes in provinces that were later adopters (up to 1972). Her results suggested that there was a significant 4% reduction in the infant mortality rate as a result of this government health insurance program, and a smaller 1.3% reduction in the occurrence of low birth weight. Wagstaff and Pradhan [53] (evaluated the impact of health insurance on health outcomes (anthropometric indicators), health care utilization and non-medical consumption expenditure for households in Vietnam using panel data and propensity score matching. They found that voluntary health insurance had a positive impact on the height-for-age and weight-for-age of young school children, and led to an increase in non-medical household consumption.

Young et al. [54] highlighted the lack of a standard framework for measuring the impact of micro insurance, as well as various other difficulties in measuring this impact. For example, if a shock forces a household to sell livestock despite insurance, but insurance allows it to sell it later and at a better price, in this case the additional benefit of insurance is indirect, hence difficult to measure.

Though a firm causal relationship between insurance status and outcomes has yet to be established, many studies do present interesting evidence on the correlation between insurance status and outcomes. In all of these studies, the relationship tends to vary across income deciles. For the most part, other non-causal studies find a positive relationship between insurance coverage and health-care utilization [1, 55] and quality of care [14, 17].

However, it is clear that health insurance usually increases access to health care. The scattered results from the United States and other wealthy nations suggest that health insurance induces greater utilization of health services and modest improvements in health. It remains an open question whether and to what extent insurance in poor nations will increase health-care access and utilization, reduce financial vulnerability and improve health outcomes.

In this study, the impact evaluation of the RSBY mass level micro health insurance in rural India focuses the following major effects - healthcare utilization i.e. health facility utilization (eg. Penetration of RSBY scheme (No. of families enrolled); utilization of RSBY Scheme (No. of hospitalization); substitution to formal health facilities from self medication, unorganized

traditional medicine care (like *Vaidya; Ozha* etc); health outcomes (e.g., awareness and understanding related to benefits of RSBY scheme and its services among beneficiaries); experiences and satisfaction of beneficiaries and healthcare service providers related to utilization of RSBY scheme); economic outcome (e.g. fiscal burden on state and central government; claim ratio) and behavioral change resulting in moral hazards (e.g., substitution to private health facilities from public heath facility; unreasonable exploitation of RSBY benefits).

For this purpose, both qualitative and quantitative research approaches were utilized. To Study healthcare facility utilization and economic outcome, secondary data sources were used, including statistics published by the Ministry of Labour and Employment on the RSBY website related to state/district wise coverage of the RSBY scheme, cases of hospitalization, hospitalization amount etc. In order to measure health outcome and behavioural change, primary data was collected from both beneficiaries of the scheme and health care service providers i.e. Hospital/health centre administrators. The data was collected with the help of semi-structured schedules. The sampling unit for this scheme was a beneficiary of the RSBY scheme aged above 18 years, admitted in any empanelled private hospital in the states in which the first phase of scheme had been implemented. At the same time, hospital administrators of the same hospitals were also interviewed intensively. Due to availability of limited funds and resources, only a total of 397 beneficiaries in 24 hospitals and 24 healthcare service providers were approached. Out of the total beneficiaries approached, 49 beneficiaries who were not in a sound mental condition due to disease/drugs and that did not have any major attendant to help them respond properly, were excluded from the survey. From the remaining 348 respondents, 188 were females. The maximum number of respondents, 35%, was in the 31-40 year-old age group, followed by 23% from the 51-60 age group, 21% from the 41-50 year group and the remaining above 60 years. Approximately 7% of the respondents had a total household income below INR 10000 per annum and 18 % of respondents were in the category of INR 10,000-20,000; 45 % of the respondents had an annual household income between INR 20,000-30,000 per annum, and the remaining 30% of respondents were in the income bracket of more than INR 30,000/annum. To study and test the existence of changed behavior of the insured person, in terms of the utilization of healthcare facility which leads to moral hazards, the following hypothesis was formulated and tested:

Hypothesis 1: The utilization of Health care facility (No. of hospitalization) has increased after RSBY implementation.

Hypothesis 2: The preferences of the beneficiaries for a health care service provider has (i.e. from public to private) been changed due to micro health insurance (RSBY) in India.

For the purpose of analyzing the data, simple statistical tools like descriptive statistics, t test, correlation analysis etc. were utilized.

Impact of RSBY on BPL households

The impact of RSBY on BPL households was studied in terms of its impact on healthcare utilization, health outcomes, economic outcome and changing behavior of BPL households, with help of the following tool.

Impact of RSBY on healthcare utilization

Penetration of RSBY Scheme

Since initiation of the RSBY Scheme, so far, 26 States including 1 union territory (Arunachal Pradesh, Delhi, Rajasthan, Gujarat, Haryana, Bihar, Uttrakhand, Kerala, Punjab, Chhatisgarh, Karnataka, Maharashtra, Manipur, Sikkim, Tamilnadu, Uttar Pradesh, West Bengal, Jharkhand, Himachal Pradesh, Nagaland, Goa, Assam, Orissa, Tripura, Chandigarh and Meghalaya) have advertised about it. So far, out of these 26 states, the enrollment process and empanelment of hospitals has been initiated in 22 states. Out of a total 631 districts in India, BPL families residing in 399 districts were selected for obtaining RSBY cover (Table 2). Enrollment process of the scheme has been completed in nearly 50% of selected districts. Here, it is important to note that states in which the enrollment process has been completed, the total BPL families enrolled, out of the selected BPL population, are only about 57%. This shows that the penetration of the scheme has not been very high as expected. This might be due to very low level of awareness and education [16]among the masses about the benefits of the scheme, or perhaps to the complicated procedural or lack of sincerity in the implementation of the scheme. This issue requires further research in future endeavors. No doubt, after just 2 years of its initiation, out of nearly 52 million eligible Indian BPL families, only 29.49% of BPL families are currently covered by the RSBY scheme, but there is still a long way to go.

Utilization of health care facility under RSBY scheme

The RSBY scheme has used the public private partnership (PPP) model for the empanelment of hospitals in the scheme. Hence, both public

Table 2. Penetration of RSBY scheme among below poverty line households in India.

S. No.	State/UT	Number of districts				BPL families				
		Total #	Selected*	Enrollment complete*	Enrollment in progress*	in all districts^*	in selected districts*	Enrolled *	%age of BPL families covered in state	%age of Targeted BPL families covered
1	Andhra Pradesh	23	0	0	0	2,864,400	0	0	0.00%	-
2	Arunachal Pradesh	16	0	0	0	40,700	0	0	0.00%	-
3	Assam	27	4	1	3	1,050,300	371,346	127,064	12.10%	34.22%
4	Bihar	37	37	10	9	5,578,450	5,578,450	2,577,171	46.20%	46.20%
5	Chhattisgarh	18	16	13	3	2,220,717	2,220,717	974,701	43.89%	43.89%
6	Delhi	10	10	1	0	539,471	539,471	218,055	40.42%	40.42%
7	Goa	2	2	2	0	6,953	6,953	3,505	50.41%	50.41%
8	Gujrat	27	27	10	0	1,130,034	1,130,034	682,354	60.38%	60.38%
9	Haryana	20	20	19	1	1,146,942	1,146,942	691,197	60.26%	60.26%
10	Himachal Pradesh	12	12	2	9	286,924	286,924	218,202	76.05%	76.05%
11	Jammu and Kashmir	15	0	0	0	92,100	0	0	0.00%	-
12	Jharkhand	24	8	5	3	2,124,000	1,630,491	553,260	26.05%	33.93%
13	Karnataka	28	6	0	5	2,787,700	338,931	78,103	2.80%	23.04%
14	Kerala	14	14	14	0	1,767,205	1,767,205	1,173,388	66.40%	66.40%
15	Madhya Pradesh	50	0	0	0	4,646,800	0	0	0.00%	-
16	Maharashtra	35	29	27	2	6,558,000	3,461,175	1,515,561	23.11%	43.79%
17	Manipur	9	0	0	0	69,600	0	0	0.00%	-
18	Meghalaya	7	5	1	0	83,100	50,997	27,330	32.89%	53.59%
19	Mizoram	8	0	0	0	23,800	0	0	0.00%	-
20	Nagaland	11	4	3	0	66,800	49,970	39,301	58.83%	78.65%
21	Orissa	30	12	2	4	3,813,500	704,717	418,929	10.99%	59.45%
22	Punjab	21	21	19	2	451,935	451,935	170,191	37.66%	37.66%
23	Rajasthan	33	33	4	0	2,295,700	0	0	0.00%	-
24	Sikkim	4	0	0	0	24,600	0	0	0.00%	-
25	Tamilnadu	31	31	2	0	454,736	454,736	149,520	32.88%	32.88%
26	Tripura	4	4	1	3	303,335	303,335	211,238	69.64%	69.64%
27	Uttar Pradesh	70	70	58	11	9,717,452	9,717,452	4,651,461	47.87%	47.87%
28	Uttarakhand	14	14	2	0	117,940	117,940	53,940	45.74%	45.74%
29	West Bengal	19	19	4	2	1,913,767	1,913,767	879,002	45.93%	45.93%
30	Andaman and Nicobar (UT)	3	0	0	0	21,200	0	0	0.00%	-
31	Chandigarh (UT)	1	1	1	0	8,000	8,000	5,407	67.59%	67.59%
32	Dadra and Nagar Haveli (UT)	1	0	0	0	18,800	0	0	0.00%	-
33	Daman and Diu (UT)	2	0	0	0	5,300	0	0	0.00%	-
34	Lakshadweep (UT)	1	0	0	0	1,900	0	0	0.00%	-
35	Puducherry (UT)	4	0	0	0	55,700	0	0	0.00%	-
	India	***631***	***399***	***201***	***57***	***52,287,861***	***32,251,488***	***15,418,880***	***29.49%***	***47.81%***

Source: # National Informatics Centre [55], ^ Indiastat [56]; * RSBY [32].

and private health care providers have been empanelled under the scheme. So far more than 4,000 hospitals (out of which 75% hospitals are private hospitals) have been empanelled and more than half a million in population have obtained treatment in these hospitals. The high level of participation of private hospitals shows the success and acceptance of the scheme among private hospitals. The utilization of healthcare facilities under RSBY scheme is highest in the state of Karela and lowest in case of state of Assam (Table 3). The empanelment of the number of hospitals for BPL families in each state is very unequally distributed. In the state of Assam, one hospital is available for r 21,177 BPL families enrolled, whereas in state of Punjab the is one available hospital per 369 BPL families enrolled. Here, it can be argued that the state of Assam and Punjab cannot be compared due to a wide diversity between the two states in terms of geographical location, socio-cultural, economic development etc. But this is not so in state of Meghalaya, which is located in near vicinity of Assam, which has a similar environment, where the hospital availability rate was one for every 1,367 BPL families.

Nature of decease treatments under RSBY schemes

The primary survey data from 348 respondents shows that the insured BPL families are utilizing insurance cover most of the times (i.e. approx two third of respondents) for chronic diseases such as hernia, kidney diseases, hemorrhoids, hypertension, and nutritional deficiencies etc. Decease burden survey by PricewaterhouseCoopers (PWC) and Assocham confirm the same trend, that Chronic Diseases in India account for about 53% of all deaths and 44% of disability-adjusted life years (DALYs) [58]. The second most important use of RSBY cover is to get treatment for acute conditions like typhoid, dengue fever, diarrhea, typhoid, viral hepatitis, measles, malaria, and tuberculosis only. Just 2.3% of respondents got admitted because of an accidental condition. Among the nature of treatment received, both surgical and medical treatment have an almost equivalent share i.e. 46% surgical and 54% medical treatment in the surveyed sample (Figure 1).

Substitution of utilization of no/informal health facility to formal health facilities

Utilization of formal healthcare system is a basic necessity in eredicating poverty from a nation. In spite of economic growth, demographic transition and the growth of the Indian healthcare system, the death rate due to infectious and chronic degenerative diseases [59] has not decreased among the poor population. The trend is the same for non-utilization of formal healthcare services (including both public and private). During the survey, respondents were asked if they were suffering from chronic deceases "How many times you had got treated in last 2 years for any disease before getting this RSBY smart card?" Approximately 50% of respondents responded negatively. The major reasons for not having undertaken earlier treatment, in those who responded they had not been treated, were *"did not have money" and "non-availability of health facilities"*. Of the remaining 50% respondents who had undertaken treatment earlier, one third of them were treated by informal health practitioners like local *Vaidya, Ozha and Hakkims* etc. No doubt, with the introduction of the RSBY scheme, the accessibility to, and utilization of, the formal healthcare system has improved among BPL families, but at the same time still there is long way to go as most of the population (i.e. more than 70% of BPL population of India) has yet not been covered under the RSBY Scheme (Table 1).

Impact of RSBY scheme on health outcomes

Measuring health outcomes is a useful way to evaluate the performance of any new intervention created with the view to improve the healthcare system [60]. There are a wide range of important health outcomes. Historically, a reduction in mortality rate and disease burden have been regarded as the best health outcome measures [61]. However, reduction of disability [62,63], discomfort, and dissatisfaction now are also recognized as critically important outcomes [64,65]. Since the RSBY scheme was launched 2 years ago, it is not possible consider its impact on in terms of the reduction of mortality rate, disease burden, and disability. So other critical outcomes, comfort and satisfaction of beneficiaries in the form of experiences, awareness, understanding of benefits, and satisfaction of beneficiaries and healthcare service providers from the utilization of RSBY scheme, can be very useful measures of the impact in terms of health outcome in this initial phase of the scheme.

Awareness, understanding of benefits among beneficiaries

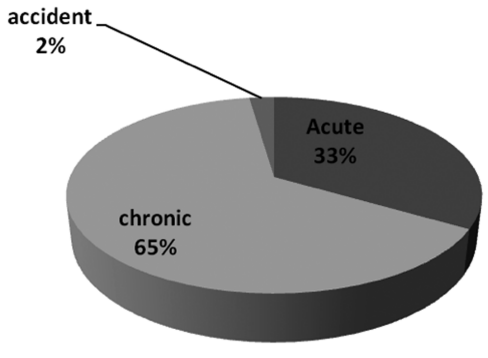
Increased awareness about a programme and its entitlements amongst the poor is likely to increase the mobilization of beneficiaries [66], a pre-requisite for the success of the scheme. During the primary survey, various questions related to source of information, motivations to apply,

Table 3. Utilization of healthcare facilities for RSBY scheme.

S. No.	State	No. of Empanelled Hospitals				No. of Hospitalization
		Private Hospitals	Public Hospitals	Total Hospitals	Enrolled BPL Families per Hospital*	
1	Assam	1	5	6	21,177	0
2	Bihar	204	14	218	11,822	40,093
3	Chandigarh	8	3	11	492	17
4	Chhattisgarh	84	174	258	3,778	4,952
5	Delhi	77	-	77	2,832	14,268
6	Goa	2	-	2	1,753	7
7	Gujarat	259	94	353	1,933	81,615
8	Haryana	403	21	424	1,630	51,703
9	Himachal Pradesh	23	122	145	1,505	2,053
10	Jharkhand	86	32	118	4,689	16,630
11	Karnataka	23	43	66	1,183	4
12	Kerala	157	133	290	4,046	157,887
13	Maharashtra	654	8	662	2,289	36,504
14	Meghalaya	5	15	20	1,367	31
15	Nagaland	5	-	5	7,860	1,765
16	Orissa	47	17	64	6,546	160
17	Punjab	316	145	461	369	3,649
18	Tamilnadu	32	-	32	4,673	4,842
19	Tripura	-	15	15	14,083	4,174
20	Uttar Pradesh	767	227	994	4,680	112,418
21	Uttarakhand	20	37	57	946	1,117
22	West Bengal	106	-	106	8,292	13,326
	Total	***3,279***	***1,105***	***4,384***	***3,517***	***547,215***

Source: RSBY [32] ; * Enrolled BPL Families per Hospital = No. of BPL Families enrolled in a state/ No. of hospital empanelled

Figure 1. Type of ailment.



knowledge of various entitlements under RSBY scheme, experiences related to getting a smart card for RSBY, and the utilization of this card at the time of hospitalization, were asked to beneficiaries.

The word of mouth spreading, interaction with ASHA, ANMs, AWWs, Aanganwadi Workers and Loudspeaker announcements were the most important source of information and knowledge about the RSBY scheme among beneficiaries. Free health cover and death in households due to chronic decease were the major source of motivation for applying for the scheme. Beneficiaries of the scheme are aware of the basics of the scheme, like the amount of total coverage available, number of family members covered, and amount required to pay for getting enrollment etc. But, at the same time, awareness related to various entitlements granted by the scheme like transportation allowances coverage, nature of treatments covered, coverage for expenses on Out Patient Department (OPD) treatment, amount of claim cover available for specific deceases etc., was very poor. This low awareness leads towards conflicts, moral hazards (over/mis utilization of health care facilities) and dissatisfactions among beneficiaries.

During interviews with hospital administrators, the same fact was confirmed by them as well. Hospital administrators have the opinion that most of the beneficiaries do not understand the concept of health insurance cover provided to them. Some of the healthcare administrators commented that beneficiaries considered the smart card as a bank debit card which has withdrawal limit up to 30,000 INR a year, and that this money would elapse if they did not utilize it in a year. This kind of misunderstanding is resulting in an excess and unnecessary demand for health care.

Experiences of scheme with beneficiaries

During the survey, various questions related to comfortableness, satisfaction, and experiences related to getting a RSBY scheme smart card, and utilization of this card at the time of hospitalization etc. were asked to the beneficiaries. Beneficiaries faced various problems at the time of enrollment for the card. Most of the problems faced were either related to lack of information, administrative shortcomings or ill behavior of the personnel involved. People had been faced with problems like no or insufficient information related to date, time and place of the displayed list of eligible families, location of enrollment station, traveling time and distance, how and when to use the card, rude behavior of officers etc. Some of the respondents also expressed that they felt very scared before enrollment because of the hi-tech technology involved in the enrollment process. However, most of the respondents appreciated the fast processing and quick issuance of the smart card and praised the government's efforts to help them. The interviewer noted this positive effect and felt a sense of achievement, pride and security among the beneficiaries of the scheme.

For most of the respondents who got treatment under the RSBY scheme, satisfaction level was very high due to no/less waiting time, good quality of foods provided, totally cashless hospitalization facility, and reimbursement of transportation cost. However, this scenario may not be the same in the public sector healthcare facility.

At the same time, hospital administrators faced many operational problems, mainly due to lack of awareness and understanding of procedures among beneficiaries. During interaction, some of the hospital administrators illustrated some cases to the interviewer which did not require any hospitalization/treatment but for which, nonetheless, beneficiaries were demanding admissions and treatments in hospital.

Impact of the RSBY scheme on economic outcome

To ensure the continuity and economic viability of the scheme, it is very important to analyze the economic outcome in terms of the financial burden on government and health insurance companies [15]. The amount spent on medical expenditures, i.e. hospitalization value, are consistently cited as a major economic burden for poor families [8, 67, 68], and health insurance is, at its core, a product meant to reduce the financial risk of health problems. Micro health insurance, hence, involves a direct economic burden initially placed on the insurance company who clears the hospitalization expenditure on the behalf of the insured and of the Government who pays the insurance premium on the behalf of the BPL household. Other than these direct costs, marketing and administration costs are the economic burdens involved in micro health insurance. Higher claim settlement rates and administration costs result in high claim/loss rates [69], casting doubts on the long-term sustainability of health insurance schemes [70, 71]. Table 4 illustrates the direct financial burden of the RSBY scheme on the Government (at present), in terms of total premium paid, total expected burden on completion of enrollment process; total medical expenditure incurred i.e. hospitalization value and claim ratio. Claim/Loss Ratio states like Gujarat, Haryana, and Kerala in which the enrollment process had been completed, showed a high claim ratio, even without considering

administrative cost which is very high. Though all India's average loss ratio is not very high, when calculating state average, the claim ratio reached as high as 760%. This high claim ratio is indicating a prevalence of over utilization of health services i.e. moral hazards, casting doubts on the long-term sustainability of the RSBY.

Impact of the RSBY scheme on behavior of BPL households

No matter whether a country is using private or public health care financing, the consumer pays only a small part of the total cost i.e. out-of-pocket on the occasion of consumption of the health service. While insurance companies pay for the bulk of the cost in case of a private system, government kitties are used if provision is public. But irrespective of how health care is financed, one fact will remain same, that once people have fallen ill they face incentives to consume more than optimal health care, since they do not have to pay the full marginal cost for the care they utilize [26, 28]. The health economics literature refers to this kind of behavior as a moral hazard [27]. To test if the same behavior emerged in the RSBY scheme, the above mentioned three hypotheses were tested.

Number of cases of hospitalization

During the survey beneficiaries were asked, "how many times could you, or any member of your family, not get hospitalized when intending to do so, in one year before getting this smart card?" Figure 2 suggests that 79% of the beneficiaries benefitted from the RSBY scheme. When asked reasons for the same behavior, casual attitude, lack of money and no faith on formal healthcare system were among the

Table 4. Direct financial burden of RSBY scheme.

State	*Hospitalization value*	*Total premium till date*	*Total expected premium burden*	*Claim/Loss ratio**
Bihar	163,153,924	1,397,096,500	2,860,229,511	26.26%
Chandigarh	147,000	3,037,653	4,494,400	4.84%
Chhattishgarh	20,111,640	559,592,964	1,273,861,851	49.34%
Delhi	49,235,221	144,570,465	357,669,273	40.87%
Goa	24,500	2,442,985	4,846,241	1.00%
Gujarat	280,211,705	358,967,798	590,159,552	88.37%
Haryana	251,418,106	426,524,192	698,305,128	64.61%
Himachal Pradesh	9,590,700	96,588,586	124,511,102	4.64%
Jharkhand	82,092,448	290,275,797	832,788,715	25.26%
Karnataka	1,000	37,120,794	161,087,126	0.01%
Kerala	489,662,387	596,081,104	897,740,140	80.31%
Maharastra	198,080,831	890,166,071	1,975,117,579	40.69%
Meghalaya	145,195	14,680,583	27,393,549	2.37%
Nagaland	13,472,653	26,881,884	34,179,480	52.79%
Orrisa	866,000	232,976,448	395,423,142	0.64%
Punjab	24,278,716	97,903,206	258,992,992	44.04%
Tamilnadu	11,049,377	76,554,240	232,824,832	14.09%
Tripura	9,846,590	124,651,544	178,997,984	25.99%
Uttarpredesh	659,676,400	2,950,049,595	6,163,002,407	48.35%
Uttrakhand	6,178,019	31,515,524	68,908,804	17.50%
West Bengal	71,526,200	401,487,000	596,416,500	19.31%
India	***2,340,768,612***	***8,839,751,461***	***17,972,465,367***	***29.60%***

Source: RSBY [32], * Loss/Claim Ratio = total hospitalization value/total premium paid*100

main reasons. Furthermore, this information hints towards a changed behavior of the beneficiaries (case of moral hazards) as the utilization of formal of health facilities has increased significantly after the micro health insurance cover under the RSBY. Similar changed behavior towards service utilization is also supported by National Sample Survey Organization 60th round data on number of hospitalization cases for Monthly Per Capita Consumer Expenditure (MPCE), less than INR 235 as well. The percentage of BPL population hospitalized across India has increased from 0.28% (in year 2005) to 2.69%, 2.39% and 1.5% of enrolled BPL population in the states of Kerala, Gujarat and Haryana respectively. Hence, hypothesis 1 about the increased utilization of the Health care facility (No. of hospitalization) after the RSBY implementation was supported.

Changing preferences of beneficiaries

When beneficiaries were asked "why had they preferred to get treated in a private hospital over a public hospital?", reasons other than the advice of the treating doctor and nearby location surfaced. This shows a change in preferences and behavior (moral hazards) of BPL families (Figure 3). Moreover, this moral hazard may also be a factor that is preventing BPL families from seeking advice from treating/referring doctors as well, because doctors know that revenue earned from hospitalization is more than treatment in OPD.

Furthermore, the beneficiaries were asked had they not availed the RSBY insurance cover whether they would have undergone treatment for the same condition in the same the hospital. As high as 80% of the beneficiaries responded i negatively, the reason being their inability to afford the cost of the treatment. Moreover, beneficiaries were asked "would you like to go to a government hospital after having this card for any other treatment?" Just 37% of beneficiaries had affirmative answers while the remaining respondents did not wish to get treated in government hospitals. These changed preferences and behavior showcase the presence of moral hazards in the RSBY scheme as well, like other health insurance schemes. Hence, hypothesis 2, is also supported, that beneficiaries are expressing a preference for certain health care service providers (i.e. from public to private) which has changed due to micro health insurance

Figure 2. BPL households' intention to get hospitalized but not being able to do so before the RSBY.

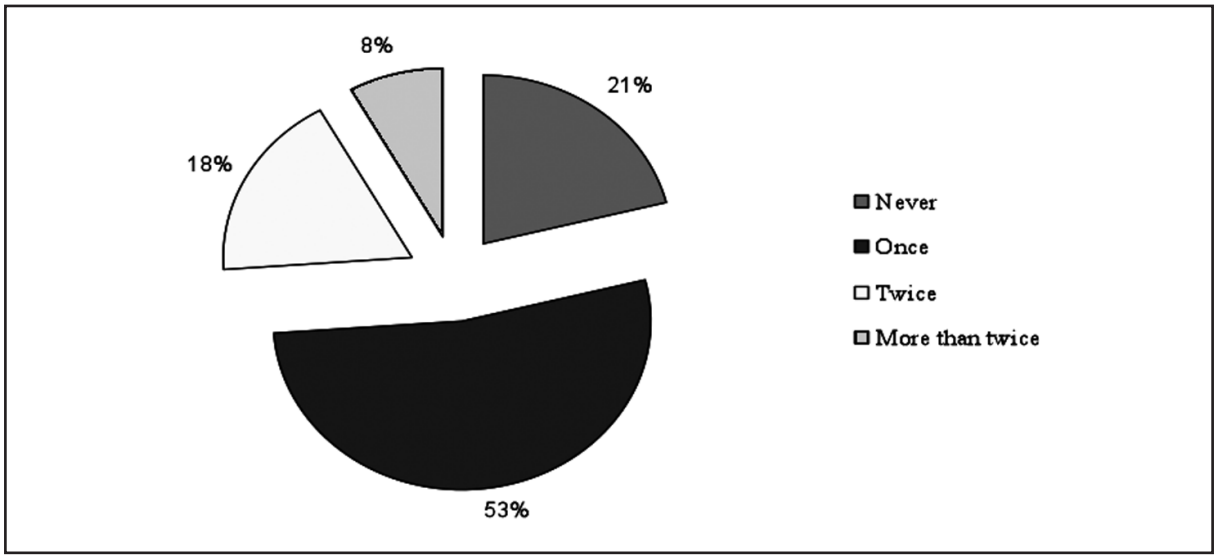
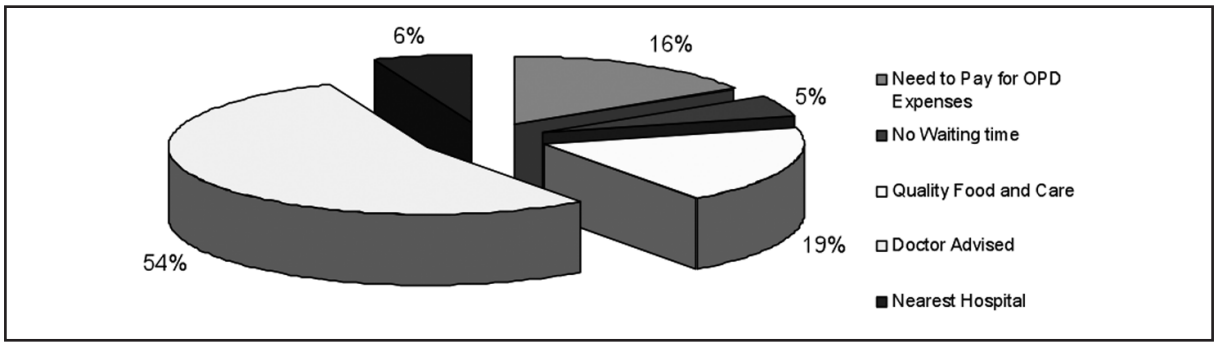


Figure 3. Reason for selecting private healthcare services over public healthcare services.



(RSBY) in India. Moreover, all the above data was tested by using a Student t-test at a 5% level of statistical significance and all results were found to be statistically significant.

Implications and conclusion

No doubt, the RSBY, a micro health insurance initiative of the Government of India does help in improving health outcomes for the poor population, but, at the same time, provokes a behavioral change in BPL families pushing them towards the utilization of certain types of healthcare services. From a social welfare status point of view, even this changing behavior towards an excess utilization, or a shifting towards better perceived healthcare facilities, is morally and socially good for improving the living standards of poor families.

However, one cannot completely ignore the economic outcomes of the same behavior for the sustainability of the scheme. The best solution would be one without moral hazard for these risk-averse poor families, and could be represented by a full cover insurance (i.e., no deductibles) [72]. In other words, if expenditure on treatment for preventive care (i.e. OPD expenditure) is to be covered in the scheme, poor people should not have any motivation to misuse the schemes' benefits. Practically, sometimes insurance companies feel reluctant to cover OPD facilities due to high administrative costs. During the survey, when respondents were asked whether they would like to spend an extra amount (i.e. around Rs. 25) in order to have OPD facility coverage, the response of 99% of respondents was affirmative.

In addition to the above, State Governments, the Department of Health and Family Welfare, and the Government of India are required to make efforts to improve the service quality in public health facilities so that people should not become biased towards preferring to receive treatment only in private healthcare facilities. Furthermore, central and state government, IRDA, NGOs, insurance companies, and empanelled hospital officials are required to make efforts to enhance the awareness regarding various benefits and entitlements to BPL households. At present, most of the BPL families with sub-standard health status are getting registered under the scheme due to which the claim/loss ratio is very high. Increased awareness will not only redress the grievances of beneficiaries and healthcare service providers, but will also help to enhance the policy base (i.e. the No. of enrolled families) through which the pooled money base for health insurance will be amplified.

No doubt, health insurance cover cannot change the probability of an adverse event, but it can mitigate the financial consequences of a health shock, especially in the case of a poor household [73]. Insurance as a social institution asks moral contemplation about suffering, compassion and enlarges the public conception of social responsibility. The basic premise of health insurance is a collective responsibility in the form of pooling money to pay for harms that befall individuals due to future health losses [74]. The health economists oppose health insurance due to the presence of moral hazards which enhance insurers' risk exposure [26,28]. Patients often rush for more health care believing that more care is better care; or to specialists because this means more competent care; or to more tests because this translates to more comprehensive results; and finally to more drugs and more treatments because these mean a longer, happier life. And patients do so because they believe their care is "free." But, at the same time, free health cover, in the form of micro health insurance, cannot be simply given, as moral hazards emerge especially for the people living in chronic poverty. Changing behavior, from poor to excess health service utilization, or a shifting towards better healthcare facilities is morally and socially good for improving the living standard of poor families and development of the society.

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