

Hedging The Health of The Poor

The Case for Community Financing in India

Anil Gumber

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Health, Nutrition and Population Discussion Paper

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Health, Nutrition and Population Discussion Paper

Hedging the Health of the Poor *The Case for Community Financing in India*

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Abstract: This paper reviews the existing community-based and self-financing health insurance schemes in India catering to the general population as well as addressing the needs of the poor and vulnerable section of the society. Also discussed are some critical issues of accessibility and use of health care services, out-of-pocket expenditure on treatment and the need for health insurance for poor households pursuing varied occupations in both rural and urban areas. The paper examines in detail the determinants of enrollment in the community-based financing scheme, using the household-level data from the pilot study undertaken in Gujarat (India). It also investigates the issue of how much health insurance mitigates the households' burden of health care expenditure. The findings suggest that the community plan fairly addresses equity in enrollment but that, in terms of providing financial protection, social insurance coverage is much more successful.

Keywords: burden of ill-health, community financing, financial protection, health care utilization, health insurance, household health expenditure, poor, Self-Employed Women's Association, social insurance

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PREFACE

In January 2000, Dr. Gro Harlem Brundtland, Director General of the World Health Organization (WHO), established a Commission on Macroeconomics and Health (CMH) to provide evidence about the importance of health to economic development and poverty alleviation.

This HNP Discussion Paper is based on a Report on community financing submitted in September 2001 to Working Group 3 of the CMH. The mandate of Working Group 3 was to examine alternative approaches to domestic resources mobilization, risk protection against the cost of illness, and resource allocation. The working group was chaired by Professor Alan Tait (Former Deputy Director of Fiscal Affairs, International Monetary Fund, and currently Honorary Fellow at University of Kent at Canterbury and Honorary Fellow at Trinity College, Dublin) and Professor Kwesi Botchewey (Director of Africa Research and Programs at the Harvard Center for International Development).

Professor Jeffery D. Sachs (Chairman of the Commission and Director of the Harvard Center for International Development) presented the findings of the CMH in a Report that was submitted to WHO on December 20, 2001—[*Macroeconomics and Health: Investing in Health for Economic Development*](#).

The Report of the CMH recommended a six pronged approach to domestic resource mobilization at low-income levels: “(a) increased mobilization of general tax revenues for health, on the order of 1 percent of GNP by 2007 and 2 percent of GNP by 2015; (b) increased donor support to finance the provision of public goods and to ensure access for the poor to essential health services; (c) conversion of current out-of-pocket expenditure into prepayment schemes, including community financing programs supported by public funding, where feasible; (d) a deepening of the HIPC (Highly Indebted Poor Countries) initiative, in country coverage and in the extent of debt relief (with support from the bilateral donor community); (e) effort to address existing inefficiencies in the way in which government resources are presently allocated and used in the health sector; and (f) reallocating public outlays more generally from unproductive expenditure and subsidies to social-sector programs focused on the poor.”

Most community financing schemes have evolved in the context of severe economic constraints, political instability, and lack of good governance. Usually government taxation capacity is weak, formal mechanisms of social protection for vulnerable populations absent, and government oversight of the informal health sector lacking. In this context of extreme public sector failure, community involvement in the financing of health care provides a critical albeit insufficient first step in the long march toward improved access to health care by the poor and social protection against the cost of illness.

The CMH stressed that community financing schemes are no panacea for the problems that low-income countries face in resource mobilization. They should be regarded as a complement to—not as a substitute for—strong government involvement in health care financing and risk management related to the cost of illness.

Based on an extensive survey of the literature, the main strengths of community financing schemes are the degree of outreach penetration achieved through community participation, their contribution to financial protection against illness, and increase in access to health care by low-income rural and informal sector workers. Their main weaknesses are the low volume of revenues that can be mobilized from poor communities, the frequent exclusion of the very poorest from participation in such schemes without some form of subsidy, the small size of the risk pool, the limited management capacity that exists in rural and low-income contexts, and their isolation from the more comprehensive benefits that are often available through more formal health financing mechanisms and provider networks.

The work by the CMH proposed concrete public policy measures that governments can introduce to strengthen and improve the effectiveness of community involvement in health care financing. This includes: (a) increased and well targeted subsidies to pay for the premiums of low income populations;

(b) use of insurance to protect against expenditure fluctuations and use of re-insurance to enlarge the effective size of small risk pools; (c) use of effective prevention and case management techniques to limit expenditure fluctuations; (d) technical support to strengthen the management capacity of local schemes; and (e) establishment and strengthening of links with the formal financing and provider networks.

The report presented in this *HNP Discussion Paper* has made a valuable contribution to our understanding of some of the strengths, weaknesses, and policy options for securing better access for the poor to health care and financial protection against the impoverishing effects of illness, especially for rural and informal sector workers in low-income countries.

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This paper further explores household-level data of NCAER-SEWA study on “Health Insurance for Workers in the Informal Sector.” We are thankful to the Ford Foundation (the Sponsor) and the SEWA as our collaborator in the primary fieldwork in Ahmedabad. The author would also like to thank Ms. Shakun Datta for providing assistance in extracting results of multinomial logit models through STATA software. The authors are grateful to the World Health Organization for having provided an opportunity to contribute to the work of the Commission on Macroeconomics and Health and to the World Bank for publishing the report as an *HNP Discussion Paper*.

I. INTRODUCTION

More than 90 percent of Indian population and almost all the poor are not covered under any health insurance scheme. Their health care needs are met primarily through direct out-of-pocket expenditure on services provided by the public and private sectors. However, various studies on the use of health care services show that the poor and other disadvantaged groups (scheduled castes and scheduled tribes) are forced to spend a higher proportion of their income on health care than the better-off. For the disadvantaged, the burden of treatment, especially inpatient care, is disproportionately heavy (Visaria and Gumber 1994). The high incidence of morbidity cuts their household budget both ways: in the large amounts of money and resources they have to spend on medical care and in the earnings they have to forgo during periods of illness. Often they have to borrow funds at very high interest rate to meet both medical expenses and other household consumption needs. One possible consequence of this could be pushing these families into a zone of permanent poverty.

There are also concerns about problems in accessibility and use of subsidized public health facilities. Most poor households, especially the rural ones, reside in backward, hilly, and remote regions where neither government facilities nor private medical practitioners are available. They have to depend heavily on poor quality services provided by local, often unqualified practitioners and faith healers. Further, wherever accessibility is not a constraint, the primary health centers are generally found to be either dysfunctional or providers of low-quality services. The government's claim to provide free secondary and tertiary care does not stand up; in reality, patients are charged for various services (Gumber 1997).

Estimates based on a large-scale health care utilization survey of 1993 suggest that overall about 6 percent of household income is spent on curative care, which amounts to Rs. 250 per capita per annum (Shariff et al. 1999). However, the burden of expenditure on health care is unduly heavy on households in the informal sector, indicating the potential for voluntary comprehensive health insurance schemes for these segments of the society.

Overall, health insurance coverage is low. Only 9 percent of the Indian workforce is covered by some form of health insurance (through CGHS, ESIS and *Mediclaim*), and most of those insured belong to the organized sector (Gumber 1998). Health insurance coverage is so sparse because government policy has been to provide free health services through public hospitals, dispensaries, and clinics. In reality, public sector providers charge patients for various services, and outreach is also poor. According to estimates based on the National Sample Survey (NSS) 1986–87, 42 percent of inpatients and 30 percent of outpatients using public sector facilities had paid for various services; the percentages varied substantially between rural and urban areas and among states (Gumber 1997). Further, health care costs have increased enormously. A comparison of NSS data for 1986–87 and 1995–96 suggests that the cost of inpatient care and outpatient care grew annually at 26-31 percent and 15-16 percent, respectively, putting severe strains on efforts to achieve equity in health care (Gumber 2001).

Nongovernmental organizations (NGOs) and charitable institutions (not-for-profit) have played an important role in delivery of affordable health services to the poor, but their coverage has always been small. The issue is how to reach the unreached and how to ensure that the uninsured to get at least a minimum of affordable quality services.

The public insurance companies so far have paid very little attention to voluntary medical insurance due to low profitability, high risk, and lack of demand. From the consumer point of view, insurance coverage is low because information about the private insurance plans is lacking, and the mechanisms used by the health insurance providers are not suitable to consumers. Further, in comparison to the Employees' State Insurance Scheme (ESIS) and to the community-based schemes as well, the private plans cover a modicum of benefits (Table 1), i.e., only hospitalization and that, with many exclusions

(e.g., preexisting conditions). One analysis suggests that the existing voluntary health insurance plans cover only between 55 and 67 percent of the total hospitalization costs and, on average, only 10 to 20 percent of the total annual out-of-pocket expenditure on health care (Gumber 2000a).

Table 1 Type of Health Care Burden on Households Covered by Health Insurance Schemes

Type of Care/Cost		ESIS	SEWA	Mediclaim
Inpatient	Medical	✓	✓	✓
	Transport and other direct cost	✗	✗	✗
	Loss of earnings	✓	✗	✗
Outpatient	Medical	✓	✗	✗
	Transport and other direct cost	✗	✗	✗
	Loss of earnings	✓	✗	✗
Preventive and promotive	Immunization	✓	✗	✗
	Ante- and Post-natal care	✓	✗	✗
	Maternity care	✓	✓	✗
	Family planning	✗	✗	✗

Note: SEWA and Mediclaim are reimbursement plans (subject to the sum assured) whereas ESIS is a facility-based plan.

Gender bias in use of health care persists. Men have better access than women for various socioeconomic and cultural reasons. Poor women are most vulnerable to diseases and ill-health because they live in unhygienic conditions, carry a heavy child-bearing burden, place little emphasis on their own health care needs, and encounter severe constraints in seeking health care for themselves. Institutional arrangements have so far been lacking in correcting these gender differentials. A pioneering study undertaken by Gumber and Kulkarni (2000) looked into issues related to the availability and needs of health insurance coverage for the poor, especially women, and the scope and likely problems in extending current health insurance benefits to workers in the informal sector.

This paper attempts to review existing community-based and self-financing health insurance schemes in India that serve the general population and address the needs of the poor and vulnerable. Also discussed are some critical issues of accessibility and use of health care services, out-of-pocket expenditure on health care, and the need for health insurance for poor households pursuing varied occupations in both rural and urban settings. The paper examines in detail the determinants of enrollment in the community-based financing scheme, using household level data from the pilot study. It also investigates the issue of how much health insurance mitigates the households' burden of health care expenditure.

II. COMMUNITY FINANCING IN INDIA AND THE SEWA PROGRAM

Community and self-generated financing programs are usually run by NGOs or nonprofit organizations. These organizations rely on financing from various sources, including government, donor agencies, and community and self-generated sources. Among the many innovative methods being used to finance health care services are progressive premium scales, community-based prepayment and insurance schemes, and income-generating schemes. These organizations' target population for health care services is primarily workers and families outside the formal sector. Program revenue comes from the following sources:

- *user fees*, defined as the payment made by the beneficiaries directly to the health care provider (e.g., fees for services or prices paid for drugs/immunization). This mode of financing is not common.
- prepayment/insurance schemes, including payment by members for drugs either at subsidized rates or at cost.
- commercial schemes for-profit actively run by health care finance organizations.

- fund-raising activities by organizations to pay for health care services. This type of revenue is more than 5 percent of some organizations' total funding.
- contributions in kinds (e.g., rice, sorghum, community labor). Because this method is hard to manage, it is not very popular.

Other sources of community-based and self-financing include the Tribhovandas Foundation, which provides health care through village milk cooperatives, and Amul Union (the milk cooperative organization), which puts a cess on milk collection to pay for health care.

Tables 2 and 3 describe select schemes. Most of the successful case studies (Dave 1991) happen to be in the states of Assam, Gujarat, Maharashtra, Orissa, Tamil Nadu, and West Bengal. The experience of such schemes could be useful for understanding their merits and disadvantages and their potential for replication in other states. The most pertinent point about these schemes is their rural orientation and ability to mobilize resources in a village community. However, most of these schemes have served only a small segment of the population and their health coverage has been restricted to elementary, preventive, and maternal and child health (MCH) care.

Table 2 Salient Characteristics of Selected NGO-Managed Health Insurance Schemes

<i>Voluntary organizations/ location</i>	<i>Date started</i>	<i>Service provided</i>	<i>Health service delivery/organization</i>	<i>Population served</i>	<i>Total annual cost (Rs.)</i>
Sevagram/ Wardha, Maharashtra	Hospital, 1945 Community health program 1972	1. 500 bed hospital 2. Out reach community health program	— Trained male VHW provides basic curative, preventive and promotive health care. Mobile with doctor and ANM provides care every 2 months	— 19457	— 69459
Bombay Mother and child welfare society (BMCWS)/ Chawla in Bombay	1947	Health activities, Two maternity hospitals (40 beds each) with child welfare centers, Non- health activities, Day care centers, convalescent home	. outpatient and inpatient maternity care . Outpatient pediatric care including immunization		120175 (health and non health combined)
Raigarh Ambikapur Health Association (RAHA)/ Raigarh, Madhya Pradesh	1969 Community health services started 1974	Federation of 3 referral hospitals and 65 independent health centers with outreach community care	. RAHA functions include management of insurance scheme, training and support for health centers. . health centers staffed by nurse provide outpatient care run MCH clinic . VHWs provide community based care	400000	30000- 50000 (cost range of individual health centers of which there are 65)
Christian Hospital/ Bissamaucuttak, Orissa	Hospital 1954, out reach community care 1980	120 bed hospital, community project currently not operational	Outpatient/inpatient care, specialties include obstetrics, gynecology, surgery, ophthalmology	—	1911740 (hospital only)
UPASI Coocnoor, Tamil Nadu	19 th century CLWS - 1971	Association of tea growers run comprehensive labor welfare scheme (CLWS)	CLWS provides training, management support to health programs of individual tea estates. Tea estates have small cottage hospital and outreach care provided by local workers.	250000	300000
Goalpur Co- operative Health Society Shanthiniketan, West Bengal	1964	Dispensary, periodic community health services	Doctor provides outpatient care twice weekly	1247	32000
Students health home West Bengal	1955	Polyclinic plus 28 regional clinics	Polyclinic has 20 beds provides outpatient and inpatient care; Regional clinics, outpatient care only, health education campaigns, blood donation camps.	550000	2950745

Saheed Shabsankar Saba Samithi (SSSS) Burdwan, West Bengal	1978	Dispensary occupational health activities, rural health program, school health program, fair price medicine shop	Doctors provide outpatient care weekly MCH clinic.	—	87780
Arvind eye hospital Madurai, Tanil Nadu	1976	2 Urban hospitals (100 beds), 2 rural hospitals (500 beds), outreach program	Outpatient and inpatient eye care Regular eye camps organized	—	10987700
Tribovandas Foundation Anand, Gujarat	1980	Community based health program linked with milk cooperatives, regional rehabilitation centers, Balwadis women's income generating scheme	CHWs provide basic curative, preventive and promotive care; field supervisors provide support to CHWs milk society building used as base for coordinating health services.	300000	1080000 (health and non health combined)
SEWA Ahemadabad, Gujarat	Union 1972, health program 1984	Union of self employed women. Helps organize women into cooperatives of various traders, provides credit facilities. Provide health care as a support which stocks rational generic drugs.	Health centers in urban slums and rural villages. CHWs provide basic care, doctors provide support twice weekly.	63000	391850 (health program only)
CINI Daulatpur, West Bengal	1975	Community based health programs, dispensary and outreach rehabilitation centre. Other activities: income generating schemes, farm, health training, research	CHWs provide MCH care through Mahila Mandals, doctors run daily OPD, weekly MCH clinic, supplementary feeding	70000 (Community health project)	1900000

Source: Dave (1991).

Table 3 Prepayment and Insurance Mechanisms in Selected NGO-Managed Health Insurance Schemes

Features	Sevagram	RAHA	Tribovandas Foundation	Goalpara	Students health home	SSSS
Coverage provided	Household	Individual	Household	Household	Institutional and individual	Individual
Annual subscription fee	8 payali sorghum (landless) and 2 payali sorghum per acre extra(land holders), or equivalent cash.	Rs.5 or Rs.2 rice	Rs.10	Rs.18 in cash or in kind (rice or labor)	Rs.2 Institutions Rs.6-Individuals	Rs.2 or Rs.5
Number of members	At least 75% of households (23 villages covered) Total insured 14390	75000	Approximately 1/5 to 1/6 of all households in villages, (319 villages covered)	150 out of 175 households in village	630 institutes total 350000 students covered	6800
Member entitlement	Community care : free CHW services, drugs and mobile (doctor +ANM) services. Hospital : free care for unphased illness episodes., 25% subsidy for anticipated illness episodes, e.g., pregnancy and chronic ailments.	Community care: free CHW services and drugs. Free health center services including MCH clinic Hospital : free care after paying entrance fee up to ceiling of Rs.1000	Community care : free services , subsidized drugs. Hospital: 50% subsidy	Dispensary: Free doctor consultations, drugs at cost. Free periodic public health activities	Polyclinic/regional clinics: free consultations, drugs, diagnostic tests, operations, bed stay at nominal charges	outpatient clinic: free consultations , drugs at cost, free MCH care
Non-member entitlement	Non-members not entitled to use community health services	Non-members charged for drugs (over cost), not entitled to attend MCH clinic	Non-members have same emoluments to community services as	Non-members charged for drugs (over cost)	Non-members not entitled to avail of services	Non-members are not entitled to avail the services

		MCH clinic	services as members but not hospital care			services
Management of fund	VHW responsible for membership collections, Collections once a year at harvest time. Compulsory that 75% of villages covered.	Individual health centers responsible for membership collections. Collections once a year. New members waiting period 2 months before services entitlements Rs.3 retained by center, Rs.2 to RAHA for referral fund.	VHW services responsible for membership collections. Collected once a year at times-bonus payments distributed (non adult society members can also enroll in scheme	Village health communities — funds collections once a year.	Institutions enrolled once a year. Individuals ongoing (no waiting period)	Able to enroll through the year. No waiting period between enrollment and service entitlements.

Source: Dave (1991)

Microcredit Linked Health Insurance Schemes

Several NGOs and governments in developing countries have started microcredit schemes for vulnerable groups to break the vicious circle of poverty, malnutrition, disease, low productivity, and low income. Microcredit is now considered not only an effective tool for reducing poverty but also as an instrument for empowering the poor, especially women. This operation generates income for the poor by extending small credits for self-employment and other economic activities. However, loan repayments by these groups were far below the expected level. The experience suggested that ill-health, expenditures on treatment, and associated consumption needs were the prime reasons for defaults. To stop the erosion of borrowers' income by health care needs, some NGOs (such as Grameen Bank in Bangladesh and SEWA in India) have introduced health insurance schemes for their members. The Grameen Bank Health Program was started in 1994 to adopt disease-prevention measures, to arrange for minimum-cost treatment, and to build a nonprofit primary health care system. Under this scheme, the borrowers were asked to pay a fixed annual amount of 60 Taka per family as a premium and a trivial sum at the time of use. The scheme has proven to meet the desired objectives (Rahman 2000).

In India, SEWA is a trade union of 2,15,000 women workers in the informal sector. It organizes them at the household level toward the goals of full employment and self-reliance. Full employment includes social security, which in turn incorporates insurance. SEWA's experience repeatedly revealed that, despite their efforts to escape from poverty through enhanced employment opportunities and increased income, women were still vulnerable to various crises in their lives. Their efforts were repeatedly frustrated by crises such as sickness, the death of a breadwinner, or accidental damage to and destruction of their homes and work equipment. Too often, maternity also becomes a crisis for a woman, especially if she is poor, malnourished, and lives in a remote area. One of the SEWA studies observed that women identified sickness of themselves or of their family member as the major stress event in their lives (Chatterjee and Vyas 1997). It was also a major cause of indebtedness among women.

The health insurance program was, from the start, linked to SEWA's primary health care program, which includes occupational health services. Thus, insured members also have access to preventive and curative health care with health education. Health insurance accounts for most of the claims and for 50 percent of the premium paid out to the insurance program by SEWA members. The scheme was introduced by the SEWA Bank in March 1992 with an initial enrollment of 7,000 women from Ahmedabad City (Chatterjee and Vyas 1997). Later extended to cover rural woman from nine districts of Gujarat, it now enrolls 30,000 women, half of them rural dwellers.

Health insurance is an integral part of SEWA's insurance program. The main motivation for initiating a health insurance scheme for women is that maintaining an active, health-seeking behavior is a vital component for ensuring a good quality life and women tend to place a low priority on their own health care needs.

The SEWA health insurance program includes maternity coverage, hospitalization coverage for a wide range of diseases, and coverage for occupational illnesses and diseases specific to women (Table 4). It covers diseases that are not covered by the GIC's *Mediclaim* plan and also provides life and asset insurance for the woman, her husband, or, in case of widowhood or separation, for other household members. Administrative procedures under the plan are simplified.

Table 4 Coverage under SEWA Scheme

<i>Provider</i>	<i>Description of coverage</i>	<i>Coverage amount (Rs.)</i>	<i>Premium (Rs.)</i>
New India Assurance	Accidental death of the woman member	10,000	3.50
	Loss of assets		
	Accidental death of a member's husband	10,000	3.50
SEWA	Loss during riots, fire, floods, theft, etc.:		8.00
	(a) of work equipment	2,000	
	(b) of the housing unit	3,000	
	Health Insurance (Including coverage for:	1,200	30.00
	(a) gynecological ailments		(10)
(b) occupational health related diseases)		(5)	
	Maternity benefits	300	—
Life Insurance Corporation of India	Natural death	3,000	15.00
	Accidental death	25,000	

Note: Total premium for the entire package is Rs. 60 plus a service charge of Rs. 5.

SEWA health insurance scheme functions in coordination with Life Insurance Corporation of India (LIC) and New India Assurance Company (NIAC). SEWA has integrated the schemes of LIC and NIAC into a comprehensive health insurance package to address women's basic needs. The claimants are the needy health-benefits seekers and as the insurance is an additional benefit, the beneficiaries willingly pay the premium. Most of the insurers opt for a fixed deposit of Rs. 500 or Rs. 700 (depending upon the type of coverage) with the SEWA Bank; accrued interest on the deposit goes toward the annual premium. The SEWA Bank's large membership and assets enabled it to provide this insurance coverage at low premiums.

III. RESEARCH DESIGN AND METHODOLOGY

3.1 RESEARCH DESIGN

This paper is based on a primary household survey undertaken in Ahmedabad district of Gujarat in 1998–99. The survey covered about 1,200 households from rural and urban areas. The households were stratified into four categories according to health insurance status. About 360 households belonged to a contributory plan known as Employees' State Insurance Scheme (ESIS) for industrial workers. Another 120 households subscribed to a voluntary plan (*Mediclaim*), and 360 households were members of a community-based financing scheme run by an NGO, the Self Employed Women's Association (SEWA). The remaining 360 households were uninsured and were purchasing health care services directly on the market. This last subsample was taken to serve as a control group. The idea of selecting such stratification was to understand the varying health needs, access to health services, treatment pattern and the types of benefits received by sample households under the different health insurance environment.

The survey was conducted in eight slum-dominated localities in the city of Ahmedabad and six neighboring villages. On an average, 60 households per village and 90 households per urban locality were selected. The criterion for selecting a village or an urban locality was that the settlement should have a cluster of households covered by the SEWA and ESIS plans. The sample canvassed from each settlement included about equal numbers of households from the ESIS, SEWA, and uninsured

categories (20 each from a village and 30 each from an urban locality). The sample was purposive and no house listing prior to the survey was carried out. On the other hand, the sample of Mediclaim/Jan Arogya beneficiaries belonging to Ahmedabad city was selected from the list of subscribers obtained from the offices of two companies, the United India Insurance and New India Assurance.

3.2 METHODOLOGY

3.2.1 Determinants of participation in mutual health organizations

$$Prob(membership > 0) = X\beta + \varepsilon \quad (1)$$

where X represents a set of independent variables that are hypothesized to affect membership in community based schemes. These variables include income, gender, age, marker on chronic illness or disability. β is a vector of coefficient estimates and ε is the error term.

3.2.2 Level of financial protection provided by SEWA

To assess the impact of mutual health organization on financial protection of members, two aspects have to be taken into account: the probability of visiting a health care provider and the out-of-pocket expenditure borne by the individual. We use a two-part model developed as part of the Rand Health Insurance Experiment:

- a logit model, which assess the probability of visiting a health care provider

$$Prob(visit > 0) = X\beta + u \quad (2)$$

where X stands as a vector for individual, household and community characteristics.

- a log-linear model that estimates the incurred level of out-of-pocket expenditures per episode, conditioning on positive use of health care services:

$$Log(out-of-pocket\ expenditure / visit > 0) = X\beta + e \quad (3)$$

where X represents a set of independent variables that are hypothesized to affect individual pattern of utilization and expenditure on treatment.

3.2.3 Variables used in the model

Table 5 gives an overview of the variables included in the analysis.

Table 5 Overview of Variables Used

<i>Variable</i>	<i>Description</i>
Individual characteristics	
Gender	Male and Female
Age	Completed years of age at the time of last birthday; broad age groups are used in the model
Marital status	Never married, currently married, and widowed/divorced/separated.
Education level	Years of schooling: broadly classified as illiterate, below primary, primary, middle, secondary, graduate and above.
Activity status	Usual activity status during the last one year: broadly classified as non-worker, self-employed in agriculture, casual laborer, home-based production worker, trade/sales worker, salaried worker in organized sector, salaried worker in unorganized sector and subsidiary status worker.
Health characteristics	
Acute morbidity	Episode of illness during last 30 days not involving hospitalization
Chronic morbidity	Prevalence of any chronic disease/ailment
Hospitalization	Any illness resulting in hospitalization during last 365 days
Childbirth	Childbirth during last two years
Duration of illness	Number of days the person was ill and also categorized into groups.
Source of care	Source of treatment; broadly categorized as no treatment, use of public

	including ESIS facility and private facility.
Cost of treatment	Cost of treatment includes: Direct out-of-pocket payments toward fees, medicines, diagnostic tests, surgery, bed charges, transportation, special diet, etc. Indirect costs include income/wage loss of the patient and the caring person as well as interest payments on amount borrowed to meet treatment expenses.
Health insurance enrollment	Community-based plan (SEWA), social insurance (ESIS), private plan (Mediclip) and Uninsured
<i>Household characteristics</i>	
Income/Expenditure	Annual household income from different sources; categorized into quintile groups. Monthly household expenditure by broad items - but not considered in the model
Household size	Number of members usually residing in the house and sharing food from the common kitchen
<i>Community characteristics</i>	
Area of residence	Usual place of residence: rural or urban area

IV. RESULTS

4.1 DETERMINANTS OF PARTICIPATION

Multinomial logit model is used to identify various determinants of being enrolled in SEWA health insurance plan among women members of SEWA. Out of the total 645 SEWA women members aged above 15 years in the sample, 236 (36.6 percent) were enrolled in the plan. Out of 10 variables used in the model, three depicted health status (whether suffering from any chronic ailment, hospitalized during last 365 days and had delivery during last two years), four personal characteristics (age, education, marital status and activity status), two household characteristics (household size and income quintile) and one community variable (area of residence). The description of these variables is provided in Table 5. The mean value of enrollment rate varied across these characteristics. The enrollment rate was higher among women who had reported as suffering from any chronic ailment or had been hospitalized in the previous 365 days but not among those who had reported delivery during last two years. Among personal characteristics, the mean enrollment rate was found to be higher in the middle age groups, 36-45 years and 46-55 years than the other age groups; it was also higher among currently married women. However, with level of education the mean enrollment rate tended to decline. The rate was found to be much lower among nonworkers or subsidiary status workers than among home-based production or salaried workers. The rate tended to decline with the size of household and did not vary much across income quintiles, except in the top quintile where it was marginally higher. Overall, the enrollment rate was higher among urban than the rural women, mainly due to better access to information as well as to SEWA Bank located in Ahmedabad city which manages the scheme.

The alternative results of multinomial logit models (interchanging activity status and income variables) are presented in Table 6. The explanatory power of the model (Pseudo R²) ranged between 0.185 (without income variable) to 0.218 (with inclusion of both income and activity status variables). The followings are the main findings:

- There was no adverse selection in terms of whether the member had been suffering from any chronic ailment or being hospitalized before. However, maternity, a predictable event, had increased the likelihood of enrollment to take advantage of benefit allowance of Rs. 300 and coverage of the high risk of hospitalization.

- Among the personal attributes, the odds of being enrolled were five to seven times higher among middle-aged groups than in the 16-25 years age group. For a currently married women, the odds was twice as high as for never-married women. Education level turned out to be an insignificant predictor. The type of activity pursued by a SEWA woman member was found to be highly significant predictor (the predictive power was much higher than that of the income effects). The odds ratios were much higher for self-employed home-based or agricultural workers than for nonworkers. The odds were found to be insignificant the salaried workers in the formal sector.
- Household size showed an inverse relationship with enrollment, and the odds ratios tended to decline significantly in medium-sized and large households. Income was not found to be a significant predictor. When activity status was not taken into account, women in the top income quintile were twice as likely to enroll as women in the lowest quintile.
- There seemed to be an urban bias in enrollment, which may be due to better outreach and accessibility factors. An urban woman was three times more likely to enroll than a rural woman.

Table 6: Determinants of Being Enrolled in SEWA Health Insurance Plan among SEWA Women Members

Variables	Model 1			Model 2			Model 3		
	Odds Ratio	Coefficient	Significance	Odds Ratio	Coefficient	Significance	Odds Ratio	Coefficient	Significance
Whether chronic ailment	1.155	0.144	0.655	1.164	0.152	0.630	1.121	0.114	0.719
Whether hospitalized	1.602	0.471	0.152	1.716	0.540	0.087	1.528	0.424	0.193
Whether had children in the last 2 years	1.835	0.607	0.047	1.480	0.392	0.184	1.761	0.566	0.063
Urban resident	3.096	1.130	0.000	2.720	1.001	0.000	3.131	1.141	0.000
Activity status (non-worker)									
<i>Agricultural</i>	3.357	1.211	0.011				3.316	1.199	0.012
<i>Casual labor</i>	3.006	1.101	0.001				2.777	1.021	0.002
<i>Home-based worker</i>	4.095	1.410	0.001				4.835	1.576	0.000
<i>Trade/sales worker</i>	2.475	0.906	0.013				2.599	0.955	0.009
<i>Salaried worker-organized</i>	2.257	0.814	0.136				2.328	0.845	0.115
<i>Salaried worker – unorganized</i>	2.753	1.013	0.006				2.802	1.030	0.004
<i>Other worker-subsidiary status</i>	2.016	0.701	0.089				1.811	0.594	0.145
Education level (0)									
<i>1-4 std.</i>	1.400	0.336	0.292	1.173	0.160	0.600	1.511	0.413	0.190
<i>5-7 std.</i>	0.668	-0.404	0.147	0.715	-0.336	0.208	0.701	-0.355	0.196
<i>8-9 std.</i>	0.540	-0.617	0.122	0.484	-0.725	0.062	0.578	-0.549	0.163
<i>10-12 std.</i>	0.721	-0.328	0.334	0.599	-0.512	0.111	0.805	-0.217	0.512
<i>Graduate and above</i>	1.483	0.394	0.530	1.058	0.056	0.927	1.813	0.595	0.325
Age (16-25 years)									
<i>26-35</i>	2.235	0.804	0.008	2.752	1.012	0.000	2.203	0.790	0.009
<i>36-45</i>	5.444	1.694	0.000	6.294	1.840	0.000	5.801	1.758	0.000
<i>46-55</i>	6.729	1.906	0.000	6.746	1.909	0.000	6.878	1.928	0.000
<i>56 and above</i>	4.453	1.494	0.002	3.334	1.204	0.010	4.867	1.582	0.001
Marital status (never married)									
<i>Currently married</i>	2.089	0.737	0.099	2.251	0.811	0.061	1.939	0.662	0.134
<i>Widow/divorced/separated</i>	1.154	0.143	0.799	1.299	0.262	0.629	1.122	0.116	0.835
Household size (1-4)		-0.375							
<i>5-6</i>	0.687	-0.907	0.170	0.698	-0.359	0.176	0.792	-0.233	0.370
<i>6-8</i>	0.404	-0.925	0.004	0.455	-0.787	0.009	0.482	-0.729	0.011
<i>9-10</i>	0.397	-1.391	0.015	0.470	-0.755	0.039	0.497	-0.700	0.044
<i>11 and above</i>	0.249		0.005	0.264	-1.333	0.005	0.367	-1.001	0.026
Annual HH income quintile (lowest)									
2	0.867	-0.143	0.659	0.885	-0.122	0.699			
3	1.182	0.167	0.643	1.202	0.184	0.594			
4	1.094	0.090	0.785	1.203	0.185	0.564			
5 (top)	1.872	0.627	0.098	2.106	0.745	0.041			
Constant		-2.929	0.000		-2.490	0.000		-2.936	0.000
Pseudo R ²		.218			.185			.212	

4.2 DETERMINANTS OF FINANCIAL PROTECTION IN COMMUNITY FINANCING

Multinomial logit model is used to identify various determinants of utilization of services for ambulatory care and an attempt is also made to explore predictors for choosing a private facility for ambulatory and inpatient care over a public one. This model uses the cases of illnesses reported by all households, irrespective of health insurance status (SEWA, ESIS, Medclaim and uninsured). Out of the total 1,327 illnesses reported by the sample population during the previous 30 days, treatment was sought for 1,271 ailments (96 percent). The first model uses all illnesses (excluding hospitalization) reported during previous 30 days and predicts the probability of seeking treatment (only for 56 illnesses the treatment was not sought). The second and third model is the subset of the first model (treated in public facility vs. no treatment—383 cases, and treated in private facility vs. treated in public facility—1,271 cases). The third model shows that, of the total treated ambulatory cases, nearly 74 percent relied on the private facility thus suggesting the dominant role of the private sector in handling the ambulatory care burden. The last model is exclusively for hospitalization cases during previous 365 days (i.e., treated in a private hospital vs. public hospital—362 cases). Here the inpatient load was almost equally distributed between the private and public sectors (53 percent of inpatients used public hospitals).

Of 11 variables used in the model, 3 depicted health characteristics (whether suffering from any chronic ailment, duration of illness, and type of health insurance coverage), 5 personal characteristics (gender, age, education, marital status, and activity status), 2 household characteristics (household size and income quintile) and 1 community variable (area of residence). The mean value of utilization and the proportion using private health service facilities both for ambulatory and inpatient care varied considerably across these characteristics.

The results of multinomial logit models for utilization and private/public choice for ambulatory care are presented in Table 7. The explanatory power of the utilization model (Pseudo R^2) was 0.148. For the other two models, it was 0.372 (treated in a public sector facility vs. no treatment) and 0.226 (treated in a private vs. public sector facility). The following are the main findings:

- Of 11 variables used for predicting utilization rate, only 3 variables (illness duration, type of health insurance enrollment and area of residence) were found to be significant. None of the personal and household attributes exerted significant influence on utilization rate. The odds of being untreated were higher among those enrolled with community plan (SEWA) as well as among rural residents.
- In the case of choosing a private over the public facility including ESIS for ambulatory care, seven variables exerted significant impact. The odds of choosing a public facility were higher if the person had a chronic ailment, a salaried work status, and coverage under social insurance. Males, educated graduates and above, and covered by a private plan (Medicclaim) tended to choose private facility for ambulatory treatment. Patients from small households in urban areas tended to choose a public facility. The income effect for opting out the private facility was clearly discernable. Members of the SEWA plan also tended to choose the private facility for ambulatory care.
- For inpatient care, the results of multinomial logit model for choosing a public or private hospital are presented in Table 8. Of the 10 variables used in the model, only 4 (illness duration, type of health insurance enrollment, area of residence and income) showed a significant influence. The odds of choosing a public hospital for inpatient care were much higher for illnesses requiring a longer stay in a hospital. This is entirely due to price considerations because for longer stays out-of-pocket expenditure would be huge if treated in a private hospital. People covered under social insurance tended to use much more public and

ESIS hospitals. Only patients from households in the top quintile who could afford treatment chose private hospitals over public for inpatient care. As public hospitals are located mainly in urban centers, urban residents have better access and thus showed greater reliance on public services than did their rural counterparts.

Determinants of out-of-pocket expenditures on treatment of ailments, for both ambulatory and inpatient care are presented in Table 9. The dependent variable is expressed as the log of out-of-pocket expenditure on treatment. Overall, the direct cost of treatment for ambulatory care was Rs. 286 per episode. For inpatient care, it was Rs. 2,771. Of the 12 variables used in the OLS regression model, 4 depicted health characteristics (chronic ailment, duration of illness, type of provider (private/public), and type of health insurance coverage), 5 personal characteristics (gender, age, education, marital status, and activity status), 2 household characteristics (household size and income quintile), and 1 community variable (area of residence). The mean value of direct out-of-pocket expenditures per episode varied significantly across these characteristics.

The regression results for both ambulatory and inpatient cares are presented in Table 9. The explanatory power of the model (R^2) was 0.284 for ambulatory care and 0.413 for inpatient care. The following are the main findings:

- Of the 12 variables used for determining direct out-of-pocket expenditure on ambulatory care, only 7 (type of provider, illness duration, gender, type of health insurance enrollment, household size, income and area of residence) were found to be significant. Of these, the most important explanatory variables were type of provider, duration of illness, social insurance coverage, and area of residence. Cost of treatment turned out to be higher if treated in the private sector and was of long duration when the patient was male and resided in a rural area. The cost of care was inversely related to household size and relatively higher among patients in the third and fourth income quintiles. Only social insurance coverage, and not the community plan, provided financial protection. Both the community plan and the private Medclaim plan cover hospitalization only.
- In the case of out-of-pocket expenditures on inpatient care, only 4 of the 11 variables exerted significant impact. The cost of treatment for inpatient care was higher if in a private hospital and of long duration of treatment and the patient resided in a rural area. Income effects were not found to be significant. In this case, both social insurance and Medclaim plans succeeded in providing financial protection whereas the community plan did not come up to expectations.

Another way of looking at the financial protection is to explore determinants of annual per capita expenditure on health care at the household level (after obtaining the annual estimates of expenditure on ambulatory care, inpatient care, delivery and maternal and child health care). Alternatively, one can also estimate the burden of ill health on the household (annual per capita expenditure on health care as proportion of annual per capita income) and explore how much of this burden is protected through health insurance mechanism.

Table 7: Determinants of Being Treated and Use of Public/Private Facility for Ambulatory Care (Multinomial Logit Model)

Predictor	Treated vs. untreated			Public contact vs. untreated			Private vs. Public contact		
	Odds Ratio	Coefficient	Significance	Odds Ratio	Coefficient	Significance	Odds Ratio	Coefficient	Significance
Illness duration (1-3 days)									
4 – 7	0.9975	-0.003	0.995	0.6281	-0.465	0.426	0.8946	-0.111	0.661
8 – 14	1.5286	0.424	0.369	1.4671	0.383	0.564	0.8339	-0.182	0.492
15-29	7.6682	2.037	0.057	8.3126	2.118	0.081	0.5712	-0.560	0.065
30+	5.4784	1.701	0.095	4.6462	1.536	0.311	1.4982	0.404	0.304
Whether Chronic ailment	0.2392	-1.430	0.154	0.5453	-0.606	0.678	0.2108	-1.557	0.000
Whether Male	0.8775	-0.131	0.697	0.7512	-0.286	0.561	1.4326	0.359	0.046
Age (0-14 years)									
15-24	2.9836	1.093	0.337	10.0297	2.306	0.076	0.6249	-0.470	0.151
25-34	0.9822	-0.018	0.990	1.2636	0.234	0.855	0.6186	-0.480	0.329
35-44	0.8176	-0.201	0.893	2.1255	0.754	0.617	0.4862	-0.721	0.148
45-54	0.5992	-0.512	0.730	0.3484	-1.054	0.471	0.6338	-0.456	0.376
55+	0.4542	-0.789	0.588	0.5865	-0.534	0.707	0.4829	-0.728	0.149
Marital Status (Never Married)									
Currently Married	1.2941	0.258	0.853	0.8231	-0.195	0.883	1.9124	0.648	0.124
Widow/Divorced/Separated	1.3710	0.316	0.828	0.9973	-0.003	0.999	1.7128	0.538	0.286
Education Level (Illiterate)									
1-4 Std.	0.9347	-0.068	0.852	0.6011	-0.509	0.307	0.9139	-0.090	0.696
5-7 Std.	1.1325	0.124	0.765	1.4707	0.386	0.487	0.6471	-0.435	0.052
8-9 Std.	1.09E+14	32.323	1.000	2.48E+15	35.448	1.000	0.7109	-0.341	0.252
10-12 Std.	1.8429	0.611	0.388	0.9979	-0.002	0.998	0.8000	-0.223	0.432
Graduate and above	1.0233	0.023	0.984	0.1647	-1.804	0.292	3.2589	1.181	0.036
Activity Status (Non-worker)									
Agricultural	1.5643	0.447	0.590	0.6132	-0.489	0.699	0.8316	-0.184	0.745
Casual Labor	1.0278	0.027	0.956	3.4850	1.248	0.097	0.6730	-0.396	0.160
Home-Based Worker	0.5168	-0.660	0.426	1.6128	0.478	0.668	0.9354	-0.067	0.894
Trade/Sales Worker	0.7356	-0.307	0.627	2.0847	0.735	0.397	0.5980	-0.514	0.213
Salaried Worker-Organized	1.23E+14	32.441	1.000	5.35E+15	36.217	1.000	0.2761	-1.287	0.000
Salaried Worker-Unorganized	1.34E+14	32.527	1.000	4.54E+15	36.051	1.000	0.5682	-0.565	0.083
Other Worker-Subsidiary status	1.1006	0.096	0.905	7.4579	2.009	0.080	0.2318	-1.462	0.001
Health Insurance Enrollment (Uninsured)									
Community Plan-SEWA	0.3669	-1.003	0.035	0.0798	-2.529	0.003	2.1073	0.745	0.043
Social Insurance-ESIS	1.1657	0.153	0.671	5.9587	1.785	0.000	0.1715	-1.763	0.000
Private Plan-Mediclaim	9.50E+13	32.185	1.000	8.40E+15	36.666	.	4.4984	1.504	0.050
Urban Resident	2.0618	0.724	0.019	8.1439	2.097	0.000	0.2525	-1.377	0.000
Household size (1-4)									
5-6	0.8953	-0.111	0.750	2.0201	0.703	0.166	0.5795	-0.546	0.006
7-8	1.6893	0.524	0.293	7.4421	2.007	0.004	0.4030	-0.909	0.000
9-10	1.1413	0.132	0.832	2.0905	0.737	0.386	1.0896	0.086	0.806
11+	1.0451	0.044	0.951	4.4154	1.485	0.159	0.5556	-0.588	0.138
Annual Household Income Quintile (Lowest)									
2	1.8603	0.621	0.168	0.6607	-0.414	0.513	1.6769	0.517	0.033
3	0.9483	-0.053	0.902	0.1623	-1.818	0.008	2.2582	0.815	0.002
4	1.8409	0.610	0.227	0.1336	-2.013	0.016	3.3027	1.195	0.000
5 (Top)	1.3011	0.263	0.613	0.1134	-2.177	0.007	2.6790	0.985	0.001
Constant		1.915	0.000		-0.550	0.481		3.116	0.000
Pseudo R ²		0.148			0.372			0.226	
Number of Cases (Dependent valued as):1		1271			327			944	
0		56			56			327	

Note: Out of 1,327 illness episodes reported during the last 30 days, 56 were not treated. Of the treated episodes, the public including ESIS facility was contacted in 327 cases and in the remaining 944 cases it was the private facility. Figures in brackets refer to the reference category of the variable.

Table 8: Determinants of Using Private Facility for Inpatient Care (Multinomial Logit Model)

<i>Predictor</i>	<i>Private vs. Public Hospital</i>		
	<i>Odds Ratio</i>	<i>Coefficient</i>	<i>Significance</i>
Illness duration (1-3 days)			
4 – 7	0.4685	-0.7583	0.026
8 – 14	0.1998	-1.6105	0.000
15-29	0.1299	-2.0410	0.000
30+	0.3191	-1.1423	0.027
Whether Male	1.1257	0.1184	0.719
Age (0-14 year)			
15-24	1.2172	0.1966	0.725
25-34	3.6314	1.2896	0.069
35-44	1.5422	0.4332	0.591
45-54	3.2025	1.1639	0.132
55+	1.1200	0.1134	0.877
Marital Status (Never Married)			
Currently Married	0.5864	-0.5337	0.345
Widow/Divorced/Separated	0.7650	-0.2679	0.730
Education Level (Illiterate)			
1-4 Std.	0.9722	-0.0282	0.947
5-7 Std.	0.5129	-0.6678	0.089
8-9 Std.	0.7450	-0.2944	0.575
10-12 Std.	0.6452	-0.4383	0.336
Graduate and above	2.0286	0.7074	0.419
Activity Status (Non-worker)			
Agricultural	0.5824	-0.5406	0.537
Casual Labor	0.5931	-0.5224	0.259
Home-Based Worker	0.6837	-0.3802	0.622
Trade/Sales Worker	2.0432	0.7145	0.382
Salaried Worker-Organized	1.4176	0.3489	0.553
Salaried Worker-Unorganized	0.4821	-0.7297	0.158
Other Worker-Subsidiary status	0.5435	-0.6097	0.443
Health Insurance Enrollment (Uninsured)			
Community Plan-SEWA	0.7946	-0.2299	0.630
Social Insurance-ESIS	0.2143	-1.5404	0.000
Private Plan-Medicaid	5.1690	1.6427	0.171
Urban Resident	0.2855	-1.2536	0.000
Household size (1-4)			
5-6	0.6137	-0.4882	0.169
7-8	0.8579	-0.1533	0.722
9-10	0.9079	-0.0966	0.859
11+	0.5836	-0.5386	0.447
Annual Household Income Quintile (Lowest)			
2	1.5507	0.4387	0.315
3	1.4488	0.3707	0.409
4	1.8937	0.6385	0.159
5 (Top)	4.7391	1.5558	0.003
Constant		1.8405	0.001
Pseudo R ²		0.228	
Number of Cases (Dependent variable coded as):1		171	
0		193	

Table 9: Determinants of Out-of-pocket Expenditure on Treatment by Type of Care (dependent variable in Log form)

<i>Predictor</i>	<i>Ambulatory Care</i>			<i>Hospitalization</i>		
	<i>Coefficient</i>	<i>Beta</i>	<i>Significance</i>	<i>Coefficient</i>	<i>Beta</i>	<i>Significance</i>
Private provider	0.5502	0.3181	0.000	0.4175	0.3230	0.000
Days of Illness	0.0075	0.1735	0.000	0.0111	0.2357	0.000
Whether Chronic ailment	0.0830	0.0483	0.108			
Whether Hospitalized						
Whether Male	0.0982	0.0646	0.025	0.0298	0.0230	0.672
Age	0.0081	0.2212	0.159	0.0098	0.2939	0.266
Age Squared	-0.0001	-0.2117	0.095	-0.0001	-0.2696	0.257
Marital Status (Never married)						
Currently Married	-0.0253	-0.0167	0.767	-0.0500	-0.0382	0.657
Widow/Divorced/Separated	-0.0528	-0.0207	0.648	0.1315	0.0623	0.421
Education Level (0)						
1-4 Std.	-0.0297	-0.0148	0.590	-0.0342	-0.0187	0.708
5-7 Std.	-0.0328	-0.0168	0.574	0.0115	0.0073	0.893
8-9 Std.	0.0722	0.0283	0.322	0.1183	0.0540	0.287
10-12 Std.	0.0539	0.0253	0.417	0.1245	0.0769	0.182
Graduate and above	0.0508	0.0132	0.637	0.1505	0.0449	0.358
Activity Status (Non-worker)						
Agricultural	-0.0806	-0.0177	0.499	0.1211	0.0275	0.546
Casual Labor	-0.0896	-0.0354	0.204	0.1648	0.0808	0.111
Home-Based Worker	-0.2041	-0.0389	0.119	0.3035	0.0873	0.050
Trade/Sales Worker	-0.0670	-0.0174	0.509	0.1527	0.0439	0.342
Salaried Worker-Organized	-0.0179	-0.0066	0.827	0.0641	0.0314	0.588
Salaried Worker-Unorganized	0.0655	0.0216	0.420	0.0633	0.0289	0.574
Other Worker-Subsidiary status	0.2297	0.0490	0.050	-0.2883	-0.0694	0.118
Health Insurance Enrollment (Uninsured)						
Community Plan-SEWA	0.0145	0.0048	0.855	0.0656	0.0296	0.535
Social Insurance-ESIS	-0.3719	-0.2220	0.000	-0.4274	-0.3065	0.000
Private Plan-Medicaid	0.1461	0.0353	0.177	0.3449	0.0784	0.080
Urban Resident	-0.2437	-0.1477	0.000	-0.1786	-0.1290	0.007
Household Size	-0.0172	-0.0560	0.049	0.0182	0.0673	0.199
Annual Household Income Quintile (Lowest)						
2	0.0666	0.0363	0.265	0.0535	0.0337	0.564
3	0.1132	0.0575	0.074	0.1634	0.0981	0.086
4	0.1446	0.0784	0.024	0.1059	0.0697	0.268
5 (Top)	0.0515	0.0272	0.466	0.0785	0.0452	0.485
Constant	1.7059		0.000	2.5908		0.000
R^2		0.284			0.413	
Number of Illness Episodes		1274			363	

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