Health Seeking Behavior in Karnataka: Does Micro-Health Insurance Matter?

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ABSTRACT

Background: Health seeking behaviour in the event of illness is influenced by the availability of good health care facilities and health care financing mechanisms. Micro health insurance not only promotes formal health care utilization at private providers but also reduces the cost of care by providing the insurance coverage. Objectives: This paper explores the impact of Sampoorna Suraksha Programme, a micro health insurance scheme on the health seeking behaviour of households during illness in Karnataka, India. Materials and Methods: The study was conducted in three randomly selected districts in Karnataka, India in the first half of the year 2011. The hypothesis was tested using binary logistic regression analysis on the data collected from randomly selected 1146 households consisting of 4961 individuals. Results: Insured individuals were seeking care at private hospitals than public hospitals due to the reduction in financial barrier. Moreover, equity in health seeking behaviour among insured individuals was observed. Conclusion: Our finding does represent a desirable result for health policy makers and micro finance institutions to advocate for the inclusion of health insurance in their portfolio, at least from the HSB perspective.

Keywords: Government, health-care financing, health seeking behavior, informal providers, micro-health insurance, private

Introduction

Health seeking behavior (HSB) denotes visiting the health-care facility, which includes privately owned hospitals, public hospital, clinic, ayurvedic hospitals, nursing homes or home medicine. The desired HSB has been related to visiting official channels in a formally recognized health-care. However, public hospitals in India are known for low quality treatment, long waiting period, long distance, inconvenient location and inadequate facilities in public hospitals. So, private care was preferred due to easy accessibility even in the night, quick relief and individual attention. Owing to lack of money to access care at private hospitals, poor people resort to self-treatment and by-pass primary care providers and substitute drug vendors for formal care in Vietnam. Micro Health Insurance (MHI) reduces financial barriers to care by meeting the cost of illness. A study in Vietnam documented the positive impact as insured used inpatient facilities and public providers more than uninsured and health-care was sought from formal providers by the insured members in Ghana and Mali and Rwanda, China and India. In contrast, another study conducted in Senegal documented minimal effect of MHI on the HSB. In addition to health insurance, HSB has been found to be associated with type of illness and gender of ill-person, income class, area of residence, age and duration of illness. Studies on the impact of MHI on HSB from India are scarce. Hence, this paper addresses this knowledge gap by assessing the HSB behavior of insured and uninsured households using logistic regression analysis. Sampoorna Suraksha Program (SSP), a MHI scheme in Karnataka state, India has been considered for this study. “Sampoorna Suraksha” means “total security” in Kannada language. It is a welfare scheme to give financial assistance to the poor people for hospitalization, maternity, death and other hazards in Southern Karnataka [Table 1].
We hypothesize that insured members seek care at private facilities than public hospitals due to superior quality of network hospitals and higher level of awareness owing to frequent health education programs conducted by SSP. Network hospitals were selected after rigorous scrutiny based on various criteria that include the range and quality of services, cost of treatment, location and proximity to members and preferences of members. Hence, these hospitals would be preferred than public hospitals. This assumption is supported by various studies from India. Section 2 explains the methods of the study and Section 3 outlines the results of the study including logistic regression analysis. Section 4 discusses the results of the study.

Materials and Methods

Cross-sectional descriptive survey method was adopted to collect data from the insured and uninsured households in Karnataka, India during the first half of 2011. As any impact evaluation study suffers from the endogeneity bias, newly enrolled members were taken as the comparison group due to similar unobservable characteristics between them and insured groups. The logic is that both group members self-select into the program, so the unobservable characteristics can be assumed to be similar and this may reduce the potential error due to endogeneity. In addition, both groups are members of self-help groups (SHG); hence observable characteristics will be similar. In addition, uninsured members were also considered. To test endogeneity statistically, Durbin-Wu-Hausman test was applied.

Stratified random sampling method was adopted to select three districts of Karnataka namely Dakshina Kananda, Uttara Kannada and Gadag, 10 taluks (administrative divisions) in these districts. In the third stage, list of circles in the selected taluks were used to select 18 circles (1-2 per taluk) and 2-3 divisions from each circle (called karyakshetras) were selected based on the number of divisions in each circle, a total of 84 divisions were chosen. By using the list of SHG members available at the taluk project office, required sample was selected under the category of the insured group (who renewed their membership in the year 2011-2012), newly insured group (who enrolled for the first time in the year 2011-2012) and uninsured group. Data were coded and statistical analysis was carried out using the International Business Machines (IBM) Inc., Statistical Package for the Social Sciences (SPSS) version 17.0 software.

Results

The total sample households were 1146 that included 416 insured households (1850 individuals), 366 newly insured households (1594 individuals) and 364 uninsured households (1517 individuals). Insured households were predominantly headed by males compared with uninsured households (both newly insured and uninsured) and most of sampled household head worked as waged laborer. Insured households had more family members, on an average than uninsured families and resided in rural areas. Average distance to hospitals was less for insured families than uninsured families and residents in rural areas. Average distance to hospitals was less for insured families than uninsured families [Table 2].

In the survey, 371 individuals reported sickness in the last 1 year of which 10 persons did not seek treatment. Of 361 persons who sought treatment, 19 resorted to self-treatment and the remaining 342 individuals availed health-care services one or more times resulting in 429 visits to private and public facilities including homeopathy/ayurveda treatment [Figure 1]. Table 3 illustrates HSB of individuals from the insured and uninsured groups. Higher proportion of insured individuals visited district hospitals (38.1%) and regional hospitals (35.5%) than newly insured (27.5% and 28.9% respectively) and uninsured (31.2% and 24.8% respectively) individuals. Income of the family was a determinant of HSB with rich people accessing more of
Table 2: Basic characteristics of sampled households

| Variables                              | Insured | Newly insured | Non-insured | P value |
|----------------------------------------|---------|---------------|-------------|---------|
| Median age of household head (years)   | 48      | 47            | 48          | 0.495<sup>a</sup> |
| Gender of household head (%) male      | 83.7    | 84.7          | 79.9        | 0.199<sup>b</sup> |
| Occupation of head of the household (%)|         |               |             |         |
| Unskilled labor (beedi roller, daily laborer) | 38.2    | 43.4          | 43.1        | 0.396<sup>b</sup> |
| Skilled labor                          | 18      | 16.9          | 15.7        |         |
| Self-employment                        | 10      | 5.4           | 8.5         |         |
| Formal sector employment               | 2.9     | 5.2           | 5.8         |         |
| Unemployed                             | 12.3    | 12.8          | 10.7        |         |
| Unskilled salaried (informal sector)   | 5.8     | 5.2           | 5.2         |         |
| Skilled salaried (informal sector)     | 3.1     | 2.2           | 3.6         |         |
| Agriculture                            | 3.6     | 3.8           | 2.5         |         |
| Mean annual income (in Rs.)            | 116,850 | 102,630       | 107,926     | 0.310<sup>a</sup> |
| Income quintile (%)                    |         |               |             |         |
| Q1 <14,100                             | 18.5    | 20.5          | 22          | 0.784<sup>b</sup> |
| Q2 14,101-19,010                       | 20.9    | 20.5          | 22          |         |
| Q3 19,011-24,000                       | 19      | 22            | 18.4        |         |
| Q4 24,001-34,800                       | 21.9    | 21.3          | 22.3        |         |
| Q5 >34,800                             | 19.7    | 15.6          | 17.6        |         |
| Mean size of households                 | 4.5     | 4.36          | 4.2         | 0.011<sup>a</sup> |
| Area of residence (%)                  |         |               |             |         |
| Rural areas                            | 44      | 49.2          | 54.5        | 0.000   |
| Urban areas                            | 7.2     | 14.2          | 12.1        |         |
| Semi-urban areas                       | 36.6    | 34.4          | 40          |         |
| Gender of ill-person (%) male          | 82 (50.9)| 60 (50)       | 45 (50)     | 0.984<sup>b</sup> |
| Distance to nearest hospital (in km) mean (SD) | 2.6 (2.4)| 3.3 (2.7)    | 2.4 (2.3)  | 0.000<sup>a</sup> |

*Kruskal Wallis Chi-square, <sup>a</sup>Chi-square test

Figure 1: Overview of health care seeking behavior of insured and uninsured individuals, *Number of visits to a health facility by ill-persons, n = total, n1= insured, n2 = newly insured, n3 = uninsured

private expensive care than poor people [Table 4]. When sick, usually individuals seek care one or more times and the sequence of a visit to a health facility is displayed in Figure 2. Insured and newly insured who self-treated visited private hospitals in their second line of treatment whereas uninsured consulted doctors at clinic, visited government hospital and district hospital. A comparison of type of health facility visited for secondary and tertiary care by insured, newly insured and uninsured individuals is given in Table 5. A higher percent of newly insured (13.2%) and uninsured individuals (20.4%) went to the government hospital compared to a small percent
of insured individuals (7%). However, for tertiary care, majority of them visited private health facilities.

The binary logistic regression analysis was performed [Table 6] considering health insurance status, gender of the ill-person, area of residence and income class as independent variables and hospitalization in private and public hospitals as dependent variable. A small percent of insured individuals got admitted in public hospitals (6.9%) than newly insured (13.4%) and uninsured (16.2%) individuals. Sizeable percent of insured got care from private hospitals (93.1%) compared to newly insured (86.6%) and the uninsured (83.8%) individuals. Considerable proportion of women sought care from public hospitals (12.5%) than private hospitals in comparison to men (9.8%). Almost 15% of households from quintile 1 (Q1), 6.7% from Q2, 18% from Q3 visited public hospitals and almost 97% from Q4 and 89% from Q5 income class sought care from private hospitals. Higher percent of individuals living in urban areas (15.2%) and 12% of rural residents got treated in public hospitals. Larger proportion of individuals in semi-urban areas sought care from private hospitals (91.3%) compared with urban or rural areas.

The robustness of the logistic regression model was tested and the results of these tests showed that 88.9% of cases were correctly predicted by the model. Gender of the ill-person and the area of residence were not significantly associated with HSB. After controlling for socio-demographic variables, the odds of being hospitalized in private hospitals than public hospitals decreases by a factor of 0.407 if the individual is newly insured rather than insured and by a factor of 0.373 if the individual is uninsured than insured, controlling for other variables in the model. The odds of being admitted in private hospitals increases by a factor of 4.676 if the households are in Q5 than Q1, controlling for other variables in the model. Thus, income class and health insurance increases the likelihood of hospitalization in private hospitals than public hospitals.

The sequence of health seeking behavior during illness, if1 = insured individuals, if2 = newly insured individuals, if3 = uninsured individuals, T1 = clinic, T2 = nursing home, T3 = district hospital, T4 = regional hospital, T5 = government hospital, Source: Primary survey.
### Discussion

Using logistic regression analysis and household survey data, this paper empirically evaluated the influence of SSP on the use of public and private health services by the individuals faced with illness. The model has been subjected to a number of specification and diagnostic tests; especially the possible endogeneity has been tested using Durbin-Wu-Hausman test. In this model, health insurance was found to be exogeneous with prob (χ²) = 0.994. Residual analysis (specifically Cook’s distance statistic) showed no outliers and the model fits the whole set of observation (Hosmer and Lemeshow test value of 0.850 indicates excellent discrimination). The area under the curve was 0.697 with 95% confidence interval (0.505, 0.884) (dependent variable: Hospitalization in private facility; 1=yes), CI: Confidence interval, df: Degree of freedom, SE: Standard error

### Table 6: Determinants of health seeking behavior

| Independent variables                  | B     | SE   | Wald  | df  | Sig.  | Exp (B) | 95% CI for Exp (B) |
|----------------------------------------|-------|------|-------|-----|-------|---------|-------------------|
| Health insurance (base=insured)        |       |      |       |     |       |         |                   |
| Newly insured                          | -0.899| 0.469| 3.672 | 1   | 0.055 | 0.407   | 0.162 - 1.021     |
| Uninsured                              | -0.985| 0.474| 4.324 | 1   | 0.038 | 0.373   | 0.148 - 0.945     |
| Area of residence (base=rural)         |       |      |       |     |       |         |                   |
| Urban                                  | 0.169 | 0.511| 0.109 | 1   | 0.741 | 1.184   | 0.435 - 3.222     |
| Semi urban                             | 0.408 | 0.434| 0.884 | 1   | 0.347 | 1.504   | 0.642 - 3.525     |
| Income quintile (base=Q1)              |       |      |       |     |       |         |                   |
| Q2                                     | 0.956 | 0.588| 2.643 | 1   | 0.104 | 2.602   | 0.822 - 8.239     |
| Q3                                     | -0.202| 0.498| 0.165 | 1   | 0.685 | 0.817   | 0.308 - 2.167     |
| Q4                                     | 0.383 | 0.540| 0.501 | 1   | 0.479 | 1.466   | 0.508 - 4.229     |
| Q5                                     | 1.542 | 0.810| 3.627 | 1   | 0.057 | 4.767   | 0.956 - 22.872    |
| Gender of ill-person (base=female)     |       |      |       |     |       |         |                   |
| Constant                               | 2.205 | 0.547| 16.235| 1   | 0.000 | 9.069   |                  |
| Number of observations                 | 316   |      |       |     |       |         |                   |

Omnibus test model coefficient: χ²=18.018, df=10, P=0.055. −2 log likelihood=201.982, Cox and Snell R²=0.055, Nagelkerke R²=0.111, Hosmer and Lemeshow χ²=4.076, df=8, P=0.850

Uninsured individuals self-treating or public hospitals visited district or regional hospitals in their second visit. Hardly few individuals visited public hospitals in their second visit. This may be due to ineffective treatment in public hospitals as found in a study from India. Insured individuals sought treatment at private hospitals in their first as well as second visits. However, SSP could remove financial barriers to access quality care at private hospitals to some extent. Sizeable percent of individuals in the lowest income class (Q1) got hospitalized in public hospitals rather than private hospitals despite having insurance coverage. Since SSP has not increased the benefit amount over the years, even when the cost of treatment escalated in India, poorest individuals had to incur out of pocket expenses that might have compelled them to rely on public hospitals. However, poor individuals in income Q2 and Q3 could seek timely and efficient treatment in private hospitals. Does this denote incentive effect or moral hazard as uninsured households in the respective income quintile got hospitalized in public hospitals? To some extent moral hazard is to be taken as welfare-promoting especially in low income countries like India where financial barriers to access care are quite high.

Except income class and health insurance, gender of ill-person and area of residence was found not to be associated with HSB. Our study finding that MHI schemes increases the use of formal health services when sick represents a desirable result for health policy makers and micro-finance institutions which are planning to include health insurance in their portfolio. Despite MHI, poor people seek care in public hospitals that signals possible financial and non-financial barriers to access care at network hospitals. Identification and removal of these barriers is the need of the hour to ensure equity in HSB.
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How to cite this article: Savitha S, Kiran KB. Health seeking behavior in Karnataka: Does micro-health insurance matter?. Indian J Community Med 2013;38:217-22.

Source of Support: Nil, Conflict of Interest: None declared.