Source of Care Selection and Health Care Quality Perceptions: Does Health Insurance matter in Patient Satisfaction?

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Abstract: *Micro health insurance (MHI) was designed to protect the poor from iatrogenic poverty by providing them with financial protection and improving their access to healthcare. These schemes are also expected to improve quality of care through strategic purchasing decisions. Empirical evidence on the perception of quality of healthcare by MHI enrolees is limited in India. This paper explains the relationship between perceived quality of care and patient satisfaction among insured and uninsured individuals. A cross-sectional survey was conducted to collect data from 416 insureds, 366 newly insured and 364 uninsured self-help group members in 84 villages in Karnataka, India. Regression analysis shows that financial and physical accessibility to healthcare and membership in MHI significantly influences patient satisfaction. Insured individuals perceived better quality of healthcare delivery care and sought care at private facilities more than at public hospitals. Perceived quality of supplies, providers, and physical resources dramatically influence patient satisfaction. The MHI scheme managers should design contracts with hospitals that have the good physical infrastructure, adequate supplies of drugs, equipment, and qualified medical professionals to enhance patient satisfaction. Since MHI facilitates accessibility and affordability of care, enrolment should, therefore, be encouraged among the uninsured to improve access to care. Awareness on seeking care from the formal system than self-treatment needs to be fostered among all the self-help group members, especially the uninsured population.*

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1. Introduction

The shock of illness affects poor households in informal sector through wage loss, medical expenses and repeated medical treatment that push them below the poverty line (World Bank, 2004; Dercon et al., 2004). In the absence of adequate health financing mechanisms and subsidised public healthcare system, the majority of them incur out-of-pocket expenses that constitute 75% of total health spending (WHO, 2009). Iatrogenic poverty

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(known as illness induced poverty) resulting from undue reliance on expensive private sector health services is a challenge in India. Unsurprisingly, it has been estimated that a quarter of hospitalised Indians live below the poverty line (Peter et al., 2002). A potential solution recommended by the World Bank and other international development agencies to mitigate iatrogenic poverty is to provide micro health insurance (MHI) coverage to those living below the poverty line.

The MHI is aimed primarily at the informal sector formed by collective pooling of health risks in which the members participate in its management (Musau, 1999). Although there is scepticism and equivocal data on the working of MHI schemes, majority of studies advocate it to be an instrument of financial protection against impoverishing effects of ill health (Devadasan et. al., 2004; Roth et al., 2007; Savitha & Kiran, 2015) and improveingaccess to care (Horan, 2006; Roth et al., 2007; Hamid et al., 2011). Given the resource constraints, provision of affordable and easily accessible quality health services to poor members is a formidable challenge for MHIs. The quality of healthcare primarily determines health outcomes. Any deficiency in health services whether accessibility, infrastructure or personnel would adversely affect health outcomes, utilisation of health services (Lafond, 1995; Akin & Hutchinson, 1999; Andaleeb, 2000) and increase patient complaints and non-renewal in MHI programmes. In fact, poor quality of care was identified as the single most important contributor to the low level of enrolment in MHIs (Criel & Waelkens, 2003).

Healthcare financing and quality of health care are closely linked; insurers can influence the quality of care provided by hospitals through the power of aggregation of insured patients and take advantage of scale by insisting on quality-control measures. Also, by acting as a 'strategic purchaser' of health care services, insurers (MHIs) can partner with a network of hospitals through customised contracts that include discounted package list, standard treatment guidelines, and use of drug formularies. It can contract with those health facilities meeting certain standards such as basic infrastructure and facilities (diagnostic and laboratory), oversight by adequate and qualified medical, paramedical and nursing staff, and prescribed treatment protocols. However, in India, the voice (needs, expectations, and perceptions) of poor members of MHI schemes is never heard. There are reports that the poor receive low of quality of care (Das & Hammer, 2007). Thus, the success of MHI schemes aimed at the poor is questionable if it fails to ensure good quality of health services in terms of lower penetration and limited risk pooling (Bennett et al., 1998; Ekman, 2004; Carrin et al., 2005). Hence, an understanding of the perception of quality of health services and the factors shaping the selection of the

provider is critical to understand insured members' satisfaction with MHI services and its impanelled hospitals.

Numerous studies have been carried out in India focusing on client perception of healthcare quality (Rahman & Qureshi, 2009; Aaagja & Garg, 2010; Chahal & Kumari, 2010; Naranag,2011; Padma et al., 2010; Khan et al., 2012; Dasanayaka et al., 2012; Azam et al., 2012). The studies on the perceived quality of care by MHI enrolees are scant. Considering the absence of studies that examined patient satisfaction and perception of quality by insured members of MHI in South India, this paper aims to understand the differences between its insured and uninsured members regarding a) perception of quality of health services, b) patient satisfaction with health services, c) perception of quality of health services provided at public and private hospitals, and d) antecedents of the selection of healthcare facilities,. These objectives would help identify important dimensions of quality and how these influence patient satisfaction and whether MHI enrollees report higher satisfaction. The suggestions provided by the study would equip policymakers to implement interventions that would enhance the quality of health services, increase its utilisation and meet patient expectation. This would also guide scheme administrators to device sustainable strategies through better negotiation and careful selection of network hospitals of acceptable quality to achieve client satisfaction and thereby enhance MHI uptake and coverage.

2. Literature Review

The Institute of Medicine (2001) defines quality in the context of technical and patient perspectives. The latter focuses on the ability of the hospitals to meet the expectations of patients. Several studies on the perception of customers observe service quality to precede satisfaction (Parasuraman et al., 1994; Kitapci et al., 2014) which in turn measures the performance of healthcare providers (Badri et al., 2009; Azam et al., 2012). Moreover, patient satisfaction is an outcome of quality of care that includes service quality, emotional experience during health service delivery, and subjective disconfirmation (Campbell, 2000). Other attributes proposed by various researchers are client, professional and managerial components (Ovretveit, 1992), structure, process and health outcomes (Peabody et al,1999). SERVQUAL uses five dimensions, namely reliability, tangibles, responsiveness, assurance and empathy to measure health care quality. This instrument has been criticised and a performance-based scale SERVPERF has been proposed to measure service quality (Cronin & Taylor, 1992). The applicability of both the scales developed in western contexts is limited in India (Angur et al., 1999). A scale developed by Haddad et al. (1998) in the context of developing nation evaluates the quality perception of lay

people's healthcare services. Robyn et al. (2013) improvised the scale of Haddad et al. (1998) to understand the quality perceptions of community-based health insurance schemes in Burkina Faso. For the present study, the scale of Haddad et al. (1998) and Robyn et al. (2013) was chosen since they measure the perception of community members enrolled in MHI. The scale includes perceived availability of health care providers, supplies and physical resources, perceived quality of health care provider conduct, perceived delivery of care, perceived financial and physical accessibility of care, and perceived quality of physical structure of facility as five main dimensions of quality that affects patient satisfaction with health services. This scale has been validated in previous studies (Haddad et al., 1998; Baltussen et al., 2002; Baltussen, 2006; Robyn et al., 2013). Using the scale developed by Haddad et al. (1998), some studies in India reveal a positive perception of respondents regarding health personnel practices and conduct, health care delivery, access to services and adequacy of resources and services (Sharma & Narang, 2010).

In the world literature, studies on perception of quality of care by insured patients suggest equivocal evidence. The insured perceived better quality of care (Perez et al., 2009) and low out-of-pocket payments (Nguyen et al., 2011). On the contrary, Dalinjong and Laar (2012) report negative attitude of health service providers towards insured due to deferred nature of payments. Bruce et al. (2008) support this by observing a longer waiting time for the insured. Jehu-Appiah et al. (2012) report positive perception on the technical quality of care but negative perception on the interpersonal quality of care regardless of insurance. A recent study by Abousi et al. (2016) shows no difference in perception of quality of care between insured and uninsured but a significant difference in perception of financial access to care. Some studies observed the preference of rich and poor for private health services due to a better quality of care at private facilities than public hospitals in India. Das & Hammer (2007) and Das et al. (2008) attribute such preference to lower competence and quality of doctors and low level of efforts at public hospitals compared with the private sector. Also, the manner of delivery of services, availability of facilities, interpersonal and diagnostic aspect of care determine the perception of quality in rural India (Sharma & Narang, 2011).

Very few studies have explored the quality of care perceptions of MHI members. Two studies focused on perception of quality of care by MHI members, of which, a survey by Robyn et al. (2013) is noteworthy. The authors find better perception of quality of care by members of community-based health insurance while receiving worse quality of care. Another study from India by Bauchet et al. (2010) on Uplift scheme finds no relationship between perception of quality of care and insurance status. Despite several studies on quality aspects and issues such as service quality dimensions,

service quality model, and patient satisfaction, there is no integrated quality model for MHIs in Indian healthcare literature.

The SSP selects network hospitals (mostly in private sector) after careful scrutinisation based on several criteria that include the range and quality of services, cost of treatment, location and proximity to members, and preferences of members. It also prospectively fixes prices of health services at discount rates and provides cashless benefits to insured members. Based on this, the study hypothesises that insured individuals would perceive - H1: higher availability of health care providers, supplies and physical resources, H2: more desirable health care provider conduct, H3: effective delivery of care, H4: greater financial and physical accessibility of care, and H5: better quality of physical structure of facility and H6: higher satisfaction with health services received from the providers compared to uninsured and newly insured individuals;. By covering hospitalisation expenses, SSP removes financial barriers to access health care at private hospitals known for their better quality of care in India (Patel et al., 2010). Hence, the study hypothesises that insured individuals' access care at private facilities more than the uninsured and newly insured individuals (H7).

3. Data and Methodology

3.1 Study Setting

Karnataka covers an area of 191,976 sq. km. or 5.83% of the total geographical area of India. It is the eighth largest Indian state by area, ninth by population and seventh based on Net State Domestic Product (Directorate of Economics and Statistics, GoK). Sampoorna Suraksha Programme (SSP) was selected for this study for being the second most significant MHI in Karnataka. In 2004, SKDRDP (Shri Kshetra Dharmasthala Rural Development Project), a microfinance institution designed SSP in consultation with insurance companies to provide health risk coverage to its self-help group (SHG) members. The SSP package has medical benefits worth INR 10,000 (Indian rupees, 1 US dollar= approximately INR 65) for cashless inpatient treatment at 110 network hospitals. Enrolment is carried out in February for an annual premium of INR 250 per person (1 US $= INR 65 approximately). In 2015-16, 13.25 (1.3 million?) lakh members enrolled paying a premium of INR 33 crore. The insurance package covers pre-existing diseases without waiting period restrictions, co-payments or deductibles.

For the selected hospitals, project officers of SKDRDP would send a requisition form to various hospitals for inclusion in providers' network. The form should be submitted by the hospitals detailing total number of

beds, general ward beds, special consultation facilities, diagnostic equipment, details of the doctors/ specialists, charity work of the hospital, and procedure rate list (for various investigations and surgery charges). An undertaking by Chief Operating Officer of the hospital to provide cashless treatment at concessional agreed rates to beneficiaries of the scheme is necessary to reach an agreement. The SSP does not insist on standard treatment protocols and gatekeeping system. It pays the hospitals using fee-for-service method through RTGS.

3.2 Study Design and Data Collection

A descriptive cross-sectional survey was carried out in r 2011 to know the determinants of selection of health facilities as well as to compare perception of quality of care among the insured, newly insured and uninsured individuals residing in Dakshina Kannada, Uttara Kannada and Gadag districts in Karnataka. Recognising the need to rule out self-selection bias, newly enrolled SSP members (who enrolled for the first time and hence did not avail SSP benefits) along with uninsured and insured members were considered with the logic that insured and newly insured members self-select into the programme. Additionally, these three groups were members of self-help groups and thus, observable characteristics would be comparable. The respondents from three groups were chosen from the same locality to minimise community effects.

Data was collected using a structured questionnaire self-administered by the respondents. The questionnaire contained two parts – first part contained questions measuring perception of quality of health facilities, selection of health facilitates and overall patient satisfaction while second part contained socio-economic information. The first part had a filter question, "Was any member of your family sick in the last year?" (in 2010) and the remaining questions were to be answered by those who reported illness. Data was collected on health care access, sources of treatment, and reasons for choosing the healthcare facility. Haddad et al. (1998) and Robyn et al. (2013) scale were applied to understand the perception of quality of health services and patient satisfaction. Likert-type 6-point response scale was opted to examine the perception of quality (responses ranging from very poor to very good) regarding perceived health care provider conduct, delivery of care, financial and physical accessibility to care, and quality of physical structure of the facility. The questions on illness and treatment included types of illness, treatment sought (self-treatment, outpatient or inpatient) and reasons for choosing the health facility (no improvement with previous treatment, lack of money, quality of treatment, low cost of treatment, trust in treatment and nearness to home, severity and nature of illness).

The second part contained information on households including age, gender and occupation of head of the household (labourer, agriculture, self-employed, salaried in informal sector, formal sector employment and unemployed), size of the household, area of residence (urban, semi urban and rural), annual household income, and education of head of the household (illiterate, primary education, secondary education and graduate or more). The classification of households into five income groups considered the per capita annual income of the entire sample. The per capita annual income data was divided into five equal parts, after arranging them in an ascending order, as quintile 1(first 20%), quintile 2 (next 20%), quintile 3 (next 20%), quintile 4 (subsequent 20%) and quintile 5 (last 20%). Thus, five dummy variables were proposed - one for the wealthy (quintile 5), non-poor (quintile 4), vulnerable non-poor (quintile 3), moderate poor (quintile 2) and extremely poor (quintile 1).

A pilot study was conducted to check the validity (face and content) and reliability of the questionnaire. The sample size was 30, and the respondents were selected using convenience sampling method. The study was conducted in Mangalore, a *taluk* in Karnataka. After 15 days, retest was conducted for the same 15 respondents using questionnaire. Most of the questions were easily understood by the respondents, while the difficult ones were reframed. Some of the options that were not included in the survey but opted by the respondents were included in the final questionnaire. The internal consistency among the items was measured using Cronbach alpha test. The scale had an overall alpha coefficient of 0.767, above the desired upper limit. The content validity was assessed by consulting subject experts who have researched health services quality. The experts opined that the scale used by the study covered most domain of the constructs. The statistical analysis was carried out using SPSS version 21.0 (IBM Inc., USA).

3.3 Econometric Model

The hypothesis of the study was tested using multiple regression analysis that estimated the determinants of overall patient satisfaction.

$$PS_i \big| HCA_i | ill = \beta_0 + \beta_1 M_x + \beta_2 X_y + \beta_2 Y_z + \varepsilon$$

$PS_i \big| HCA_i$ is overall patient satisfaction conditional on health care action upon illness. M_x represents the primary interest, whether the individual was enrolled in SSP at the time of visit. X_y has perceived quality dimensions that affect patient satisfaction, and Y_z is socio-demographic and treatment characteristics. The model was subjected to tests such as variance inflation factor, correlation matrix, Cook's D statistic and Dfits statistic to

minimise non-normality and heteroscedasticity problems. The endogeneity problem was addressed by using the Durbin-Wu-Hausman method as explained below (Ekman et al., 2007).

The probability of enrolment was estimated using a logistic regression model that considered SSP status as a dependent variable and various instrumental variables as an independent variable to get the residuals of SSP health insurance variable.

$$\text{Prob (Membership>0)} = \beta_{0+}\beta_1 X_\beta + \varepsilon$$

Residual of SSP variable was included as an independent variable along with other independent variables in the regression model.

$$PS_i \mid HCA_i|ill = \beta_0 + \beta_1 M_x + \beta_2 X_y + \beta_3 HI\_res + \varepsilon$$

If β_3 is significantly different from zero, then regression is not consistent, making the coefficient of the health insurance biased (endogenous). Accepting the null hypothesis ($\beta_3=0$) suggests exogeneity of the health insurance in the model.

Kruskal Wallis test was applied to test any significant differences in the perception of quality of health services between insured, newly insured and uninsured individuals. Discriminant analysis was carried out to identify the factors that determine the selection of sources of care among insured and uninsured (including newly insured) individuals.

3.4 Sampling Design

The SSP had implemented its insurance scheme in nine districts of Karnataka that varied substantially regarding income, education, geography, natural resources, disease pattern, sex ratio, economic development and health indicators. The population of interest is the SHG members of SKDRDP - the newly insured, insured or uninsured members. Districts, *taluks* (administrative regions), *valayas* (project circles) and *karyakeshtras* (villages) were the clusters. The list of member households in each *karyakshetra* formed the sample frame, while calculating sample size, level of precision, level of confidence and degree of variability in attributes are essential considerations. As the target population size was 892,740 households in 2011-12 (SSP households were 420,302 that included insured and newly insured), 385 was considered as desirable sample size per group given the confidence interval of 5 percent and confidence level of 95 percent.

3.4.1 Sampling Procedure

The sample was drawn using five-stage cluster design with random selection procedures. In the first stage, primary clusters were nine SSP districts in Karnataka. Rearrangement of these districts in ascending order based on human development index (HDI) facilitated the random selection of three districts, namely Dakshina Kannada, Uttara Kannada, and Gadag. In the next stage, *taluks* in these districts formed clusters. Using the information provided by the district websites, *taluks* were listed according to the literacy index, and 10 *taluks* were selected randomly based on the probability proportional to population size sampling method. In the third stage, list of *valayas* (obtained from the *taluk* SSP office) in the selected *taluks* were used to select *valayas* randomly. These *taluks* had 97 *valayas* and 18 were chosen for the study. In the fourth stage, from the list of *karyakshetras* (785 in three districts), four to five *karyakshetras* (a total of 84) were selected from each *valaya* using the probability proportional to the number of *karyakshetra* in each valaya. In the next stage, using a systematic sampling method, 10-15 households in each *karyakshetra* were chosen. The total sample size included additional five percent to deal with the problem of non-response or partly filled questionnaire. Therefore, 18 *valayas*, 84 *karyakshetras* were selected and 1260 sample size was considered to solve the potential problem of non-response. However, due to non-response and incomplete or wrongly filled questionnaire, a total of 1146 respondents were considered for further analysis [416 renewed insured (who renewed their membership), 366 newly insured (those who joined the programme for the first time) and the rest uninsured households]. The SSP members who have been renewing their SSP status in the last one or more years were classified as insured members. The uninsured group consisted of SHG members enrolled for 2011-12 (newly insured members who did not avail SSP benefits in the year 2010) and SHG members who did not enrol in SSP.

4. Results

The mean age of household head was 48 years for insured and uninsured households and 47 for newly enrolled families. Majority of the head of households were men (88.7% in insured and 86.2% in newly insured and 85.5% in uninsured) (see Table 1). The insured had a lower percentage of unskilled labour (38.2%) and formal sector employment (2.9%) compared with uninsured (43.1% and 5.8 % respectively) and newly insured members (43.4 % and 5.2 % respectively). The insured (2.3 km) and uninsured households (2.4 km) stayed near the hospital compared with the newly insured (3.3 Km) (p<0.05) (Table 1).

Table 1: Basic Characteristics of Households

	Insured (N=416)	Newly insured (N=364)	Uninsured (N=366)	Test value
Median age of household head	48	47	48	0.7
Marital Status (%)				8.93*
Married	86.5	86.1	81.6	
Unmarried	1.7	0.8	0	
Widow/widower/divorcee	11.8	13.1	18.4	
Occupation of head of the household (%)				27.25
Unskilled labour	38.2	43.4	43.1	
Skilled labour	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	
Income quintile (%)				4.57
Q1 < INR 14100	18.5	20.5	22	
Q2 INR 14101-INR 19010	20.9	20.5	22	
Q3 INR19011- INR24000	19	22	18.4	
Q4 INR24001-INR34800	21.9	21.3	22.3	
Q5 >INR34800	19.7	15.6	17.6	
Distance to nearest hospital (in Km)	2.3	3.3	2.4	42.64*
Area of residence (%)				36.22*
Rural areas	52.2	55.2	56.2	
Urban areas	7.2	14.2	12.1	
Semi-urban areas	40.6	30.6	31.7	

Source: Primary survey
INR Indian Rupees (1 US $= INR ~ 66)
*significant at 5%

In this study, 371 individuals suffered from illnesses, and 10 did not seek treatment from formal providers of care. Hence, the data of 159 insured, 117 newly insured and 85 uninsured individuals who sought treatment was considered for further analysis. A higher proportion of insured individuals (96.8%) sought health services compared with the uninsured (87.7%). Individuals suffering from chronic illness (50.7%) accessed health care services more than those suffering from an acute illness (45.1%) (p<0.05). The average duration of illness for care seeking individuals was 15 days. Nearly 83% of individuals having men as the head of the family did seek care while majority of the individuals from low-income quintile (Q1, Q2, and Q3) did not.

4.1 Selection of Healthcare Facilities

A higher number of visits (more than or equal to 2) were made by the newly insured (31.5%) than the insured (26%) and uninsured (17.6%) individuals (p>0.05). In terms of total visits, 38% of insured individuals sought care at district hospitals and 36% at regional hospitals, which was higher than that of newly insured (27.5% and 28.9% respectively) and uninsured (31.2% and 24.8% respectively) (p<0.05). Almost 9% of the newly insured and 11.9% of the uninsured compared with 5.8% of insured individuals chose government facilities. Nursing homes were chosen by 6.7% of newly insured, 5.8% of the insured and 2.7% of the uninsured. Similarly, clinics were visited by 21.5% of newly insured, 18.3% of uninsured and 12.1% of insured individuals. Self-treatment was chosen by 8.3% of the uninsured, 4.7% of newly insured and 1.6% of insured individuals. Analysis of determinants of health-seeking behaviour revealed that quality of treatment was the primary factor for 40.4% of insured to access care and trust in treatment was an important reason for the uninsured (33.3%) and newly insured (30%) individuals (Table 2).

Table 2: Factors Determining the Selection of Healthcare Providers

	Insured (N=159)	Newly insured (N=117)	Uninsured (N=85)
Accessible	27.3	20.5	34.4
Lack of improvement	5.6	8.3	2.2
Lack of money	9.3	9.2	12.2
Quality of treatment	40.4	25	26.7
Low cost of treatment	13	13.3	7.8
Trust in treatment	24.2	30	33.3
Severity of illness	8.7	7.5	16.7
Nature of illness	6	6.7	6.7
Referral	8.8	14.5	8.3

Source: Primary survey

Table 3 contains factors that differentiate the selection of hospitals by surveyed individuals regardless of their health insurance status. The predictor variables were cost and quality of treatment, lack of improvement in health status after the initial treatment, referrals by primary care physicians to specialists, affordability (lack of money), trust in treatment and accessibility (near to home), severity and nature of the illness. The aim was to investigate the factors that differentiated the selection of private clinic, government hospitals, district hospitals, and regional hospitals to identify the factors that distinguish insured and uninsured (including newly insured) individuals.

Table 3: Discriminant Analysis of the Factors Determining the Choice of Health Facility

Private clinic[1]	Accessible (0.589), Lack of improvement (0.556)
Government hospital[2]	Lack of money (0.812), Low cost of treatment (0.426)
District hospital[3]	Lack of money (-0.581), Severity of illness (0.478), Quality of treatment (0.408), Accessible (.335)
Regional hospital[4]	Referral (0.680), Lack of money (-0.426), Nature of illness (0.426), Trust in treatment (-0.390)

[1]Box's M=184.961, p=0.000; Wilk's lambda p=0.000
[2]Box's M=165.463, p=0.00; Wilk's lambda p=0.000
[3]Box's M=222.102, p=0.000; Wilk's lambda p=0.016
[4]Box's M=113.187, p=0.000; Wilk's lambda p=0.02
Source: Primary survey

When visit to the private clinic was taken as a dependent variable, structure matrix shows accessibility and no improvement as significant variables that carry a positive sign which means that accessibility and previous ineffective treatment discriminate individuals visiting the clinic. The cross-validated classification shows correct classification of 79.2% of

cases. In case of government hospitals, lack of money (0.812) and low cost of treatment (0.426) have the highest loadings which suggest that affordability and low cost of the health services discriminate those who visited government hospitals from those who did not (Table 4) (cross-validation 85.2%).

Similarly, the severity of illness (0.478), quality of treatment (0.408), and accessibility (.335) carry a positive sign, and lack of money carries negative sign (-0.581) for district hospitals. Individuals with severe illness, those who expect quality treatment that is easily accessible and affordable select district hospitals (cross-validation 65.2%). When regional hospitals as a dependent variable was analysed, referral to a specialist (for tertiary care), affordability (lack of money carries negative sign), nature of the illness and lack of trust in treatment (negative sign) discriminate the seekers of care from non-seekers (cross-validation 66.6%). This suggests that individuals with illness requiring tertiary care and those who could afford the cost of treatment visit regional hospitals.

The results of discriminant analysis of factors that determine the selection of sources of care among the insured and uninsured and newly insured groups is shown in Table 4. Initially, insured, newly insured and uninsured individuals were taken as group variables. The discriminant function revealed a significant association between the groups and all predictors with Wilk's lambda p=0.02 (Box's M 69.020; F 2.414, p=0.000). Quality of treatment (.730) was the primary factor that differentiated the insured from newly insured and uninsured individuals, followed by lack of money (-.591) and accessibility (.312) to the health facility. This suggests excellent quality of care, affordability, and accessibility as determinants of selection of health facility by insured individuals compared with uninsured and newly insured individuals. When insured and newly insured were considered as grouping variables, quality of treatment (.718) and lack of money (-.521) differentiated the insured from newly insured. Similarly, lack of money (-.592), quality of treatment (.470) and low cost of treatment (.319) distinguished the insured from uninsured individuals.

Table 4: Factors Determining the Choice of Health Facility: Comparison by Health Insurance Status

Insured and uninsured (both newly insured and uninsured) individuals[1]	Quality of treatment (.730), Lack of money (-.591), Accessible (.312)
Insured and Newly insured individuals[2]	Quality of treatment (.718), Lack of money (-.521)
Insured and uninsured individuals[3]	Lack of money (-.592), Quality of treatment (.470), Low cost of treatment (.319)

[1]Box's M=183.13, p=0.000; Wilk's lambda p=0.026
[2]Box's M=91.56, p=0.00; Wilk's lambda p=0.068
[3]Box's M=152.4, p=0.000; Wilk's lambda p=0.02
Source: Primary survey

4.2 Perceived Quality of Care

This section analyses perceived quality of care by individuals who sought healthcare services at private and public hospitals and private nursing homes. Perceived availability of providers, supplies, and physical resources was higher among the insured individuals (mean 15.21) than the uninsured (including newly insured) (mean 14.61) individuals (Table 5). A larger number of insured individuals (mean 3.63) perceived rooms to be sufficient than newly insured and uninsured (mean 3.22 and 3.49 respectively). In the second dimension of quality, namely perceived quality of healthcare delivery, the insured felt diagnostic examinations (mean 3.68), quality drugs (3.55) and treatment (mean 3.48) were better compared with the uninsured and newly insured individuals. Additionally, the insured had higher mean score of 3.24 for provider's respect for patient confidentiality and responsiveness of facility assistants (mean score of 3.86) than the newly insured and uninsured. Affordability of cost of treatment was perceived to be favourable by the insured (mean 2.91) than the newly insured (mean 2.31) and uninsured (mean 2.7). Quite surprisingly, the uninsured had a higher score for perceived distance to a health facility (mean 3.67) compared with the insured (mean 3.16) and newly insured (mean 2.31). The insured had a higher mean score for cleanliness and orderliness of health facility (p=0.00).

Table 5: Perception of Quality of Health Services: A Comparison of Insured, Newly Insured and Uninsured Individuals

	Insured Mean (SD)	Newly insured Mean (SD)	Uninsured Mean (SD)	p-value
Perceived Availability of Providers, supplies and Physical Resources				
Rooms are sufficient	3.63 (1.09)	3.22(1.14)	3.49 (1.1)	0.007
Medical supplies are sufficient	3.57 (1.13)	3.33 (1.13)	3.55 (1.06)	0.142
Equipment is sufficient	3.84 (0.82)	3.66 (.91)	3.9 (0.71)	0.81
Health care providers are adequate	4.16 (0.89)	4.14 (0.63)	3.98 (0.98)	0.33
Perceived Quality of Healthcare Delivery				
Providers conduct quality diagnostic examinations	3.68 (0.98)	3.33 (1.01)	3.26 (0.89)	0.000
Providers prescribe good quality drugs	3.55 (1.14)	3.28 (1.11)	3.25 (1.06)	0.08
Treatment is sufficient	3.48 (1.03)	3.34 (1.04)	3.65 (0.98)	0.006
Perceived Quality of Healthcare Provider Conduct				
Providers respect patient confidentiality	3.24 (1.07)	2.91 (1.02)	2.85 (1.11)	0.006
Facility assistants respond to patient's questions	3.86 (0.93)	3.68 (0.91)	3.68 (0.83)	0.04
Providers show compassion to patients	3.17 (1.04)	3.17 (1.02)	2.96 (1.03)	0.238
Providers are respectful to patients	3.26 (1.1)	3.02 (0.96)	3.14 (1.04)	0.086
Providers are welcomed during consultations	2.93 (1.02)	2.94 (0.99)	2.89 (1.08)	0.945
Perceived Financial and Physical Accessibility to care				
Affordability of cost	2.91 (1.09)	2.31 (1.01)	2.7 (1.06)	0.000
Distance to facility is accessible	3.16 (1.26)	2.72 (1.09)	3.67 (1.26)	0.000
Providers give sufficient time to patients	3.54 (1.05)	3.66 (0.81)	3.54 (0.95)	0.74
Perceived Quality of Physical Structure of Facility				
Health facility is clean and orderly	4.1 (0.89)	3.71 (0.91)	3.92 (0.82)	0.000
Easy to find location of specific services at facility	3.45 (0.85)	3.42 (0.87)	3.38 (0.86)	0.154
Waiting area is comfortable	3.79 (0.98)	3.75 (0.92)	3.57 (0.96)	0.098

Table 5: (Continued)

	Insured Mean (SD)	Newly insured Mean (SD)	Uninsured Mean (SD)	p-value
Patient Satisfaction				
Satisfaction with the explanation given about the results of treatment	3.16 (1.26)	2.72 (1.09)	3.67 (1.26)	0.00
Satisfaction with the effect of treatment	3.23 (1.15)	2.54 (1.08)	3.02 (1.26)	0.02
Satisfaction with the time spent with the doctor/health professional	3.15 (1.05)	2.32 (1.12)	3.11 (1.23)	0.12
Satisfaction with the care received at the hospital	3.45 (1.43)	2.85 (1.26)	2.95 (1.32)	0.04

Source: Primary survey

Kruskal Wallis test

A comparison of public and private hospitals is shown in Table 6. Private hospitals had higher mean score for perceived quality of healthcare delivery (mean 7.32), perceived availability of providers, supplies and physical resources (mean 14.94 at 10% significance) whereas the uninsured had higher mean score for perceived financial and physical access to care ($p > 0.05$).

Table 6: Perception of Quality of Health Services: Public vs. Private Hospitals

	Private Mean (SD)	Public Mean (SD)
Perceived Availability of Providers, supplies and Physical Resources	14.94 (2.49)	14.18 (2.73) **
Perceived Quality of Healthcare Delivery	7.32 (1.74)	6.42 (2.02) *
Perceived Quality of Healthcare Provider Conduct	16.05 (2.47)	15.5 (2.64)
Perceived Financial and Physical Accessibility to care	9.46 (2.01)	9.92 (2.09)
Perceived Quality of Physical Structure of Facility	7.7 (1.51)	7.5 (1.71)
Patient Satisfaction	11.8 (1.32)	11.48 (1.42)

*$p < 0.05$; **$p < 0.1$

Source: Primary survey

The results of linear regression analysis for the sample (Model 1) as shown in Table 7 reveals that perceived quality of both financial and physical accessibility to a health facility (beta 0.39, p=0.00) and MHI membership (beta 0.606, p=0.00) have a positive coefficient. Model 1a that considers the sample of uninsured (including newly insured) individuals show a significant and positive impact of perceived financial and physical accessibility to care (beta 0.871, p=0.00) and the negative impact of perceived quality of physical structure of facility (beta -0.081, p=0.035) on overall satisfaction. In the case of Model 1b (insured individuals), perceived availability of providers, supplies and physical resources has positive (beta 0.216, p=0.045) and significant impact on overall satisfaction with the quality of care. The endogeneity test using Durbin-Wu-Hausman test found exogeneity of health insurance (model 1) with prob (chi^2) =0.733. This confirms that the results are not due to any unobservable characteristics that would increase the perception of overall patient satisfaction with health services. Variance Inflation Factor did not suggest any multicollinearity since the value was less than three for all the significant independent variables. Correlation matrix did not show any significant correlation between independent variables. Cook's D statistic detected no outliers (0.023) and Dfits statistic (< 1.0) did not suggest any observation that strongly influenced the model. The model fitted well with F value of 68.131 (p<0.05).

Table 7: Regression Results of Perceived Quality of Health Facilities

Patient satisfaction	Model 1		Model 1a		Model 1b	
	Standardised Coefficients Beta	Sig.	Standardised Coefficients Beta	Sig.	Standardised Coefficients Beta	Sig.
(Constant)	0.197	0.789	0.57	0.310	2.62	0.000
Perceived Availability of Providers, supplies and Physical Resources	0.073	0.130	0.073	0.150	0.216	0.045
Perceived Quality of Healthcare Delivery	0.047	0.298	-0.065	0.169	0.110	0.295

Table 7: (Continued)

Patient satisfaction	Model 1		Model 1a		Model 1b	
	Standardised Coefficients Beta	Sig.	Standardised Coefficients Beta	Sig.	Standardised Coefficients Beta	Sig.
Perceived Quality of Healthcare Provider Conduct	-0.009	0.806	-0.051	0.181	0.047	0.574
Perceived Financial and Physical Accessibility to care	0.390	0.000	0.871	0.000	0.109	0.240
Perceived Quality of Physical Structure of Facility	0.001	0.979	-0.081	0.035	0.114	0.157
Insured	0.606	0.000	-	-	-	-
Urban Area	0.008	0.803	-0.003	0.929	0.026	0.741
Private hospital	-0.014	0.672	0.005	0.899	-0.012	0.876
F test	68.131	0.00	87.244	0.00	4.658	0.00
Adj.R^2	0.593		.739		0.425	

Source: Primary survey

5.   Discussion

The objectives of the present study were to understand the selection of health facilitates for treatment, the differences in the perception of quality of care between insured and uninsured (including newly insured) individuals as well as its relationship with patient satisfaction.   The following findings were noted a) accessibility, affordability and quality of treatment differed between the insured from uninsured (also newly insured) on the selection of health facilities, b) the insured perceived better quality of healthcare delivery, healthcare provider conduct, financial and physical accessibility to care compared with the uninsured (also newly insured), c) the insured perceived better overall satisfaction with quality of care and d) perceived quality of financial and physical accessibility to care positively

influences overall satisfaction with health services, and e) perceived better quality of availability of providers, supplies and physical resources influence patient satisfaction for insured whereas financial and physical accessibility to care significantly contribute to satisfaction for uninsured (also newly insured) individuals.

When data on the motivators to select particular facilities was analysed using discriminant analysis, private clinics were chosen due to their accessibility and lack of results from the previous treatment whereas low cost of treatment was the prominent factor in the selection of government hospitals. Affordability of treatment, severity of illness, good quality of the treatment and availability of services (for 24 hours in 7 days) influenced the selection of private district hospitals (network hospitals). Referral by primary care physicians and nature of illness were the reasons for visits to private regional hospitals. Thus, insured members due to affordability (made possible by SSP), acceptability (quality of treatment) and accessibility chose SSP hospitals. Kruskal Wallis test supports the results of the discriminant analysis that the insured perceived considerable financial and physical accessibility to care (affordability of cost and accessibility to the facility), where regression results shown in Model 1 and Model 1a point to a significant influence of this factor on patient satisfaction. This finding is consistent with that of Abousi et al. (2016) and Robyn et al. (2013) who noted differences in perception of financial access to care between insured and uninsured individuals. A possible explanation for this finding is that SSP contracts with a large number of carefully selected hospitals situated in semi-urban and rural areas that improve physical accessibility to care. Moreover, financial barriers to access care reduce when patients can make cashless claims from SSP for the treatment. In contrast to insured, uninsured and newly insured individuals rely on private clinic, self-treatment and the government hospitals due to lack of money and low cost of treatment and affordability. Thus, the hypothesis that the insured perceived better financial and physical accessibility to care compared with the uninsured is accepted (H4).

Apart from financial and physical accessibility, there were significant differences in the perception of insured and uninsured (also newly insured) individuals in other indicators of quality. The insured perceived more availability of providers, supplies and physical resources (availability of sufficient rooms), perceived quality of healthcare delivery (quality of diagnostic examinations; prescription of drugs; sufficient treatment), perceived quality of healthcare provider conduct (confidentiality of information; facility assistants respond to patient's questions), and perceived quality of physical structure of facility (clean health facility). Robyn et al. (2011) however, observed CBI enrollees' perception of poor quality of conduct of healthcare provider led to dropouts from Nouna

scheme. Since few of the indicators of the quality measures showed a significant relationship, H1, H3, H4, and H5 is partially accepted. However, all indicators of perceived quality of healthcare provider conduct showed significant difference between insured and uninsured group. Model 1 indicates a significant relationship between patient satisfaction and MHI membership. Hence H2 and H6 are accepted. For insured individuals, availability of providers, supplies and physical resources outweigh the influence of other aspects of quality in determining satisfaction with the services received (model 1b). The insured placed more weight on the process of delivery of health services than the physical structure of the facility. The Hausman test negates the influence of selection effect on the observed outcome. The findings of this study are supported by Robyn et al. (2013) who noted significant differences in perceived quality of care and overall patient satisfaction in a community health insurance scheme (CBI) in Burkina Faso. The authors observed better perception among the insured regarding friendliness and availability of facility assistants and financial affordability but not the quality of diagnostic exams. In contrast, Bauchet et al. (2010) found no difference in the level of satisfaction of the insured and uninsured patients since both visited the insurer's network of providers. Since SSP requests network hospitals to use drug formularies, stipulates package list (pricing of services) to reduce the cost of treatment and a checklist to ensure availability of providers and physical health care resources, especially medical supplies and equipment, the insured did perceive a better quality of care at the network hospitals impanelled by SSP. The scheme managers monitored the provider behaviour through pre-authorisation requirements that checked the line of treatment, probable cost, prescriptions, and quality of care provided to their members for effecting payment. The hospitals that inflated medical bills or involved in fraudulent activities were removed from the network of impanelled providers.

Another noteworthy finding that draws our attention was that uninsured lived closer to a healthcare facility. Was it the reason behind their non-enrolment? The uninsured would know more about the quality of health facility better than those staying far away and could access care when needed without the physical barriers. However, their perception of the quality was lower than that of insured individuals and their score for financial barrier was high compared with insured individuals. This may be because most of them visited government facilities (primary health centers) in rural India, easily accessible but known for their lower quality of care. This paper found the uninsured (including newly insured) felt health facility to be unclean, uncomfortable waiting area and difficulty in finding the location of specific services in their preferred healthcare facilities. Since the insured had perceived the better quality of care and satisfaction

with health services with the affordable cost of treatment, SSP can entice the uninsured to join the programme and seek care at private hospitals that are acknowledged for good quality care in India.

As the discriminant analysis reveals, insured individuals sought care at private facilities and perceived better financial and physical accessibility to care at private hospitals than public hospitals. The insured patients perceived greater availability of providers, supplies and physical resources and quality of healthcare delivery at private hospitals than public hospitals. Hence, hypothesis that there is a significant association between type of hospitals (private or public) and MHI membership is accepted. Patel et al. (2010) and Taner & Antony (2006) found private facilities to provide excellent service quality to patients compared with public hospitals. However, regression results on patient satisfaction do not support the claim that patient satisfaction at private hospitals would be higher than that at public hospitals (model 1).

The findings of this study support the active role of SSP in improving quality of the hospitals. However, SSP did not encourage the implementation of standard treatment protocols including drug formularies and physician profiling (tracking of the physician treatment patterns). The SSP used the fee-for-service system, known for its escalating cost and administrative complexity along with the higher incentive to over-service and over-prescribe. It is recognised that the scheme would not sustain financially if strict referral system or gatekeeping is not practiced. Hence SSP should use primary health centers and tier-system of Indian health care system to implement gatekeeping. The study has several limitations. Since the study used survey design, the causal effect of MHI on quality of care could not be assessed, and some of the healthcare quality issues such as moral hazard could not be evaluated.

Conclusion

Micro health insurance undoubtedly breaks down financial barriers to access healthcare services and does indeed motivate the poor individuals to seek care in private empanelled network hospitals that provide quality care rather than resorting to self-treatment or postponement of care. Awareness on seeking care from the formal system than self-treatment needs to be fostered among all the self-help group members especially uninsured population. This would encourage them to enroll in SSP to improve their financial and physical accessibility to care, thereby not only mitigating iatrogenic poverty but also enhance the perceived quality of healthcare and patient satisfaction.

For insured individuals, the process of delivery outweighs other indicators of quality and hence MHI scheme managers should design

contracts with hospitals that ensure administration of quality drugs without stock-outs, provides basic services, shows compassion and empathy towards enrollees, ensure confidentiality of patient information, show respect and welcome during consultations and spend more time listening to the patients. MHI scheme managers should further ensure network hospital has the excellent physical infrastructure, adequate supplies of drugs, equipment, and qualified medical professions to enhance patient satisfaction. This would go a long way in improving the delivery and accessibility of healthcare services to the poor, marginalised and those living below the poverty line.

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