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Inequity in Outpatient Healthcare Use and Utilization of Public Healthcare Facilities: Empirical Evidence from NSS Data

Anushree K N
S Madheswaran

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INEQUITY IN OUTPATIENT HEALTHCARE USE AND UTILIZATION OF PUBLIC HEALTHCARE FACILITIES: EMPIRICAL EVIDENCE FROM NSS DATA

Anushree K N∗ and S Madheswaran∗∗

Abstract

The purpose of this study is to assess the socioeconomic inequities in healthcare outcomes by place of residence, using two rounds of NSSO data. The healthcare outcomes of interest were utilization of outpatient healthcare services and choice of care captured in the survey with fifteen days' recall period. Horizontal Inequity [HI] index was employed to measure inequities in healthcare outcomes. Further, determinants of healthcare outcomes were estimated using non-linear regression models. Our findings show that inequities in outpatient care utilization were largely concentrated among wealthier groups, while the utilization of government health facilities were disproportionately concentrated among poorer sections of the population, not only in Karnataka but also in India at large. Though the inequities in outpatient care utilization were positive, yet the magnitude of inequities declined over a decade, suggesting that the healthcare system is tending towards equitable provision of care, based on need.

Keywords: Healthcare use, socio economic factors, concentration index, horizontal inequity.

Introduction

Health is considered as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. Thus, improving the health of the population is not just considered as a social interest but also viewed as a key to economic growth and development. However, it is noted that health is not evenly distributed among the population in both developed and developing countries and one of the often attributed reasons for such unequal distribution of health is inadequate access to essential health services. Hence, reducing inequalities in health between socioeconomic groups has become a major aim of health policy. In this context, provision of equitable healthcare access is increasingly being acknowledged as a means for reducing health inequalities (WHO, 2000, 2010).The propagators of equity policy emphasise on the distribution or utilisation of healthcare services based on need rather than on socioeconomic factors (Wagstaff, van Doorslaer and Paci, 1991; Wagstaff and van Doorslaer, 2000). In this spirit, efforts have been made by both developed and developing countries to monitor the extent of inequity in healthcare utilisation. For example, a study by Mullachery, Silver, & Macinko (2016) suggests that between 1998 and 2008, Brazil became increasingly equitable in the utilization of healthcare services. Similarly, Zhou *et al*, (2013) found that in rural China during 1993-2008, the inequity in outpatient and inpatient care utilization was pro-rich. However, the magnitude of inequity declined over the years, with the introduction of an insurance scheme in rural China.

∗ PhD Scholar, Centre for Economic Studies and Planning (CESP), Institute for Social and Economic Change [ISEC] Nagarbhavi, Bangalore-560072, India. Email: anushreekashyap91@gmail.com

∗∗ Professor, Centre for Economic Studies and Planning (CESP), Institute for Social and Economic Change [ISEC] Nagarbhavi, Bangalore-560072, India.

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Even in India, with the rise of neo-liberalism and declining public spending, studies have highlighted that the provision of health services is based on ability to pay rather than need of the population (Gupta, 2013).Thus, in an attempt to address the structural issues of health service provision, health policies and programmes such as the National Rural Health Mission [NRHM] and Rashtriya Swasth Bima Yojna [RSBY] have been introduced (GOI, 2002, 2017). However, in spite of these initatives, some studies have reported that utilization of health services continues to be based on ability to pay and with the richer class using more healthcare services rather than health needs (Borooah, 2010; Joe, Rudra, & Subramanian, 2015). For instance, in their study, Borooah (2010) found that around 26 per cent of Dalit women compared to forward caste women in India were unable to access prenatal healthcare services. In their study, Agrawal and Keshri (2014) concluded that during an illness episode, compared to older non-widows, older widows were less likely to access healthcare services. Further, Joe *et al* (2015) examined the existence of horizontal equity for elderly population and concluded that the need-based outpatient healthcare utilization is pro-poor in nature; but in actuality, outpatient healthcare utilization was concentrated among the higher income groups and decomposition analysis suggested that income played a strong role in shifting the distribution of healthcare away from the poor elderly**.** On the other hand, some studies have examined the inequity for specific healthcare delivery i.e. hospitalisation (Shankar Prinja, Andrew D Pinto, Stephen Jan, Rajesh Kumar, 2013; Ghosh, 2014)**.** While some evidences are found by those examining inequities over time at the national level for different age groups (Pandey *et al*, 2018), very little attention has been paid in terms of assessing the inequity over time and examining the inequity in outpatient care utilzation for different groups of population at the state level. Thus, the present study aims to bridge the gap by examining the extent of horizontal inequity in outpatient care utilisation, untreated morbidity and choice of healthcare facilities between 2004-2014 for a population of those aged 20 years and above at the state level. Since health is a state subject in India and many policy interventions identified and implemented are state specific in nature, the exploration of the above-mentioned issues are analysed in this paper for Karnataka, one of the South Indian states, vis-à-vis India. The main reason for choosing a South Indian state is that the morbidity levels across the South Indian states have increased and are high in different age groups compared to all-India levels and at the same time, higher healthcare utilization is observed across different age groups compared to all-India levels. This leads to an issue to be investigated as to whether the provision of healthcare services at the state level is based on need or not. Accordingly, the current paper addresses three questions: First, does the magnitude of outpatient care utilization, utilization of public outpatient care facility differ by SES after adjusting for differential needs of the population? Second, if so, what are the major factors associated in explaining those differences? Third, do the SES inequities vary over time? Thus, the evidence on inequities for outpatient healthcare utilization at state level will help the state in developing a rational policy for providing universal healthcare services that are affordable, accessible and cost-effective in nature. The rest of the paper is organised as follows: Section 2 provides information on data and methodology. Section 3 presents the empirical analysis of the study findings followed by the discussion in Section 4 and conclusion in Section 5.

Data and Methods

Data

In order to assess inequity over time, we made use of unit level nationally representative cross sectional household survey data titled "Morbidity Healthcare and Condition of the Aged" and "Social Consumption: Health", which was collected by the National Sample Survey Organisation, India for 2004 and 2014. The sampling design was stratified into two stages with urban blocks and census villages as the First Stage Units [FSUs] for urban and rural areas respectively, and households as the Second Stage Units [SSUs]. These surveys were conducted during the period of January to June during 2004 and 2014 respectively in line with 35th, 42nd and 52nd rounds of NSS. The main purpose of these surveys is to collect information on morbidity and death profile of the population, extent of utilisation of outpatient, inpatient and preventive healthcare services, related expenditure incurred for the treatment and lastly the condition and problems of the aged persons. NSSO, 2004 and NSSO, 2014 reports provide an elobrate sampling strategy and defintions adopted for collecting information of various indicators.

Table 1 shows the total number of households and individuals sampled during 2004 and 2014, which were 73,868 (3,83,338) in 2004 and 65,932 (3,33,104) in 2014 repsectively. In the present analysis, individuals aged less than 19 years were excluded because the healthcare seeking behaviour of children requires additional information on parental characteristics which is diffcult to get from the data. Thus, individuals aged above 20 years consisited of 1,61,971 in 2004 & 2,06,496 in 2014. Further, only those who were reported to have illness in the 15 days' reference period among those aged 20 years and above were included in the study. Thus the final sample in the study includes 28,418 individuals in 2004 and 28,671 individuals in 2014. The average household size was 5 members in the year 2004 and was 4 members in 2014 and over time, the average household size has declined.

Table 1: Sample Size of the Survey

India						
	2004			2014		
	Rural	Urban	Total	Rural	Urban	Total
Household	47,302	26,566	73,868	35,736	28,702	64,438
Individuals	2,50,775	1,32,563	3,83,338	1,89,573	1,43,531	3,33,104
Individuals >20	1,10,909	51,062	1,61,971	1,13,649	92,847	2,06,496
Individuals reporting morbidity >20	17,077	11,341	28,418	13,928	14,743	28,671

Source: Unit records from NSS, Using 71st (2014) and 60th (2004) Round Data.

In quantfying healthcare inequity, we utilize four groups of variables: Healthcare utilisation variables, healthcare choice variables (i.e.utilization of oupatient public healthcare facility), healthcare need variables and non-need variables.

Healthcare Uilisation, and Health Choice Variables [Dependent Variables]

Healthcare utilisation and healthcare choice variables are measured in two perspectives: the probability of outpatient healthcare use, and probability of utilizing outpatient governement health facility.

Only for those who had positive responses of utilizing outpatient health services, the probability of using government health services were analyzed, which is based on the question "did you seek treatment in Government health Facility?"

Healthcare Need Variables

To date, healthcare need has been interpreted in many ways (Culyer and Wagstaff, 1993; Culyer, 1995) For instance, according to Culyer and Wagstaff (1993), demographic characteristics, health & morbidity status and wellness of the residents are the most reasonable information that can proxy the need for healthcare. Therefore,'the need' in this paper is includes the following set of variables:

Demographic factor: Among the demographic factors, age is one of the most important factors that influence healthcare seeking behaviour. Information on age (years completed) in the survey was captured as a continuous variable. However, in the current analyses we created 5 age dummies [20-29, 30-30 and 40-59, 60-69 and 70+ years] with 20-29 years as a reference category.

Severity of Illness: For those who had reported ailment, further information was sought on number of days (as a continous variable) they were ill in the 15 days reference period. The information was reconstructed as a binary variable with illness being more than 12 days = 1, otherwise = 0. Thus capturing the severity of illness with the reference period and therefore need for healthcare services.

Having confined to bed: Again for those who had reported ailment, further information was sought on number of days (as continous variable) they were confined to bed in the 15 days reference period. All positive responses were coded as confined to bed = 1, otherwise = 0.

Chronic Illness: For those who had reported ailment, further information was sought on the total duration of ailment (this also exceeds the reference period). Thus, those whose duration of illness was more than 91 days were considered to be having chronic illness and were coded =1, otherwise = 0.

Non-Need Factors/Explanatory Factors

Non-need variables in quantifying inequity in healthcare use including gender, marital status, caste, household consumption expenditure quintiles (proxy to income), education, and place of residence were used in the analysis and a brief description of non-need factors is given below.

Marital status: Information on marital status is originally captured in four categories. However, in the current analysis, by merging divorced category into never married, a 3 marital statuses dummy [never married, currently married, widow] were created. Separate dummies were created with currently married as a base category.

Household consumption expenditure: NSS data does not capture information on household income. However, the survey captures information on the usual monthly consumption expenditure of each household. This variable has been divided by household size in order to obtain the monthly per capita consumption expenditure. Later, the MPCE is ranked (in ascending order after taking into account the state and rural-urban variations) and divided into five equal parts with the first quintile representing the poorest group and the fifth (last) quintile representing the richest group in the order of consumption. Separate dummies were created with the richest (fifth quintile) as a base category.

Education: Information on the general educational level of individuals was collected in 13 categories in the 60th round and 15 categories in the 71st round. However, for the analyses, the 13 and 15 categories were further classified into three broad categories: Illiterate, Primary, Secondary and above with Secondary and above level of education as a base category.

Caste: The information on caste of the individuals was collected in four categories in both the surveys: Scheduled Tribe, Scheduled Caste, OBC and Other Forward Caste. For the current analysis, Scheduled Tribe and Scheduled Caste were combined and thus three separate dummies were created with Forward Caste as a base category.

Statistical Analysis

Definitions: Three groups of healthcare utilisation and healthcare choice were separately distinguished in the quantitative analysis. That is, Realised healthcare use and healthcare choice, Need predicted healthcare use and healthcare choice and Need standardized healthcare use and healthcare choice.

Realised healthcare use refers to actual utilisation of services, which was collected in the survey. Need predicted healthcare use is used to capture the variations in healthcare utilisation predicted by the needs for the healthcare which is estimated through statistical modelling. Need standardized healthcare use is used to capture the gap between realized healthcare utilisation and need predicted healthcare utilisation.

The income related inequity in healthcare utilisation and healthcare choice is measured in three steps. First based on the actual healthcare utilisation in NSSO, the Probit regression model is applied to generate the need predicted healthcare use and healthcare choice which is an essential part for calculating need standardized healthcare use and healthcare choice through the method of indirect standardization.

Second, the concentration index is measured for actual, need predicted and need standardised healthcare utilisation and healthcare choice. Thus, the need standardised healthcare utilisation and healthcare choice reflect the income related horizontal inequity in healthcare utilisation.

Standardization of Healthcare Utilization

As the utilization of healthcare and choice of healthcare is a binary response, Probit regression model is used with the probability of outpatient visit, the probability of inpatient visit, probability of using government outpatient health facility, probability of using government inpatient healthcare facility as the dependent variables to indirectly standardize the healthcare service utilization (O'Donnell and Doorslaer, 2008).As the standardization of health utilization holds for a linear model of healthcare, the linear approximation to the Probit model is made by estimating the partial effects evaluated at the means(van Doorslaer and Koolman, 2004) .Probit regression is specified as:

$$y_i = G\left(\alpha + \sum_j \beta_j X_{ji} + \sum_k \gamma_k Z_{ki}\right) + \mathcal{E}_i \qquad \text{---------- (1)}$$

Where G is a functional transformation, $\boldsymbol{y_i}$ is healthcare utilization rate/choice of healthcare; i denotes the individual; and α, β, and γ were parameter vectors. The x_j were the need variables which we adjusted for; and the Z_k were non-need variables which were controlled for to reduce potential bias

that may arise if non-need variables were correlated with need variables which were omitted from the regression.

First of all, need-based healthcare utilization is predicted. Need-predicted healthcare utilization is only impacted by the variation of needs of healthcare, keeping the control variables constant at the level of mean.

$$\widehat{\boldsymbol{y}}_{\boldsymbol{i}}^{\boldsymbol{x}} = G\ (\widehat{\alpha} + \sum_j \widehat{\beta}_j X_{ji}\ + \sum_k \widehat{\gamma_k} \bar{Z}_{ki} \qquad \textbf{---------- (2)}$$

Thus, by estimating the equation 2, the disparity in the gap between the need-predicted healthcare utilization and realized healthcare utilization is nothing but the measure of inequity of healthcare utilization. In principle, in the method of indirect standardization, standardized healthcare utilization is calculated by adding the mean of predicted healthcare utilization:

$$\widehat{\boldsymbol{y}}_{\boldsymbol{i}}^{\boldsymbol{IS}} = \boldsymbol{y}_{\boldsymbol{i}} - \widehat{\boldsymbol{y}}_{\boldsymbol{i}}^{\boldsymbol{x}} + \overline{\widehat{\boldsymbol{y}}} \qquad \textbf{---------- (3)}$$

Here, $\widehat{\boldsymbol{y}}_{\boldsymbol{i}}^{\boldsymbol{is}}$ is standardized healthcare utilization and is interpreted as the distribution of health that would be expected to be observed, irrespective of differences in the distribution of the x's across income and $\overline{\widehat{\boldsymbol{y}}}$ is the mean of the predicted healthcare utilization. Thus**,** the more healthcare allocated to the needed, the less inequity of healthcare utilization.

Estimation of Concentration Curve and Concentration Index

Concentration curve (CC) and concentration index (CI) are computed to determine the horizontal inequity in healthcare utilization. The CC plots the cumulative proportions of the population (ranked by MPCE) on the x-axis against the cumulative proportions of (need-standardized) healthcare utilization on y-axis. If the healthcare utilization is evenly distributed, then the concentration curve would coincide with the diagonal (line of equality); if it is concentrated among higher (lower) income groups, then CC lies below (above) the diagonal; and farther the CC from the diagonal, greater would be the magnitude of inequity.

Further, to quantify the above one can be established by employing the measure of income related inequity by calculating the concentration index for need-standardised healthcare use ($\widehat{\boldsymbol{y}}_{\boldsymbol{i}}^{\boldsymbol{is}}$) which is also known as horizontal inequity index (Wagstaff and van Doorslaer, 2000). The unstandardized concentration index is calculated through by running the following regression (Kakwani, Wagstaff and van Doorslaer, 1997)

$$\frac{2\boldsymbol{\sigma}^{\boldsymbol{2}}\boldsymbol{R}}{\bar{\boldsymbol{y}}}\ \widehat{\boldsymbol{y}}_{\boldsymbol{\iota}}^{\boldsymbol{IS}} = \ \boldsymbol{\alpha} + \boldsymbol{\beta}\boldsymbol{R}_{\boldsymbol{i}} + \boldsymbol{\varepsilon}_{\boldsymbol{i}} \qquad \textbf{---------- (4)}$$

Where $\widehat{\boldsymbol{y}}_{\boldsymbol{\iota}}^{\boldsymbol{IS}}$ was the need-standardized healthcare utilization/ choice of healthcare variables whose inequality were being measured,$\bar{y}$ was the mean, R_i is the i^{th} individual's fractional rank in the socioeconomic distribution, $\left(R_i = \left(\frac{1}{N}\right)\sum_{j=1}^{i-1} w_j + \frac{1}{2}\ w_i\right)$ where, w_i is the sampling weight and N is the sample size. CI measures relative inequality and defines equity as a situation where the cumulative proportions of standardised utilization matches with cumulative population shares. The CI ranges between +1 and -1 with zero depicting no inequality and large positive (negative) values suggesting

disproportionately higher concentration of utilization among the rich (poor) (O'Donnell and Doorslaer, 2008).

Empirical Analysis

Trends in Self-reported Morbidity, Outpatient Care Utilization, and Use of Public Healthcare Facilities

The prevalence of self-reported morbidity at all-India level has increased by 1.7 times (67.7 to 119.3 per 1,000 population) during 2004-2014; while, during the same period the self-reported morbidity prevalence has increased by 3 times (38.2 to 112 per 1,000 population) in Karnataka. Further, variations in reported morbidity are observed between rural and urban areas. For instance, at national level, higher levels of reported morbidity is observed in urban areas compared to rural areas (70.3 v/s 67; 141 v/s 108) between 2004 and 2014 respectively. Similar trend is also observed in Karnataka except for the year 2004 (Table 2).The outpatient care utilization in the 15-days reference period for all-India among 20 years and above population has increased from 841 per 1,000 (2004) to 859 per 1,000 in 2014, while during the same period it is has increased by 1.0 times both in rural and urban India respectively. Further, a positive trend is observed even at the state level in Karnataka. For instance, between 2004-2014, the outpatient care utilization among 20 years and above population has sharply increased by 1.2 times in the rural areas of Karnataka, while it increased by 1.0 times in the urban areas of Karnataka. During 2004-2014, the percentage use of outpatient public healthcare facilities at all-India level has marginally increased by 2 percentage points (246 to 262 per 1,000 population) among 20 years and above population respectively. A similar pattern is observed between rural and urban areas at all-India. However, a similar trend has not been observed in Karnataka. An increasing trend of declining use of outpatient public healthcare facilities 35.5% to 30 % (354 to 300 per 1,000 population) is observed during 2004-2014 in rural Karnataka, while use of outpatient public healthcare facilities marginally increased from 153 to 165 per 1,000 population in urban Karnataka (Table 2).

Table 2: Trends in Self-Reported Morbidity Prevalence Rate, Outpatient Care Utilization Rate, and Use of Public Healthcare Facility Rate by Place of Residence in Karnataka and India, 2004-2014

Characteristics	India		Karnataka	
	2004	2014	2004	2014
Rural				
Self-reported morbidity per 1,000	67.0 (64.9,69.3)	108.9 (105.0,112.9)	40.6 (33.2,49.7)	106.3 (90.4,124.7)
Outpatient care utilization rate per 1,000	818.0 (809.2,826.5)	832.0 (817.4,845.6)	723.9 (670.6,771.5)	928.0 (876.2,959.2)
Outpatient care utilization rate in public facilities per 1,000	259.8 (249.1,270.7)	290.1 (273.0,307.8)	354.8 (292.3,442.6)	299.6 (227.4,383.2)
Urban				
Self-reported morbidity per 1,000	70.3 (66.4,74.4)	141.1 (136.0,146.4)	32.1 (24.6,41.8)	120.9 (102.7,141.8)
Outpatient care utilization rate per 1,000	894.4 (885.0,903.1)	901.7 (890.8,911.6)	866.8 (820.5,902.6)	900.8 (834.4,942.4)
Outpatient care utilization rate in public facilities per 1,000	218.2 (204.2,232.9)	223.0 (207.7,239.2)	153.0 (113.5,203.1)	165.3 (113.6,234.4)
Total				
Self-reported morbidity per 1,000	67.7 (65.8,69.7)	119.3 (116.2,122.5)	38.2 (32.4,45.1)	112.0 (99.7,125.6)
Outpatient care utilization rate per 1,000	841.3 (834.5,847.8)	859.5 (849.7,868.7)	765.0 (724.6,801.1)	916.4 (878.1,943.5)
Outpatient care utilization rate in public facilities per 1,000	246.0 (237.5,254.7)	262.4 (250.4,274.7)	288.2 (243.3,337.6)	243.5 (194.7,299.9)

Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data. Note: figures in parenthesis are Confidence Interval.

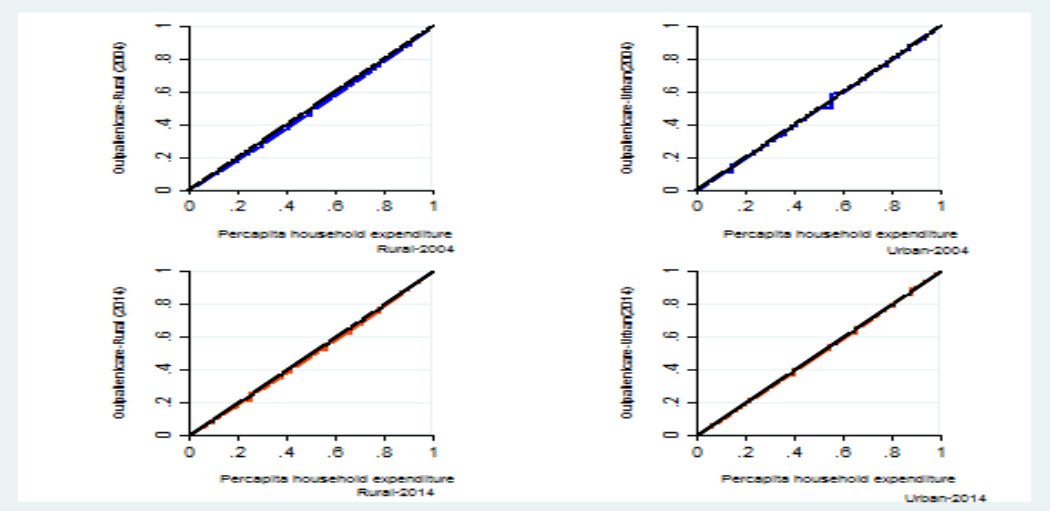
Among the other factors, empirical literature emphasises that economic class, social factors and demographic characteristics affect one's healthcare utilisation and choice of healthcare. The socioeconomic and demographic differentials of outpatient care utilization, untreated morbidity and use of public healthcare facilities for India and Karnataka for two-time periods are presented (in Appendix table A1-A2). The results show that in 2014, increasing age was associated with higher levels of outpatient care utilization at all-India and in Karnataka. A similar trend is observed between rural and urban areas across age groups. Further, gender differences in terms of outpatient care utilisation were not observed at all-India, while females tend to utilize more of outpatient care compared to men in Karnataka. A clear social gradient in outpatient care utilisation is observed among the 20 years and above population in both the years at all-India, while a similar pattern is observed in the state of Karnataka only during 2004 and not in recent times. Among the economic factors, a general increase in levels of healthcare use is observed among the higher consumption class as compared to the lower consumption class in both the places for both time periods. Further, an interesting observation (from Appendix table A1-A2) is that in the last one decade, the outpatient care utilisation among the lowest consumption quintiles increased by 3 percentage points at all-India, while the increase in Karnataka was around 25 percentage points. On the other hand, increasing age was also associated with higher levels

of utilization of outpatient public healthcare facilities between rural and urban areas at all-India and in Karnataka. Further, between 2004-2014, there seems to have been a steep decline in the utilization of outpatient public healthcare facilities among the backward caste groups at all-India and in Karnataka. For instance, 45 per cent of those belonging to Scheduled Caste/Schedule Tribe in Karnataka utilized outpatient public healthcare facilities in 2004, while this declined to 28 per cent by 2014. An interesting observation (from Appendix table A1-A2) is that the utilization of outpatient public healthcare facilities has increased by 2 percentage points in urban Karnataka, while it has declined by 5 percentage points in rural Karnataka.

Horizontal Inequity of Utilisation of Outpatient Care Services and Public Healthcare Utilization

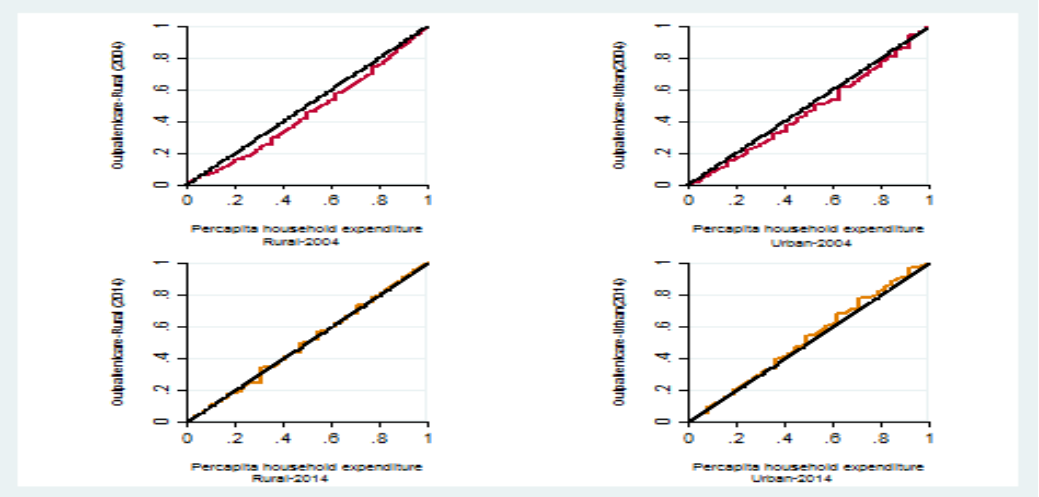
We use Concentration Curve [CC] for need-standardised utilization, untreated morbidity and use of public healthcare services for all-India and Karnataka for 2004 and 2014. For both the years, need standardised CC curve for outpatient care utilization lies below the diagonal (line of equity) and has a pro-rich bias, indicating the presence of income-related inequities at all-India and in Karnataka (Figure 1a- 1b). However, the CC curve for outpatient care utilization in 2014 overlaps with the diagonal for the poorer sections, but it deviates from the diagonal for the middle and higher income sections for rural and urban Karnataka. The shape of the CC suggests there is a differential in outpatient care utilization between middle and higher income classes, with a relatively greater concentration being observed among the higher income class for rural areas and a greater concentration being observed among the lower income class for urban areas (Figure 1b). However, whether or not the deviation from the diagonal is statistically significant needs to be confirmed based on the CI. Table 3 shows that the need standardised CI value for outpatient care utilization is positive and significant at all-India (CI: 0.0342; CI**:** 0.0144**;** CI: 0.0277**;** CI**:** 0.0151**)** between rural and urban areas for the year 2004 and 2014 respectively. Further, in Karnataka, the need standardised CI value for outpatient care utilization is positive and significant (CI: 0.0978**;** CI: 0.0724**)** in the year 2004 between rural and urban areas, while in the year 2014, the need standardised CI value for outpatient care utilization is negative and significant (CI: -0.0342) in urban areas of Karnataka, indicating pro-poor inequalities in outpatient care utilization. no systemic difference was found in outpatient care utilization for rural areas of Karnataka in 2014.

Figure 1(a): Concentration Curves for Outpatient Care Utilization by Place of Residence in India, 2004 and 2014



Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data.

Figure 1 (b): Concentration Curves for Outpatient Care Utilization by Place of Residence in Karnataka, 2004 and 2014

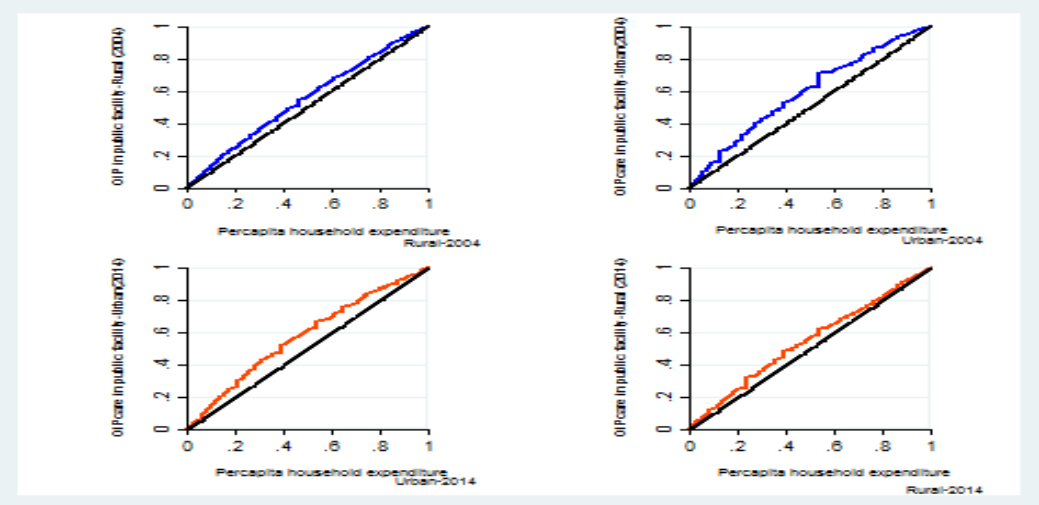


Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data.

During 2004-2014, the CC curve for public healthcare utilization lies above the diagonal (line of equity) at all-India between rural and urban areas. In 2004, the CC curve for public healthcare utilization in urban areas of Karnataka was above the line of equality. Whereas for both the periods (2004-2014) in rural areas, the CC curve for public healthcare utilization overlaps with the diagonal for the poorer sections, it deviates from the diagonal for the middle and higher income sections for rural and urban Karnataka. The shape of the CC suggests there is a differential in public healthcare utilization between middle and higher income classes (Figure 2a- 2b).

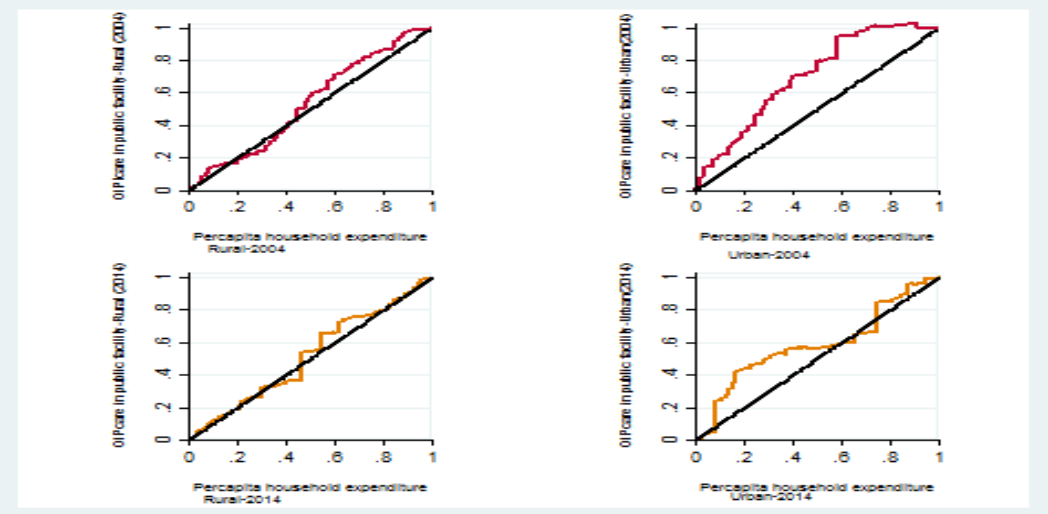
Table 3 shows that the need standardised CI value for public healthcare utilization is negative and significant at all-India (CI: -0.0979; CI: -0.1775; CI: -0.0885; CI: -0.1565) between rural and urban areas for the year 2004 and 2014 respectively. Further, in urban areas of Karnataka, the need standardised CI value for public healthcare utilization is also negative and significant (CI: -0.4032) in the year 2004, indicating pro-poor inequalities in public healthcare utilization. However, for both the years, no systemic differences were found in public healthcare utilization in rural areas in Karnataka.

Figure 2(a): Concentration Curves for Public Healthcare Utilization by Place of Residence in India, 2004 and 2014



Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data.

Figure 2(b): Concentration Curves for Public Healthcare Utilization by Place of Residence in Karnataka, 2004 and 2014



Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data.

Table 3: Horizontal Inequity Index [HI] for Outpatient Care Utilization, Untreated Morbidity and Use of Public Healthcare Facilities by Place of Residence, 2004-2014

Outpatient care utilization						
2004						
	HI for Rural (se)		**HI for Urban (se)**		**HI for Total (se)**	
India	0.0342***	(0.0032)	0.0144***	(0.0029)	0.0358***	(0.0025)
Karnataka	0.0978***	(0.0198)	0.0724***	(0.0126)	0.1070***	(0.0145)
	2014					
	HI for Rural (se)		**HI for Urban(se)**		**HI for Total (se)**	
India	0.0277***	(0.0048)	0.0151***	(0.0035)	0.0289***	(0.0033)
Karnataka	0.0035	(0.0157)	-0.0342*	(0.0211)	-0.0132	(0.0135)
Public healthcare utilization						
2004						
	HI for Rural (se)		**HI for Urban (se)**		**HI for Total (se)**	
India	-0.0979***	(0.0122)	-0.1775***	(0.0200)	-0.1332***	(0.0105)
Karnataka	-0.0723	(0.0549)	-0.4032***	(0.0594)	-0.2267***	(0.0395)
2014						
	HI for Rural (se)		**HI for Urban (se)**		**HI for Total (se)**	
India	-0.0885***	(0.0173)	-0.1565***	(0.0214)	-0.1326***	(0.0133)
Karnataka	-0.0296	(0.0586)	-0.1612	(0.1176)	-0.1533**	(0.0533)

Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data. Note: Standard error of the HI in parenthesis; Denotes significance at ***1% level, **5% level, * 10% level.

Determinants of Outpatient Care Utilization and Use of Public Healthcare Facilities

The poorest had significantly lower probabilities of using outpatient care than the richest in both the time periods. At all-India, the poorest were 36 per cent less likely to utilize outpatient care than the richest consumption quintiles. In 2004, at all-India level, individuals aged 20 years and above with restricted activity (confined to bed), those with chronic illness, those belonging to rural areas and those belonging to Scheduled caste/ Scheduled tribe were 4 per cent, 2 per cent ,3 per cent and 10 per cent less likely to utilize outpatient care, and this gap increased to 6 per cent for those with restricted activity and for those belonging to Scheduled caste/ Scheduled tribe the gap increased by 4 percentage points; while the gap decreased in rural areas by 1 percentage point by 2014 respectively. In addition, illiterate individuals aged 20 years and above were 5 per cent less likely to use outpatient care compared to literates in both the time periods. Further, with increasing age, with severity of illness >11 days, were more likely to utilize outpatient healthcare on medical advice (table 3). Further, at all-India level, social class, education, MPCE class were the major predictors of the use of public healthcare facilities across the time. Nevertheless, there is a variation in terms of magnitude of use of public healthcare facilities during 2004-2014. For instance, in 2004, compared to those belonging to higher mpce class, individuals aged 20 years and above belonging to poorest (16%), poor mpce class (12%) and middle mpce class (9%) significantly were more likely to use public healthcare facilities and this gap declined to around 9

per cent, 6 per cent and 2 per cent by 2014 for the poorest, poor and middle mpce class respectively suggesting increasing dependence on private sector for seeking outpatient healthcare. Further, in 2004, those belonging to Scheduled caste/Scheduled tribe and other backward caste were 8 per cent and 1 per cent likely to choose public healthcare facilities for treatment respectively; which increased to 16 per cent and 7 per cent by 2014 (Table4).

Among individuals aged 20 years and above, those belonging to the poorest quintiles were 49 per cent less likely to utilize outpatient care in 2004, while by 2014, the poorest quintiles were 3 per cent more likely to utilize outpatient care compared to their counterparts in Karnataka. In addition, in 2014 those belonging to other backward caste groups, those aged 60 years and above, and females were 1 per cent, 6 per cent and 5 per cent more likely to utilize outpatient care respectively (Table5). Further, at the state level, social groups, mpce class were the major predictors of the utilization of public healthcare facilities across the time. For instance, in 2014, those belonging to poorest, poor and middle mpce class were significantly 3 per cent, 4 per cent and 12 per cent less likely to utilize public healthcare facilities compared to 2004 where they were 35 per cent, 44 per cent and 34 per cent more likely to utilize public healthcare facilities respectively, suggesting greater dependence on the private sector for seeking outpatient healthcare in the state compared to all-India.

Table 4: Determinants of Outpatient Care Utilization and Use of Public Healthcare Facilities in India, 2004 and 2014

Determinants	Outpatient care utilization				Use of public healthcare facilities			
	2004		2014		2004		2014	
Need Factors	**Coefficient**	**Marginal Effect**	**Coefficient**	**Marginal Effect**	**Coefficient**	**Marginal Effect**	**Coefficient**	**Marginal Effect**
30- 39 years	0.172**	0.037	-0.168*	-0.036	0.025	0.008	-0.068	-0.021
40-59 years	0.167**	0.037	-0.048	-0.010	0.085	0.027	0.148*	0.048
60- 69 years	0.043	0.010	0.043	0.009	0.120**	0.038	0.117	0.038
70 years and above	-0.030	-0.007	0.027	0.005	0.039	0.012	0.101	0.033
Severity of Illness more than 12 days	0.220***	0.052	0.530***	0.120	0.077**	0.024	0.007	0.002
Confined to bed	-0.210***	-0.044	-0.359***	-0.061	-0.057	-0.018	0.020	0.006
Chronic Illness	-0.087**	-0.020	0.125**	0.025	0.131***	0.041	0.071	0.023
Non-Need Factors								
Female	0.094***	0.022	0.075	0.015	0.002	0.001	-0.005	-0.001
Currently Married	0.200**	0.048	0.325**	0.071	-0.136	-0.044	-0.161	-0.053
Widow	-0.029	-0.007	0.344***	0.061	-0.064	-0.020	-0.080	-0.025
Scheduled Caste/ Scheduled Tribe	-0.100**	-0.024	-0.142**	-0.030	0.270***	0.088	0.463***	0.160
Other Backward Caste	0.023	0.005	0.038	0.008	0.047	0.015	0.236***	0.076
Rural	-0.163***	-0.036	-0.117**	-0.023	-0.025	-0.008	0.059	0.019
Illiterate	-0.218***	-0.049	-0.241***	-0.049	0.054	0.017	0.252***	0.081
Primary	-0.028	-0.007	-0.145**	-0.030	0.057	0.018	0.213***	0.070
Poorest	-0.367***	-0.094	-0.367***	-0.083	0.479***	0.163	0.286***	0.097
Poor	-0.207***	-0.051	-0.231**	-0.050	0.364***	0.121	0.181**	0.060
Middle	-0.163**	-0.040	-0.244***	-0.053	0.286***	0.094	0.068	0.022
Rich	0.032	0.007	-0.049	-0.010	0.242***	0.079	0.133**	0.044
Constant	1.257		1.140		-1.080		-1.221	

Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data. Note: Denotes significance at ***1% level, **5% level, * 10% level.

Table 5: Determinants of Outpatient Care Utilization and Use of Public Healthcare Facilities in Karnataka, 2004 and 2014

Determinants	Outpatient care utilization				Use of public healthcare facilities			
	2004		2014		2004		2014	
Need Factors	**Coefficient**	**Marginal Effect**	**Coefficient**	**Marginal Effect**	**Coefficient**	**Marginal Effect**	**Coefficient**	**Marginal Effect**
30- 39 years	1.071***	0.160	0.280	0.025	-0.219	-0.065	-0.072	-0.021
40-59 years	0.345	0.079	0.428	0.041	-0.158	-0.049	0.251	0.076
60- 69 years	-0.344	-0.090	0.834**	0.064	-0.057	-0.018	0.188	0.057
70 years and above	-0.426	-0.115	0.757**	0.054	-0.001	0.000	0.254	0.080
Severity of Illness more than 12 days	-0.100	-0.024	0.262	0.030	-0.101	-0.032	0.740**	0.190
Confined to bed	-0.232	-0.051	-0.185	-0.018	-0.053	-0.017	-0.308	-0.098
Chronic Illness	-0.505**	-0.121	0.272	0.030	0.312*	0.099	-0.625**	-0.193
Non-Need Factors								
Female	-0.058	-0.014	0.495**	0.057	-0.191	-0.060	-0.098	-0.029
Currently Married	0.073	0.018	0.279	0.033	-0.073	-0.023	-0.107	-0.032
Widow	-0.083	-0.020	0.279	0.026	-0.235	-0.070	-0.075	-0.022
Scheduled Caste/ Scheduled Tribe	-0.136	-0.034	0.157	0.015	0.689**	0.244	0.302	0.095
Other Backward Caste	0.251*	0.058	0.138	0.015	0.471**	0.152	0.402**	0.119
Rural	-0.220	-0.051	0.157*	0.017	0.258*	0.079	0.146	0.043
Illiterate	-0.427	-0.098	-0.402	-0.042	0.247	0.077	0.499*	0.145
Primary	-0.174	-0.044	-0.254	-0.030	0.160	0.051	0.398	0.127
Poorest	-1.578***	-0.491	0.432*	0.039	0.977**	0.350	-0.139	-0.040
Poor	-0.946**	-0.275	0.934**	0.077	1.279***	0.448	-0.141	-0.041
Middle	-0.893**	-0.271	0.848**	0.058	0.967***	0.347	-0.479*	-0.123
Rich	-0.579	-0.166	1.386***	0.072	1.122***	0.404	-0.612**	-0.149
Constant	2.794		-0.239		-1.956		-1.122	

Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data. Note: Denotes significance at ***1% level, **5% level, * 10%

Barriers to Outpatient Healthcare Utilization and Public Healthcare Utilization

An ailment being not considered serious by the respondent was the single most important reason for not seeking treatment on medical advice in both the time periods at all-India and in Karnataka across rural and urban areas among the individuals aged 20 years and above. It was the financial burden that was the second most important reason (32% and 34%) for not seeking care; the individuals aged 20 years and above at all-India and in Karnataka in 2004 and the financial hardship for not seeking outpatient care declined by 25 percentage points and 33 percentage points at all-India and in Karnataka by 2014. Further, around 10 per cent and 1 per cent reported the non-availability of a medical facility in the neighbourhood as the reason for not seeking care at all-India and in Karnataka in 2014 respectively (Table 6). Unsatisfactory quality was the foremost reason reported for not using public facilities among the individuals aged 20 years and above at all-India and in Karnataka in both the time periods. Long waiting time was the second most reported reason for not using public facilities at all-India and in Karnataka in 2014, while the facility being too far was the second most reported reason for not using public facilities at all-India and in Karnataka in 2004 (Table 7).

Table 6: Reasons for not seeking treatment on medical advice (%) among individuals aged 20 years and above in Karnataka and India, 2004-2014

Reasons	2004			2014		
	Rural	Urban	Total	Rural	Urban	Total
India						
Medical Facility Not Available	10.9	1.2	9	13.3	0.8	9.9
Lack of Faith/Not of Good Quality	3.5	2.8	3.4	3.8	2.3	3.4
Long Waiting	0.9	2	1.1	4	1.9	3.4
Financial Reasons	33.3	27.6	32.2	6.8	6.7	6.8
Ailment Not Serious	35.7	51.6	38.8	54.9	64	57.3
Other	15.7	14.7	15.5	17.3	24.2	19.2
Karnataka						
Medical Facility Not Available	3.1	3.0	3.1	1.8	0.5	1.3
Lack of Faith/Not of Good Quality	4.0	5.7	4.3	10.4	24.3	16.6
Long Waiting	--	--	--	0.0	0.4	0.2
Financial Reasons	33.4	37.1	34.0	1.1	0.0	0.6
Ailment Not Serious	28.6	35.4	29.6	83.9	68.8	77.2
Other	30.8	18.8	28.9	2.7	5.9	4.1

Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data.

Table 7: Reasons for Not Seeking Care at Public Healthcare Facilities (%) Among Individuals Aged 20 Years and Above in Karnataka and India, 2004-2014

Reasons	2004			2014		
	Rural	Urban	Total	Rural	Urban	Total
India						
Facility too Far	22	14	19.2	11.9	9.4	10.8
Not Satisfied with Quality of Medical Treatment	48	48.1	48.1	44.4	42.2	43.4
Long Waiting	9.3	17.6	12.1	23.1	33.3	27.6
Required Specific Services not Available	6.1	3.8	5.4	12.9	6.6	10.2
Financial Reasons	--	--	--	0.4	0.5	0.5
Other	14.6	16.5	15.2	7.2	7.9	7.5
Karnataka						
Facility too Far	16.8	6.4	12.7	14.8	5.8	10.7
Not Satisfied with Quality of Medical Treatment	51.8	69.7	58.8	43.7	41.3	42.6
Long Waiting	13.3	12.4	12.9	12.2	35.1	22.7
Required Specific Services not Available	8.8	1.7	6.0	26.7	11.7	19.8
Financial Reasons	--	--	--	0.4	0.5	0.4
Other	9.3	9.9	9.5	2.2	5.6	3.7

Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data.

Discussion

Given due consideration, the existing literature has largely focused on patterns and determinants of inpatient/outpatient care utilization, choice of healthcare facilities (public v/s private) at aggregate and sub-national levels (Shariff and Singh, 2002; Debasis and Desai, 2014). Further, a few studies have examined differentials/ inequalities in inpatient/ outpatient care utilization, choice of healthcare facilities for specific groups such as gender, income class, caste groups (Kumar, Gupta and Prinja, 2014; Sahoo and Madheswaran, 2014) and also for specific type of healthcare e.g. maternal healthcare (Singh *et al*, 2012). There, however, have been some exceptions in which studies have gone beyond mere reporting of differentials/inequalities and have tried to examine whether there exist unfair and unjust (inequities) inequalities among the population subgroups, mostly at aggregate levels (Shankar Prinja, Andrew D Pinto, Stephen Jan, Rajesh Kumar, 2013; Joe, Rudra and Subramanian, 2015; Pandey *et al*, 2017)**.** Thus, our investigation is a further attempt to readdress the issue, especially for accounting for inequities at the state level, over time and across spaces among the population aged 20 years and above. Thus, we have extended the previous analysis of capturing inequities in outpatient care utilization, choice of healthcare facilities (public v/s private) and untreated morbidity by considering different sub groups of population (20 years and above) and across spaces (rural and urban areas). The study findings show an increasing trend in the utilization of outpatient care, utilization of outpatient public healthcare facilities and a declining trend in untreated morbidity over the last decade (2004-2014) at all-India level. A similar trend is observed over the last decade even at the state level in Karnataka, except for choice of care where a steep decline is observed in the utilization of outpatient public healthcare facilities**.** Further, it is evident that in recent times, the utilization of outpatient care is

higher in urban areas compared to rural areas at all-India, while no such differences in utilization of outpatient care are observed between rural and urban areas at the state level in Karnataka. Thus, the narrowing of differences in the utilization of outpatient care in the last decade between rural and urban areas may be partly attributed to the effective implementation of the National Rural Health Mission at the state level in Karnataka. Further, results suggest that economic status is a strong independent determinant of utilization of outpatient care and utilization of outpatient public healthcare facilities in Karnataka and India. After accounting for need differentials, inequality in the utilization of outpatient care favoured the rich, while the untreated morbidity and utilization of outpatient public healthcare facilities were more concentrated among the poorer sections of the population**.** However, we found differences in the magnitude of inequities in the utilization of outpatient care, untreated morbidity and utilization of outpatient public healthcare facilities over a decade in Karnataka and India. Three prominent findings related to inequality emerge from this study. First, in the year 2004, the magnitude of inequity in the utilization of outpatient care was higher at the state level in Karnataka compared to all-India while the reverse is observed in 2014. Further, the magnitude of inequity in the utilization of outpatient care in rural, urban and overall (rural+ urban) at all India decreased between 2004 and 2014 and continued to favour the higher income groups at all-India. During the same period, even in Karnataka, inequity in utilization of outpatient declined and continued to favour the higher income groups only in rural Karnataka, while there was a shift in inequity in the utilization of outpatient care in urban and overall (rural+ urban) from favouring higher income groups to favouring the lower income groups in urban and overall. Second, in 2004, both at the state and national level, irrespective of the place of residence (rural/ urban), the cases of untreated morbidity were concentrated among the poorer sections of society and were statistically significant. However, in 2014, the untreated morbidity continued to be significantly higher among the poor at all-India. Although, during the same period, the magnitude of inequity in untreated morbidity was positive, yet it was not statistically significant in Karnataka. Third, the percentage of poor people using outpatient public healthcare facilities was higher compared to the rich in 2004, and this gap marginally increased over a decade. Systemic socioeconomic inequalities in healthcare utilization with a better off population having higher levels of healthcare use are a common phenomenon in low and middle-income countries (Makinen *et al*, 2000; Mullachery, Silver and Macinko, 2016)**.** Even in countries like Canada and Thailand with universal health coverage, even after adjusting for the differences in healthcare needs, the utilization of healthcare services were found to be unduly concentrated among the wealthier groups (Dunlop, Coyte and McIsaac, 2000; Allin, 2008; Yiengprugsawan *et al*, 2010). In the absence of a gate-keeping system, the outpatient care is the entry point to the healthcare system for many and may even affect the other service utilization as well**.** Hence, the present study focuses mainly on assessing equity in utilization of outpatient care. Our study results suggesting pro-rich inequity in utilization of outpatient care services are consistent with the evidence from other studies, mainly from India and China (Li *et al*, 2017; Pandey *et al*, 2017). In spite of having pro-rich inequity in outpatient-care utilization, it is tending towards equitable provision of outpatient care as observed by the decline in the magnitude of inequity over a decade. Increase in awareness about treatable medical conditions, increase in availability of healthcare facilities especially in rural areas through various government schemes and also through purchase of private healthcare

services by government through strategic financing in recent times might have contributed to the overall increase in outpatient care among the poor. Although the overall levels of untreated morbidity has declined over a decade, compared to the wealthier income class, the proportion of untreated morbidity was substantially higher for the poorest quintiles for both time periods at all-India. Further, we found that irrespective of the place of residence, illness being perceived not to be serious was the most important reason for not seeking treatment on medical advice across income quintiles at all-India and in Karnataka for both the periods. In contrast, a study by Mahal, Yazbeck, Peters, & Ramana (2001) showed that financial reasons was one of the main reasons for not seeking care, especially among the poor. Thus, this also may suggest that in spite of reduction in financial constraints for accessing healthcare and improving adequate supply of healthcare, people's perception of their medical conditions affects their healthcare seeking behaviour. In spite of the introduction of a minimal user fee in many public healthcare facilities to improve the quality of care, the utilization of public healthcare facilities was found to be low due to the perceived poor quality of services, followed by long waiting periods and non-availability of specific services in both the periods. Thus, a heavy dependence on the private sector for seeking outpatient care was observed, more so at the state level in Karnataka compared to all-India. We found that the use of public facilities was disproportionately higher for the poor than the rich and the gap remained constant at all-India, while it decreased in Karnataka over the last decade. The study findings collate with other studies (by Pandey *et al*, 2018).

Conclusion

In conclusion, this study provides evidence of increasing levels of outpatient care utilization with declining inequities in outpatient care utilization, while higher level of untreated morbidity was concentrated among the poorer quintiles as observed at all-India as well as in Karnataka. Policy initiatives aiming to reduce these inequities in healthcare must involve increasing public investment in healthcare, improving and providing quality care in the existing public outpatient care facilities and providing more awareness regarding preventable and treatable health conditions across the population to reduce untreated morbidity. Even though individuals may not incur charges as consultation fee, they may incur charges for diagnostic tests and for purchase of some medicines even at public healthcare facilities; therefore, policy initiatives must aim at providing comprehensive insurance coverage based on the needs of the population, covering outpatient care by providing financial risk protection to the individuals.

References

Agrawal, G and K Keshri (2014). Morbidity Patterns and Healthcare Seeking Behavior Among Older Widows in India. *PLoS ONE*, 9 (4). doi: 10.1371/journal.pone.0094295.

Allin, S (2008). Does Equity in Healthcare Use Vary across Canadian Provinces?. *Healthc Policy*, 3 (4): 83-99. doi: 19924 [pii].

Borooah, V and University Library of Munich, G (2010). Inequality in Health Outcomes in India: The Role of Caste and Religion. *MPRA Paper* (September). doi: 10.1227/01.NEU.0000349921.14519.2A.

Culyer, A J (1995). Need: The Idea Won't Do-But We Still Need It. *Social Science and Medicine*, pp. 727–730. doi: 10.1016/0277-9536(94)00307-F.

Culyer, A J and A Wagstaff (1993). Equity and Equality in Health and Healthcare. *Journal of Health Economics*, 12 (4): 431-57. doi: 10.1016/0167-6296(93)90004-X.

Debasis, B and S Desai (2014). *Determinants of Private Healthcare Utilisation and Expenditure Patterns in India*. Available at: https://mpra.ub.uni-muenchen.de/77220/1/MPRA_paper_77220.pdf.

Van Doorslaer, E and X Koolman (2004). Explaining the Differences in Income-related Health Inequalities across European Countries. *Health Economics*, 13 (7): 609-28. doi: 10.1002/hec.918.

Dunlop, S, P C Coyte and W McIsaac (2000). Socio-economic Status and the Utilisation of Physicians' Services: Results from the Canadian National Population Health Survey. *Social Science and Medicine (1982)*, 51 (1): 123-33. doi: 10.1016/S0277-9536(99)00424-4.

Ghosh, S (2014). Equity in the Utilization of Healthcare Services in India: Evidence from National Sample Survey. *Int J Health Policy Manag*, 2 (1): 29-38. doi: 10.15171/ijhpm.2014.06.

GOI (2002). *National Health Policy*. Available at: https://www.nhp.gov.in/sites/default/files/pdf/NationaL_Health_Pollicy.pdf.

———— (2017). *National Health Policy*. Available at: http://164.100.158.44/showfile.php?lid=4275.

Gupta, I (2013). *Out-of-pocket Expenditures and Poverty: Estimates From NSS 61st Round*. *Working Papers*.

Joe, W, S Rudra and S V Subramanian (2015). Horizontal Inequity in Elderly Healthcare Utilization: Evidence from India. *Journal of Korean Medical Science*, 30: S155–S166. doi: 10.3346/jkms.2015.30.S2.S155.

Kakwani, N, A Wagstaff and van Doorslaer, E (1997). Socio-economic Inequalities in Health: Measurement, Computation and Statistical Inference. *Journal of Econometrics*, 77: 87-103. doi: 10.1016/S0304-4076(96)01807-6.

Kumar, R, M Gupta and S Prinja (2014). Illness Burden, Care Seeking, and Treatment Cost Among Less than 2-year-olds in Rural Haryana. *Indian Journal of Pediatrics*, 81 (12): 1347-52. doi: 10.1007/s12098-014-1495-3.

Li, C *et al* (2017). Horizontal Inequity in Healthcare Utilization among the Middle-aged and Elderly in China. *International Journal of Environmental Research and Public Health*, 14 (8). doi: 10.3390/ijerph14080842.

Mahal, Yazbeck, Peters and Ramana (2001). *The Poor and Health Service Use in India*. 28891.

Makinen, M *et al* (2000). Inequalities in Healthcare Use and Expenditures: Empirical Data from Eight Developing Countries and Countries in Transition. *Bulletin of the World Health Organization*, pp 55–65. doi: 10.1590/S0042-96862000000100006.

Mullachery, P, D Silver and J Macinko (2016). Changes in Healthcare Inequity in Brazil between 2008 and 2013. *International Journal for Equity in Health*, 15 (1). doi: 10.1186/s12939-016-0431-8.

O'Donnell, O and Doorslaer, E Van (2008). *Analyzing Health Equity Using Household Survey Data. Washington*, *… Health Equity Using …*. doi: 10.2471/BLT.08.052357.

Pandey, A *et al* (2017). Horizontal Inequity in Outpatient Care Use and Untreated Morbidity: Evidence from Nationwide Surveys in India between 1995 and 2014. *Health Policy and Planning*, pp 969-79. doi: 10.1093/heapol/czx016.

Pandey, A *et al* (2018). Inequity in Out-of-pocket Payments for Hospitalisation in India: Evidence from the National Sample Surveys, 1995–2014. *Social Science and Medicine*, 201: 136-47. doi: 10.1016/j.socscimed.2018.01.031.

Sahoo, A K and S Madheswaran (2014). Socio-economic Disparities in HealthCare Seeking Behaviour, Health Expenditure and Its Source of Financing in Orissa: Evidence from NSSO 2004–05. *Journal of Health Management*, 16 (3): 397-414. doi: 10.1177/0972063414539614.

Shankar Prinja Andrew D Pinto, Stephen Jan, Rajesh Kumar, M I K (2013). Equity in Hospital Services Utilisation in India. *Economic & Political Weekly*, 48 (12): 52-58.

Shariff, A and G Singh (2002). *Determinants of Maternal HealthCare Utilisation in India: Evidence from a Recent Household Survey*. Available at: http://www.ncaer.org/publication_details.php?pID=80.

Singh, P K *et al* (2012). Determinants of Maternity Care Services Utilization among Married Adolescents in Rural India. *PLoS ONE*, 7 (2). doi: 10.1371/journal.pone.0031666.

Wagstaff, A and van Doorslaer, E (2000). Measuring and Testing for Inequity in the Delivery of Healthcare. *The Journal of Human Resources*, 35 (4): 716. doi: 10.2307/146369.

Wagstaff, A, van Doorslaer, E and Paci, P (1991). On the Measurement of Horizontal Inequity in the Delivery of Healthcare. *Journal of Health Economics*, 10 (2): 169-205. doi: 10.1016/0167-6296(91)90003-6.

WHO (2010). *The World Health Report HEALTH SYSTEMS FINANCING The Path to Universal Coverage*. The World Health Report. doi: 17 July 2012.

————(2000). The World Health Report 2000 - Health Systems: Improving Performance*. Bulletin of the World Health Organization*.

Yiengprugsawan, V *et al* (2010). Has Universal Health Insurance Reduced Socioeconomic Inequalities in Urban and Rural Health Service Use in Thailand?. *Health Place*, 16: 1030–7. doi: 10.1016/j.healthplace.2010.06.010.

Zhou, Z *et al* (2013). Assessing Equity of Healthcare Utilization in Rural China: Results from Nationally Representative Surveys from 1993 to 2008. *International Journal for Equity in Health*, 12 (1). doi: 10.1186/1475-9276-12-34.

Appendix

Table A1: Bivariate Association between Socioeconomic Status and Healthcare Utilization, Untreated Morbidity and Utilization of Government Health Services (per 100) in India, 2004-2014

Factors	Healthcare Utilization					
	2004			2014		
	R	U	T	R	U	T
Need Factors						
20-29	81(24)	86(20)	82(23)	82(25)	81(21)	81(24)
30-39	86 (23)	90(22)	87(23)	77(23)	85(19)	80(21)
40-59	84(26)	92(22)	87(25)	83(30)	91(24)	86(27)
60-69	80(29)	88(22)	82(27)	86(32)	94(21)	89(27)
70+	76(26)	87(21)	80(25)	87(30)	93(23)	89(27)
Non-Need Factors						
Male	81(26)	90(22)	84(24)	83(27)	90(23)	86(25)
Female	82(26)	89(22)	84(25)	83(30)	91(22)	86(27)
Never married	81(29)	83(18)	82(25)	77(27)	78(23)	78(25)
Currently married	84(25)	91(21)	86(24)	83(28)	90(22)	86(25)
Widow	75(29)	86(24)	79(27)	85(35)	93(25)	88(30)
Scheduled Caste/Scheduled Tribe	78(33)	87(29)	80(32)	77(39)	87(32)	79(37)
Other Backward Caste	83(24)	89(24)	84(24)	86(29)	89(26)	87(27)
Forward Caste	84(22)	90(19)	87(21)	85(21)	92(15)	89(18)
Illiterate	79(27)	86(27)	81(27)	82(33)	88(28)	84(31)
Primary	86(25)	92(22)	88(24)	83(26)	90(26)	86(26)
Secondary and Above	88(21)	92(17)	91(18)	87(21)	92(15)	90(17)
Poorest	75(32)	82(33)	76(32)	78(35)	82(31)	78(35)
Poor	81(26)	87(32)	82(27)	82(29)	88(30)	84(29)
Middle	83(24)	87(28)	84(25)	83(24)	87(27)	85(25)
Rich	88(24)	91(23)	89(24)	90(29)	91(22)	91(25)
Richest	89(19)	91(15)	91(16)	91(23)	93(16)	93(18)

Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data.

Note: figures in parenthesis denote percentage utilisation of public healthcare services.

Table A2: Bivariate Association between Socioeconomic Status and Healthcare Utilization, Untreated Morbidity and Utilization of Government Health Services (per 100) Karnataka, 2004-2014

Factors	Healthcare Utilization					
	2004			2014		
	R	U	T	R	U	T
Need Factors						
20-29	81(37)	97(23)	85(33)	81(23)	70(12)	76(18)
30-39	96(29)	100(20)	97(27)	85(11)	93(25)	89(17)
40-59	85(35)	97(11)	88(28)	96(32)	90(16)	93(25)
60-69	59(39)	81(17)	65(32)	98(32)	95(18)	96(26)
70+	56(35)	72(15)	62(26)	94(41)	98(9)	96(30)
Non-Need Factors						
Male	72(41)	87(14)	76(33)	90(30)	85(16)	88(24)
Female	72(30)	86(16)	77(25)	95(30)	93(17)	94(25)
Never married	79(39)	96(32)	83(38)	97(19)	58(9)	72(14)
Currently married	78(37)	91(14)	82(29)	91(29)	92(15)	91(23)
Widow	58(30)	74(16)	62(25)	97(34)	94(25)	96(31)
Scheduled Caste/Scheduled Tribe	63(49)	66(24)	63(45)	90(33)	98(18)	92(28)
Other Backward Caste	83(43)	82(18)	82(37)	94(35)	88(17)	92(29)
Forward Caste	68(18)	92(13)	77(16)	93(17)	90(15)	92(16)
Illiterate	66(38)	78(22)	69(32)	93(34)	95(24)	94(30)
Primary	84(35)	94(15)	87(28)	89(27)	91(21)	90(24)
Secondary and Above	95(23)	94(8)	94(14)	97(24)	86(8)	89(12)
Poorest	59(34)	72(24)	58(32)	86(35)	92(30)	90(32)
Poor	67(38)	86(26)	77(43)	98(30)	95(7)	96(30)
Middle	74(48)	84(18)	78(30)	94(27)	98(7)	95(17)
Rich	86(34)	98(6)	86(28)	97(30)	87(22)	98(13)
Richest	84(15)	99(2)	95(5)	83(28)	75(15)	78(19)

Source: Authors' Calculation from NSS, Using 71st (2014) and 60th (2004) Round Data.

Note: figures in parenthesis denote percentage utilisation of public healthcare services.

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INSTITUTE FOR SOCIAL AND ECONOMIC CHANGE
Dr V K R V Rao Road, Nagarabhavi P.O., Bangalore - 560 072, India
Phone: 0091-80-23215468, 23215519, 23215592; Fax: 0091-80-23217008
E-mail: reimeingam@isec.ac.in; Web: www.isec.ac.in