INCLUSIVE HEALTH IN INDIA: A DISAGGREGATED LEVEL ANALYSIS

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Abstract. *Recent research has witnessed considerable attraction of people and policy makers regarding health outcome and its impact on the welfare of the population. Moreover, wide heterogeneity is evident in achieving various health outcomes and health related infrastructure indicators within the states. The problem of larger states, which comprises a huge population, mass poverty and poor health status, is more severe, hence requires special attention to policy makers and planners. The study aims at measuring health disparity in Uttar Pradesh, largest state in terms of population, using different indicators, related to health outcomes and infrastructures. The paper makes an attempt to develop composite index, showing health development at district level as well as regional level during the period 2010-11. The study uses Principle Component Analysis to see the impact of different indicators in the health status of the state. The empirical result shows that there exists wide variation in different indicators of health in the state at disaggregated level.*

Keywords*: health, disparity, Uttar Pradesh, determinant of health, literacy rate*

1. Introduction

The widening gap between rich and poor in attainment of fruits of development has always been a matter of cavernous concern in India. It is widely accepted that in spite of several policy and flagship programs the country has still not been able to remove inequality and poverty. It is argued that large chunks of population are still deprived from basic amenities i.e., poor health, mall-nutrition, high morbidity and marginalised economic and social status. On the other hand, a number of studies and good writings related to this field have witnessed considerable attention regarding the people and policy makers surrounding health outcomes and its impact on the welfare of the population. The WHO position paper for the 1995 World Summit for Social Development also stated that investment in health is essential for economic growth based on a productive work force. To achieve this, growth needs to be accompanied by more equitable access to the benefits of development, as inequities have severe health consequences and pose an unacceptable threat to

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human well being and security. Like education, health is also recognised to be a distinct influence that can promote the freedom and capability of individuals to make use of available opportunities (Dreze and Sen, 1995). On the other hand many surveys as well as NFHS-1 and NFHS-2 have provided ample evidence to show that either the services do not reach the disadvantage sections of the society or people from those sections do not utilise the available services. So here the issue is not just confined to economic and social inequalities; the wider concept that needs to be addressed the inequality of opportunity.

While, a large number of primary health centres and health facilities have been facilitated as a part of different program of the government such as health for all, right to health and surveys such as NFHS 1 , 2 and 3, DLHS (district level), and the RCH facility conduct surveys to see the health status of people. However, these efforts are not sufficient and progress is also not praiseworthy. In 2005–06, national immunisation coverage was 44%, whereas the coverage was 64% for children of mothers with more than 5 years of education, and 26% for children of mothers with no education. Similarly, even though rates of delivery in institutions have increased with time, only 40% of women in India report giving birth in a health facility for their previous birth in 2005–06. Inadequate public expenditure on health (estimated to be 1·10% of the share of the gross domestic product during 2008–09), and imbalanced resource allocation with much variation between state expenditures on health, in addition to restricted capacity to ensure adequate and appropriate physical access to good-quality health services. Furthermore, a greater proportion of resources are directed towards urban-based and curative services that suggest an urban bias and rural disadvantage in access to health-care services. More than three-quarters of health spending in India is paid privately. High out-of pocket health expenditures, therefore, are a major source of inequity in financing of health care and in financial risk protection from health adversities. This effect is disproportionate across population groups; health expenditures account for more than half of Indian households falling into poverty, with about 39 million Indian people being pushed into poverty every year.

Here, the problem of disparity in the health sector has been widely discussed by the researcher and also covers different areas. However, the problems of some bigger states which comprises huge population like; Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh etc., is rather illusive in most of the developed states. It is well known that the states which are socio-economically advanced also developed in human and health development. In contrary, Kerala is a state that is a very good performer in human development but not necessarily also the best in economic development. At the same time, Punjab and Haryana are those two states whose performance in human development is very high but very low in

human development (Kurian, N.J. 2000). The state level achievement and progress is not enough, the inequality is further intensified at district level where some of the state of India are much larger than many nations and also consists of large portion of population. The state Uttar Pradesh is large enough to become the sixth largest country in the world; and yet it is still deprived in several health development indicators and many times poor than Kerala. It is the state which is divided into four well defined zones on the basis of economic and administrative point of view. There exists wide heterogeneity in terms of various health indicators such as supply and demand sector. Supply sector represents the availability of health care services, whereas demand side denotes access and accessibility of resources. Thus, both the sides are equally important and we can find out the position of different zones of the state, whether the role of government in this sector is effective, efficient and equitable among the population group or there exist gap at various levels.

The present write-up is divided into four sections- the first gives state level performance in health parameter and where UP stand among major 15 states., the section second includes some important studies related to health performance and dimension, the third section discusses carried out methodology and data base, the forth section gives some analytical results and lastly this paper concludes and suggest required policy attention.

1.1. Disparity in Some Health Indicators- An Overview

It is essential to see which states are characterised by higher extent of disparity between health performance and outcome. Before evaluating disparity in health at district level of Uttar Pradesh, it is very necessary to look at the level of disparity at intra-state level, so that we could perceive the position of Uttar Pradesh in health attainment and outcome. Here table-1represents the inequalities in the country as a whole in some health indicators.

Table 1: Disparity in Some Indicators
of Health Infrastructure & Outcome- 15 States

States	Infrastructure (per lakh of population)			Outcome			
	(2011)			(2010)			2007-09
	PHCs	CHCs	DH	DR	IMR	NGR	MMR
Andhra Pradesh	1.91	0.33	0.020	7.6	46	10.2	9.1
Assam	3.00	0.34	0.076	8.2	58	14.9	27.5
Bihar	1.79	0.06	0.034	6.1	48	21.3	30.1

States	Infrastructure (per lakh of population)			Outcome			
	(2011)			(2010)			2007-09
	PHCs	**CHCs**	**DH**	**DR**	**IMR**	**NGR**	**MMR**
Gujarat	1.85	0.50	0.039	6.7	44	15.1	12.8
Haryana	1.75	0.42	**0.082**	6.6	48	15.7	13.5
Karnataka	**3.77**	0.29	0.050	7.1	38	12.1	10.8
Kerala	2.42	0.67	0.041	7.0	13	7.8	4.1
Madhya Pradesh	1.59	0.45	0.068	8.3	62	18.9	27.4
Maharashtra	1.60	0.32	0.020	6.5	28	10.6	6.9
Odisha	2.92	**0.89**	0.076	8.6	61	11.9	19.5
Punjab	1.60	0.46	0.072	7.0	34	9.6	11.3
Rajasthan	2.21	0.54	0.049	6.7	55	20.0	35.9
Tamil Nadu	1.66	0.53	0.041	7.6	24	8.3	5.6
Uttar Pradesh	1.84	0.25	0.036	8.1	61	20.2	40.0
West Bengal	0.99	0.38	0.017	6.0	31	10.7	9.2
India	-	-	-	7.2	47	14.9	16.3
C.V.	**34.07**	**44.40**	**45.35**	**11.36**	**34.68**	**33.01**	**66.26**

Source: Sample Registration System Bulletin (2011)
@The MMR estimate of Bihar, MP and UP also includes Jharkhand, Chhattisgarh and Uttarakhand respectively.
DR-death rate, DH-district hospitals

Table-1 represents disparity in health outcome and infrastructure facilities of the major 15 states of India. When we look into the availability of health infrastructure facilities like primary health care centres, child health care centre and district hospital, Karnataka followed by Odisha were the two states in the most developed category. The least developed states are West Bengal followed by Bihar. In the case of the outcome index, the state wise picture reveals that Kerala followed by Tamil Nadu are the top performer states in several health outcome indicators and it against Uttar Pradesh and Rajasthan are the two bottom performer among them. The co-efficient of variation explains a high extent of disparities among the different states in terms of all the indicators excluding death rate. Maternal mortality rate is a very sensitive indicator of health outcome which is very unequal in various states; the value of coefficient of variation is 66.26.

It is worthwhile to mention the correlation between health outcome and infrastructure among the states. It has been seen that the states which are poor performers in infrastructure also have low outcome in health except two states such as Maharashtra, Punjab and West Bengal. On the other hand, it is contradictory to look at the position of some states like Assam, Odisha are performing well in infrastructure but rank in outcome is worse. It means

infrastructure facility is not a single indicator which determine the outcome of health, and there will be other significant factors like education, institutional changes, organisational attitude of govt., per capita income etc. playing an important role in specific region in particular. It might be, there regions are success in attracting private investment in health and FDI in this sector.

When we observe the rank of Uttar Pradesh in these health indicators, it is very surprising and compels us to evaluate the health disparity in the state at more micro level. The state stands with very low rank in health outcome as well as infrastructure facilities both. The rank in health outcome is 11th and in infrastructure it is 15th among the states. We can argue that in the state somehow health infrastructure induced the outcome. So it has become very urgent to see the extent of disparity within the state at district level so that we could suggest an appropriate policy for health development in backward areas.

Table 2: Nutritional Status (Underweight)
of Children: Major States

States	NFHS-1 (1992-93)	NFHS-2 (1998-99)	NFHS-3 (2005-06)
Andhra Pradesh	42.9	34.2	29.8
Assam	44.1	35.3	35.8
Bihar	58.7	52.2	55.0
Gujarat	42.7	41.6	41.3
Haryana	31.0	29.9	38.2
Karnataka	46.4	38.6	33.2
Kerala	22.1	21.7	21.2
Madhya Pradesh	57.4	50.8	57.9
Maharashtra	47.3	44.8	32.5
Orissa	50.0	50.3	39.4
Punjab	39.9	24.7	23.6
Rajasthan	41.8	46.7	36.9
Tamil Nadu	40.7	31.5	25.9
Uttar Pradesh	52.7	48.1	41.5
West Bengal	53.2	45.3	37.6
India	47.9	42.7	40.4
C.V.	**21.41**	**24.59**	**27.72**
Rank of UP	**12th**	**13th**	**13th**

Source: NFHS-I, NFHS-II and NFHS-III

To understand health impartiality it is very imperative to look at the nutritional status of children, how states are desperate in attaining child care facilities and other treatments related to health facilities so that they can nourish children. The table-2 reveals that Bihar, Madhya Pradesh, West Bengal, Uttar Pradesh and Orissa were the states performing very poorly in nutritional status of children and in the national economy during the period 1992 to 1999. Kerala is one of the best performers among 15 states and Bihar followed by Madhya Pradesh and Orissa were the worst during the same period. Although the majority of states improved their place, very small changes have been observed in unprivileged states. Here we cannot deny that number of under nourished children declined; however, the disparity has increased (the value of C.V from 21.41 to 27.72). The coefficient of variation shows that there exists a wide regional disparity in nutritional status of children in different states of India, that also widened during the period 1992 to 2006. The rank of UP is 12th in NFHS-1, 13th in NFHS-II and III among 15 major states, shows very poor performance in nutrition of children.

Table 3: Health Profile of Uttar Pradesh Compared to AHS States (2010-11)

States	NGR	CBR	CDR	U5MR	NNMR	IMR	PNMR
Madhya Pradesh	17.1	25.0	8.0	89	44	67	22
Orissa	11.6	20.0	8.3	82	40	62	22
Bihar	19.5	26.7	7.2	77	35	55	19
Rajasthan	18.2	24.7	6.6	79	40	60	20
Assam	14.7	21.9	7.2	78	39	60	20
Chhattisgarh	16.3	23.9	7.6	70	35	53	17
Uttarakhand	12.0	18.6	6.6	53	30	43	13
Jharkhand	17.6	23.7	6.1	59	26	41	26
Uttar Pradesh	16.9	25.5	8.6	94	50	71	21
Rank of UP	5th	8th	9th	9th	9th	9th	6th

Source: SRS Bulletin, Annual Health Survey, 2010-11.
NGR-natural growth rate, CBR- crude birth rate, CDR-crude death rate, U5MR-under 5 mortality rate, NNMR-neo-natal mortality rate, IMR-infant mortality rate, PNMR-post neo-natal mortality rate

2. Health Inequality: What Literature Articulate

The United Nations strategic Millennium Development Goals (MDGs) have directed focus on to the improvement of the average health status of the population (Pande and Yazbeck 2003). However, a large number of recent studies

on health inequalities have documented evidence that average health status is an inadequate summary measure of a country's health performance or achievement (Sen 1997; Braveman 1998; Deaton 2003; WHO 2008). The assessment of health inequalities with the comparative analyses of their determinants is critical for determining the most effective health policy agenda (Braveman 1998; Deaton 2003; WHO 2008). It is clear that any evaluation of achievement needs to take into consideration both performance in addressing health inequalities and performance in terms of the average level of health for the population. In India, the levels of inequalities in health by region and state are significant and highly persistent (Pande and Yazbeck 2003; Joe et al. 2008). For instance, the demographically less advanced north Indian states of Bihar, Madhya Pradesh, Uttar Pradesh, Rajasthan and Orissa are characterized by poor average health: high levels of infant and child mortality, low rates of full child immunization coverage and high prevalence rates of child under-nutrition (IIPS and ORC Macro 2007). However, evidence of this poor average health status is inadequate to inform policy interventions relating to the intensity of health inequalities at the state level, as the level of socio-economic inequalities in health are persistent even in some of the socio-economically well off states like Goa, Kerala and Maharashtra (Joe et al. 2008). Such mixed trends lead to concern about the distribution in child health indicators across different groups and in particular whether the health of children has improved among the poor households.

On the other hand, health indirectly influences education and both are recognised to be the two distinct effects which can promote the freedom and capability of individuals to make use of available opportunity (Dreze and Sen, 1995). Apart from this, the social hierarchy or the system of social stratification existing in the society is likely to determine the health behaviour of individuals. Social stratification system determines the living condition, privileges, obligations and cultural traditions surrounding the life of a person which in turn affect his perceptions regarding health, knowledge of health care and accessibility to health resources (Kopparty, 1994).

A number of empirical studies conducted about health inequality have been made in recent time that measure the extent of disparity using different dimensions. Most of studies observed that the burden of ill health is borne disproportionately by different population subgroups and that people of lower socio-economic status consistently experience poor health outcomes (Macinko et al 2003). Several empirical studies have also acknowledged such income related inequalities in health, propounded as the absolute income hypothesis (Kakwani et al 1997; Van Doorslaer et al 1997: Humphries and Van Doorslaer 2000). A few studies (Duggal, Nandraj and Vadair 1995) stress the inequality in access to health care between

rural and urban areas and point out that access to private practitioner in rural areas is access to non- allopathic system or to the person without any qualification. There have been studies that identity districts or states as a measure of analysis that are very relevant sources for the criticism of India's progress in health including the inability to reach the rural poor (Drez and Sen, 1995; Betancourt & Gleason, 2000).

Drawing from the literature, the basic question to be addressed is about the emergence of regional disparities at a more disaggregated level and to see the regional variations between the different districts of Uttar Pradesh. Whatever literature has drawn attention regarding health disparity concerned the states of India might be true at macro level in different parameters but at district level where regions are close similar to state or equal to two states, micro level study would be helpful in framing problems and also making policy in a particular region. The state of Uttar Pradesh, consists more than 70 districts, and there exist wide heterogeneity among them in various health indicators. Consequently, there is need to evaluate the performance of districts in health outcome and infrastructure facility and identify the cluster whether they are developed or under-developed.

3. Methodology and Database

The present paper identifies health disparity in outcomes and infrastructure facilities at district /regional level in Uttar Pradesh during the period 2010-11. In this study Principal Component Analysis has been used that measures and also represents the explanation of various indicator and their variance proportion. In India there is a large data set available that gives detailed information about health at state level. However, for district level study there are limited sources. The information in this paper data has been derived from Census of India, Annual Health Survey which basically described health outcome related indicators. Another important source is Uttar Pradesh Planning Commission, from where we get only information related to health infrastructure. Using the same data source for different indicators to identify the outcomes and infrastructure of health is not possible due to the unavailability of data. Here we have collected separate information from two different sources for comparison.

The indicators listed below represent activities of the health outcomes and health infrastructure facilities, and they are neither exhaustive nor complete in themselves. Many indicators which would have been more relevant in the context of building health development index have not been included in the study. In the selection of the indicators, we have mainly been guided by availability of data for

the selected indicators for all the districts of the states. Many indicators like-doctors in allopathic hospital, availability of primary health care centres, etc., have not been used due to unavailability of data information.

The different indicators have been calculated and we given weight to them using UNDP formula that is used for making human development index. If variable is positively associated with the educational development then the equation can be written.

$$Xid = \frac{(Xidr - Min\,Xidr)}{Max\,Xidr - Min\,Xidr} \tag{1}$$

Then the tabulated data were transformed into standardised X_{id}'s, using equation 1, where X_{idr} stands for actual value of ith variable for district dr^{th} (number of district) and Min X_{idr} stands for minimum value of ith variable of all districts, Max X_{idr} stands for the maximum value of ith variable within the all districts and X_{id} stands for the standard value of the ith variable in the dth district and d^{th} runs from 1 to 70, whole districts of UP respectively.

If, however, Xi is negatively associated with development, as, for example, the infant mortality rate or the unemployment rate which should decline as the district develops and then equation 1 can be written as:

$$Xid = \frac{(Max\,Xid - Xid)}{Max\,Xid - Min\,Xid} \tag{2}$$

Second, using data of all variables of all districts factor analysis has been used to find out the weights for different variables. Using the weights of variables, the jth factor Fj can be expressed as:

$$Fj = Wj_1X_1 + Wj_2X_2 + \ldots\ldots + Wj_pX_p \tag{3}$$

Where, Wj's are factor score co-efficient

P is the number of variables

X is the score of individual variable of indicator 1.

The unit of analysis can be then arranged in a hierarchical order on the basis of the factor score.

Third, in cases where the first principal component explained less than 70 per cent of variation, then the first and second components have been considered for calculation of component or factor scores. A combined component score have been computed from the first (S_1I) and second (S_2I) component score using the per

cent of variation explained as the weights. In other words, weights were allotted to each set of factor scores in the proportion to the variance explained by it.

That is the score for the unit is:

$$CCSi = W_1 S_1 I + W_2 S_2 I \qquad (4)$$

Where, $W_1 = V_1 / (V_1 + V_2)$ = proportion of variance explained by the first Component with a variance value V1.

$W2 = V_2 / (V_1 + V_2)$ = per cent of variance explained by the second Component with a variance value V2.

$S_1 I$ and $S_2 I$ = First and Second Factor Scores for the ith unit.

The CCSi (combined component Score) thus worked out is considered as composite index of development. Districts were then ranked according to Combined Component Score (CCS).

3.3 Selection of Indicators Related to Health Outcome & Infrastructure:

List of Indicators Related to Health Outcome:

X1: Crude Birth Rate (CBR)	X6: Sex-Ratio at Birth (SRB)/Sex-Ratio (0-4 Years) (SRB)
X2: Crude Death Rate (CDR)	
X3: Natural Growth Rate (NGR)	X7: Neo-Natal Mortality Rate (NNMR)
X4: Infant Mortality Rate (IMR)	X8: Post Neo-Natal Mortality Rate (PNNMR)
X5: Under-5 Mortality Rate (U5MR)	

Source: SRS Bulletin, Annual Health Survey (2010-11)

List of Indicators Related to Health Infrastructure:

X9: Number of Govt. Public Medical (Allopathic) Hospitals per Lakh of Population (GPAH)	X12: No. of Hospital/Dispensaries (govt.) in Homeopathic Medical Services per lakh of population (GHMS)
X10: Number of Private Unaided Medical (Allopathic) Hospitals per Lakh of Population (PUAH)	X13: No. of Doctors in Homeopathic Medical Services per Lakh of Population (DHMS)
X11: No. of Govt. Public Medical (Allopathic) Hospitals per 100 sq. Km. of Inhabitant. (GPMA)	X14: No. of Beds in Hospital/Dispensaries (Allopathic) per Lakh of Population (BHA)

Source: UP Planning Commission, Statistical Abstract, 2010

4. Results & Discussions

The result of the study highlights some important facts which show inter-sistrict disparity in the state in terms of health indicators. These are the followings.

4.1. Health Outcome and Infrastructure Facilities: Region-wise Performance

In this paper an attempt is made to identify the extent of disparity and key relationship in health indicators which would provide a setting for discussing the determinants of health performance at district economy of Uttar Pradesh.

Table 1: Eigen value and Factor Loading of Different Indicators of Health

Variables	Health Outcome	
	Factor-I	Factor II
X1	-0.29	-0.79
X2	0.49	0.21
X3	0.22	0.81
X4	0.89	0.20
X5	0.97	0.19
X6	0.96	0.18
X7	0.29	0.20
X8	0.32	0.05
Eigenvalue	4.392	1.058
Variance Explained	51.8%	23.7%

Calculated by Author

The evolved factor structure of the eight indicators for health outcome and six indicators as health infrastructure are interconnected based on the Kaiser criterion of Eigen value greater than unity is presented in Table 1 and 2. The Eigen roots of the correlation matrix of the health outcome explain two factors. The first Eigen value turned out to be 4.392 and second 1.058 and all others were less than unity resulting into retention of just two factors which accounts 75.5 percent of the inter-district variations in the selected indicators simultaneously. The nature of linkages amongst the eight selected variables turns out to be consistent with the general expectations. The first factor loads heavily on X5, X6 and X4 and similarly the second factor loads with high is X3. Indicator X1 explains negative and lowest variation in both of two composite indices that is crude birth rate.

Table 2: Eigen value and Factor Loading
of Different Indicators of Health

Variables	Health Infrastructure Factor-I
X9	0.66
X10	-0.31
X11	-0.07
X12	0.98
X13	0.99
X14	0.63
Eigenvalue	2.902
Variance Explained	85.7%

Calculated by Author

Table 2 shows the explanation of six indicators related to health infrastructure, all these indicators reveal the supply side of health facilities. It has been seen that health infrastructure explains 85.7 percent of variation with only single component. The Eigen value that is greater than unity is 2.902 and others are less than one. Three factors that explain larger proportion are X12, X13 and X9. X11 and X10 give negative impression of health infrastructure, showing poor investment and allocation of facility. The high factor loading of these variables indicate that the govt. public hospitals in allopathic are sufficient and availability of beds and doctors in homeopathic hospitals are also plentiful in the state but the geographical distribution of allopathic hospital and low functioning of private unaided hospitals may be worsening. The private hospitals are centralized in developed regions, and poor pockets of the state are not getting health facilities from the private providers. Due to poor pocket expenditure they are not able to attract private investment as well. Thus, there is a problem in the distribution system and allocation of resources towards under developed regions of the state.

Table 3: Region-wise Level of Development of Uttar Pradesh in -2010-11

Regions	Health Outcome Index		Health Infrastructure Index		Combined Development Index	
	Index	Rank	Index	Rank	Index	Rank
Western	1.043	3	0.592	3	1.633	3
Central	1.438	1	0.852	1	2.296	1
Bundelkhand	1.378	2	0.794	2	2.173	2
Eastern	-0.119	4	-0.187	4	-0.076	4

Calculated by Author

Table-3 represents the region wise variations of health outcomes and infrastructure facilities in different indicators. It is observed that Central region is the top performer in health outcome as well as infrastructure facilities and in Eastern regions we find the worst cases of health outcomes. The gap between top and least developed regions in terms of outcome index is 12.08; consequently, we find huge disparity between the regions of the state. Apart from outcome index the eastern region is also the lowest developed in infrastructure facilities, the central is 4.55 times higher than eastern. The reason behind lowest development in health sector of eastern reason might be high pressure of population located in that region, high poverty, low literacy etc. The least but vital cause for lower rung of development of this region is highly dependent on agriculture (more than 80% population) but the gain from this sector is very low. Thus, low output from farm sector influences the other sectors of the region and further employment pattern and level of living of the individual which ultimately affects the poor demand for health.

4.2. Health Outcome & Infrastructure: Disaggregated Profile of Uttar Pradesh

It may be of interest to mention the district wise disparity in health outcome and health facilities, which determined the overall health development of the state. There exists large inter-district disparity in overall attainment in health outcome and infrastructure facilities in the state of Uttar Pradesh.

The best performing district Kanpur Nagar has the composite score of 3.09 while the most backward district Shrawasti a score of -2.3. Only 33 of the total of 70 districts have composite index score of 0.72 or more which is the average score, the remaining 37 districts have less than the average score for the state. This shows that the overall score of the state is pushed up because of better performance of few districts that are developed in health outcome. Similarly, there are only 34 districts out of 70 which performance in infrastructure index is higher than state average or greater than 0.308.

Most of the districts whose performance is comparatively better are located in the Western and Central UP where economic activities like per capita income, education level; high returns from farm sector and high incentive for private investment exist. As a result the regions are more able to be a focus for health achievement and good health for all. Due to high economic and social development the awareness about health of people in these regions are advanced that are the reasons the health status is also very developed.

A closer look at the better performing districts reveals that these districts have been able to get a very high composite index scores because they are very good in both the indices health outcome and health infrastructure. There are small differences among the districts in attainment of several health indicators except some of the districts like Bahraich, Barabanki, Varanasi, Kheri, Lalitpur, Balia, Hardoi, Bijnor and Mau. Among the nine, Bahraich and Hardoi are the two districts which rank is poor in health outcome, despite the better infrastructure facilities. The rest have performed well in health status even with week infrastructure facilities.

The performance of all the districts in health outcome and health infrastructure goes hand in hand. It has been observed that the districts which are very good performers in infrastructure also good in health outcomes, so here we can argue that infrastructure plays a significant role in attainment of health outcome. The state has since long provided a good infrastructure facilities and investment is also adequate, but the social attitude of society, bad implementation of health policies, little access for health facilities to poor section of society and poor demand for health causes by low income and high poverty remain challenges.

There is an important fact that the eastern part of UP is more deprived in health outcome as well as infrastructure facilities; no eastern districts exist even in top ten. The reasons behind worst performance in health might be the low knowledge about health care, lack of information related to health programs and low investment in health by the government. Due to law and order problems, lack of faith of people in government, and longstanding failure of policies, the area has resulted in a failure to attract private investment. The region suffers huge caste and gender disparity which indirectly influenced the health performance of individual and society as a whole.

5. Conclusion and Suggestions

There exists wide heterogeneity among the different districts of Uttar Pradesh in terms of various health development indicators both in health infrastructure and health outcome. This section concludes that the western region of the state is the most developed and Eastern is the least developed in health status and health infrastructure facility at the same time. The majority of the highly positioned districts are located in western (followed by the central) region of the state. In contrary, the poorer districts are placed in eastern followed by Bundelkhand zone of the state. It is disconcerting to witness, especially from an ethical perspective, that poorer regions of the state are bearing the brunt of health disadvantages. The

problem may be one of the poor levels of awareness about health care facilities and treatment procedure. The social planner has to acquire more complete information with regard to the sources of inequality and identification of the vulnerable groups of the society. Undoubtedly, such an exercise would go a long way to optimise resource allocation and enhance the targeting efficiency to such interventions. The study has drawn an attention to formulate policy by the agencies and government keeping in mind of equity and decentralized planning e.g. they should allocate resources in Eastern and backward districts of the states. Here, we can suggest that only nation/state should not be the angle of development but district/region is equally important.

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