



EMPIRICAL ANALYSIS OF STATUS AND INEQUALITY IN AVAILABILITY OF DOCTORS IN RURAL PRIMARY HEALTH CENTERS IN INDIA

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ABSTRACT Health is the most important part of human development. Development without good health will never be sustainable. There are two important aspects in ensuring rural health services; health infrastructure and human resources. Accordingly, the availability of doctors is largely determines the health services to rural people. The present paper examined the availability of doctors in primary health care centers in rural India. The paper used secondary cross section data along with appropriate statistical tools like F and t-tests. It is found that there were 20308 doctors working in the PHCs in rural India during 2005 and increased to 32901. The state of Maharashtra had highest number of doctors in PHCs in rural India compared to other states. The following graph shows the doctors in PHCs in rural India. It is found that in states the mean numbers of doctors in rural PHCs were 1302 in 2005 and increased to 1560 in the year 2023. The paired t-test (-2.634) is significant at 5 percent level. Accordingly, the doctors in rural PHCs are significantly increased in rural India. It is found that in 9 states there are less number of people per doctor and mean number of people per doctor is 17166. It is also found that in 7 states there are more numbers of people per doctor and mean number of people per doctor is 43819. In Bihar, Chhattisgarh, Haryana, Madhya Pradesh, Punjab, Uttar Pradesh and West Bengal access to doctors is very less compared to other states. There is very less access of doctors in Uttar Pradesh and very high access of doctors in Kerala. Hence, the respective governments during the period have not given considerable importance to made availability of doctors in PHCs. Hence, it is the responsibility of the state governments to increase the availability of doctors in PHCs to rural people to serve as immediate relief for the health problem.

KEYWORDS : Rural Health, Doctors, Development, Inequality and Human Capital Formation

INTRODUCTION

Health is the most important part of human development. Development without good health will never be sustainable. There are two important aspects in ensuring rural health services; health infrastructure and human resources. Accordingly, the availability of doctors is largely determines the health services to rural people. India is one of the fast growing countries of the world (Britta & Paul, 2018). Though the Gross Domestic Product has been increased, the health indicators have shown poor compared to developed countries (GOI, 2025). The Human Development Index (HDI) rank of India is 130 out of 193 countries, according to human development report 2023-24 published in May 2025 (Government of India Ministry of Women and Child Development, 2012). This is largely because of poor health sector performance. Lack of availability of health care services and availability of health care human resources like doctors are the major constraints for providing quality and efficient rural health services. In this background the present article review the status of availability of doctors in rural primary health centers in India and at the same time the inequality in the availability of doctors in primary health centers among the major states of India (Rabassa, EmmanuelSkoufias, & Jacoby, 2012). The paper also examines the improvement in the availability of doctors in PHCs during the period from 2005 to 2023 for which the comparable data is available.

REVIEW OF LITERATURE

The previous theoretical works and Gary Becker defined human capital formation as "activities that influence future monetary and psychic income by increasing resources in People" (Becker, 1964, 1975 & 1993). Schultz (Schultz, 1971), Mincer (Mincer, 1962), Renshaw (Renshaw, 1960), Murphy and Welch (Murphy & Welch, 1993), Shaffer (Shaffer, 1961), Solow (Solow, 1965), Spengler (Spengler, 1950), Romer (Romer, 1986) and Lucas in 1988 (Robertson, 2002), and other are pioneers in human capital research, have congregated to lay down the theoretical foundation for unconventional human capital approach (World Health Organisation, 2013). It has been found from the empirical works that the health is an important component of human development and having significant impact on economic development of the country (Narayana & B.V.L., 2012), (Lindsey & Helen, 2015). The provision of health infrastructure; both physical and human have been made significant impact on general health of people (Srinivasan, 2007). However, the previous works have not examined status and inequality in the availability of doctors in PHCs in the major states of India. The present paper will fill that gap.

METHODOLOGY

The present paper used secondary cross section data collected for the selected 16 states of India for the period 2005 and 2023. The data presented in the tabular and graphical form. The t-test used to find the improvement in the availability of doctors in PHCs between the periods 2005 and 2023. The F-test used for the analysis of variance in the background of t-test. The conditional formatting is used to identify the high and low availability of doctors in PHCs in terms of people per doctor. Again the independent t-test used to find the significant difference in availability of doctors in PHCs between less number of people per doctors and more number of people per doctor.

RESULTS AND DISCUSSION

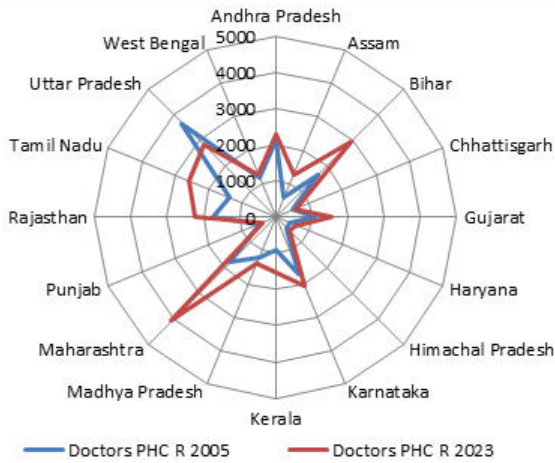
The results of present paper are presented in the following section;

Table 1: Doctors in PHCs in Rural India during 2005 and 2023 (In Numbers)

| Sl. No. | States | Doctors PHC R 2005 | Doctors PHC R 2023 |
|---------|------------------|--------------------|--------------------|
| 1 | Andhra Pradesh | 2137 | 2293 |
| 2 | Assam | 610 | 1281 |
| 3 | Bihar | 1648 | 2945 |
| 4 | Chhattisgarh | 517 | 585 |
| 5 | Gujarat | 1070 | 1558 |
| 6 | Haryana | 408 | 584 |
| 7 | Himachal Pradesh | 439 | 545 |
| 8 | Karnataka | 1681 | 2052 |
| 9 | Kerala | 911 | 1525 |
| 10 | Madhya Pradesh | 1192 | 1404 |
| 11 | Maharashtra | 1780 | 4065 |
| 12 | Punjab | 484 | 411 |
| 13 | Rajasthan | 1713 | 2236 |
| 14 | Tamil Nadu | 1380 | 2594 |
| 15 | Uttar Pradesh | 3660 | 2827 |
| 16 | West Bengal | 1173 | 1247 |
| | India | 20308 | 32901 |

Source: MHFW, GOI.

The numbers of doctors working in the PHCs in rural in Indian states are presented above. There were 20308 doctors working in the PHCs in rural India during 2005 and increased to 32901. The state of Maharashtra had highest number of doctors in PHCs in rural India compared to other states. The following graph shows the doctors in PHCs in rural India.



Graph 1: Doctors in PHCs in Rural India

Table 2: Comparison of Doctors in PHCs in Rural India between 2005 and 2023

(In Numbers)

| Paired Samples Statistics | | | | |
|--|--------|----|----------------|-----------------|
| Description | Mean | N | Std. Deviation | Std. Error Mean |
| Doctors in R PHCs in 2005 | 1300.2 | 16 | 835.37802 | 208.84450 |
| Doctors in R PHCs in 2023 | 1759.5 | 16 | 1030.28223 | 257.57056 |
| Paired t-test Value: -2.634, df: 15, 0.019 | | | | |

Source: MHFW, GOI.

The comparison of doctors in rural PHCs is made to understand the significant increase of doctors between the two periods 2005 and 2023. It is found that in states the mean numbers of doctors in rural PHCs were 1302 in 2005 and increased to 1560 in the year 2023. The paired t-test (-2.634) is significant at 5 percent level. Accordingly, the doctors in rural PHCs are significantly increased in rural India.

Table 3: Population per Doctor in Rural PHCs of India during 2023

(In Numbers)

| States | Rural Population | Doctors in PHC | Population per Doctor |
|---------------------|-------------------------|----------------|-------------------------------|
| Andhra Pradesh | 33700000 | 2293 | 14697 |
| Assam | 30235000 | 1281 | 23603 |
| Bihar | 111694000 | 2945 | 37927 |
| Chhattisgarh | 22046000 | 585 | 37685 |
| Gujarat | 36690000 | 1558 | 23549 |
| Haryana | 17504000 | 584 | 29973 |
| Himachal Pradesh | 6708000 | 545 | 12308 |
| Karnataka | 37600000 | 2052 | 18324 |
| Kerala | 8592000 | 1525 | 5634 |
| Madhya Pradesh | 61689000 | 1404 | 43938 |
| Maharashtra | 65103000 | 4065 | 16015 |
| Punjab | 17878000 | 411 | 43499 |
| Rajasthan | 59636000 | 2236 | 26671 |
| Tamil Nadu | 35521000 | 2594 | 13694 |
| Uttar Pradesh | 179552000 | 2827 | 63513 |
| West Bengal | 62596000 | 1247 | 50197 |
| India | 902657000 | 32901 | 27436 |
| Independent t-test: | Less People per Doctor | 17166 | F: 0.697, Sig: 0.418 |
| | More People per Doctors | 43819 | t: -6.128, df: 14, Sig: 0.000 |

Source: MHFW, GOI, Computed by Researcher.

Note: Green represents less number of people per doctor and red represents more number of people per doctor.

The population per doctor in the states of India is presented above. It is found that in 9 states there are less number of people per doctor and mean number of people per doctor is 17166. It is also found that in 7 states there are more numbers of people per doctor and mean number of people per doctor is 43819. The F-test (0.697) is not significant.

Therefore, there is not significant variation in doctors. The t-test (-6.128) is significant. Therefore, in Bihar, Chhattisgarh, Haryana, Madhya Pradesh, Punjab, Uttar Pradesh and West Bengal access to doctors is very less compared to other states. There is very less access of doctors in Uttar Pradesh and very high access of doctors in Kerala.

CONCLUSION

The present paper examined the availability of doctors in primary health centers in rural India. It is found that there were 20308 doctors working in the PHCs in rural India during 2005 and increased to 32901. The state of Maharashtra had highest number of doctors in PHCs in rural India compared to other states. The following graph shows the doctors in PHCs in rural India. It is found that in states the mean numbers of doctors in rural PHCs were 1302 in 2005 and increased to 1560 in the year 2023. The paired t-test (-2.634) is significant at 5 percent level. Accordingly, the doctors in rural PHCs are significantly increased in rural India. It is found that in 9 states there are less number of people per doctor and mean number of people per doctor is 17166. It is also found that in 7 states there are more numbers of people per doctor and mean number of people per doctor is 43819. In Bihar, Chhattisgarh, Haryana, Madhya Pradesh, Punjab, Uttar Pradesh and West Bengal access to doctors is very less compared to other states. There is very less access of doctors in Uttar Pradesh and very high access of doctors in Kerala. Hence, the respective governments during the period have not given considerable importance to made availability of doctors in PHCs. Hence, it is the responsibility of the state governments to increase the availability of doctors in PHCs to rural people to serve as immediate relief for the health problem.

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