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Public Healthcare Infrastructure in Tribal India: A Critical Review

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PUBLIC HEALTHCARE INFRASTRUCTURE IN TRIBAL INDIA: A CRITICAL REVIEW

Mohamed Saalim P K[1]

Abstract

The Millennium Development Goals (MDGs) were to be achieved by 2015, however, access to healthcare services in rural areas, especially the tribal regions of the country, continues to be one of the major problems of healthcare delivery in India. Government of India and the state governments have initiated several healthcare schemes and incrementally developed health care infrastructure since Independence, but there is still a huge deficiency in improving rural and tribal health infrastructure. Against this backdrop, this paper aims to critically review and discuss the inadequate rural health infrastructure and personnel in India with a focus on Tribal areas in detail. The data for this paper has been drawn from the Rural Health Statistics (RHS) and Census Reports of Government of India.

Keywords: Healthcare system, tribal health, health infrastructure, health personnel, India.

Introduction

Government of India and the state governments have initiated several healthcare schemes and incrementally developed health care infrastructure since Independence. The health care system in India has been expanded and modernised which have significantly contributed to improvements in life expectancy and decreased morbidity. However, there is still a huge deficiency in improving rural health infrastructure, quality, coverage, doctors-nurses per thousand population, sub-centers, primary health centers, community health centers, drugs and laboratory, presence of doctors, health workers and health expenditure. The important health-related targets to achieve universal health coverage (UHC) are: access to quality and essential healthcare services, access to safe, effective, quality and affordable essential medicines, vaccines for all besides substantially increasing health financing and recruitment, development, training and retention of health workforce in developing countries, more so in the least-developed countries and small island developing states (United Nations Development Program, 2016). United Nations Universal Declaration of Human Rights (1948), recognises 'right to health' as a fundamental human right. Article 25 of that document states: "Everyone has the right to a standard of living adequate for health and well-being of himself and for his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control".

In India, achievement of health for all is a Directive Principle provided by the Constitution to the State. The Directive Principles of State Policy, which direct the governance of the country to specifically provide for "improvement of public health" as one of the primary duties of the State. There are other principles that set various parameters for achieving health for all within the limitations of a newly-Independent country. Article 39 enjoins that the State should secure for all its citizens, "men and

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women equally, the right to have an adequate means of livelihood", that "children are given opportunities and facilities to develop in a healthy manner", and that it should "increase the level of nutrition and standard of living" (Research and Information System for Developing Countries, 2016).

Access to healthcare services in rural areas, especially the tribal regions of the country, continues to be one of the major problems of healthcare delivery in India. Nearly 75 per cent of health infrastructure and other health resources are concentrated in urban areas. Even though several government programmes for growth of rural healthcare have been initiated, the slow process of implementation and procedure leads to its ineffectiveness (Jaysawal, 2015). Against this backdrop, this paper aims to critically review and discuss the inadequate rural health infrastructure and personnel in India with a focus on Tribal areas in detail.

Methodology

The study draws mainly from the secondary data made available by the Rural Health Statistics (RHS) and Census Reports of Government of India. The population norms for setting up of public health facilities are as follows. A Sub-Centre (SC) for 5,000 population in general areas and one for 3,000 population in tribal and hilly areas, one Public Health Centre (PHC) for 30,000 population in general areas and one for 20,000 population in tribal and hilly areas, and one Community Health Centre (CHC) for 1,20,000 population in general areas and one for 80,000 population in tribal and hilly areas (National Health Mission, 2017). The RHS data, re-arranged based on population norms, and calculations made, point out to the variance in the actual number of SCs that are existing and the ideal number of SCs that are supposed to exist.

State of Healthcare Delivery in Tribal India: A Review

Accessibility is one of the principles of health for all stated in Alma-Ata declaration on primary health care but still struggling due to lack of universal access, equality in health status cannot be assured (Sourab and Shrivastava, 2013). Although the National Health Policy, 1983 accords high priority to extending organised services to those residing in the tribal, hilly and backward areas as well as to the diagnosis and treatment of endemic diseases affecting tribals, yet they continue to be one of the fragile population, mainly due to their poor health and disease management. Tribal health is one of the important areas for action in the health sector. The major contributors to the increased risk of disease amongst tribal communities include poverty and malnutrition, lack and poor sanitation facilities, poor hygiene and lack of safe drinking water that lead to increased morbidity from water and vector-borne infections, lack of access to health care facilities resulting in the increased risk and duration of illnesses, social barriers and taboos preventing utilisation of available health care services. Also, the tribal population, being heterogeneous, there are wide variations in their health status, access to and utilisation of health services (Mishra, 2012).

Treatment Patterns and Health-Seeking Behaviour

The tribal population in India has different health problems mainly due to several factors such as the living environment, difficult terrains, ecological differences, illiteracy, poverty, isolated regions,

superstition and so on. These populations have their own lifestyles, food habits, customs and other socio-economic and cultural activities (Naidu, 2015). The same view was found in another study that the perception about health, the health-seeking behavior and disease are not the same across cultures. It varies from people to people and culture to culture while the socio-cultural activities affect the development of health-seeking behavior. The knowledge of traditional healing, prevention and treatment seeking is passed on from one generation to another generation. Medicine is also a part of culture and tradition (Sonowal and Praharaj 2007).

The tribal communities are a heterogeneous group. There is considerable variation in the context of socio-economic life, custom, tradition and behaviour and practices. Similarly, variations are also there in the context of demographic features. The major common factor in terms of development outcome among all tribal communities, except the North-East tribal population, are their low literacy rate and poor health outcomes as compared to other social groups. Their indigenous method of disease management is also widely acknowledged. Tribal illiteracy has a close link between health and disease management (Mishra, 2015). Patel (1991) studied traditional health management practices among Baiga primitive tribe of Madhya Pradesh. He documented their religious beliefs, such as the influence of supernatural power, concept of sin and virtue, birth and re-birth belief and other issues like unhygienic food habit, which were held responsible for Baigas suffering from various diseases. He also found practices like worship, black magic, herbs and medicinal plants, etc; being used by them for treatment. There was no place for modern medicine for the treatment of about 44 diseases among them. Verma (2014) also found that the tribal people are dependent on traditional health-healing practices because of the absence or lack of the availability of modern medical facilities. If modern facilities are available, the tribal population prefers traditional medicine because of the less awareness, less accessibility and more expenditure for modern health facilities (Verma, 2014).

Shortage of healthcare facilities

Several micro-level studies have pointed out that there is severe shortage of safe drinking water, sanitary facilities (Barnes, 2007), healthcare infrastructure, like sub-centres, PHCs, and nutritional service infrastructure like Anganwadis (Guha, 2007; Rani *et al*, 2007; Das *et al*, 2010, George 2016) and transportation facilities like good roads (Van Dillen, 2006) in tribal dominated areas. Taylor Nelson Sofres (2001) found that the healthcare infrastructure for tribal areas appears to offer a reasonable level of coverage for this remote and physically- scattered population. However, in reality this either does not exist in places, or else is defeated by the highly-dispersed nature of the tribal population. The PHCs and sub-centers have been so located that the distances to be covered (in these areas by means of foot) by patients seeking treatment is on average about 272 kms and 37 kms respectively with the farthest going up to 465 kms and 50 kms respectively. Tarafdar (2008) also discussed similar issues in his study and pointed out that the tribal communities seek medical treatments from traditional healers due to non-availability of modern health facilities in their vicinities. The tribal population could not utilise the treatment and the infrastructure of the PHCs because of long distance, ill-equipped infrastructure and odd timing. People's perception of health services in tribal communities is that, it is non-functional, even when endowed with all inputs, the treatment in the PHCs is unsympathetic and casual. A large

number of PHCs were not equipped with labour rooms, BP apparatus, blood analysis equipment, electricity and water supply (making institutional deliveries impossible), and the PHCs were located in thatched huts, one-room buildings, sheds, etc, forcing a large number of the staff members to stay at home. In the case of sub-centers, majority of them were running on rented accommodation, which in tribal areas would only mean a portion of a thatched hut and government buildings required major repairs and were unoccupied, and the poor infrastructure, a large number of the sub-centers were not functioning properly, save for those that are located in roadside villages or market centers (Taylor Nelson Sofres, 2001). Hence, Mishra (2012) points out the positive outcome of health system in tribal areas of central India and found that the impact of villager's dependence on state-initiated health management mechanisms, like PHC and CHC, have significantly increased. Efforts and initiatives taken by CHC are very popular among them (tribal population). More or less a similar situation is visible in PHCs. The number of patients registered in PHCs and CHCs were increasing day-by-day. Also, the number of schemes managed by CHC is very popular in tribal villages. Villagers do not hesitate to consult these formal institutions when in need.

One of the significant agents for the downfall of rural health care is inadequate human resources in health system. The primary-level health institutions like Primary Health Centres (PHC), Sub-Centre (SC) and Community Health Centres (CHC) are facing a huge problem of absenteeism of health professionals. Jaysawal (2015) found that a large number of absenteeism among health care personnel in tribal areas, vacancies, poor training and a lack of motivation among the staff who do show up. The vacancy rate and insufficient number of doctors were more. The same is true for the auxiliary nurse midwives, male health workers and health personnel who work only on compulsory tribal area tenure. Therefore, the tribal population seeks medical aid from traditional healers. The government doctors were doing service in private as well and a considerable difference was found between these two services in terms of their attitude and behavior. The poor tribals were not able to afford the fee charged by the private doctors. Most health workers, especially the 'doctors', do not want to serve in rural areas due to overall infrastructural inadequacy and lack of incentives. In a study conducted by Banerjee et. al (2004) on health care delivery in rural Rajasthan, around 45 per cent of the doctors were found absent from PHC and 56 per cent from sub-centres. Even in the private sector, rural health care service delivery system is not free from lacunae. Most of the practitioners are not even qualified to undertake the profession but still there are quacks. So, the tribal people were more comfortable in visiting a non-registered practitioner than a doctor since the healer had more patience to listen to the problem and their fee was less than a degree holder. Hence, the limited knowledge of the healers failed to treat critical patients in proper time**.** In addition, the poor availability of essential and emergency medical supplies largely hampers healthcare services aided by inadequate coverage of the region by pharmaceutical companies in the private sector as well as the supplies on government contact.

The same observation found in another study states that distance from private hospitals does not affect the health parameters but the distance from public health centre does. Those who live in remote areas with poor transportation facilities are often removed from the reach of health systems. Incentives for doctors and nurses to move to rural locations are generally insufficient and ineffective. Equipping and re-supply of remote healthcare facilities is difficult and inadequacies, due to poor supply,

deter people from using existing facilities. Maternal mortality is clearly much higher in rural areas as trained medical or paramedical staff attend fewer births. Transporting patients, in case of pregnancy complications, is difficult. Geographical difficulties in accessing healthcare facilities, thus, is an important factor, along with gender discrimination, that contributes to higher maternal mortality among women who live in remote areas, especially the tribal women in India (Deogaonkar, 2004)

Mishra (2012) conducted a study in central India about the health status and diseases in tribal-dominated villages and it showed that the respondents hesitate to revisit doctors when they are asked to visit twice or thrice. As a result, the treatment remains incomplete, which in many cases, resulted in re-appearance of some of the diseases, especially malaria, in a more complicated form (typhoid), after a few weeks or months. It was reported that, in many cases, most of the patients suffering from common ailments do not complete the entire course of the treatment as prescribed by the doctors. Other studies also criticised health programmes and policies of the government and mentioned the primary healthcare system in tribal areas is not just poorly funded but also suffers greatly from dysfunctional accountability systems that are ineffective in dealing with absenteeism and corruption. (Reddy *et al*, 2006), (Tarafdar, 2008), (Rajini and Shalini, 1995), (Rao, 1998).

Health Infrastructure in Tribal India: What Does the Data Show?

Health infrastructure is an important indicator for understanding the health care policy and welfare mechanism in a country. It signifies the investment priority with regards to the creation of health care facilities. Infrastructure has been described as the basic support for the delivery of public health activities. The five components of health infrastructure can be broadly classified as: skilled workforce; integrated electronic information systems; public health organisations, resources and research (Kumar and Gupta, 2012). Rural health is one of vital elements of rural life. India, being a nation of villages, requires an intensive approach towards rural health. Nearly 75 per cent of health infrastructure and other health resources are concentrated in urban areas. Even if several government programmes for growth of rural healthcare have been initiated, the procedural delay in implementation leads to its ineffectiveness. The Primary Health Centre (PHC) has been stated to be the prime location for diagnosis and first referral of these patients (Jaysawal, 2015).

According to the population Census report (2011), 10.42 crore tribal population live in India, which is 8.6 per cent of the total population. Of this, 9.38 crore tribal people live in rural areas and 1.04 crore live in urban areas. Mizoram stands first with 94.4 percent of tribal population (10,36,115) among the total population (10,97,206), followed by Nagaland (86.5 percent), Meghalaya (86.1 percent), Arunachal Pradesh (68.8 percent), Manipur (35.1 percent), Sikkim (33.8 percent), Tripura (31.8 percent) and so on. Four north-eastern states hold more than 50 percent tribal population, with other states accounting for the rest. Other than north-east region, Chhattisgarh, Jharkhand, Odisha and MP are the tribal-dominated states with over 20 to 30 percent tribal population (see Annexure Table 1). These tribals are commonly referred to as Adimjati, Vanvasi, Adivasi, Pahari and Anusuchit Janati. They are constitutionally referred and known as Anusuchit Janati. In India, 705 groups of Schedule Tribes are notified and recognised so far. They are still the marginalised and more vulnerable population of the country. Though Govt. of India has undertaken a lot of developmental and welfare schemes and

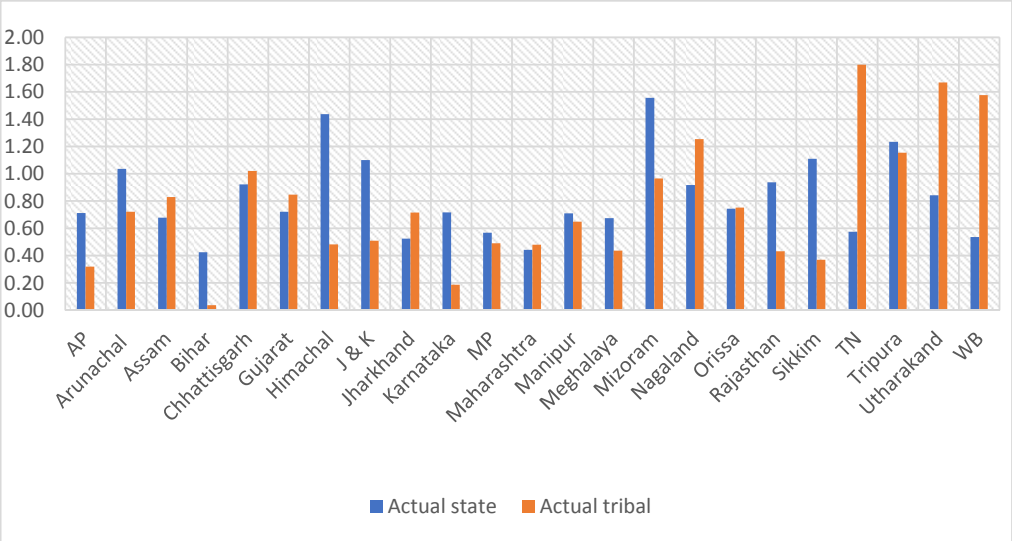
programmes for their upliftment and mainstreaming, yet these groups are still economically and socially weak and prone to risk (Negi and Monica, 2018). There is already a major variation in health services between the states and in rural-urban areas. Lack of access to right food, iron supplements and micronutrients, such as iodine and vitamins, is the principal cause for the very high incidence of nutritional-deficiency diseases such as anaemia, diarrhoea, night blindness, etc. These factors, combined with lack of access to basic health care services, are the main reasons for unexceptionally adverse differentials in terms of quality health in tribal areas when compared with the more developed parts of the states (Rao, 1998).

The National Health Mission (NHM) provides financial support to States to strengthen public health facilities, including the maintenance and construction of health infrastructure. Under NHM, high focus states can spend up to 33% and other States up to 25% of their NHM funds on infrastructure. Rural Health Statistics (2018) provides data of, 1,58,417 Sub-Centers, 25,743 Primary Health Centers, 5,624 Community Health Centers, 1,130 Sub-divisional Hospitals (SDHs) and 764 Districts Hospitals (DSs) functioning in the country (Ministry of Health and Family Welfare, GoI 2018).

Bihar is the least tribal-populated state in the country with only 1.3 percent in total population and is the state with a smaller number of SCs in tribal areas (0.04) in contrast to the available SCs for the state (0.42). As mentioned in the population norms which is very less in the state, the tribal zone is completely excluded. The health infrastructure discrimination is visible in tribal-dominated state also (**Diagram 1**). Mizoram is the largest tribal-dominated state in India (94.4 percent population) and the tribal population is almost fulfilled the criteria of one sub-center (0.96), but the state average number of sub-center is more than one (1.56). Meghalaya is another tribal-dominated area where both tribal and state-level population is not fulfilling the sub-center criteria. The state-level population can access 0.67 SCs and the tribal population can access 0.44 sub-centers only. The same case showed in Arunachal Pradesh as well. The state average is more than one sub-center but the tribal areas are lacking sub-centers, which is 0.72 only. Among all the North Eastern states, Nagaland is doing well. The tribal population is receiving more than one sub-center but the state-level population is receiving 0.92 sub-center only.

States like West Bengal, Uttarakhand and Tamil Nadu are better than all other states and they are providing better health infrastructure facilities than the state-level average. In these states, the tribal population is accessing more sub-centers than the state average. Rajasthan is another tribal-dominated state from central states. Around 13.5 percent of the population are tribals (census 2011). The state is providing almost one sub-center (0.94) for a population criterion but the tribal population is not receiving the sub-centers as much as state population receives (0.43). This shows a clear discrimination in tribal areas. Discrimination is minimum in Maharashtra, Madhya Pradesh and Gujarat. In Madhya Pradesh, the state is facilitating a better health infrastructure (sub-centers) than in tribal zones. All in all, Gujarat and Maharashtra's tribal population are accessing more number of sub centers than the state average. Majority of the states were not fulfilling the criteria of one sub-center for a specific population group. Particularly among the tribal population, this access is even less in number indicating a high discrimination among tribal population.

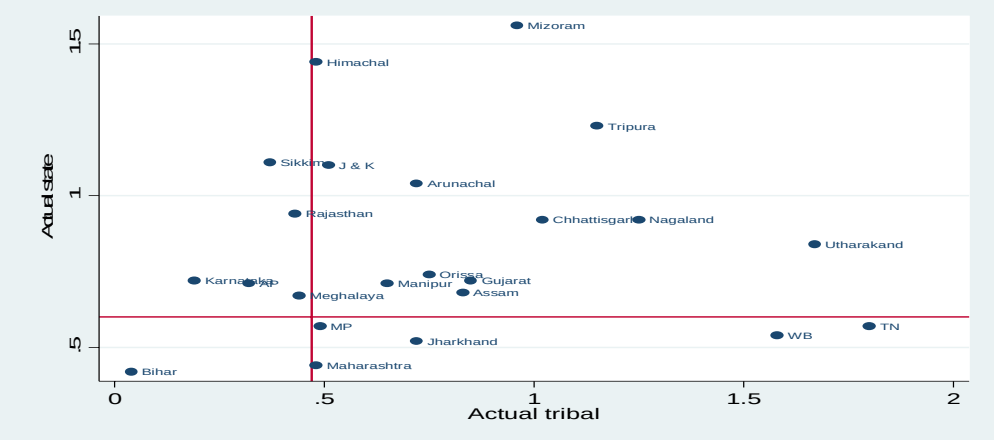
Diagram 1: Distribution of Actual Number of Sub-centres for Stipulated Population (5000 at state-level and 3000 at tribal areas) as on 2017



Source: Rural Health Statistics, GoI 2017

Most states are providing sub-centers above the national average in both state and tribal areas (0.60 and 0.46 respectively). States like Madhya Pradesh, Maharashtra, Jharkhand, West Bengal and Tamil Nadu are providing sub-centers above the national average in tribal areas at the state-level it is below the national average. These states are providing good number of SCs in tribal areas as compared to the state (**Diagram 2**). North-Eastern regions are performing better than all the other states with only Sikkim as an exception facilitating least number of sub-centers in tribal areas. However, if one compares the population norms for setting up of sub-centers in both state and tribal areas, only Mizoram and Tripura fulfilled that criteria while rest of the states are lagging behind.

Diagram 2: Distribution of Actual Number and National Average of Sub-centers in State and Tribal Areas



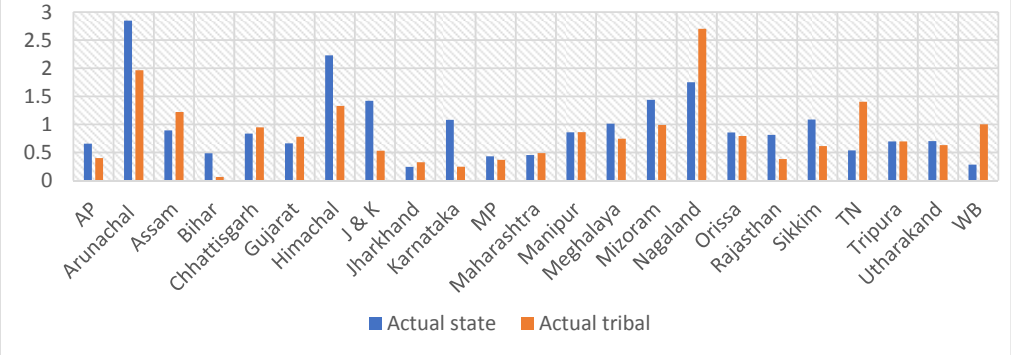
Source: Rural Health Statistics, GoI 2017

In the case of Bihar, as discussed above, it is not providing adequate sub-centers in both state and tribal-level population and a similar situation is visible even in the case of PHCs. The tribal population has access only to a smaller number of PHCs (0.06) for the given population criteria which is again very less compared to the number of PHCs (0.48) available in the state. Karnataka and Jammu and Kashmir are also neglecting the tribal population where the state-level population can access more than one PHCs in the given population but the tribal population can access a very small number of PHCs (0.24 and 0.53 respectively). Rajasthan and Andhra Pradesh are struggling to provide a single PHC in a given population criterion in both tribal and state-level and in these states the tribal population is receiving the number of PHCs less than the number of PHCs available in the state.

The discrimination clearly shows in tribal-dominated states too. Mizoram is providing good health infrastructure (PHCs) all over the state (1.43) and in tribal areas, the number of PHCs (0.99), in given population criteria, is less than that available in the state. Similarly, in Meghalaya also the tribal population is not provided the facility of one PHC in the given population criteria (0.74) but at the state-level it is more than one (1.01). Arunachal and Nagaland perform well in all over India and the North-East region. One interesting fact is that, Nagaland is providing 2.70 PHCs to tribal population, which is far better than the given population criteria, where states like AP is providing an average number of 2.84 PHCs in all over the state. AP is providing an average number of 1.96 PHCs in tribal areas that is less than the state average.

West Bengal, Tamil Nadu and Assam are facilitating a good number of PHCs in tribal areas than the average number of PHCs in the state. Assam and West Bengal are facilitating more than one and Tamil Nadu is fulfilling one and, whereas in these states, the average number of PHCs are less than one in the given population norms. States like Gujarat, Chhattisgarh, Jharkhand and Maharashtra are providing a better number of PHCs in tribal areas, which is more than the number of PHCs in state, and both the tribal and state-level PHCs under one for the given criteria.

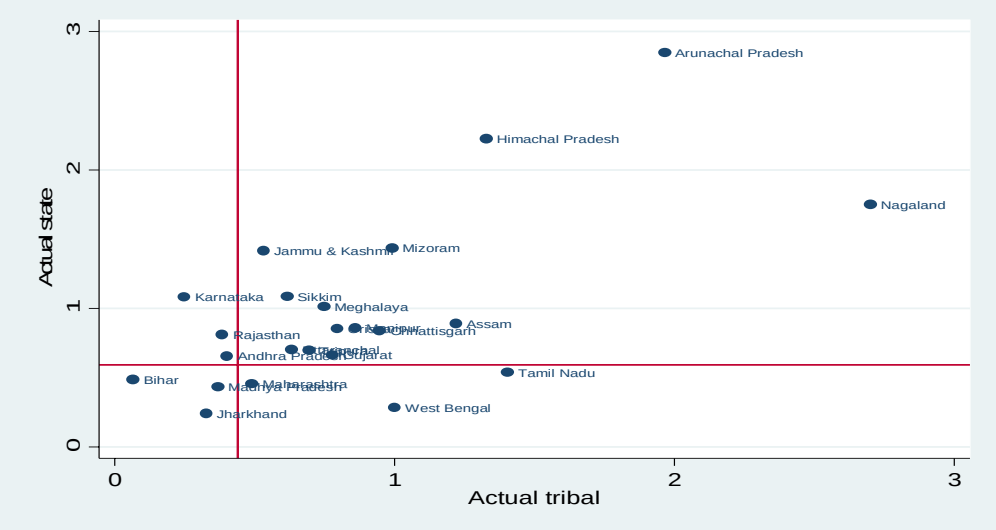
Diagram 3: Distribution of Actual Number of Primary Health Centers for Stipulated Population (30,000 at state level and 20,000 at tribal areas) as on 2017



Source: Rural Health Statistics, GoI 2017

Most of the states are facilitating more number of PHCs than the national average in both tribal and state areas. Some states are facilitating a greater number of PHCs in tribal areas than the number of PHCs in the state-level and vice versa. States, such as Karnataka, Andhra Pradesh and Rajasthan, are facilitating more number of PHCs in the state-level but in tribal areas the number is below the national average. The number of PHCs in Bihar, Madhya Pradesh and Jharkhand are below the national average in both tribal and state-level. Hence, Maharashtra, West Bengal and Tamil Nadu have better number of PHCs in tribal areas than the state-level. Arunachal Pradesh, Himachal, Nagaland, Jammu and Kashmir, Mizoram and Sikkim are providing good number of PHCs in state and tribal areas which is far better than the national average.

Diagram 4: Distribution of Actual Number and National Average of PHCs in State and Tribal Areas



Source: Rural Health Statistics, GoI 2017

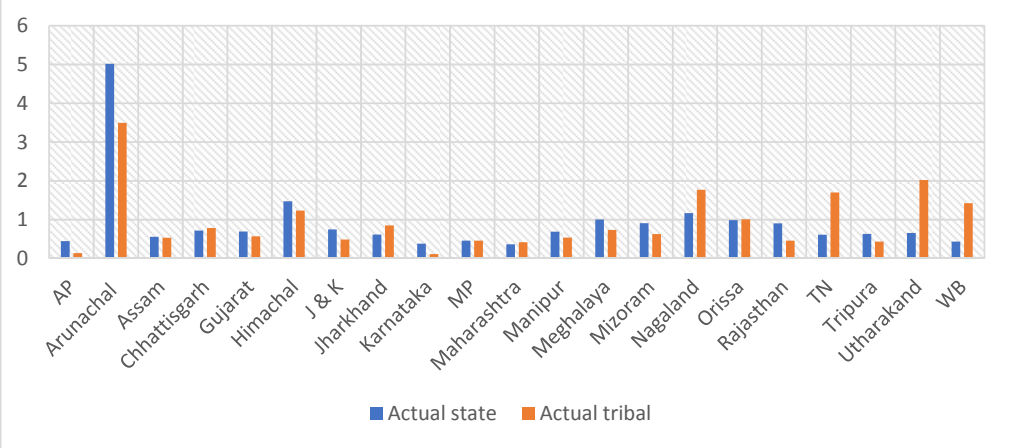
Arunachal Pradesh witnessed a very good growth in health infrastructure at both state-level and tribal areas. Likewise, the availability of CHCs is very high as compared to SCs and PHCs. While this tribal-dominated state is performing well, tribal population has not received the facility of CHCs (3.44) when compared with the number of CHCs in state (5.01). Nagaland also facilitates more than (1.77) CHCs against the minimum number in tribal areas which is more than the state-level (1.16). Other than these North-East states, Mizoram, Tripura, Meghalaya, Assam and Manipur are not facilitating a good number of health infrastructure in both state and tribal areas and the average number of CHCs in these states are less than one against the minimum one. Hence, the tribal population is not receiving as much as the number of CHCs in the state.

As discussed in previous diagrams West Bengal, Uttarakhand and Tamil Nadu are facilitating a good number of health infrastructure (sub-centers and PHCs) than the state average. The same situation is visible here also. One interesting fact is that the average number of CHCs in these states is less than one against one, but the tribal average more than one and the difference is also high. The

average number of CHCs in Uttarakhand is 0.45 for the given population criteria but in tribal areas it is 2.02.

Gujarat was facilitating more number of Sub-centers and PHCs in tribal areas than the state average, but the CHCs in tribal areas (0.56) is less than the state average (0.69). Maharashtra, Chhattisgarh and Madhya Pradesh are facilitating almost same number of CHCs to tribal and state population. Karnataka and Andhra Pradesh are completely ignoring the tribal zones and these states are struggling to provide a good number of CHCs all over the state (less than one). The tribal population from Karnataka and Andhra Pradesh receives only 0.37 and 0.44 CHCs respectively, but the state average is more than this (0.10 and 0.13 respectively). Similarly, Jammu and Kashmir also facilitate a smaller number of CHCs to tribal population (0.48) as compared to the state average (0.74), the discrimination is high.

Diagram 5: Distribution of Actual Number of Community Health Centers for Stipulated Population (1,20,000 at state-level and 80,000 at tribal areas) as on 2017

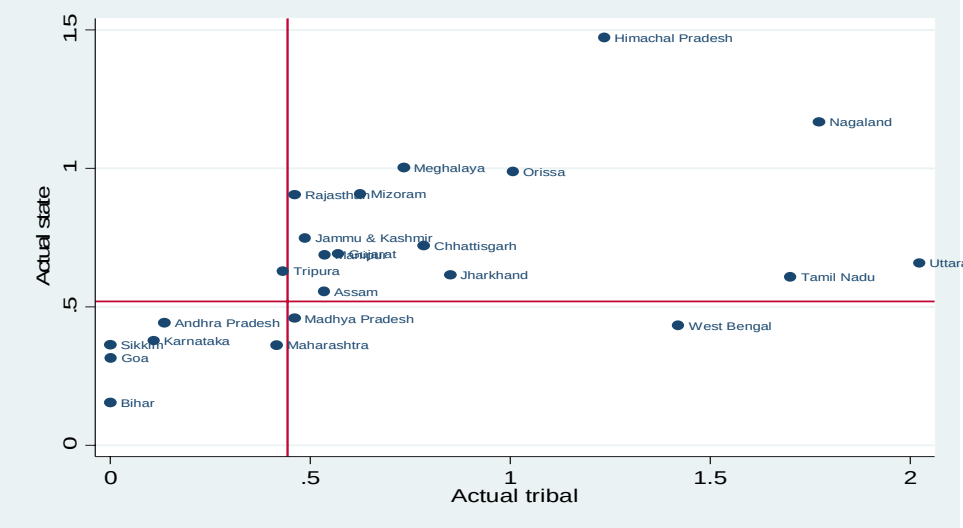


Source: Rural Health Statistics, GoI 2017

Majority of the states fulfilled the number of CHCs in national-level (average) in both state and tribal areas but only Himachal Pradesh and Nagaland fulfilled the number of PHCs in addition to CHCs under the population norm in both state and tribal areas and they are far above the national average.

Andhra Pradesh, Sikkim, Karnataka, Maharashtra and Bihar are facilitating a smaller number of CHCs than the national average in both state and tribal areas. Madhya Pradesh and West Bengal are providing a greater number of CHCs in tribal areas than the national average and a smaller number of CHCs in state-level which is less than the national average.

Diagram 6: Distribution of Actual Number and National Average of CHCs in State and Tribal Areas



Source: Rural Health Statistics, GoI 2017

Health Personnel in Tribal Areas

After implementation of the National Rural Health Mission, India witnessed a sharp increase in health infrastructure and health personnel in public health system. However, in tribal areas and tribal-dominated states the condition is not as good as in non-tribal areas (Tables 1, 2 and 3). Mizoram (tribal-dominated state), shows a sharp decline in the shortfall of female health workers in sub-centers, which was 63 male health workers short in 2006, but in 2017, which was only 4 (**Table 1**). Only Rajasthan and Andhra Pradesh were witnessing surplus female health workers in 2006 (data not available in 2017). Jharkhand also has surplus number of male health workers in 2006 but in 2017 they have a huge shortage of male health workers (1796). Chhattisgarh is a tribal-dominated state where the deficiency of male health workers is more (1840) in 2006, while it came down to 965 in 2017. Gujarat and Maharashtra witness an improvement in the shortfall of male health workers in sub-centers with 4501 and 4356 in 2006 and the shortfall sharply declined to 420 and 582 in 2017. These states appointed a large number of male health workers at sub-centers. However, the female health workers shortfall increased from 2006 to 2017 in Gujarat (244 and 320). The shortfall of male health worker in Madhya Pradesh is increasing from 2006 to 2017 (1576 and 1953) like in Odisha, the shortfall is reducing still the availability of male workers are high in sub-centers, which is 2535 and 1435 respectively. So, the data clearly shows that the number of male and female health workers at sub-centers in tribal areas are very less and the shortfall is very high. None of the states are having surplus number of health workers as per the available data.

Table 1: Shortfall of Health Personnel in Sub-centers in Tribal Areas between 2006 and 2017

State/UT	Health Worker (Female)	Health Worker (Male)	Health Worker (Female)	Health Worker (Male)
	2006		2017	
Andhra Pradesh	Surplus	6195	NA	288
Arunachal		356	NA	220
Assam		NA	66	609
Bihar	0	7823	0	23
Chhattisgarh	1055	1840	NA	965
Goa	0	47	7	17
Gujarat	244	4501	320	420
Himachal Pradesh	4	283	18	42
J & K		1511	NA	124
Jharkhand		Surplus	NA	1796
Karnataka	41	3567	79	252
Kerala		928	NA	393
Madhya Pradesh	498	1576	NA	1953
Maharashtra	489	4356	NA	582
Manipur	0	49	NA	3
Meghalaya	0	128	NA	244
Mizoram	21	63	NA	4
Nagaland	97	97	NA	NA
Odisha	NA	2535	NA	1435
Rajasthan	Surplus	7984	NA	1556
Sikkim	0	0	NA	25
Tamil Nadu	0	7180	92	446
Telangana			NA	524
Tripura	86	271	299	172
Uttarakhand	29	1015	11	169
Uttar Pradesh	11	14789	NA	NA
West Bengal	7	5178	830	2986

Source: Rural Health Statistics, GoI, 2006 and 2017, compiled

As we noticed in the case of health personnel in sub-centers, a similar case is witnessed in tribal areas as well, where none of the states have surplus health personnel in 2017. Tribal-dominated states Mizoram, Nagaland, Meghalaya and Arunachal Pradesh were facing deficiencies in health personnel in PHCs. Mizoram had less number of deficiencies in doctors (12) and no deficiencies in male and female health assistants during 2006. However, the situation changed and the health personnel deficiencies increased in 2017, which is the doctors were only one but the female and male health assistants were 38 and 35 respectively (**Table 2**). Nagaland has a good number of PHCs as compared to national average (**Diagram 2**) but these PHCs are running with inadequate health personnel. The shortfall has increased from 2006 to 2017 except in the case of doctors. The shortfall of doctors was 34

and it came down to 4 in 2017. The shortfall of female health workers was more as compared to male health workers among all the states during 2006 and 2017. Manipur and Meghalaya had surplus number of doctors in PHCs in 2006 and Meghalaya had surplus number of male health assistants too.

In Chhattisgarh, the shortfall of doctors was very high (235) in 2017 as compared to 2006 (52) and the shortfall of female health assistants came down from 261 to 40 which is a good achievement in tribal areas but the shortfall of male health assistants increased from 135 to 154. Jharkhand and Odisha were also facing a large number of deficiencies in male and female health assistants in 2017, but Odisha had more number of shortfall in male health assistants (425) than Jharkhand (148). The states with less number of tribal population (Kerala, Karnataka, Tamil Nadu, Uttar Pradesh, etc.) were also facing shortage of health personnel in PHCs in tribal areas.

Table 2: Shortfall of Health Personnel in PHCs in Tribal Areas between 2006 and 2017

State/ UT	2006			2017		
	Doctors	Health Assistant [Female]	Health Assistant [M]	Doctors 2017	Health Assistant [Female]	Health Assistant [M]
Andhra Pradesh	82	Surplus	Surplus	NA	58	155
Arunachal Pradesh	7	69	59	21	137	62
Assam				50	219	253
Bihar		4	5	5	4	5
Chhattisgarh	52	261	135	235	40	154
Goa	NA	NA	NA	NA	2	8
Gujarat	56			59	49	55
Himachal Pradesh	2	27		NA	43	43
Jammu & Kashmir				NA	34	41
Jharkhand				NA	152	148
Karnataka	15	210		26	23	NA
Kerala				NA	14	12
Madhya Pradesh	183	42	70	124	133	189
Maharashtra	36	0	75	NA	NA	NA
Manipur	Surplus	26	24	NA	20	24
Meghalaya	Surplus	69	Surplus	NA	37	26
Mizoram	12	0	0	1	38	35
Nagaland	34	72	72	4	102	73
Odisha		NA	NA	90	247	425
Rajasthan	63	NA		NA	5	207
Sikkim	0	3	10	0	4	12
Tamil Nadu	4	21	Surplus	NA	24	33
Telangana				NA	22	93
Tripura	Surplus	27	Surplus	NA	46	41
Uttarakhand	Surplus	20	18	12	NA	21
Uttar Pradesh				NA	NA	NA
West Bengal	0		24	NA	293	227

Source: Rural Health Statistics, GoI, 2006 and 2017, compiled

India is witnessing a greater number of child mortality and maternal mortality in tribal areas as compared to the rest of the state. This is due to the less number of institutional deliveries in tribal areas. All the states were facing a large number of shortfalls in total number of specialists (Obstetricians and Gynecologists, Pediatrician, Physician Radiographer and Surgeon) in tribal areas (**Table 3**). Among all the states, Odisha had a large number of shortfall of Obstetricians, Gynecologists and other specialists (107 and 473) in 2017, followed by Jharkhand (89 and 391), Madhya Pradesh (87 and 351), Gujarat (80 and 330), Rajasthan (54 and 210) since these states have more than 10 percent of the tribal population. Nagaland made a good achievement in health infrastructure (Tables 1, 2, and 3) and the same achievement is visible here also. Nagaland had a shortfall of Obstetricians and Gynecologists and 84 total specialists and it came down to 17 and 76 during the year 2017. Maharashtra also provided a good number of health personnel in tribal areas and the shortfall came down from 2006 to 2017, the shortfalls were 43 Obstetricians and Gynecologists and 204 total specialists in 2006 and it came down to 26 and 142 in 2017. Apart from these states, Himachal has also done well but change was minimum since majority of the states were not able to reduce the shortfall and it was going up.

Table 3: Shortfall of Health Personnel in CHCs s in Tribal Areas between 2007 and 2017

State/ UT	2006		2017	
	Obstetricians & Gynecologists	Total Specialists	Obstetricians & Gynecologists	Total Specialists
Andhra Pradesh	23	118	10	56
Arunachal Pradesh	31	124	60	248
Assam			22	91
Bihar	0	0	0	0
Chhattisgarh	69	286	72	296
Goa	NA	NA	0	2
Gujarat	68	266	80	330
Himachal Pradesh	9	36	8	32
Jammu & Kashmir			5	24
Jharkhand			89	391
Karnataka	5	67	2	19
Kerala			6	39
Madhya Pradesh	65	278	87	351
Maharashtra	43	209	26	142
Manipur	6	24	7	28
Meghalaya	24	95	26	95
Mizoram	9	36	9	36
Nagaland	21	84	17	76
Odisha			107	473
Rajasthan	29	93	54	210
Sikkim	1	4	0	0
Tamil Nadu			19	75
Telangana			19	80
Tripura			8	32
Uttarakhand	1	11	8	14
Uttar Pradesh			NA	NA
West Bengal	15	66	61	229

Source: Rural Health Statistics, GoI, 2006 and 2017, compiled

Conclusion

The health status of tribal population is very poor as compared to the non-tribal counterpart. The Millennium Development Goals (MDGs) were to be achieved by 2015, however, India is still struggling to reach these goals in tribal population across the states. Improving health status and health infrastructure in tribal areas is an unattainable and a challenging problem for India. The third goal of Sustainable Development Goals (SDGs) also speaks about good health and well-being but India is far behind in achieving these goals. The problems in tribal areas is not only the inadequate number of SCs, PHCs and CHCs but also lack of accessibility to health facilities, non-availability of health staff, non-availability of essential drugs and equipment, lack of proper building facilities, lack of transportation and communication facilities, belief in traditional practices and superstitions, etc.

Policy Implications

In the foregoing analysis we found that the tribal population is facing lack of health infrastructure and personnel, and, as such, there is need to improve the health status of the tribal population from the point of enhancing capabilities, human development and bringing equity among communities To achieve this, the government should initiate specific additional policy measures and schemes.

Strengthen health infrastructure: As we see that there is shortage of health infrastructure in tribal areas, the health centers are old, partially broken, and running in rented buildings without electricity and proper water and sanitation facilities. So, the government should provide more number of SCs, PHCs and CHCs with proper facilities like labour room, electricity, operation room, drinking water, sanitation, etc.

*Increase the number of health personnel: R*ural public health facilities are battling the problem of inadequate manpower. There is shortfall across all cadres in rural health system. The deficiency of trained doctors and medical professionals has paralysed the rural health facilities (Jaysawal, 2015). The number of available paramedical educational institutions is very less compared to the needs of the country. Only 13,000 Auxiliary Nurse Midwives are graduating every year (NRHM, 2005). So, there should be an increase in the number of ANM workers yearly. Also, the government should make sure that the doctors work in tribal areas before they get their final degree because the doctors, nurses and paramedical workers from urban or non-tribal areas are not ready to work in backward tribal areas. The central and state governments should increase the number of medical institutions in rural areas.

Improve literacy and promote higher education: The literacy rate among tribal population is 59 percent against the national average of 73 percent in 2011. Only 49.4 percent of the tribal women are literate against 68.5 percent of tribal men. Poverty, high rate of illiteracy, faulty health habits and traditional beliefs jeopardise the health and nutritional status of tribal people. Therefore, increased literacy rate will improve the health status of the community as a whole (Naidu, 2015). If people are more educated it creates higher awareness and increases chances of these population consulting qualified doctors than traditional health healers. In addition, educated people follow proper diet, food intake and prescribed medicines.

Reduce Poverty: Poverty is an important indicator to understand the situation of the people and the health status. According to the population census report, 43 percent of ST population is below

poverty line against 22 percent of poverty in India, which is almost double than the national-level. The government should increase the supply of food grains through the public distribution system in tribal areas and reduce corruption. If a population group is recovering from poverty it means their health status and income-level will be better and they can consult doctors rather than traditional health healers.

Conduct medical camps to remote areas: There are different non-governmental organisations (NGOs) and medical institutions conducting health camps in tribal areas. These NGOs and medical institutions cannot provide adequate number of facilities due to financial constraints and lack of government support. So, the government should conduct more number of health camps in remote areas with specialist doctors with free medicines. Medical groups can also visit homes if people are not able to attend the camps. The medical officials, ASHA or ANM workers should inform the people thorough banners, pamphlets and loudspeakers before holding a camp.

Health Promotion and Awareness: Promotion of awareness about health-related issues is the first step towards improving health outcomes. Government officials or health officials should create awareness about the importance of consulting doctors, food intake, hand washing, nutritious food, regular antenatal checkups, institutional deliveries, immunisation, etc. They should also, make them aware about the different health programmes and welfare programmes of both central and state governments. In Rajasthan, health messages were most commonly disseminated using live performances by drummers, dancers, folk musicians, magicians, puppeteers, etc. to appeal to the tribal populations. Similarly, in Tamil Nadu, in addition to posters, hoardings, bus boards, and personalised letters of communication to the literate members of a family, radio jingles and video broadcasts featuring popular film stars were found to be an effective means for disseminating health messages to the state's tribal people (Shrivastava, 2013).

Promote tribal community participation: The governments can recruit ANM/ASHA workers from tribal communities and provide training which will help reach health awareness and facilities to tribal population. The NGOs also can include tribal people in their programmes and the tribal health workers can act as intermediaries between the tribal, NGOs, and government health workers. Government can include NGOs in their health programmes that will help more facilities reach tribal populations.

Provide incentives to health officials: Doctors and nurses are not ready to work in tribal areas due to lack of facilities. If the government provides attractive allowance and incentives to health officials, they will be willing to work in tribal remote areas which will reduce the shortage of health personnel in those areas. Medical education does not prepare graduates to function effectively in areas of need. Students, who have paid high fees for private medical education, prefer to pursue career where they are able to recover their investment. Among developing countries, India is the biggest exporter of trained physicians with India-trained physicians accounting for about 4.9 percent of American physicians and 10.9 percent of British physicians in 2008 (Kaushik, Manas, et. al, 2008). If they receive proper incentive, they can change their attitude and they will work in rural or tribal areas. Not only this, a holistic approach is needed if public servants are to be in rural/tribal areas. There is need to create good educational and health institutions, good roads, parks and recreation centres for the use of members of government personnel/staff and public at large.

Health programme evaluation: The government is introducing several programmes for the backward and tribal areas but the incentives fail to reach the needy people or only partially reaching them due to corruption and lack of proper mechanism to check the programmes. The government should check corruption so that the programmes reach the grass root level. The programmes should be evaluated yearly and funds allocated according to the needs of the people.

Parallel Health Healing System: The literature already shows that the number of traditional health healers are more in tribal areas but there are good and qualified health healers also. So, the government should identify unqualified health healers and ban them. In addition, the government and NGOs can create a parallel health healing system with health personnel. Besides programmes like developing scientific temper, particularly among the tribal people, would go a long way in changing their mind set in discarding traditional and superstitious practices.

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Annexure Table 1: Details of State-wise Population in India (in Nos.)

Sl. No.	State	Total Population	Tribal Population	Percent of ST Population
1	Mizoram	1097206	1036115	94.4
2	Nagaland	1978502	1710973	86.5
3	Meghalaya	2966889	2555861	86.1
4	Arunachal Pradesh	1383727	951821	68.8
5	Manipur	2570390	902740	35.1
6	Sikkim	610577	206360	33.8
7	Tripura	3673917	1166813	31.8
8	Chhattisgarh	25545198	7822902	30.6
9	Jharkhand	32988134	8645042	26.2
10	Odisha	41974218	9590756	22.8
11	Madhya Pradesh	72626809	15316784	21.1
12	Gujarat	60439692	8917174	14.8
13	Rajasthan	68548437	9238534	13.5
14	Assam	31205576	3884371	12.4
15	Jammu & Kashmir	12541302	1493299	11.9
16	Himachal Pradesh	6864602	392126	5.7

Source: Census, 2011

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