Medical Attention and Hospitalization before Death among Indigenous Population in India: Evidences from Latest Two Rounds of the National Sample Survey

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Abstract

Indigenous populations are known by various names across different countries, such as Tribes in India, Shipibo in Peru, Bhotiya in Nepal, and the San (Bushmen) in Africa. India has the largest Indigenous population globally, with around 104 million people identified as "Scheduled Tribes," making up approximately 8.6% of the country's total population. These communities, totaling over 700 distinct groups, are spread across various states and regions in India, each possessing unique languages, cultures, and traditions. Indigenous communities often face significant health disparities, with lower levels of health status, challenges in accessing healthcare, and reduced healthcare-seeking behavior. This study found that Indigenous populations in India exhibit lower rates of medical care and hospitalization before death compared to other groups. Among elderly tribal groups, hospitalization rates are notably lower than those of the non-Scheduled Tribes and Scheduled Castes (non-STs/SCs). The study aimed to examine medical attention, reasons for not receiving care, and hospitalization before death among these communities. Data from the 71st (2014) and 75th (2018) rounds of the National Sample Survey (NSS) on social consumption of health were used. Descriptive statistics were employed to analyze patterns of medical attention and hospitalization before death among Indigenous populations in India.

Key Words: Tribes, India, Death, Medical attention, Hospitalization and NSS

Introduction

India is the second-largest tribal populated country in the world where more than100 million tribes are living across the country, spread in different geographical terrain and over all the region of the country (Census 2011). Tribal populations constitute one of the most socio-economically marginalized segments of society. Their vulnerability and disadvantaged circumstances expose them to numerous challenges, with health being a prominent concern. The precarious state of their health further exacerbates their vulnerability and socio-economic deprivation (Negi & Singh, 2019) therefore they deserve special attention due to their geographical and infrastructural challenges. Consequently, the National Health Policy of 2017 places a specific emphasis on enhancing the health status and ensuring quality healthcare services for tribal communities, rural populations, marginalized groups, and other vulnerable segments. Recognizing that addressing the needs of these vulnerable populations is vital, the policy aims to align with India's commitment, as well as that of other countries, towards achieving the UN Sustainable Development Goals. This commitment underscores the importance of prioritizing the healthcare requirements of these marginalized communities (NITI Ayog, 2018).

The most recent global study provided compelling evidence of inferior health and social outcomes among indigenous/tribal populations when compared to other demographic groups (Anderson et al., 2016). The elderly population in India faces significant challenges in terms of poor health. They experience lower levels of self-perceived health, limited mobility, and reduced rates of hospitalization. Particularly among scheduled tribes and scheduled castes, the rate of hospitalization is significantly lower for the elderly population compared to the non-STs/SCs group in India (Prusty et al., 2011; Prasad, 2014). The prevalence of ill health was found to be higher in rural areas compared to urban areas, although this trend did not extend to hospitalization rates. Surprisingly, rural tribal populations reported higher levels of illness and sought hospital treatment more frequently than their urban counterparts. Regarding hospitalization, the survey revealed that 2.4 percent of the total population of India had been hospitalized within the 365 days prior to the survey, with the corresponding figure for STs (Scheduled Tribes) standing at 1.5 percent in India (Prasad, 2014). The national average highlighted significant inter-state differences in annual hospitalization rates, which ranged from 1 to 10 percent. Kerala had the highest probability of hospital admission followed by Tamil Nadu

and Maharashtra. In contrast, Bihar, Uttar Pradesh, and the North-east each had the lowest rates. Except for Kerala, all states had higher hospitalization rates in urban areas than in rural areas (Ghosh, 2014). Individuals with a higher likelihood of leading a healthier lifestyle exhibited elevated levels of morbidity and hospitalization. Factors such as the physical accessibility of healthcare services and the ability to seek medical attention can give rise to artificial disparities in morbidity and hospitalization rates among various subgroups within the population. Additionally, the monthly per capita consumer expenditure of households holds significance, even in the context of hospitalization (Dilip, 2002). A significant proportion of deaths occur without medical assistance, primarily due to the high cost and limited accessibility of healthcare services in rural and hilly regions (ToI; Oct 21, 2015). In 2019, approximately 48.5 percent of deaths in India occurred among individuals who had received medical attention before their demise, whether in government hospitals or private hospitals (SRS Report, 2019). Government have launched may health schemes to improve health status, increasing the treatment care and to provide quality based healthcare services in India. Although, the government had launched The National Rural Health Mission (NRHM), launched in 2005, aims to improve healthcare delivery in rural India by enhancing access, equity, and quality of services. It focuses on strengthening infrastructure, increasing human resources, and promoting community participation to reduce health disparities and improve outcomes, particularly for marginalized populations. However, Preliminary evidence from existing studies on the NRHM indicates significant variation in the program's performance across states. Moreover, states that were lagging in the pre-NRHM period showed little to no notable improvement (Gill, 2009). The government also was launched the Rashtriya Swasthya Bima Yojana (RSBY) in 2008, a health insurance scheme aimed at providing financial protection to families below the poverty line and access to a network of public and private hospitals. But, a study showed that tribal-dominated areas had low enrollment rates, indicating the scheme's lack of social inclusivity. (Rahi, Mukherji and Sen, 2012). Quality of care and availability of Healthcare centres at nearby living places are also an essential determinants for medical attention during the ill (Levesque et al., 2006). Urban areas, which comprise only 28% of India's population, have access to 66% of the country's total hospital beds, while the remaining 72% of the population in rural areas has access to just 34% of the beds (IMS, 2013).

This paper specifically examines the status of medical attention and hospitalization, as well as the reasons behind the lack of medical care and hospitalization before death in India, with a particular emphasis on tribal communities. The term "medical attention" prior to death refers to a specific level of medical treatment or care administered by a doctor or physician. This includes inpatient care or active treatment for chronic, obstetrical, surgical, medical, rehabilitative, or mental illnesses that require ongoing monitoring, diagnosis, and daily therapy or medication before the individual's demise (Law Insider, 2022)

Method and Data Sources

The analysis in this study utilizes unit data obtained from Schedule 25.0, which draws upon nationally representative data on social consumption on health (SCH) from the 71st round (2014) and 75th round (2018) of the National Sample Survey (NSS). These rounds of the NSS were conducted by the National Sample Survey Organization (NSSO), under the purview of the Government of India. In 2014, a comprehensive survey covered a total of 65,932 households and 338,870 individuals (MoSPI, 2014). Similarly, in 2018, the survey encompassed 113,823 households, with 64,552 in rural areas and 49,271 in urban areas. The survey further included a total of 555,115 individuals, with 325,883 residing in rural regions and 229,232 in urban areas, covering all states and Union territories (UTs). However, this is the first time when data on transgender is providing in this latest 75^{th} round survey (MoSPI, 2018).

The data provide information on various morbidities, treatment-seeking behavior, expenditure, death, medical attention and hospitalization before death. Hospitalization defined as an overnight stay in the hospital anytime.

This study exclusively focused on cases that involved medical attention and hospitalization prior to death among tribal populations in India. The analysis consist on 2398 (Rural=1334 & Urban=1064) death in 2014 and 2537 (Rural=1449 & Urban=1088) death in 2018.However, the information included the age and sex of the dead in a household members, medical attention, hospitalization and reason for not hospitalization before death.

Descriptive statistics and logistic regression were used to examine the medical attention and hospitalization before death among tribes in India. All the analysis is done by using STATA 14 statistical software packages.

Analytical Framework

The study's outcome variable pertains to a dichotomous characteristic, specifically focusing on former household members who have passed away within the last 365 days before the survey. For analytical purpose, social grouped into four broader categories- Scheduled caste (SC), Scheduled Tribe (ST), Other Backward Classes (OBC) and *others* as mentioned by households at the time of survey. Further, these four social group again categorized into two broader categories such as tribes and non-tribes but this study concentrate on tribal population only. Tribes are considered to Schedule tribe (ST). Furthermore, age of dead person categorized into five categories as 0-14, 15-29, 30-44, 45-59 and 60& above. Sex of the dead person categorized as male and female within the demographic characteristics. Within the socio-economic characteristics- place of residence (rural/urban), members educational status (no education/primary/secondary/higher secondary/ graduate & above), household religion (Hindu/Muslim/Christian/Other) is considered. Economic status is one of the important indicators and for this we have included monthly per capita expenditure (MPCE) quintile and main income source for households. Using the monthly per capita expenditure, we have categorized into five equal quintiles as has used widely in health studies across the globe. Household main occupation is considered as main income source and it categorized into self-employed in agriculture, self-employed in non-agriculture, wage/salaried worker, casual labour in agriculture, casual labour in non-agriculture and else used other type of occupation can't be fitted into the mentioned categories

Result

Reporting of Death among Tribes in India, 2014-18

Figure 1.1 provides age death distribution for two successive period 2014 and 2018. Further figure 1.2 and 1.3 also provides death scenario by sex and place of residence respectively. The trend of death was higher in 2014 while it was declined in 2018. However, the death rate was recorded less among below 5 years children in 2014 (15%), while it is increased in 2018 (18%).

Furthermore, age 5 to 44 years, the reporting of death was higher in 2014 and then it is declined after 44 years during 2018 as shown figure 1.1. Another side figure 1.2 reveals that female (12%) death rate was higher than male (11%) during 2014. Reporting of death among male was decreased in 2018 but it is remains same among female even 2018 as shown in figure 1.2. If look death scenario at place of residence level then result showing that not much differences during 2014 to 2018 in rural area, while it is varying in urban area between 2014 to 2018 as figure 1.3 is showing.

Figure 1.1: Age wise death Distribution

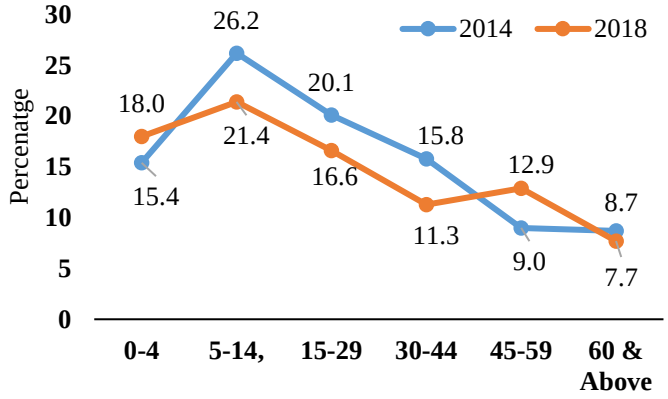


Figure 1.2: Sex wise death Distribution

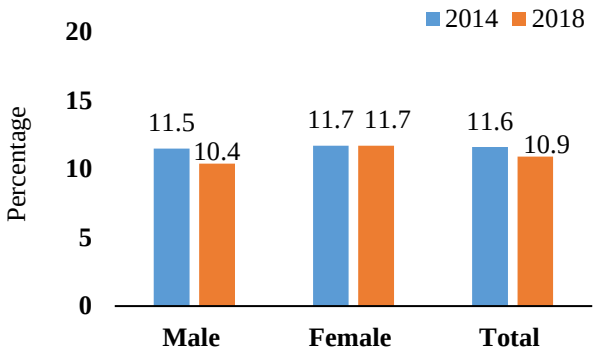
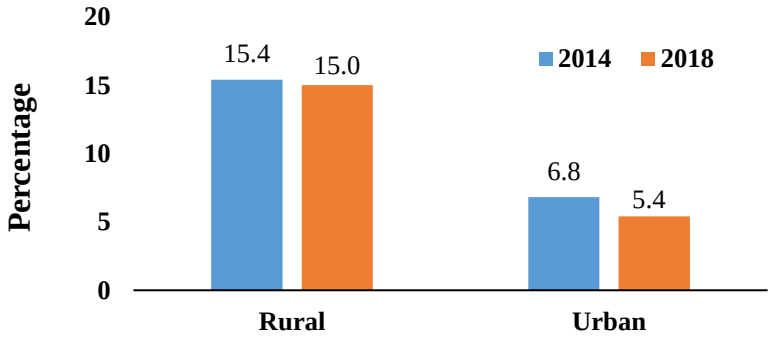


Figure 1.3: Place of Residence wise death Distribution

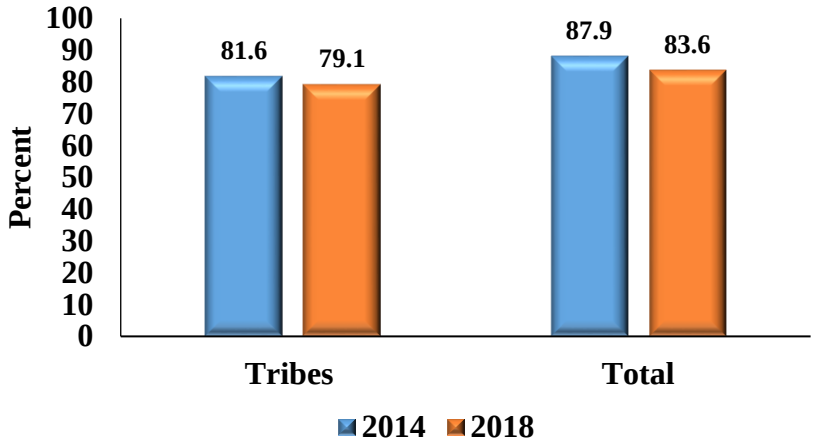


Source: Author's own calculation

Medical Attention and Hospitalization among Tribes in India

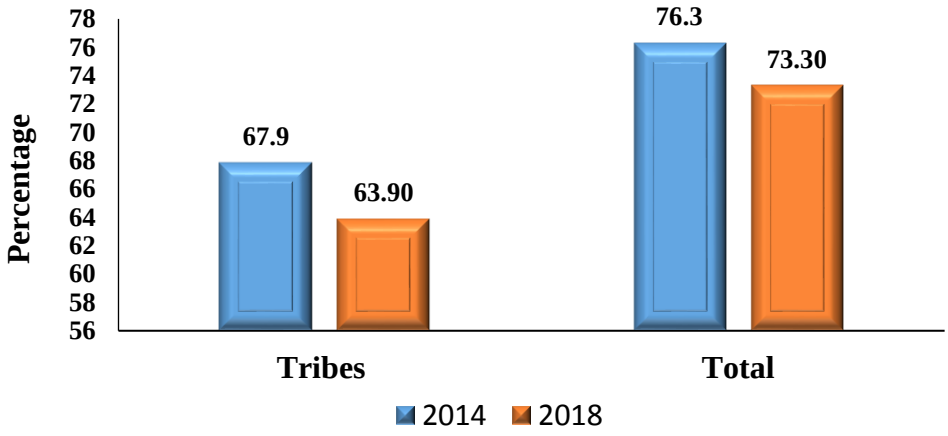
Figure 2 displaying data on medical attainment and hospitalization before death for two distinct periods: 2014 and 2018. In 2014, the medical attainment rate for tribes was around 82 percent, whereas it was declined and remain only 79 percent in 2018. Although, medical attainment was declined by around 3 percent among tribes during 2014 to 2018 years as shown in figure 2.

Figure 2: Medical Attention before Death among Tribes in India, 2014-18



Furthermore, figure 3 presents information on hospitalization of deceased persons among tribal peoples in India during 2014 and 2018. The figure illustrates a decrease in the hospitalization rate from 2014 to 2018 among tribal population in India. The reporting of hospitalization among tribes was 68 percent in 2014, which declined by approximately 4 percent in 2018, resulting in a remaining rate of 64 percent for that year.

Figure 3: Hospitalized before Death among Tribes in India, 2014-18



Medical attention among Tribal Population in India

Table 1 presents data on medical attention and hospitalization before death, along with demographic characteristics such as age, sex, and place of residence, for two consecutive periods: 2014 and 2018. As table is showing that age group of 15 to 44 years had given more

attention toward medical for treatment before death, exceeding 90 percent in 2014 than the 2018 among tribes in India as shown in table 1. Likewise it is observed that the urban tribes were more active to provide medical facility to the diseased persons in the family as urban always have better healthcare infrastructure. However, in tribal communities, there was almost an equal observation had come among male and females in 2014. Nonetheless, there was a decrease in the reporting of medical attention before death among tribes for males and females in 2018.

Overall, approximately 82 percent of tribes received medical attention before death in 2014, while there was a decrease in these numbers by 2018, with around 79 percent of tribes availing medical attention before death.

Table 1: Medical Attention before Death among Tribes in India-2014-18 (%)

HHs Characteristics	Years	
	2014	**2018**
Age Groups		
0-4	78.4	73.5
5-14	81.3	75.0
15-29	91.4	75.0
30-44	93.5	84.4
45-59	86.0	77.9
60 & Above	72.0	81.8
Place of Residence		
Rural	80.5	75.7
Urban	84.7	91.5
Sex		
Male	81.4	77.6
Female	81.9	81.3

Source: Author's own calculation, 71st& 75th round NSS

Furtherer more religion and wealth status of tribal also played a crucial role for availing medical attention before death. Among the Hindu tribes, medical attainment before death was higher in 2014 (87%) while it is decreased during 2018 and remain 85.5 percent only. Another side the surprisingly, medical attainment was jumped 62 percent in 2014 to 90 percent 2018 among Muslim tribes which is a huge improvement in medical attention before death which lead to decreasing death. In wealth quintile, demand of medical attention among poorest has been increased during 2014 to 2018 while it is decreased amongst richest during the same period as shown in table 2.

Table 2: Medical Attention by religion and wealth quintile before Death among Tribes in India-2014-18 (%)

HHs Characteristics	Years	
	2014	**2018**
Religion		
Hindu	87.0	84.5
Muslim	62.5	90.0
Cristian	67.9	73.2
Other	76.2	57.1
Wealth Quintiles		
Poorest	77.6	78.4
Poor	87.2	76.2
Middle	87.5	78.3
Rich	81.0	90.6
Richest	83.3	73.9
Total	**81.6**	**79.1**

Source: Author's own calculation, 71st& 75th round NSS

Hospitalization among Tribal Population in India

Table 3 presents data on hospitalization before death categorized by age, sex, and place of residence. The hospitalization rates were notably higher among the age group of 15 to 44 (>85%) years in tribal households during 2014.In 2018, there was a notable decline in hospitalization rates among both tribal and non-tribal groups compared to 2014. But is noticed that the hospitalization was increased among older population age 60 and above, increased from 52 percent 2014 to 58 percent in 2018. The trend of higher hospitalization rates was recorded in urban areas persisted in both periods for tribes. Furthermore, in 2014, hospitalization were more recorded among tribal female (72%) compared to tribal males (65%), while there was a decline in hospitalization rates among both males and females, regardless of tribal affiliation, in 2018 across India.

Overall, the hospitalization rate before death was declined from 76 percent to 73 percent during 2014 to 2018 in India.

Table 3: By age, Place of Residence and Sex of hospitalization before death among Tribes in India, 2014-18 (%)

HHs Characteristics	Years	
	2014	2018
Age Groups		
0-4	62.2	58.8
5-14	62.5	58.3
15-29	85.7	65.6
30-44	87.0	84.4
45-59	76.7	66.2
60 & Above	52.0	57.6
Place of Residence		
Rural	65.4	61.9
Urban	75.0	71.2
Sex		
Male	65.1	61.8
Female	72.4	67.0

Source: Author's own calculation, 71st& 75th round NSS

Moreover, among the religion, Hindu and Muslim tribes, hospitalization before death was increased from 75 percent to 76 percent among Hindu in 2014 and from 50 percent to 70 percent among Muslim in 2018, while it was decreased among Christian by around 24 percent during 2014 to 2018. In wealth quintile group, hospitalization decrease among all the wealth quintile

group during the 2014 to 2018 but is higher declined was noted among richest groups during 2014 (78%) to 2018 (61%) as shown in table 4

Table 4: Hospitalization by Religion, Types of Household and Wealth Quintile among Tribes in India, 2014-18

HHs Characteristics	Years	
	2014	2018
Religion		
Hindu	75.0	76.2
Muslim	50.0	70.0
Cristian	51.8	47.9
Other	52.4	28.6
Wealth Quintiles		
Poorest	65.0	64.2
Poor	66.0	59.5
Middle	70.8	63.0
Rich	76.2	71.9
Richest	77.8	60.9

Source: Author's own calculation, 71st& 75th round NSS

Reasons for not Hospitalization among Tribal Communities

Table 5 presents the reasons for not hospitalization before death in tribal households. In 2018, the most frequently reported reasons among tribal households were "Patient Died before Taking to Hospital" (47%) and "Ailment was not Considered Serious Enough" (16%). These two reasons were also commonly reported by rest others groups during the same period.

Table 5: Reason for Not-hospitalization before Death among tribes in India-2018

Reason for Not Hospitalized before Death	Percent
Hospital Care was not Considered Satisfactory	2.7
Admission to Hospital was not done as Doctor/Medical Attendant was not Available	0.0
Ailment was not Considered Serious Enough	16.1
Financial Constraints	6.3
Due to Transportation Problem	1.8
Patient did not Want to be Hospitalized	8.0
Patient Died Before Taking to Hospital	47.3
Other	17.9
Total	**100**

Source: Author's own calculation, 71st& 75th round NSS

Table 5: Odd ratio for Hospitalization before Death among Tribe in India-2018

Characteristics	Odds Ratio	P>z	95% Conf. Interval	
Age at Death: 0-4 (Ref.)			LL	UL
5-14	2.80	0.003**	1.42	5.51
15-29	1.97	0.002**	1.29	3.03
30-44	3.95	0.000***	2.57	6.06
45-59	3.12	0.000***	2.18	4.49
60 & Above	2.07	0.000***	1.50	2.85
Place of residence: Rural (Ref.)				
Urban	1.22	0.064*	0.99	1.51
Sex: Male (Ref.)				
Female	1.27	0.012*	1.05	1.54
Religion: Hindu (Ref.)				
Muslim	0.87	0.297	0.66	1.14
Cristian	0.43	0.000***	0.29	0.63
Other	0.65	0.018*	0.45	0.93
Types of Household: Self-employed in agriculture (Ref.)				
Self-employed in non-agriculture	1.02	0.895	0.80	1.28
Regular wage/salary earning	1.03	0.859	0.76	1.38
Casual labour in agriculture	1.07	0.712	0.75	1.54
Casual labour in non-agriculture	1.41	0.065*	0.98	2.03
Other	1.35	0.098*	0.95	1.93
Wealth Quintiles: 1st (Ref.)				
Poor	0.85	0.224	0.65	1.10
Middle	0.96	0.790	0.73	1.27
Rich	0.95	0.756	0.71	1.28
Richest	1.02	0.877	0.75	1.40
Constant	1.10	0.603	0.78	1.55

Notes: Significant levels ***p-value<0.01; **p-value<0.05; *p-value<0.1

Discussion

In 2014, the number of cases with medical attention and hospitalization before death were recorded 87.7 percent (2109) and 76.3 percent (1830) respectively, while in 2018, the corresponding figures were 83.6 percent (2121) for medical attention and 73.3 percent (1859) for hospitalization in India.

The analysis of medical attainment and hospitalization before death among Indian tribes reveals notable patterns and changes. Medical attainment rates for tribes and non-tribes showed a slight decrease between two periods. Although, medical attainment were 82 percent in 2014 and it is decreased by 79 percent during 2018among tribes. Simultaneously, medical attainment among non tribes was 89 percent in 2014 and it is decreased and remains 84 percent in 2018. However, hospitalization rates also declined for tribal communities between 2014 (68%) to 2018 (64%). Data on medical attention and hospitalization before death, highlighting demographic characteristics, with a decrease in medical attention in 2018. There was a higher proportion of deaths in tribal households among younger age groups in 2014, but a shift occurred in 2018 with higher proportions among the 0-4 and 5-14 age groups. Interestingly, our finding revealed that male and female both are showing negative change in receiving medical attention among tribes before death from 2014 to 2018 while similar result also found in other studies (Akhtar and Siakiya, 2022). It is also showing negative changes in rural tribes for receiving medical attention in the both successive periods. Our study also found that the rich tribal a considerably greater tendency to receive medical attention than poorest and poorest in 2018. This finding aligns with earlier research studies, further reinforcing its validity (Ghosh & Sen Gupta, 2016; Gupta & Sankar, 2004). Consequently, it becomes evident that the segment comprising the poorest households experiences the greatest disparity when it comes to accessing medical care. According to our findings, there is a significant likelihood that deceased belonging to the non-tribes receive medical attention prior to their demise, in contrast to individuals from the tribes and this kind of result also reflecting in some of the previous studies (Akhtar & Saikia, 2022; Ghosh & Sen Gupta, 2016; Gupta & Sankar, 2004). The reasons for not hospitalization before death in tribal households are "Patient Died before Taking to Hospital" (47%) and "Ailment was not Considered Serious Enough" (16%). These two reasons were also commonly reported by non-tribal households during the same period, with percentages of 43 percent and 10 percent respectively.

Conclusion

Overall, there was a decrease in medical treatment and hospitalization rates among tribes from 2014 to 2018. The decrease in hospitalization rates it may reflect changes in healthcare practices, improvements in disease management, and a shift towards more accessible andcost-effective healthcare options. The reasons for not hospitalizing in tribal households, including patients dying before reaching the hospital and a perceived lack of severity in ailments. These findings highlight the need for continued focus on improving healthcare access and addressing the specific healthcare needs of Indian tribes, especially inaccessible area like rural, hilly and remote area.

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