



## **A Comparative Analysis Of The Social Determinants Of Health Among South Indian States**

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### **Abstract**

Sanitation facility and the source of drinking water are important Housing Characteristics in any household. These social determinants of health need to be analysed and there is always a scope for improvement. At present date we need to invest and educate people more on these factors like the WaSH technique as with the climate change phenomenon, the ecological transformation can provide a safer incubation period for many micro-organisms which can lead to emergence of new diseases as well as pandemics. Hence this paper will focus on these two health indicators, to gain an understanding of the variation among the South Indian States and also within the states (urban and rural) from the data obtained from the NHFS-4 along with discussing the potential prospects such that the ODF Plus vision of the Swachh Bharat Abhiyan is completely realized.

### ***Key Words & Abbreviations:***

SDH	Social Determinants of Health
NFHS	National Family Health Survey
WaSH	Water, Sanitation & Hygiene
SBM-G	Swachh Bharat Mission-Grameen
ODF	Open Defecation Free
STH	Soil-transmitted helminths
IMR	Infant Mortality Rate
SDG	Sustainable Development Goals
SC	Scheduled Caste
ST	Scheduled tribe
GDP	Gross Domestic Product



## INTRODUCTION

For our vision of a Viksit Bharat, the major growth though may be seen as the increase in the GDP and per capita income of the country, improved sanitation and drinking water have multi-dimensional effects which also needs to be realized.

The effects of poor sanitation seep into every aspect of life — health, nutrition, development, economy, dignity and empowerment. Globally, water and sanitation hygiene practice are responsible for 90% of diarrhoea-related mortality, which is much higher than combined mortality from malaria and HIV/AIDS. [1] Soil-transmitted helminths (STH) are distributed worldwide mostly in tropical and subtropical regions. It consists of mainly roundworm (*Ascaris lumbricoides*), whipworm (*Trichuris trichiura*), and hookworm (*Necator americanus* and *Ancylostoma duodenale*). *Ascaris* and *Trichuris* affect mainly children whereas hookworm affects both children and young adults. It leads to iron deficiency anemia, protein energy malnutrition, and stunted growth. Severe infections lead to intestinal obstructions and gangrene. [2]

In rural Odisha, research found that women lacked power, control of money and confidence, which men corroborated, resulting in their exclusion from decision-making, particularly regarding toilet construction. Women in Uttar Pradesh, India reported increased challenges defecating when menstruating, noting a risk of greater shame if seen. Sanitation insecurity may be associated with mental health, like anxiety or depression, agency, economic productivity and educational outcomes, regardless of access to a functional latrine. Women worried most about where they urinated, defecated, bathed when menstruation started, and washed, dried and disposed of their menstrual materials. [3]

WaSH practices involves cleaning hand with soap and water. While it is critical to have good WaSH practices for better health, there are existing gaps in relation to awareness, behavioural practices, accessibility, and availability to safe water and essential hygienic commodities. Compared to urban settings, WaSH coverage in rural areas is significantly poor. It is imperative to have health education interventions to bring positive behavioural change among community people for good WaSH practices. [4] Poor wash practices and open defecation are not only more prevalent in the rural communities, tribal and vulnerable population but also among the resource poor urban communities. Hence, the vicious cycle of poverty also needs to be addressed. Such families typically can be categorized as the urban poor, having a higher rate of unmet needs encompassing the lack of access to improved drinking water quality as well as proper sanitation facility. The Pradhan Mantri Awas Yojana – Urban (PMAY-U) has been instrumental for tackling this issue. The Union Budget 2025,



announced that the Government will set up an Urban Challenge Fund of ` 1 lakh crore to implement the proposals for ‘Cities as Growth Hubs’, ‘Creative Redevelopment of Cities’ and ‘Water and Sanitation’. [5]This will in turn improve the quality of life of the urban poor and vulnerable groups.

## OBJECTIVE

The purpose of this study is:

- To perform the comparative analysis among the different South Indian states of the key health indicators:

Households with an improved drinking-water source

Households using improved sanitation facility

- To also study the variation of within the South Indian states (urban\ rural) of the above mentioned health indicators.

The study also aims to discuss the potential prospects such that the ODF Plus vision of the Swachh Bharat Abhiyan is completely realized.

## METHODOLOGY

- Data was collected from the The National Family Health Survey 2015-16 (NFHS-4), State Fact Sheets of the following South Indian states namely- Kerala, Karnataka, Andhra Pradesh, Telangana and Tamil Nadu regarding the following Indicators:

Households with an improved drinking-water source (%)

Improved drinking-water source implies: Piped water into dwelling/yard/plot, public tap/standpipe, tube well or borehole, protected dug well, protected spring, rainwater, community RO plant

Households using improved sanitation facility (%)

Improved sanitation facility implies: Flush to piped sewer system, flush to septic tank, flush to pit latrine, ventilated improved pit (VIP)/biogas latrine, pit latrine with slab, twin pit/composting toilet, which is not shared with any other household.

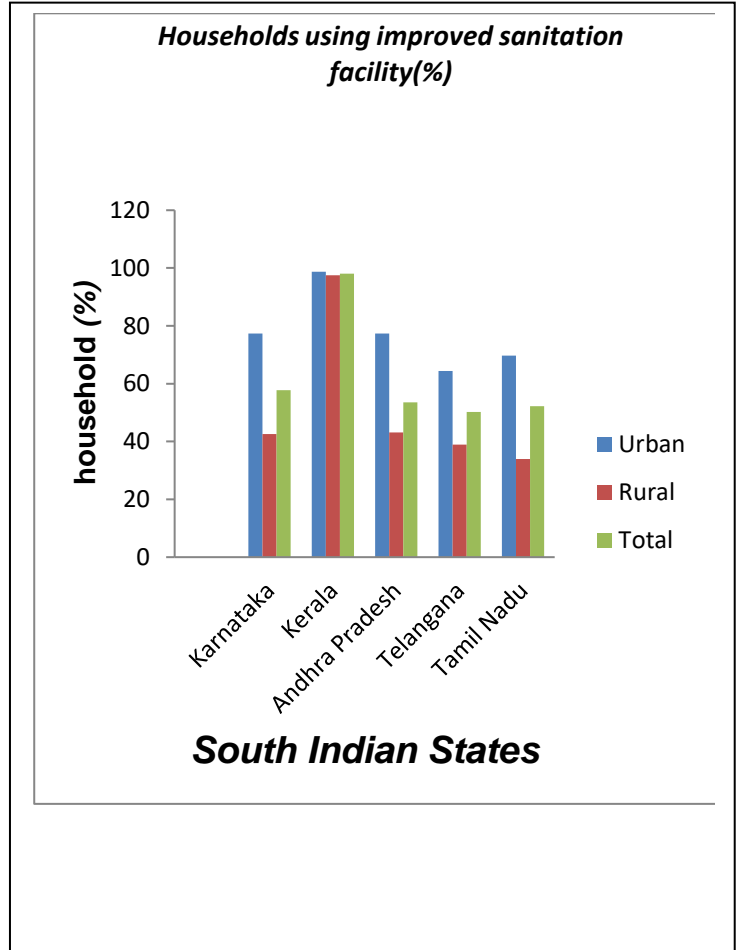
- The data was summarized and tabulated using excel

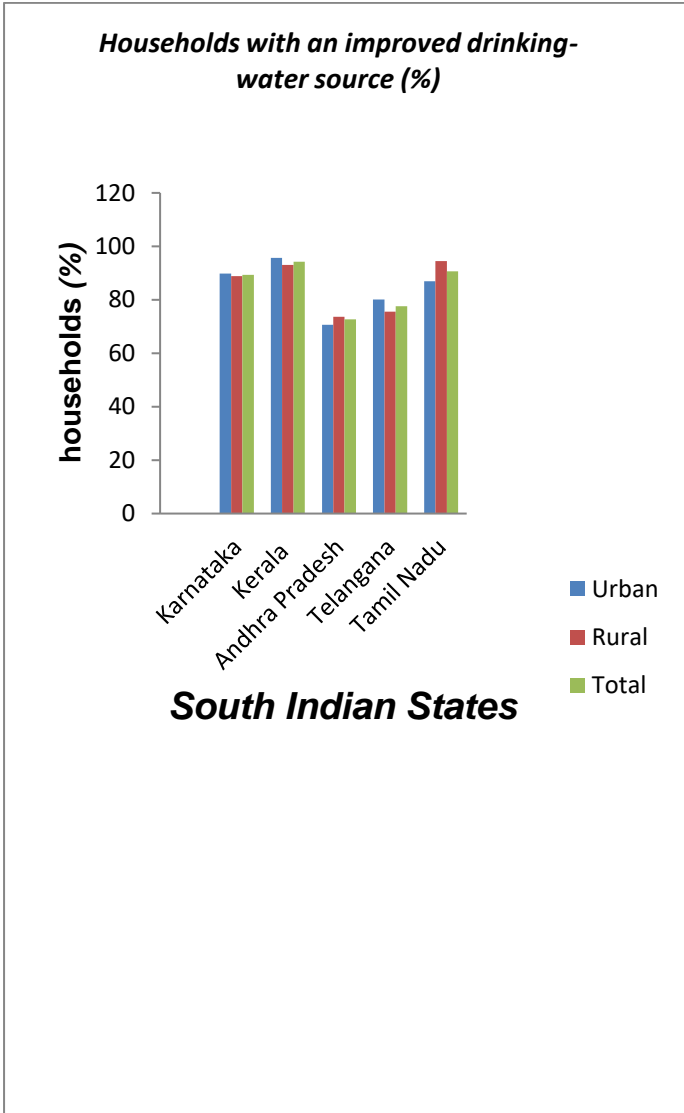


**RESULTS AND DISCUSSION**

The data collected from the State Fact Sheets [6-10] are tabulated and summarized as below:

<b>Households using improved sanitation facility (%)</b>			
<b>South Indian States</b>	<b>Urban</b>	<b>Rural</b>	<b>Total</b>
<i>Karnataka</i>	77.3	42.6	57.8
<i>Kerala</i>	98.7	97.5	98.1
<i>Andhra Pradesh</i>	77.4	43.1	53.6
<i>Telangana</i>	64.4	38.9	50.5
<i>Tamil Nadu</i>	69.7	34	52.2





<b>Households with an improved drinking-water source (%)</b>			
<b>South Indian States</b>	<b>Urban</b>	<b>Rural</b>	<b>Total</b>
<i>Karnataka</i>	89.8	88.9	89.3
<i>Kerala</i>	95.7	93	94.3
<i>Andhra Pradesh</i>	70.7	73.6	72.7
<i>Telangana</i>	80.7	75.6	77.9
<i>Tamil Nadu</i>	86.9	94.5	90.6



#### Comparative analysis between the South Indian States

- Kerala has the best and highest indicators for both improved sanitation and drinking water source.
- In case of households with improved drinking water quality, Tamil Nadu succeeds Kerala which is in turn followed by Karnataka.
- In case of households with improved sanitation, Karnataka succeeds Kerala followed by Andhra Pradesh.

#### Variation seen within the South Indian States (urban\ rural)

- Rural households in Tamil Nadu have improved drinking water source compared to urban households. This could indicate the presence of more independent housing with independent wells/ bore facility as compared to urban areas which have more flats and have multistoried apartments.
- The disparity of the households with improved sanitation facility is wider between rural and urban sections. The widest gap is seen in Tamil Nadu followed by Andhra Pradesh and then Telangana. This can be suggestive of open defecation being more prevalent in rural areas than the urban.

This is also indicative of the Tribal populations which are more in the rural areas lacking proper sanitation and WaSH practices.

In Andhra Pradesh, Sugalis are numerically the largest Scheduled Tribe (ST) constituting 41.4 percent of the state's ST population. In a cross-sectional community-based study where data was collected from the mother/ care givers of children under 5 years of age, open defecation was commonly reported (84.8%) and mainly open drains and the street were the places of defecation for their children. Latrine use was only 4.0% among the households. Around 49.9% of mothers reported leaving stools of their under-three children uncovered.[11]



## CONCLUSION & FUTURE SCOPE

Improper sanitation and contamination of drinking water are significant predictors for high IMR. The SDG 6 which demands for urgent call for action, is the sustainable availability and accessibility to clean water and sanitation for sustainable development.

The quality of drinking water can be improved by solar disinfection, boiling, chlorination and filtration which will significantly reduce incidence of water borne diseases. Water shed management can be practiced in areas with water scarcity especially in hilly regions. In urban areas of Tamil Nadu desalinated water is widely used.

At present our country is proceeding toward ODF Plus which deals with solid and liquid waste management, ODF sustainability and visual cleanliness after several villages under SBM-G have declared themselves ODF by 2019. For the mission ODF plus to be completely envisaged, “Sanitation is Everyone’s Business” the concept of Swachhata Hi Seva Campaign needs to be realized in Mission mode. So public health awareness in hard to reach areas and population like - the tribal populations in the hilly areas of South India, SC and ST; about the benefits of improved sanitation and drinking water quality need to be disseminated as even with the availability of toilets, open defecation could be preferred as it could be more convenient for them.

The health promotion and health education projects in this regard need to be taken up by Medical Universities, not just involving the students of Public Health or Community Medicine but also other fields like Dentistry, nursing, AYUSH etc so as to reach a large population and generate awareness including participation in camps for outreach in tribal and hilly areas, as well as rural communities. School sanitation, hygiene and education programme must be given priority from pre-school itself because when young children have knowledge and basic understanding in these areas like the WaSH, they will follow it and it gets integrated as a part of their life.



More such literature reviews also could be done from the data obtained on different health indicators from such National Surveys along with the survey data from different years, to gain an in depth understanding hence helping to understand the gaps and also to formulate the necessary forthcoming steps to be taken for the betterment of Community Health.

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### ***Author Biography***

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I have done my Bachelor of Dental Surgery (BDS) at Manipal University, Manipal. When I was an intern, I worked at different dental departments thereby interacting with several people (patients and their caregivers) and also getting to understand the different problems each person was undergoing. This made me feel that prevention could be a major solution to many health conditions including dental. That motivated me to pursue my Masters in Public Health which deals with researching a particular area and finding what is immediately required to prevent the disease from spreading further and also impacting a larger number of people.

I have completed my Master of Public Health (MPH) from KS Hegde Medical Academy, NITTE University, Mangaluru, India. I had passed in First Class with Distinction. I attend several Conferences, CMEs along with active participation in workshops, webinars etc in relation to Oral & Community Health so as to stay updated with the current trends; and also for enhancing my knowledge and skills besides gaining new perspectives.