

**POPULATION AND HEALTH DYNAMICS AMONG THE  
SCHEDULED TRIBES IN INDIA**

Submitted by  
**SOUVIK MONDAL**

Dissertation submitted for the partial fulfilment of the requirement for the award  
of **Degree of Master of Philosophy**



**Jawaharlal Nehru University**  
**Centre for the Study of Regional Development**  
**School of Social Sciences**  
**New Delhi-110067**




**Jawaharlal Nehru University**  
**Centre for the Study of Regional**  
**Development School of Social Sciences**  
**New Delhi-110067**

**CERTIFICATE**

I, Souvik Mondal, do hereby declare that this dissertation entitled "POPULATION AND HEALTH DYNAMICS AMONG THE SCHEDULED TRIBES IN INDIA" submitted by me for the DEGREE OF MASTER OF PHILOSOPHY is a bona fide work and it has not submitted to any other university for the award of any other degree.

*Souvik Mondal*  
 (Souvik Mondal)


It is hereby recommended that the dissertation may be placed before the examiners for evaluation

  
**Dr. Nandita Saikia**  
 (Supervisor)

*Sanjeev Sharma*  
**Dr. Sanjeev Sharma**  
 (Supervisor)

*u l g to a*  
*27.6.22*  
**Prof. Milap Punia**  
 (Chairperson)

Date: 27.06.2022  Centre for the Study of Reg Dev.  
 School of Social Sciences  
 Jawaharlal Nehru University  
 New Delhi-110067

 Chairperson  
 Centre for the Study of Reg Dev.  
 School of Social Sciences  
 Jawaharlal Nehru University  
 New Delhi-110067

## ACKNOWLEDGMENTS

I would like to express my sincere gratitude to my supervisor Dr Nandita Saikia, Assistant Professor, Centre for the Study of Regional Development, School of Social Sciences, Jawaharlal Nehru University, New Delhi, for her invaluable supervision, support and teaching during the course of my MPhil degree. Her constant motivation, encouragement, regular monitoring and extreme affection for the students kept me always jovial and motivated to complete this dissertation on time. I have genuinely improved my research skills under her sincere guidance. I am grateful for her treasured support, which was influential in shaping my experiment methods and critiquing my results.

Additionally, I would like to express gratitude to my co-supervisor, Dr Sanjeev Sharma, Assistant Professor, Centre for the Study of Regional Development, School of Social Sciences, Jawaharlal Nehru University, New Delhi, for his mentorship and a constant source of inspiration throughout my study. Further, I express my sincere thanks to Prof. Kaushal Kumar Sharma, Professor, Centre for the Study of Regional Development, School of Social Science, Dr Bhaswati Das, Associate Professor Centre for the Study of Regional Development, School of Social Science, Jawaharlal Nehru University and Dr Indrani Roy Chowdhury, Associate Professor, Centre for the Study of Regional Development, School of Social Science, Jawaharlal Nehru University for providing constant support and motivation which undoubtedly helped me in completing of this dissertation on time.

I am also grateful to all staff of Ambedkar Library, Jawaharlal Nehru University, for providing us with online study materials, organizing webinars, and much support whenever needed. Besides, I am thankful to all my teachers and seniors who supported and encouraged me to complete this dissertation on time.

A special thanks to all my friends, especially Krishna Kumar, Biswajit Mondal, Suman Singh, Amal Haldar, Rabiul Sani, Deepak Verma and all my friends, without whose constant support and guidance this study would have been impossible to conduct.

Lastly, I thank my parents for having believed in me and providing all kinds of support for my study.

Souvik Mondal

# CONTENTS

ACKNOWLEDGMENTS .....	ii
List of Table.....	5
List of Figure .....	6
List of Graph.....	6
List of Map .....	7
CHAPTER – ONE .....	9
Introduction .....	9
Introduction .....	10
1.1. Background.....	10
1.2 Literature Review .....	12
1.2.1 Schedule Tribe Population in India .....	12
1.2.2 Demographic Indicators of Scheduled Tribe Population in India.....	14
1.2.3 Health Indicators of Scheduled Tribe population in India.....	16
1.2.4 Studies on Scheduled Tribe population in India .....	18
1.3. Rational and scope of the study .....	19
1.4. Research Questions .....	20
1.5. Research Hypothesis .....	20
1.6. Objectives .....	20
1.7. The organisation of the dissertation .....	21
CHAPTER - TWO .....	22
Data And Methodology .....	22
2 Data and Methodology .....	23
2.1 Data and Methods of Objective - 1 .....	23
2.2 Data and Methods of Objective - 2 .....	26
2.3 Data and Methodology of Objective - 3.....	33
CHAPTER – THREE.....	35
Population Dynamics Among Scheduled Tribe in India During 1961-2011 .....	35
3.1. Introduction.....	36
3.2. Results .....	38
3.3. Discussion.....	57
4. Trends in fertility and mortality among Scheduled Tribe population in India, 1992 to 2022..	60

4.1. Introduction.....	60
4.2. Results .....	62
4.3. Discussion.....	95
5. Healthcare utilization among the Scheduled Tribe Population in India, 1992-2022 .....	97
5.1. Introduction.....	98
5.2. Results: .....	100
5.3. Discussion.....	110
6. Summary and Conclusion.....	113
7. References.....	117
8. Appendix: .....	122

## List of Table

Table 3.1. Total Population, Scheduled Tribes Population, Percentage Share of Scheduled Tribes Population, and decadal growth rate of the total population and total ST population during 1961-2011 in India (1961-2011 Census).....	38
Table 4.1. The caste-wise trend of total fertility rate in India from 1992 to 2020.....	62
Table 4. 2. Sample Description of women aged 15-49 years for the Multivariate model of recent fertility [NFHS-5(2019-2021), India] .....	70
Table 4.3.....	72
Table 4.4. Child Mortality Rates among different caste/tribes.....	74
Table 4.5. Under-five mortality rates among different caste groups by demographic and socio-economic characteristics .....	87
Table 4.6. Demographic and Socio-economic covariates of under-five mortality rate among different castes/tribes .....	89
Table 4.7. Demographic and Socio-economic covariates of under-five mortality rate among different castes/tribes .....	93
Table 5. 1. Health care utilization indicators of ST people at the national level (1992-2021) .....	100
Table 5.2. Current healthcare utilization by ST scenario, comparison with other castes at the national level (NFHS-5, 2019-21) .....	103

## **List of Figure**

Figure 2.1. Framework Shows the association of level of TFR with socioeconomic, demographic and health care variable.....	28
Figure 2.2. Framework Shows the association of under-five mortality with socioeconomic, health care and demographic variable.....	32

## **List of Graph**

Graph 3.1. Total Population, ST Population and decadal growth rate of the total population and total ST population during 1961-2011 in India (1961-2011 Census).....	39
Graph 3.2. The percentage share of the ST population to the total population in India from 1961 to 2011 census.....	40
Graph 3.3. Total Number of ST Population in the States/Ut in India (2011, Census).....	42
Graph 3.4. The percentage share of ST population to the State/UT and the total India ST population in India (2011, Census).....	45
Graph 3. 5. Decadal Growth Rate of ST Population in Indian states from 1961 to 2011 in India (Geographical boundaries adjusted by fixing the number of states in 1961 census).....	47
Graph 3.6. Age Sex Structure of ST Population in India, (2001 – 2011, Census) .....	50
Graph 3.7. Dependency Ratio of ST Population in India (2001- 2011Census) .....	51
Graph 3.8. Sex Ratio of ST Population in Indian States in India, 2011.....	53
Graph 3.9. Child Sex Ratio of ST Population in Indian states, 2011 .....	56
Graph 4.1. The caste-wise trend of total fertility rate in India from 1992 to 2021.....	62
Graph 4.2. Caste wise trend of total fertility rate in States of India from 1992-2021 .....	68
Graph 4.3. Child Mortality Rates among different caste/tribe .....	74
Graph 4.4. State-wise Neonatal Mortality Rate of ST population in India since 1992 .....	76
Graph 4.5. Caste wise Infant Mortality Rate in the States/UT of India (1992-2021).....	80
Graph 4.6. Caste wise Under five Mortality Rate in Indian State .....	84

Graph 5.1. Health care utilisation indicators of ST population at the national level (1992-2021)	100
Graph 5.2. Current healthcare utilization among the different castes in India (NFHS-5, 2019-21)	106
Graph 5.3. Index of healthcare utilization by Scheduled Tribe population in Indian states .	108

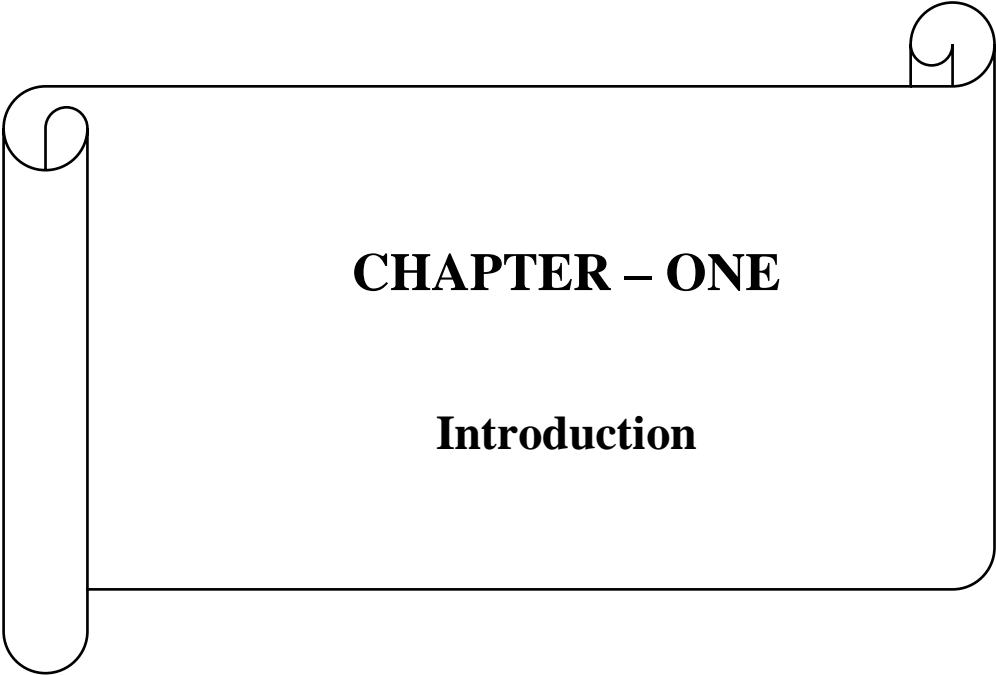
### **List of Map**

Map 3.1. The percentage share of Tribal Population to total all India Tribal Population by States in India (Census,2011)	41
Map 3.2. Percentage of Tribal population to the total population of the state in India (2011, Census)	44
Map 3.3. State Wise Decadal Growth Rate of Schedule Tribe Population in Indian sates in India (2001-2011)	49
Map 3.4. Sex Ratio of ST Population in Indian states in India, 2011	52
Map 3. 5. Child Sex Ratio of ST Population in Indian states, 2011.	55
Map 4.1. State-wise TFR of ST Population (NFHS-5), 2019-2020.	67
Map 4.2. Neonatal Mortality rate of Scheduled Tribe population in Indian states,2022	78
Map 4.3. Infant Mortality Rate of Scheduled Tribe population in Indian states ,2022	82
Map 4.4.Under Five Mortality Rate of Scheduled Tribe population in Indian States,2022	86
Map 5.1. State-wise score of Utilization of Health Care by Scheduled Tribe Population in India,2022	109



## **List of Abbreviation**

- IMR-Infant Mortality Rate
- NMR-Neonatal Mortality Rate
- MMR-Maternal Mortality Rate
- ST-Scheduled Tribe
- SC-Schedule caste
- OBC-Others backward classes
- NFHS-National Family and Health Survey
- ANC- Antenatal care
- ANM -Auxiliary Nurse and Midwifery
- CMR-Child Mortality Rate
- FP- Family Planning
- HDI- Human Development Index
- LE-Life Expectancy
- PHC-Primary Health Center
- PNC-Post-Natal care
- RCH-Reproductive and Child Health



## **Introduction**

### **1.1. Background**

The Latin word "Tribes" means "one-third," from where the term "tribe" originates. A tribe is a collection of individuals without any clear definition or standards. However, in various eras, scholars have defined it in multiple ways. They are also referred to as "Tribes," "Depressive Class," or "Adivasis," among other terms (K. S. Singh, 1985). Early anthropologists, including Morgan, Tylor, Perry, Rivers, and Lowie, suggested several definitions that include a social group known as a tribe. Professional anthropologists have not been able to create an appropriate collection of indications to identify tribes as "Tribal" or "non-Tribal," therefore, these classifications are by no means exhaustive (K. S. Singh, 1985).

Many different tribes with distinct ethnic identities and customs live in India's forests, hills, or plains, segregated from the rest of the population. About 750 of these tribes were designated as "Scheduled Tribe (ST)" under the Indian constitution due to their unique socioeconomic/ethnic structure and low socioeconomic and health indices (Maharatna, 2011). Since the independence of India, all sections of the society have moved toward a better life and globalized culture in India (Debnath & Venkateshwar, 2021). India also experienced a substantial change in its socio-economic structure and a more mature democracy; however, some sections of the society, like the Tribal population in India, lag behind other social groups on various socio-economic parameters such as educational level, participation in democracy and political power, economic empowerment, infant mortality, child mortality, immunization level of children, life expectancy, and many more have been already established by many reports and survey by Government of India and various agencies (Ministry of Tribal Affairs, 2019). However, in the actual population, the percentage of Tribal people is significant, and it

is around 8.6%, according to the 2011 census (Census 2011). Mizoram and Lakshadweep had the highest proportion of Scheduled Tribes (about 95%) among Indian states and Union Territories, according to the 2011 census (Census, 2011). One hundred four million tribal people live in India, spread across 750 tribes through various parts of India with distinct socio-cultural structures and ways of life (Census, 2011). So, it is essential to know about the demographic transition of the Tribal population from the level of fully backward to the semi-backwards level (Atal, 2016). Over the period, the socio-economic condition of the tribal people has changed to some extent but is not so drastic. Scheduled Tribes are those castes in the country that face extreme social, educational, and economic backwardness as a result of the age-old practice of untouchability, as well as some others due to a lack of infrastructure and geographical isolation, and who require special attention to protect their interests and accelerate their socio-economic development (Mohindra & Labonte, 2010). Article 342 of the Indian Constitution governs the notification of Scheduled Tribes. It specifies which tribes are Scheduled Tribes in each state and union territory. Scheduled Tribes are Hindu caste sub-communities that have historically endured deprivation, discrimination, and social isolation in India due to their perceived 'poor position.' (Odisha Welfare Department, 2022)

Moreover, in recent days, the life of Tribal people has become an emerging socio-political issue in the Indian context. A perfect portrayal of the demographic and health transition of the Tribal populations is required to investigate the impact of their changes on the social, economic, and political structures of the nation. This study showed the long-term trends in population and health indicators in India at the state level. To establish the causal relationship of this demographic transition, this study compares historical trends and patterns of fertility, mortality and population size, and health indicators by relating the direction to time trajectories of population policies and development strategies as drivers of change.

## **1.2 Literature Review**

In the past seven decades, significant research on many aspects of population dynamics has been conducted in India and overseas. This study has only examined about 50 research papers pertinent to the study's theme after reading over 122 research papers. As a result of their assistance in identifying the research gap and subsequent framing of research objectives, investigations conducted in India have also received attention focused on the Scheduled Tribe population in India.

Many studies have already been done about the specific tribal groups or tribal areas in India. Still, there are limited quantitative studies that can show a comprehensive national picture of the demographic transition of life of Tribal people (ST, by Constitution). Whatever the studies have been done, these are basically on simple trends and characteristics; there is no in-depth analysis that can tell us about the dynamics of population and health of the Scheduled Tribe population and the Health Indicators analysis throughout the ages of the tribal. This study investigated the Demographic and Health Transition of the Tribal Population of India, focusing on changes in healthcare access and health output over the period.

### **1.2.1 Schedule Tribe Population in India**

A tribe is a social group, often with a defined identity, dialect, cultural homogeneity, and a unified social group. It may include several subgroups, such as clans or villages (Hayward & Warner, 2005). They might have things in common ancestors as well as presiding deities. The Schedule Tribe, according to Gillin & Gillin, is a collection of pre-literate local groups that occupy a shared territory, speak the same language, and practise a common culture, all of which

combine to form a specific tribe. Small families or communities that include a tribe are linked together by blood ties or socio-economic characteristics (Atal, 2016). According to Naik, for a group to qualify as a tribe, it must have each of the traits mentioned above, and a very high level of acculturation to outside civilization disqualifies it from doing so. This phrase often refers to a social group connected to a specific region through kinship and responsibility (Naik, 2020). Indian tribes are distinct from comparable ethnic groupings worldwide. They are not a uniform group, and within the group, they have different levels of social integration (Christopher, 2020). Andre Beteille claims that in India, contact between tribal and civilization has happened under entirely different historical circumstances (BÉTEILLE, 1986). Tribe and culture have coexisted and interacted since the dawn of recorded history. Since the beginning of time, tribes have coexisted on the fringes of Hindu civilization, and these fringes have always been porous, unstable, and shifting. In contrast between two types of communities, Jana and jati, the one isolated in hills and forests, Hindu civilization accepted the distinction between tribe and caste (BÉTEILLE, 1986).

The notion of Adivasis (Sanskrit meaning "Original Inhabitants") entered the discussion during the British Colonial period to create a different identity within the society for administrative purposes (areas were not easily accessible) by employing the theory of Aryan invasion (Trautmann, 1997) The word "Schedule Tribe" was incorporated to Indian censuses in 1941 and, more accurately, following India's independence (THE CONSTITUTION (SCHEDULED TRIBES) ORDER, 1950a). "The term 'Scheduled Tribes' first appeared in the Constitution of India. Article 366 (25) defined scheduled tribes as "such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are deemed under Article 342 to be Scheduled Tribes for the purposes of this constitution"(Govt.of.India, 1952). Article 342, reproduced below, prescribes the procedure to be followed in the specification of the scheduled

tribe. The essential characteristics of these communities are Primitive Traits, Geographical Isolation, Distinct Culture, Shy of contact with the community at large, Economically backwards. There are certain Scheduled Tribes, 75 in number, known as Particularly Vulnerable Tribal Groups (PVTGs), who are characterized by:

- Pre-agriculture level of technology
- Stagnant or declining population
- Extremely low literacy
- Subsistence level of the economy.

In the study, we focus only on the constitutionally defined "Tribal People" in India, which are defined as "Scheduled Tribes" (THE CONSTITUTION (SCHEDULED TRIBES) ORDER, 1950a). Over 750 Scheduled Tribe communities spread across different States and Union Territories of the country; for the rest of the study, we used the terms "scheduled tribes" and "tribal population" interchangeably. Scheduled Tribe communities account for about 15% of our country's vast geographical area, situated in various ecological and geo-climatic conditions ranging from the plains and forests to the hills. STs account for more than 5% of the total population in most states of India (Census of India, 2011). These tribal groups are not homogeneous(Hasnain, 2007). There prevails a high-level diversity in these groups demographically, socially, economically, and culturally. Tribal culture and traditions, and practices interpenetrate almost all the aspects of Indian culture and civilization (Ministry of Tribal Affairs, 2020)

### **1.2.2 Demographic Indicators of Scheduled Tribe Population in India**

The demographic transition hypothesis describes the shifting pattern of mortality, fertility, and growth rates as civilizations migrate from one demographic regime to another

(*Notestein.EconomicProbsPopChange.Pdf*, n.d.). The term was first coined by the American demographer Frank W. Notestein in the mid-twentieth century, but it has since been elaborated on and expanded upon by many others (Kirk, 1996). Bose (1996) attempted to diagnose India's population issue in terms of the North-South divide in his article "Demographic Transition and Demographic Inequality in India." Birth rate/TFR, mortality rate, growth rate, IMR, exposure to family planning technologies and their use, and literacy rate are all used in the study. RGI and NFHS data were used (1992-1993) (Bose, 1996).

Though tribal people's demography does not play a significant role in India's overall demographic picture, demographic traits in tribal cultures have often been unique and diverse, both historically and in comparison. Individual demographic data for the tribal population and several tribes have been presented in census reports and statistical tables for a long time (Krishnan, 2020). The subject of data comparability from one Census to the next could be relevant when looking at long-term patterns. M. Arup (2011) looked at the broad characteristics of tribal population growth since the late 1880s compared to the overall population (Maharatna, 2011). Except for historically contingent catastrophes (e.g., famines and epidemic outbreaks), he found that the long-term growth pattern was not significantly different between tribe and non-tribe populations.

An effort was made to discuss the social, economic, and demographic aspects of the tribes in Uttarakhand in Rani and Sharma's 2007 paper, "Socioeconomic and Demographic Characteristics of the Tribes of Uttarakhand, India," and to look at variations in both inter- and intra-tribal relations in Uttarakhand (Rani & Sharma, 2007). Nagda (2009) attempted to emphasize the facts about the tribal people of Rajasthan in this study, "Demographics and Health Composition of Tribal Population of Rajasthan," covering their demographic and health



behaviour (Nagda, 2017). Ranjan (2006) sought to analyze the age and sex composition of the tribal population in the States of Chhattisgarh and Madhya Pradesh in his article titled "The Age and the Sex Structure of Tribal Population in Central India." (Ranjan, 2009). Here in this study, we showed the transition of the Tribal population in the state and the Indian level in an in-depth manner by dividing it into regions. This transition theory tells us about the dynamics of the people from a smaller size to a bigger one and then to a stable one.

### **1.2.3 Health Indicators of Scheduled Tribe population in India**

The majority of tribal groups reside in forests. Their "Traditional Health Care System," based on centuries of medical expertise, uses both herbal and psychosomatic therapeutic modalities. Although the main components of therapy were plants, flowers, seeds, animals, and other naturally occurring materials, this technique was always tinged with mysticism, the paranormal, and magic, frequently leading to specialised magico-religious ceremonies (Balgir, 1997).

Previous quantitative research indicates that despite the advances in modern medicine, indigenous populations still lack access to healthcare delivery systems. The fundamental problems in the field of tribal health are the barriers to using current healthcare services and the distinctive methods by that tribal people obtain healthcare (Mohindra & Labonte, 2010). Even though there are contemporary healthcare facilities, tribes still rely on conventional medical procedures recommended by "traditional healers." (Behera, 2020) Traditional healers are primarily found in rural areas of India, and many of them lack formal education. They offer regional treatments that they have learned while serving as apprentices to other conventional healers. There is disagreement about whether tribe members resist contemporary medical procedures or are shifting their allegiance to modern medicine (Behera, 2020). A generally

treasured ideal is good health, and people cannot be coerced into having health. The provision of universal health care is an essential step toward progress (Srinivasan, 2013).

Conceptually, the theory of epidemiologic transition focuses on the complex change in patterns of health and disease and the interactions between these patterns and their demographic, economic and sociologic determinants and consequences. Abdel Omran gave it. Here in this study, we will try to show the over the period diseases pattern change, morbidity, mortality and influence of socio-economic variables on this change in a robust manner. ST groups are recognised by the Indian Constitution as ethnically or socio-culturally unique. They have poorer health indicators and fewer healthcare services than non-ST populations, even though they dwell in the same region. There is a shortage of health research on indigenous ST people worldwide. STs, one of India's most disadvantaged socio-economic groups, have a higher infant mortality rate (IMR) of 44.4, under-five mortality rates (U5MR) of 57.2, and Anemia in women of 59.8 than other populations in the same areas, according to the National Family Health Survey, 2015–2016(MOHFW, 2021).

Most of the health indicators in the tribal community fall short of the national average, with women and children being especially susceptible. Only 15% of ANC visits are completed, resulting in a fertility rate of 2.5 per 1000 women of reproductive age. Regardless, the lack of MMR data for tribal groups is especially problematic. Only 56 per cent of youngsters have gotten all of their immunizations. According to M Mohan Kumar et al. (2020), the mere presence of a healthcare facility does not imply that the residents of that area are in excellent health if they do not use it. Tribal peoples' use of modern healthcare services is relatively low. According to a study conducted on tribal women in Odisha, India, by Mahapatra M et al. in 2000, just 6% of participants use allopathic treatment entirely, while the remaining 49% use traditional treatments primarily offered by local quacks.

### **1.2.4 Studies on Scheduled Tribe population in India**

One of the core components of primary healthcare is maternal and child health. Poor antenatal care (ANC) access and usage continue to contribute to high maternal mortality and morbidity, and direct healthcare services are subject to assessment (Ministry of Tribal Affairs, 2019). Varma, Godi Rajendra et al. 2011 found that while ANC services were used more frequently than the national average, childbirths at home, which untrained elderly mothers essentially performed, were also common.

According to Hisham Moosan. et., 2019, 5.6 per cent of indigenous women did not use antenatal care services effectively. The proportion of tribal children who received complete immunisation without lag was 74 per cent, while it was 78 per cent amongst non-tribal children. Tribal children had significantly lower adequate vaccine coverage having mothers with less than high school education. Shobha P Shah used a pre-and-post design to obtain quantitative data on menstrual hygiene in a community-based study over six months. They discovered that 90% of girls wore outdated clothes, 68% of adolescent girls stated falalin clothes were their first option, and 32% said sanitary pads were their first choice.

Boro and Saikia, in their study, also emphasized the severity and burden of disease on the Tribal life in Assam (Boro & Saikia, 2020). Saraswathi and Sathyamurthi, in their study, explained the health and education status of the PTGS groups in Tamil; they also tried to show the severity of PTGS status. Raja and Ahamad attempted to establish an all-India picture of the distribution and demographic structure of the Scheduled Tribe population (Raja & Ahamad, 1990).

### **1.3. Rational and scope of the study**

The welfare and development of tribal groups became the main emphasis of tribal studies after World War Two instead of the defense of British colonial subjects. To design programmes of planned transformation and growth for their own beliefs and customs, more profound knowledge of tribal society has become necessary. In the Indian setting, the way of life of tribal people has emerged as a social and political concern. The demographic and health shift of the Tribal people must be accurately portrayed. Population growth, mortality, fertility, migration, health output, and total life expectancy are the primary domains of the Demographic and Health Transition.

This research will attempt to illustrate the long-term patterns in India's population and health metrics at the state and district levels. By tying the trend to the temporal trajectories of population policies and development strategies as drivers of change, this study examines historical trends and patterns of fertility, mortality, population size, and health indicators to demonstrate the causative linkage of this trip.

Our recent Government has accepted the "Citizen-first" mantra to achieve many socio-economic goals for uplifting the societal and health status and also taken many specific policies to improve the tribal health condition in India. The World Health Organization also emphasises the importance of enhancing Tribal health care facilities in tribal areas to improve overall health facilities. The Tribal Ministry and The Ministry of Health and Family Welfare (GOVT. Of INDIA) have jointly taken a one-stop solution, "SWASTHYA", presenting the health and nutrition status of the tribal population of India. Before taking any particular policies for the Tribal people, this study will help us know more about the dynamics and trends of the tribal and the essential socio-economic factors which influenced to uplift their demographic and health status.

## **1.4. Research Questions**

- What are the population dynamics among the Scheduled Tribe population in India since 1961?
- Has the Fertility and Mortality level reduced for the Scheduled Tribe population?
- What are the factors affecting TFR and Mortality of the Scheduled Tribe population?
- What are the health dynamics among the Scheduled Tribe population?
- What is the level of healthcare utilization by the Scheduled Tribe population in Indian states?

## **1.5. Research Hypothesis**

- H01: There is no influence of socio-economic factors on the fertility and child mortality of the Scheduled Tribe population in India.
- H02: There is no difference in the influence of the predictor variable in reducing fertility among caste groups in India.
- H03: There is no difference in the influence of the predictor variable in reducing child mortality among caste groups in India.

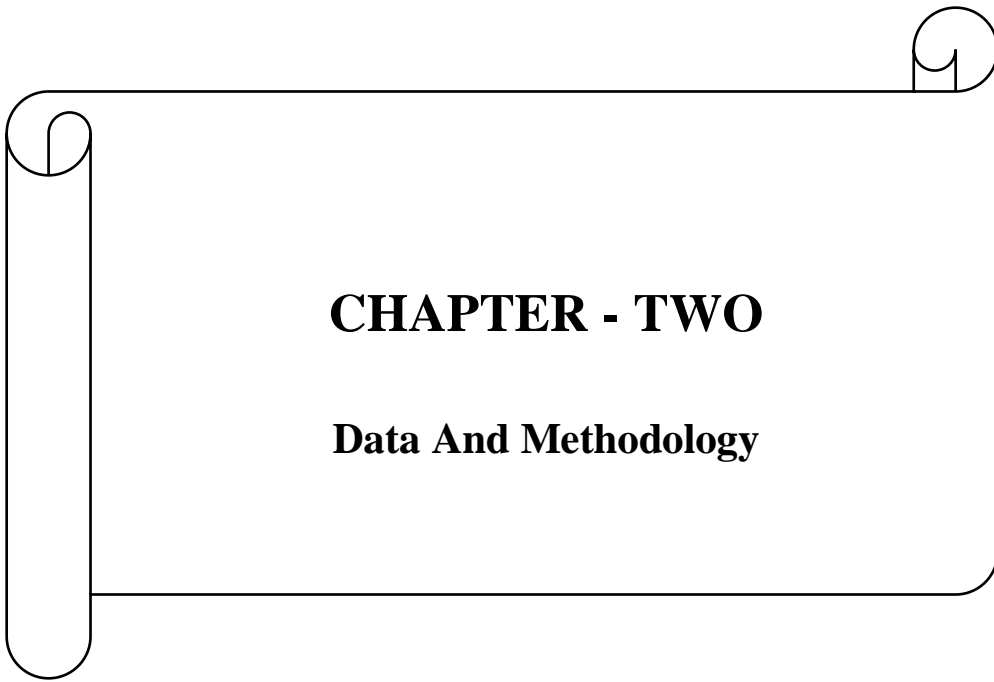
## **1.6. Objectives**

- To examine trends and patterns in population in population indicators among Scheduled Tribes in India.
- To examine the fertility and mortality pattern since 1992.
- To examine the changes in healthcare utilization among the Scheduled Tribe population.

## **1.7. The organisation of the dissertation**

This dissertation contains six chapters which are as follows: -

- Chapter 1: Introduction comprises the background of the study, review of literature, rationale and scope of the study, research questions, hypothesis, and objectives of the study.
- Chapter 2: Data and Methodology give a detailed description of the data sources used, framework and methodology for the study.
- Chapter 3: To investigate the long-term growth, distribution and age-sex structure of the Scheduled Tribe population in Indian states from 1961 with spatial mapping.
- Chapter 4: To explore the trends of fertility and mortality pattern of the Scheduled Tribe population and its association with the socioeconomic factors from 1992 with spatial mapping.
- Chapter 5: To investigate the healthcare utilization of the Scheduled Tribe population and its comparison with other castes in Indian states with spatial mapping.
- Chapter 6: Summary and conclusion present conclusion, limitation of the study, policy implications and future research scope.



# **CHAPTER - TWO**

## **Data And Methodology**

## **2 Data and Methodology**

This section outlines the methods and data sources used to accomplish the study's goals. Below is a detailed explanation of each objective's data and methodology.

### **2.1 Data and Methods of Objective - 1**

The population census is the primary source of fundamental data on the country's population needed for administrative purposes and many elements of economic and social planning and research. The Indian Census has the most comprehensive set of data about Indian inhabitants. India, a nation known for its "Unity in Diversity," offers individuals the ability to study the numerous elements of their country through its society, demography, economics, anthropology, sociology, and statistics, among other fields. Population Census is the comprehensive process of gathering, compiling, evaluating, and disseminating demographic, economic, and social data relevant, at a particular moment, to all people in a country or a clearly defined region of a nation.

It gives us information on population growth trends, shifts in the population's age and sex composition, patterns of death and fertility, migration, and urbanization, among other things. Additionally, it provided details on changes in the country's industrial and vocational makeup, literacy and educational attainment levels, the standard of living, and other cultural traits, including languages and religions.

To better compare the decadal growth rate of the Scheduled Tribe population among the states/UT, we have seized the geographical area, and the boundaries of states have been adjusted according to the 1961 census (Table-A.1, Appendix). We have merged the states to



show the demographic characteristics of the Scheduled Tribe population in India at the state level (see the appendix....). Firstly, the data have been taken from the censuses 1961, 1971, 1981, 1991, 2001 and 2011 for the total population and Total ST population at the state and national levels. We have used a line graph to show the trend in the total ST population and compare it with the total population in India and among the states/UT during 1961-2011. The percentage share of ST population to the total population of the state and total ST population of India has been calculated using the following statistical formula;

Percentage share of ST population to the total ST population of India

$$= \frac{\text{Total ST population of the state}}{\text{Total ST population of India}} * 100$$

Percentage share of ST population to the total population of state

$$= \frac{\text{Total ST population of the state}}{\text{Total population of the state}} * 100$$

The percentage contribution of the Scheduled Tribe population to the overall ST population of India at the state level from the 1961 to 2011 census has been displayed using the trend line. A bar graph has been used to display the proportion of tribal people in each state's total population for the 2011 Census and the percentage share of STs in each state's total population. The size of the ST population at the state level has also been shown by using a bar graph. The trend in the decadal growth rate of the ST population has been conducted using the line trend graph since the 1961 census for all the states, and the comparison has been made with the decadal growth rate of the total population. We have used the formula of exponential growth rate to calculate the decadal growth rate of total population and ST population by using the following formula:

$$P_t = P_0 \exp(rt)$$

To show the change in the age and sex composition, the age-sex pyramid has been constructed for the ST population at the national level. For this, we have taken the data on the age of the ST population in five age year groups for the 2001 and 2011 censuses to make an age-sex pyramid. To show the proportion of economically inactive people to economically active people, total dependency ratio, young age dependency ratio and old-age dependency ratio have been calculated by using the following formula:

$$\text{Dependency Ratio} = \frac{\text{Number of Children (0 – 15)} + \text{Number of people (> 65)}}{\text{Number of the population between the ages of 15 – 64}}$$

$$\text{Young age dependency Ratio} = \frac{\text{Number of Children (0 – 15)}}{\text{Number of the population between the ages of 15 – 64}}$$

$$\text{Old age dependency Ratio} = \frac{\text{Number of people (> 65)}}{\text{Number of the population between the ages of 15 – 64}}$$

A bar graph has been used to show the variation in the dependency ratios from the 2001 census to the 2011 census. Along with this, the percentage of the 60+ population has also been calculated to see the ageing pattern of the ST population during the 2001 and 2011 censuses.

The sex ratio is another crucial demographic factor. Ordinarily, it is expressed as a ratio of the total number of women to the total number of men. The data have been taken from the census of 2011, and bar graphs have been used to show the state-level variation in the sex ratio and child sex ratio of the ST population. The two kinds of sex ratios have been calculated by using the following formula:

$$\text{Child sex ratio} = \frac{\text{Number of female Children aged between 0 – 5 year}}{\text{Number of male Children aged between 0 – 5 year}} * 1000$$

$$\text{Total sex ratio} = \frac{\text{Number of females}}{\text{Number of males}} * 1000$$

Further, we also mapped the state-wise distribution, percentage share, sex ratio etc., of the Scheduled Tribe population using the Geographic Information System (GIS).

## **2.2 Data and Methods of Objective - 2**

An extensive, multi-round study, the National Family Health Survey-5 (NFHS), has been used here. The NFHS is one of India's most thorough surveys ever carried out. The NFHS's primary goal is to provide accurate population estimates at the state and India levels. Since the initial study in 1992–1993, there have been five survey rounds. Every following round of the NFHS has had two clear objectives: to provide the Ministry of Health and Family Welfare and other agencies with the vital data on health and family welfare they require for policy and programme purposes and to provide information on significant new health and family welfare issues.

The NFHS survey offers state-level and comprehensive data for India on various health indicators, including fertility, infant and child mortality, family planning use, maternal and child health, reproductive health, nutrition, anaemia, and the use and effectiveness of health and family planning services. In this survey, a two-stage stratified random sample approach has been used. In the first stage, villages in rural regions and census enumeration blocks in urban areas, known as Primary Sampling Units (PSUs), are chosen using probability proportional to population size. Then, using systematic random sampling, an equal number of houses were selected from each PSU.

## Fertility Analysis

This study focused only on the national-level aggregate data, specifically on the Scheduled Tribe population.

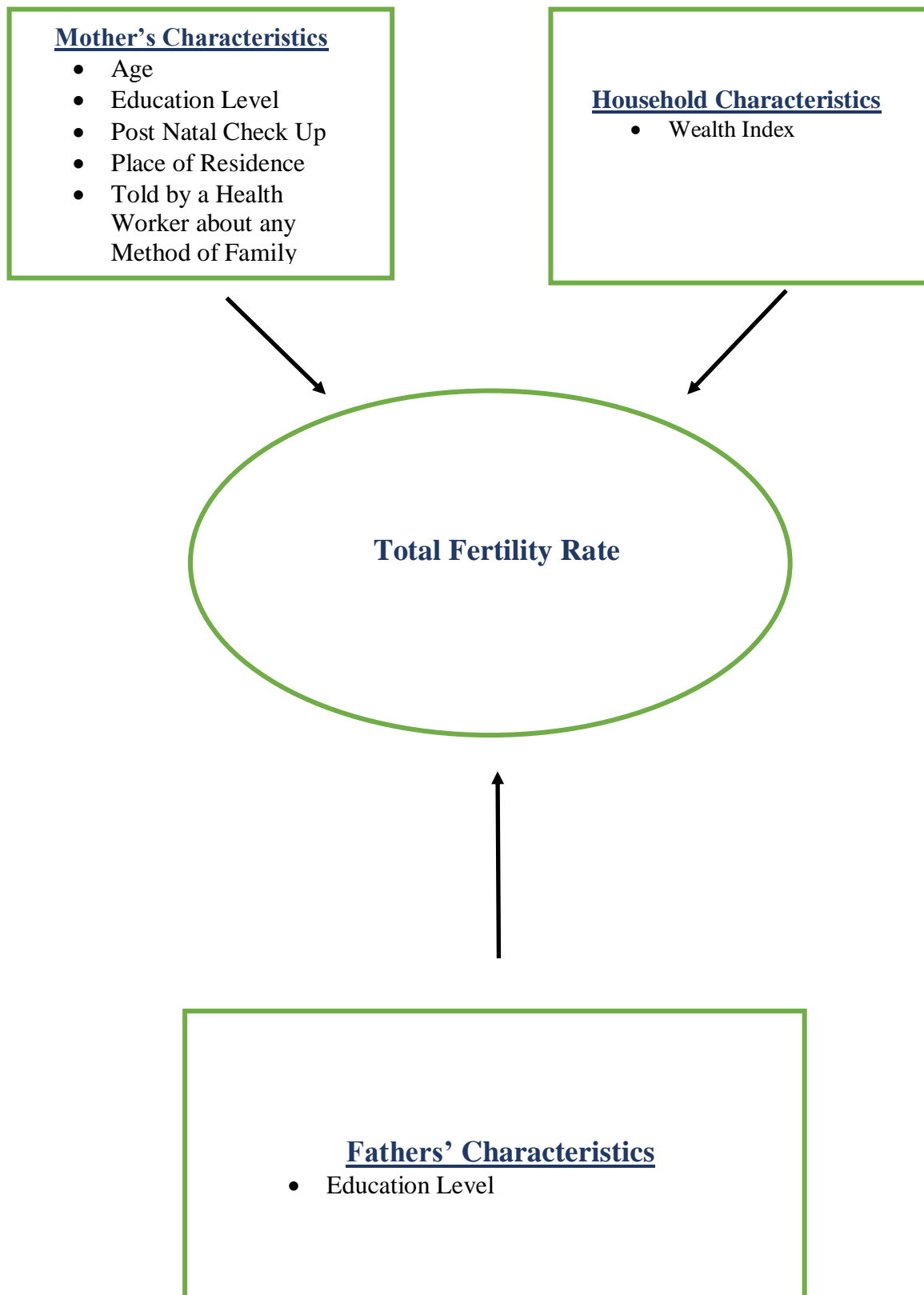
For fertility analysis, we used the `tfr2` Stata module, developed by Schoumaker (2013), to compute fertility rates from birth histories and estimate trends in TFR across all rounds of the NFHS data (Schoumaker, n.d.). Bivariate and multivariate analyses were performed. At the bivariate level, cross-tabulation was performed to determine the per cent distribution of women's characteristics by NFHS-5 survey.

The study used Poisson regression to calculate fertility rates and rate ratios and reconstruct fertility trends from a table of births and exposure created using `tabexp`. Poisson regression is a sort of extended linear model in which the link function is logarithmic, and the conditional distribution of the dependent variable is Poisson.

$$TFR = 5 * (\exp[\alpha] + \sum_{k=15-19}^{45-49} \exp[\alpha + \beta_k] * \exp[\delta_k])$$

We used the TFR level of the different cohorts (according to the various socioeconomic and caste group) in the past, using women aged 15 to 49 as the dependent variable for the last five years. We only selected independent variables at the person level per the literature and the data at hand. Individual-level predictors were the age of the woman in years (15–24, 25–34, 35–44, 45–49); women's level of education (no education, primary, secondary or higher); caste (SC, ST, OBC, Others); place of residence (urban, rural); wealth index (poorest, poorer, middle, more affluent, richest); Told by a health worker about any method of family planning (Told, Not told), husband and parents educational level (No education, incomplete Primary, incomplete Secondary, Complete secondary, higher education).

*Figure 2.1. Framework Shows the association of level of TFR with socioeconomic, demographic and health care variable.*



## **Child Mortality Analysis**

We focused only on the national-level aggregate data of the NFHS-5 round, focusing on the Scheduled Tribe population.

For individual caste group- analysis at the India level, we calculated the NMR, IMR and U5MR; we chose the survey date "5 years before the survey date." The NMR is the likelihood of passing away within the first month of life, represented as a rate per 1000 live births. The IMR is the likelihood of passing away within the first month of life, representing a rate per 1000 live births. Similar to the U5MR, the U5MR is the likelihood of dying before age five, presented as a rate per 1000 live births.

### **Outcome Variable**

The survival status of children under five is the study's outcome variable. For the outcome variable, we assigned a value of "1" if the child passed away and "0" if the child survived.

### **Independent /Predictors Variables**

The variables included in this research may be broadly classified into socioeconomic, demographic, and programme factors. These factors were considered because prior studies indicated significant predictors of child death. We listed the birth order of the child(1, 2-3, and 4+), the Age of the woman when her first kid was born (20, 20-24, and 25 years or more), Sex of the children under the demographic factors (Bora et al., 2019).

We included caste affiliation, mothers' educational level, type of housing and household wealth quintile, cooking fuel, bathroom amenities, and source of drinking water as socioeconomic factors. The primary predictor in this research is the caste group, and within the Scheduled Tribe, how predictors influence the outcome variable. We divided caste into the following four

categories: SC, ST, Other, and OBC. The degree of education of the mother was divided into four categories: no education, primary education (between one and five years), secondary education (between six and twelve years), and higher education (more than twelve years).

The NFHS questionnaire did not ask about income when asking about wealth. By calculating a composite index of household wealth, which indicates the ownership of wealth or assets possessed by the household to which they belonged, the economic position of a woman was determined. Using the methods used in the fifth round of the NFHS, we independently calculated the household's wealth quintile. When calculating the wealth index, we considered only three factors: cleanliness, the supply of drinking water, and cooking fuel. A family was assigned to one of five groups based on its overall score: lowest, poorer, medium, more prosperous, or wealthiest.

## **Measures**

Utilizing individual-level information on delivery histories collected from women aged 15 to 49 who participated in the NFHS survey, a mortality estimate was done. Only births and deaths that occurred five years before the survey was taken into account in the study.

In prior research, a synthetic cohort life table technique was applied (Skardhamar, 2014). Using the STATA programme "Syncmrates," the child mortality rate in DHS records was generated using a similar methodology (Skardhamar, 2014).

## Statistical Analysis

We employed bivariate analysis to compare the differences in outcome and particular predictors between the SC, ST, and non-SC/ST population (For IMR, NMR, U5M). A binary logistic regression model investigated the relationship between under-five fatalities and exposure factors. Before using the binary logistic regression model, the variance inflation factor (VIF) was used to examine all exposure variables for potential multi-collinearity.

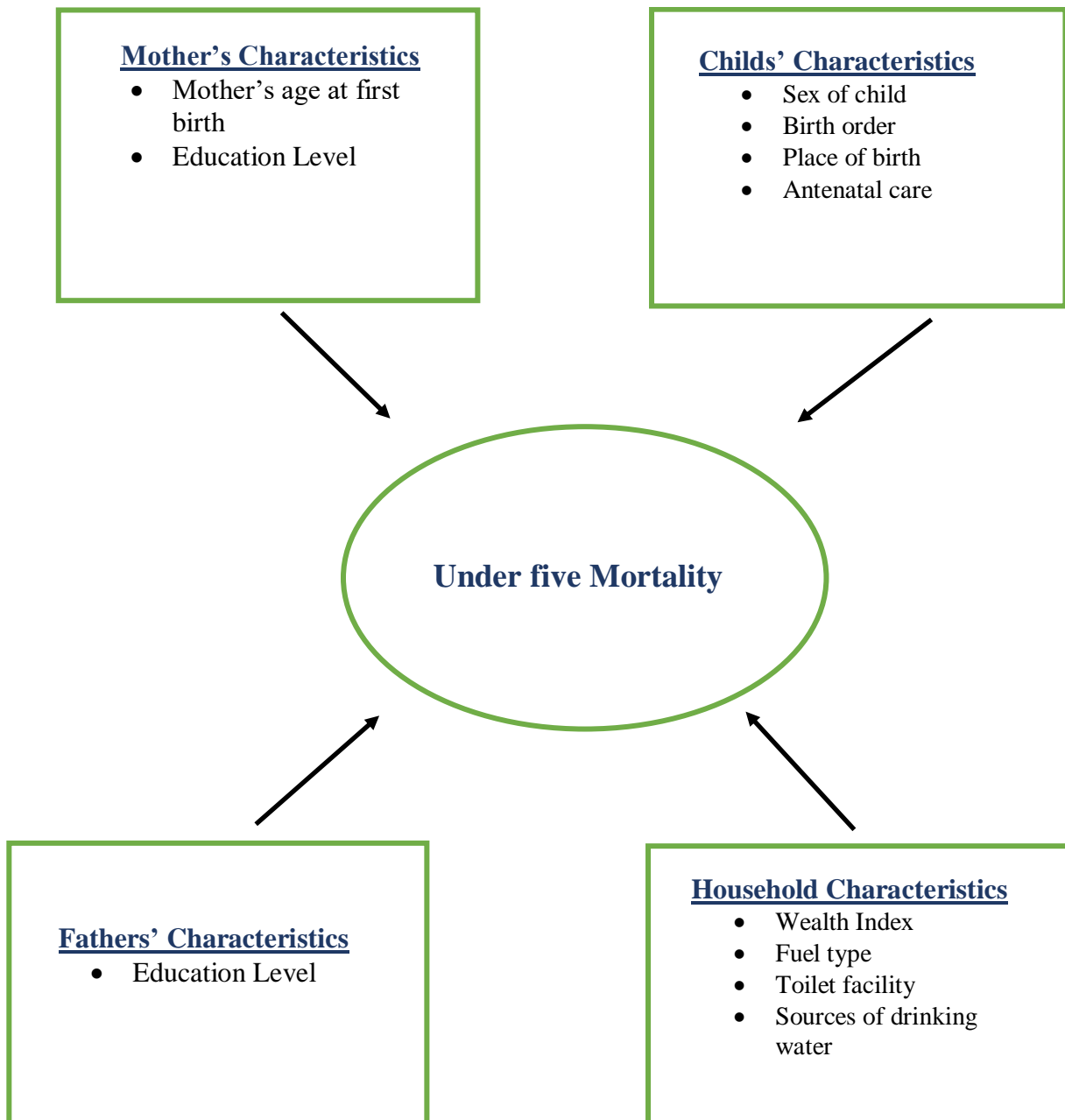
. The appendix discusses this technique in great depth (S1 Appendix). To conduct the analysis described in this paragraph, we applied STATA S.E. 16.0 (STATA Corp., Inc., College Station, TX) version software. The formula of the logistic regression:

$$\log\left(\frac{p}{1-p}\right) = b_0 + b_1 * x1 + b_2 * x2 + b_3 * x3 \dots \dots \dots$$

Where x1, x2, x3..... in are the predictor variables.



*Figure 2.2. Framework Shows the association of under-five mortality with socioeconomic, health care and demographic variable.*



### **2.3 Data and Methodology of Objective - 3**

We have collected the health care utilization data of the ST population from the national and state reports for NFHS-3 to NFHS-5 at the federal and state level. We have taken nine indicators; Percentage of pregnant women who had four or more ANC visits, Received two or more TT injections during pregnancy, percentage of Fully vaccinated children, percentage of Non-vaccinated children, Percentage with a vaccination card seen, unmet need, percentage of children with diarrhoea in the two weeks preceding the survey taken to a health facility or health provider, percentage of children with symptoms of ARI in the two weeks preceding the study brought to a health facility or health provider, percentage of children with symptoms of fever for whom treatment was sought from a health facility or provider to show the level of health care utilisation. A trend line graph has been used for all nine indicators to show the trend in health care service utilisation by the ST population at the national level.

To see the current scenario of health care utilization among STs and compare it with other castes, the caste-wise health care utilisation data have been collected from NFHS-5. We have taken twelve indicators for this purpose; Percentage of pregnancies that were registered, percentage of mothers who have given an MCP card, Percentage of pregnant women who had four or more ANC visits, had birth protected against neonatal tetanus, percentage of Fully vaccinated children, percentage of Non-vaccinated children, Percentage with a vaccination card seen, Death registration, Mensuration protection, Unmet need, the rate per cent kids who experienced diarrhoea in the two weeks before the study was taken to a health facility or health provider, and percentage of children with symptoms of ARI in the two weeks before the survey that was given to a healthcare facility or healthcare service. A multiple bar graph has been used using the above data to show the current status of health care utilisation among the ST population and castes at the national level for NFHS-5.

Additionally, to show the state-wise ranking of health care utilization by combining different indicators of health care services used by ST people. We have used the abovementioned twelve hands from NFHS-5 to calculate the combined score to convert it into one index.

**The index score was calculated using the formula shown below:**

- If the variable is expected to increase in the desired direction towards the maximum values (percentage of vaccination, number of ANC visits.)

An indicator  $X_i$  of a country is standardized as  $= (X_i - X_{\min}) / (X_{\max} - X_{\min})$ .

- If it has to decrease to the lowest possible values (unmet need.)

An indicator  $X_i$  of a country is standardized as  $= (X_{\max} - X_i) / (X_{\max} - X_{\min})$ .

- Health utilization index = Average score of the separate health care index



## **CHAPTER – THREE**

### **Population Dynamics Among Scheduled Tribe in India During 1961-2011**

### 3.1. Introduction

A sizable fraction of India's population comprises the "Schedule tribes"(Census,2011). They make up a significant portion of Indian society. These communities practice various religions and belong to several ethnolinguistic groupings (Atal, 2016). They are dispersed over India's full spectrum of social biography, from the palaeolithic hunters and gatherers of forested products to the modern industrial workers living at various stages of socio-economic development(Raja & Ahamad, 1990). A review of the data reveals that a startling propensity marks their spatial distribution for clustering and concentration in historical isolation-suffering enclaves located in environments that are mainly unsuitable for sedentary agriculture (Census,1961-2011). Perhaps the absence of proper interaction between the tribal and non-tribal populations within India's population has significantly contributed to this trend of clustering and concentration(B. Singh, 1984).

The population indicators generally consist of population size, age structure, percentage share, distribution of the population, Sex ratio, Child sex ratio, Dependency ratio, and Percentage share of people living in rural and urban areas (*Training Manual on Demographic Techniques*, 2016). The change in the population indicators appraises the change in human society and its structure, and it also bears the story of the demographic profile of humanity throughout the ages(*Lesson 3: Demographic Indicators / Population Europe*, n.d.). The changing pattern of the population indicators recount the change from the pre-industrialised high fertility and mortality to a post-industrialised low level of fertility and mortality equilibrium (Bloom & Williamson, 1998). The concept of change in population indicators came from the experience of the demographic changes of western countries, which had already advanced to a higher level of the demographic situation.

In India, the changes in the population indicator of Tribal population happened not only because of natural growth but also because of the Govt. Notification for accepting the Tribal status of a particular population(*National Commission for Scheduled Tribes / Government of India, 2022*). The study of the population structure of Tribals has suffered a lot because of the random selection of criteria for notifying them as "Schedule Tribe" (Raja & Ahamad, 1990). The Census enumeration of "Scheduled Tribes" in India shortly after independence caused tensions in the Indian polity and Governance because a substantial number of them were omitted because of locational disadvantages, environmental factors, social stigma and mindset of colonial negligence(Bailey F. G., 1960). The distribution of the Scheduled Tribal population is not homogeneous in India; it is mainly concentrated and isolated in some pockets of India, which have a history of seclusion from mainstream development, modernisation and globalisation (B. Singh, 1984).

To inspect the changes in the population indicators among Tribal populations in terms of the total population, decadal growth, percentage share, distribution of the population, sex ratio, child sex ratio, dependency ratio, percentage share of people living in rural and urban areas, of the Tribal population, we have selected all the states and Union Territories in India.

### 3.2. Results

#### Trend In Population Size and Decadal Growth Rate of ST Population in India

Table 3.1 and Graph 3.1 show that the total population and the Scheduled Tribal population increased over the period. In 1961 the total population of India was 439234771, and the tribal population was 30131505, but in fifty years, the population tripled entire and tribal people. There was a sharp increase in the decadal growth rate of the Scheduled Tribe population between 1971 & 1981, but after 1981 onwards, the decadal growth rate of the Scheduled Tribe population started to decrease. After 1981, the decadal growth rate of the Scheduled Tribe population decreased through the decades. The growth of the ST population happened not only because of a natural increase (high TFR and low mean age of childbearing than the other caste and total population) of the population but also because of the Government notification of notifying some general population as Schedule Tribe population by following the constitutional definition of Tribe (Constitution of India, 1950).

**Table 3.1. Total Population, ST Population, Percentage Share of ST Population, and decadal growth rate of the total population and total ST population during 1961-2011 in India (1961-2011 Census)**

State/UT	Census Year	Total Population	Total ST Population	Percentage share of ST population to total population	Decadal Growth of total Population (1961-2011)	Decadal Growth of ST Population (1961-2011)
<b>INDIA</b>	1961	43,92,34,771	3,01,31,505	6.86		
	1971	54,81,59,652	3,81,05,162	6.95	0.22	0.23
	1981\$	66,52,87,849	5,16,28,638	7.76	0.19	0.3
	1991\$\$\$	84,64,21,039	6,77,58,380	8.01	0.24	0.27
	2001\$\$	1,02,87,37,436	8,43,26,240	8.2	0.2	0.22
	2011	1,21,08,54,977	10,45,45,716	8.63	0.16	0.21

Source: Census of India, 1961, 1971, 1981, 1991, 2001, 2011, Register General of India, Govt. of India

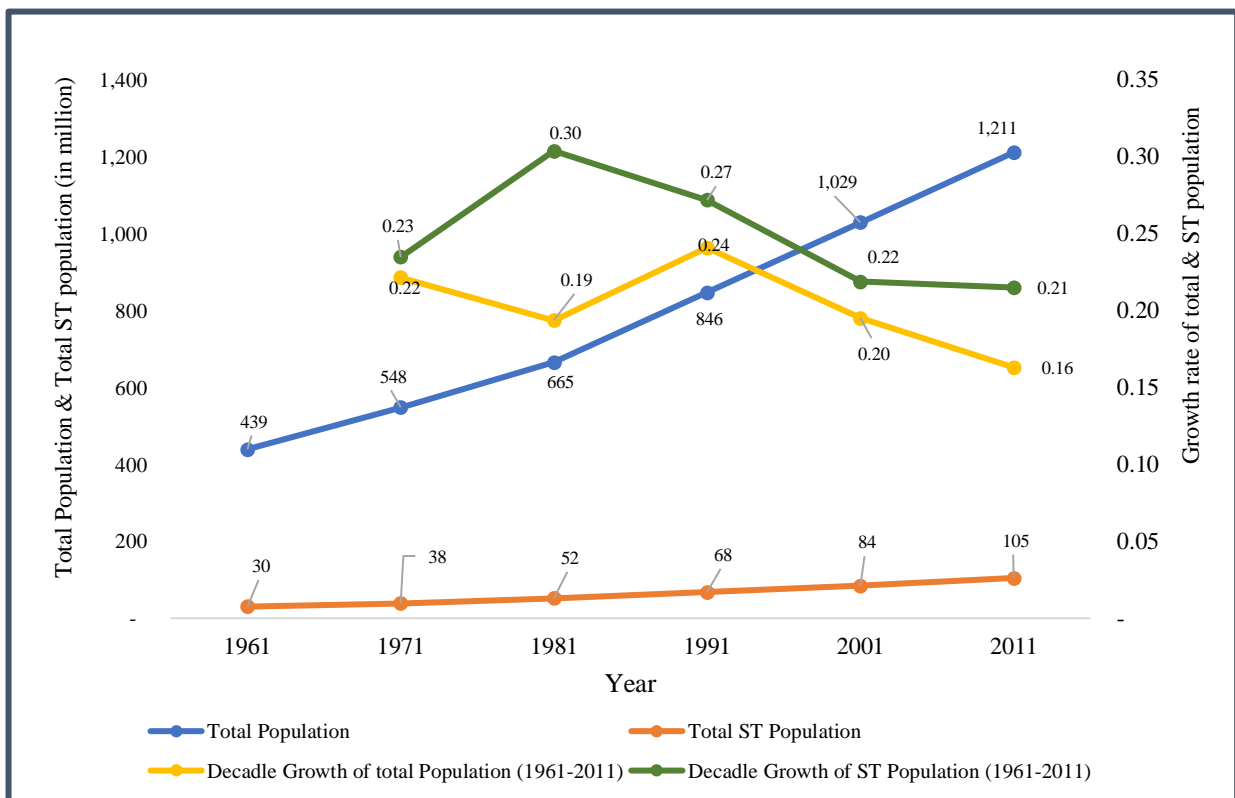
Note: \$ Assam was excluded in Census, 1981.

\$\$Mao-Maram, Paomata and Purul sub-divisions of Senapati district of Manipur were excluded in the census 2001 \$\$\$ Jammu & Kashmir was excluded in Census, 1991.

- Author's own calculation

Table 3.1 and Figure 3.2 show an around 2 % increase in the percentage share of ST population to the Total population between 1961 to 2011 census; in the 1961 census, the percentage share was 6.86%, but now it is 8.63%. The highest increase in percentage share of ST population to total population happened between 1971 and 1981 census, and it was around 1% and lowest in between 1991 and 2001 census.

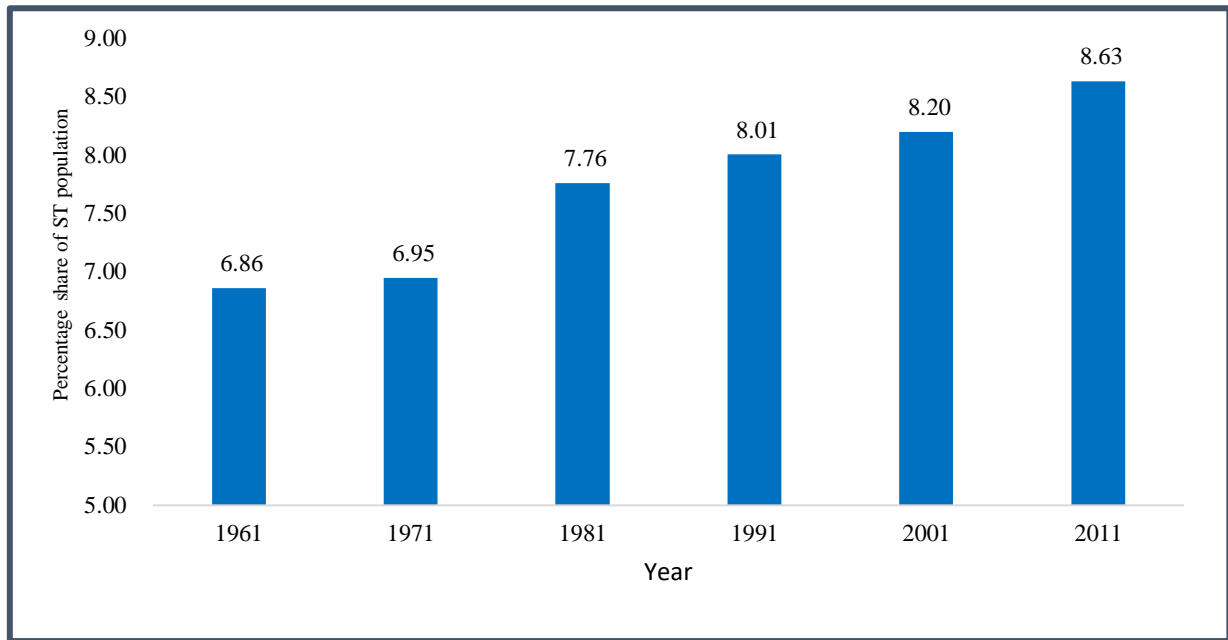
**Graph 3.1. Total Population, ST Population and decadal growth rate of the total population and total ST population during 1961-2011 in India (1961-2011 Census)**



Source: Census of India, 1961, 1971, 1981, 1991, 2001, 2011, Register General of India, Govt. of India  
 • Prepared by author



**Graph 3.2. The percentage share of the ST population to the total population in India from 1961 to 2011 census**



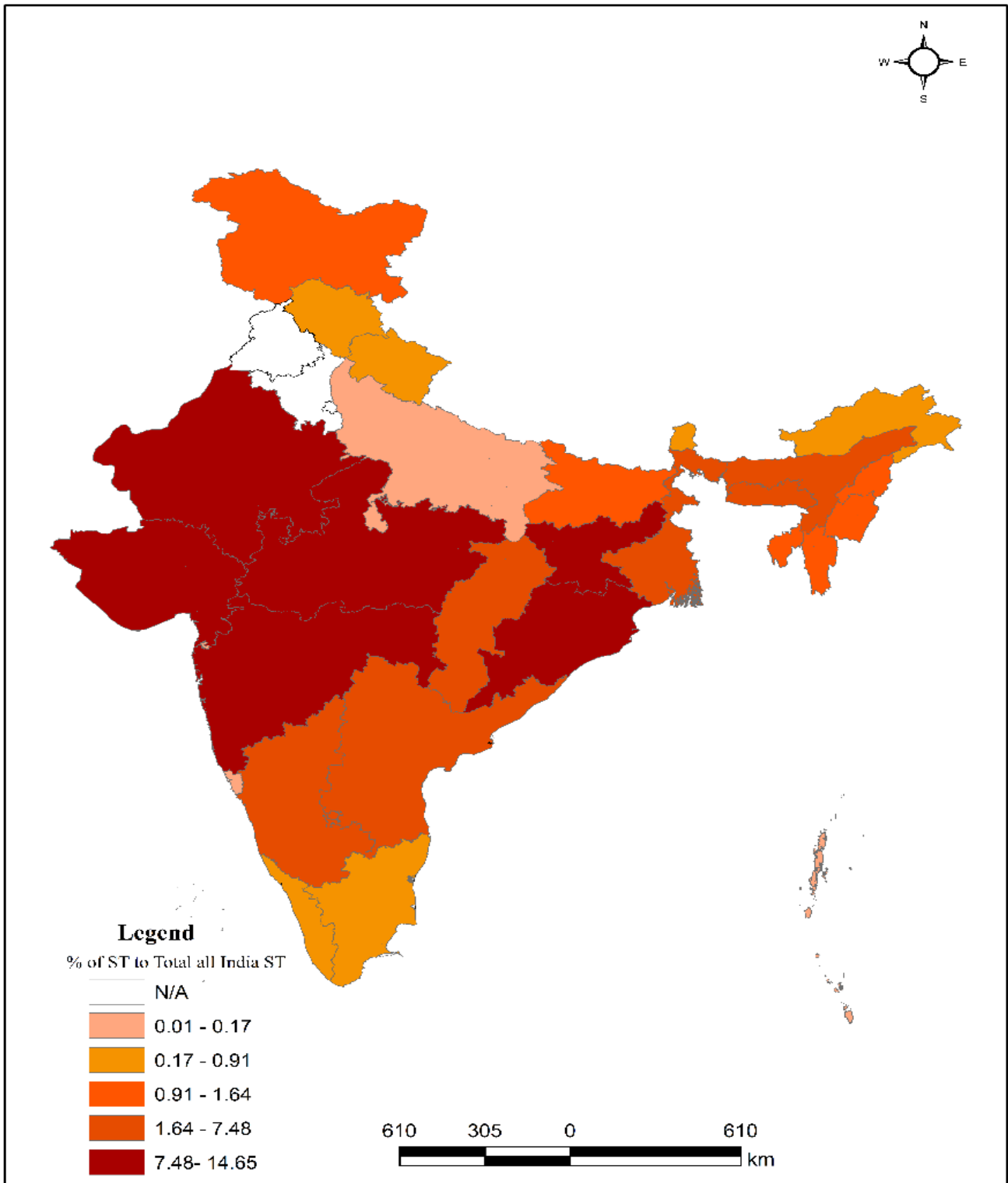
Source: Census of India, 1961, 1971, 1981, 1991, 2001, 2011, Register General of India, Govt. of India.

- Prepared by author

## **Distribution of Schedule Tribe population in India**

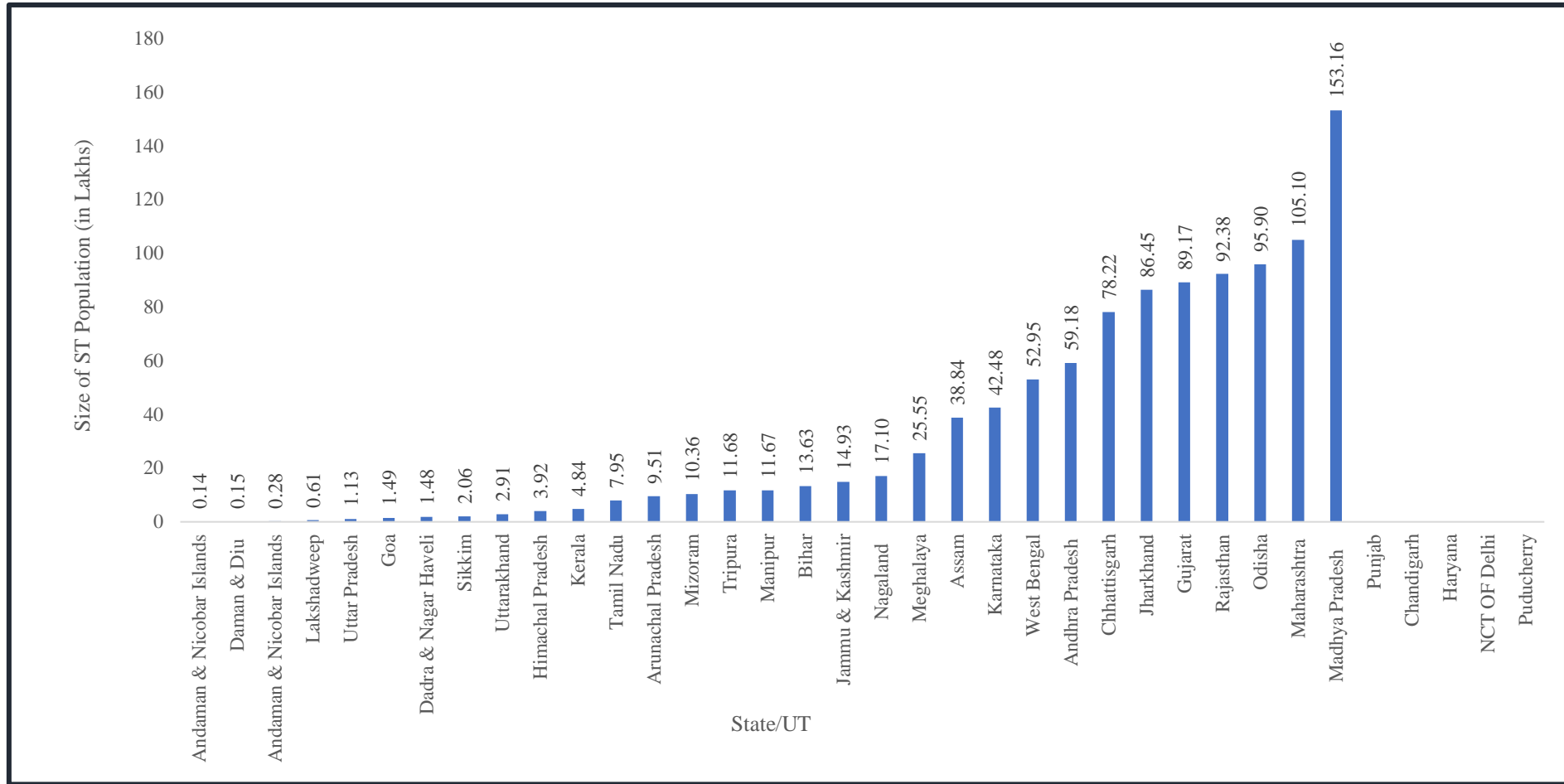
Graph 3.3 and Map 3.1 Presents the region along the Himalayas where most tribal people reside, extending from Assam, Meghalaya, Tripura, Arunachal Pradesh, Mizoram, Manipur, and Nagaland in the northeast to Jammu & Kashmir, Himachal Pradesh, and Uttar Pradesh in the north. The mountainous regions of central India are home to another concentration of tribes (Madhya Pradesh, Orissa, and, to a lesser extent, Andhra Pradesh). Karnataka, Tamil Nadu, and Kerala have more deficient populations of tribal people. Examining states such as Lakshadweep and the Andaman and Nicobar Islands and western Indian states like Gujarat and Rajasthan. The tribal population is not evenly distributed throughout the states. No tribal people are living in several Indian states and UTs, including Delhi, Punjab, Haryana, Pondicherry, and Chandigarh.

Map 3.1. The percentage share of ST Population to total all India ST Population by States in India (Census,2011)



• Prepared by author

**Graph 3.3. Total Number of ST Population in the States/Ut in India (2011, Census)**



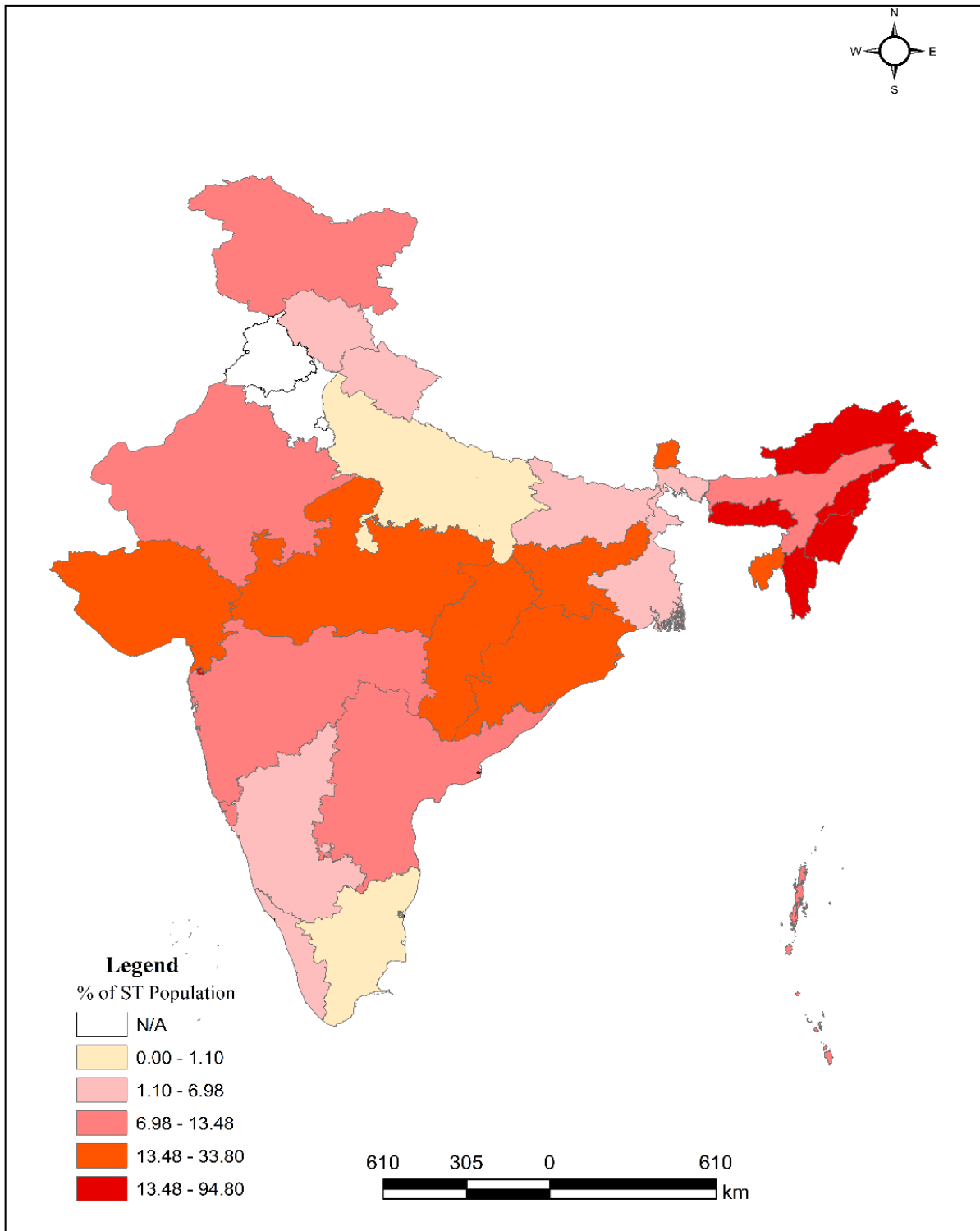
Source: Census of India, 2011 (RGI).

\*Prepared by the author

Graph-3.4, Map-3.2 and Map-3.3 show a high concentration (To total all India ST population) of Tribal (ST) population in Madhya Pradesh, Odisha, Maharashtra, Rajasthan and Jharkhand. However, at the state level, the highest proportion of the Tribal population lives in the North-Eastern states. In the southern states, the percentage of Tribal population to the total population is insignificant; only in Andhra Pradesh is around 7%. Tribal people are concentrated heavily (With in-state total population) in India's northeastern states. Tribal people make up about 94 per cent of the population of Mizoram.

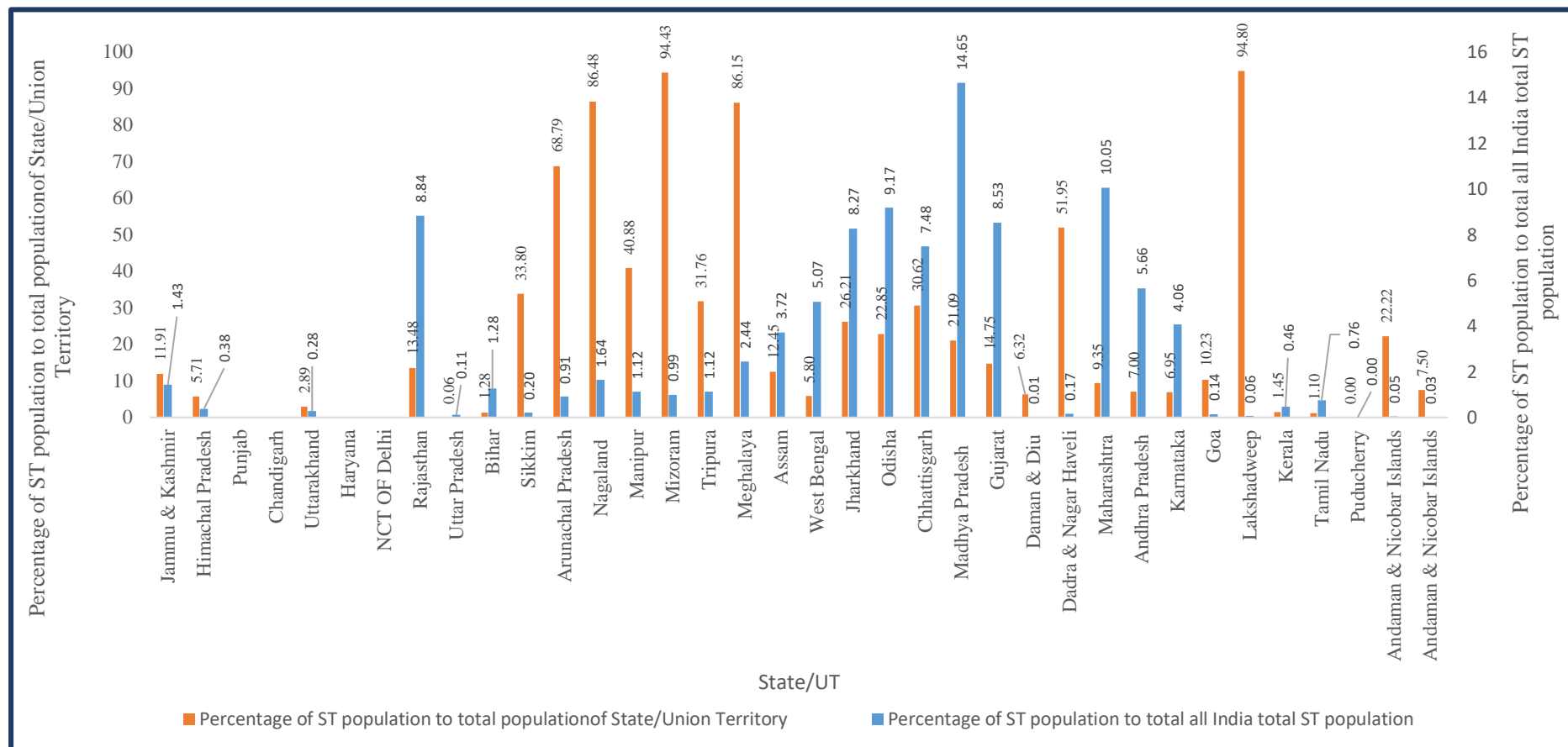
Additionally, more than 85% of the population in Nagaland and Meghalaya are STs. In other northeastern states, Tribal peoples make up between 20 and 30 per cent of the population of Assam, Manipur, Sikkim, and Tripura. Lakshadweep has an ST population of about 95% of the Union Territories. The percentage of tribal people is notably high in Jharkhand, Chhattisgarh, Odisha, and Madhya Pradesh (nearly 20 per cent). Among India's states, Uttar Pradesh has the lowest percentage of STs (0.60 per cent). The percentage of tribal people is notably low in states like Bihar, Tamil Nadu, and Kerala (about 3%).

**Map 3.2. Percentage of ST population to the total population of the state in India (2011, Census)**



*\*Prepared by the author*

**Graph 3.4. The percentage share of ST population to the State/UT and the total India ST population in India (2011, Census)**



\*Prepared by the author

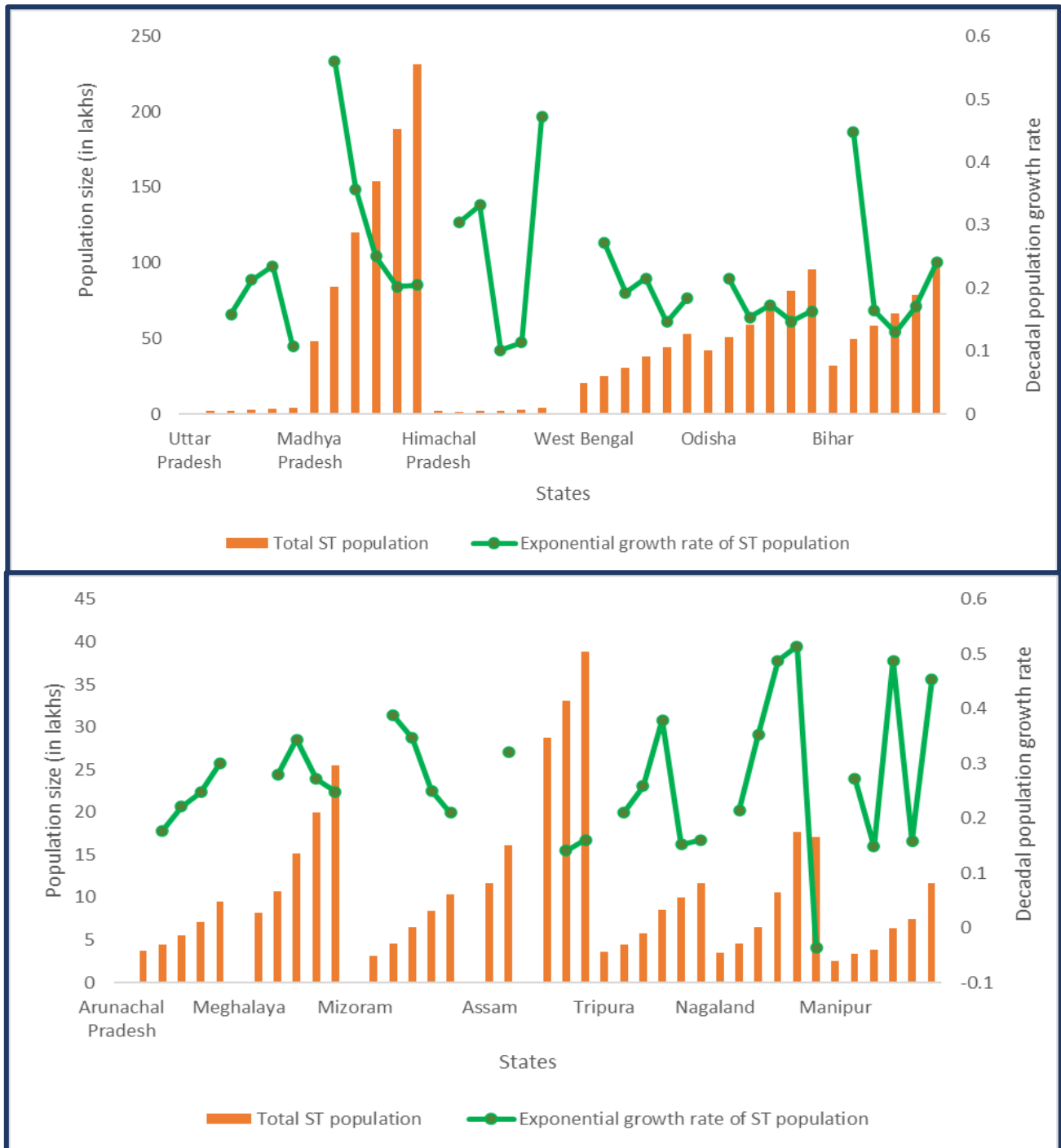
## **Decadal Growth Rate of Schedule Tribe Population in Indian state since 1961**

Graph 3.5 (Table-A.2, Appendix) shows the state-wise decadal growth rate of the ST population in India and its variance. We have taken the states and UT of the 1961 census and continued it till the 2011, Census by adjusting the boundaries of the state. The decadal growth rates are not homogenous throughout the decades. Like the total population growth, it also follows the exponential growth rate. However, in some states, there is sharp growth in the ST population not only because of the average population growth but also because of Government notification for notifying the particular groups as Schedule Tribe populations by following the constitutional definition. It is challenging to track the decadal growth rate of the ST population because of the changing and volatile character.

Furthermore, after 1961, many new states were formed like the Tribal dominated Jharkhand was separated from the previously known state Bihar. The state of Uttarakhand was also separated from Uttar Pradesh. The north eastern councils were divided into many new north eastern states, and their boundaries were rearranged. In Maharashtra, there was a sharp increase in the decadal growth rate of the ST population between the 1971 to 1981 census, and after 1981, there was a sharp decline in the decadal growth rate. In the case of Rajasthan and Gujarat, a slight increase happened in the period of the 1971 to 1981 census, and after that, it declined and stabilised over the decades. In Uttar Pradesh, there is a sharp decline in the decadal growth rate of the Tribal population after the 1991 census. In Madhya Pradesh, there is a trend of a sharp decline in the decadal growth rate of the ST population after the 1971 census. In Himachal Pradesh, the decadal growth rate has been volatile and is not stable throughout the ages because of random notification of notifying the particular groups like scheduled tribes. In West Bengal, Bihar, Orissa, and Bihar, the decadal growth rate of Schedule Tribe declined over the period. In the northeastern states, there is a declining trend in the decadal growth rate of the ST

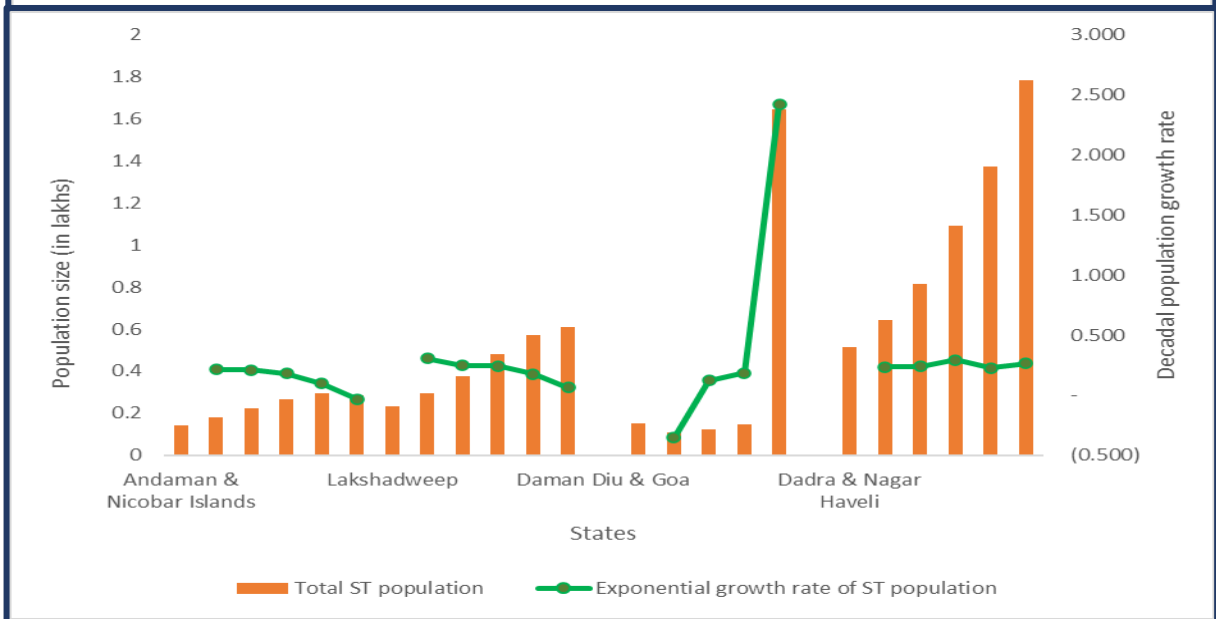
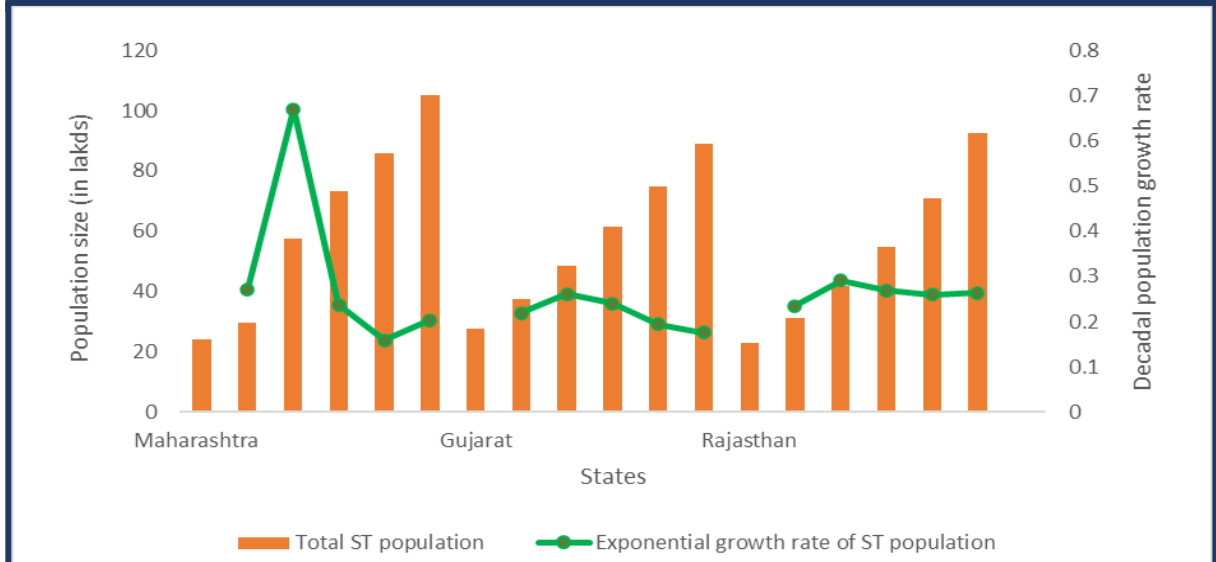
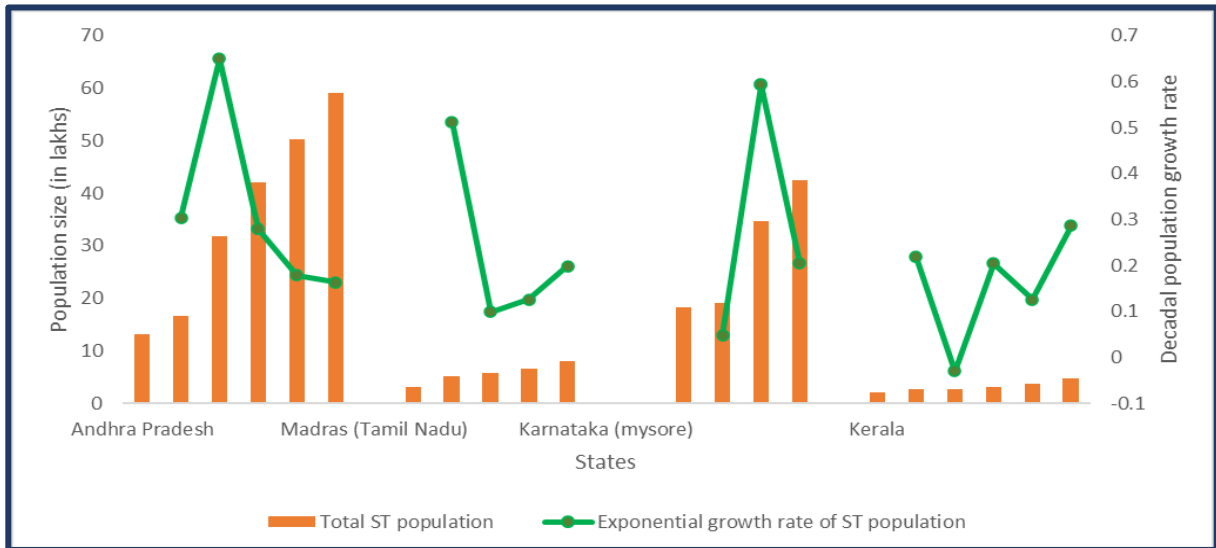
population. Over the period, the decadal growth rate also declined in the union territories. In the southern states also, the decadal growth rate of the ST population declined over the period.

**Graph 3. 5. Decadal Growth Rate of ST Population in Indian states from 1961 to 2011 in India (Geographical boundaries adjusted by fixing the number of states in 1961 census)**



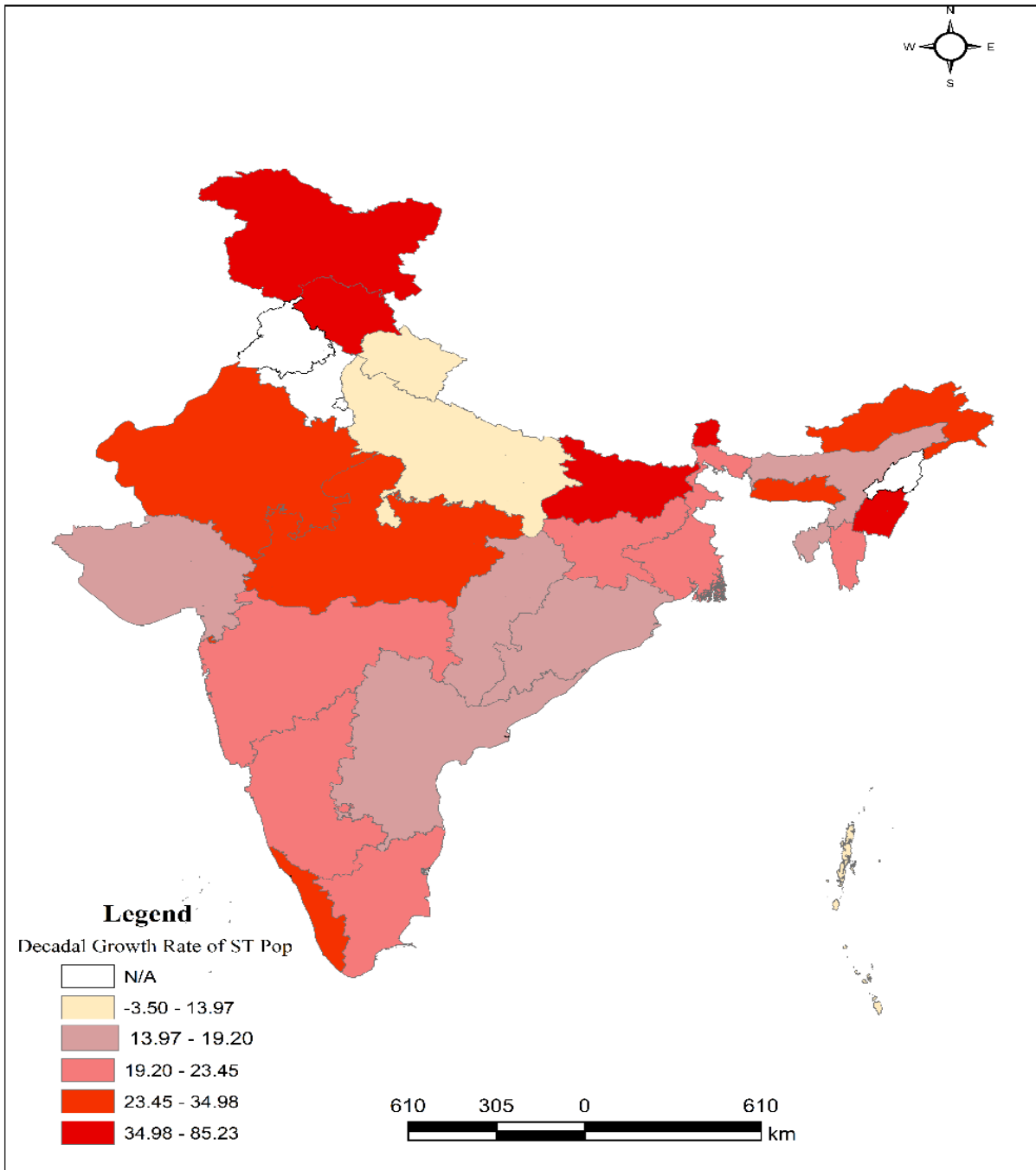
*\*Prepared by the author*





\*Prepared by the author

**Map 3.3. State Wise Decadal Growth Rate of ST Population in Indian states in India (2001-2011)**

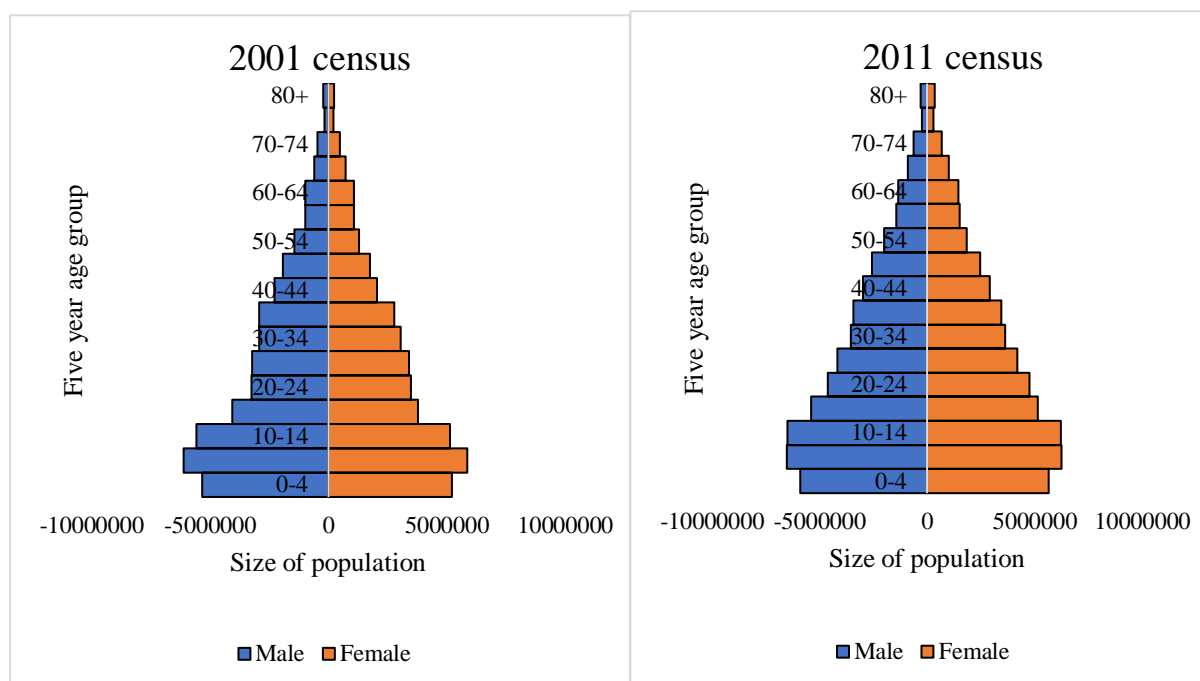


*\*Prepared by the author*

## Age -Sex structure of ST population in the last decade

The proportion of the young population of ST increased in the last census interval, and the size of the working-age population also increased. There is also an ageing tendency in the national-level ST population. These show an improvement in life expectancy and a decline in the mortality rate of the ST population from the 2001 to 2011 census. There is also a tendency to narrow the base of the age-sex pyramid of the ST population.

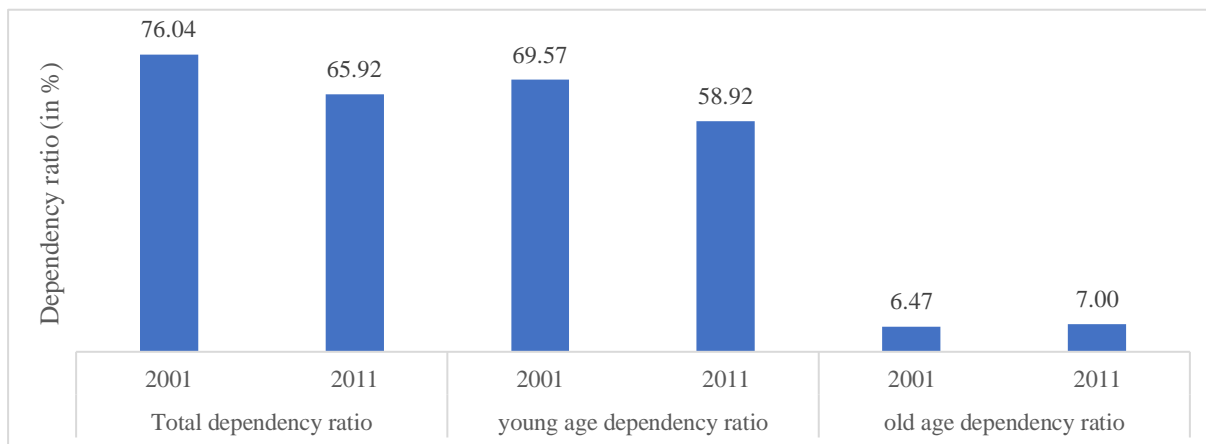
**Graph 3.6. Age Sex Structure of ST Population in India, (2001 – 2011, Census)**



*\*Prepared by the author*

The figure shows that the total dependency ratio increased in the last decade, but the young age dependency ratio decreased in this period. There is a tendency to ageing of the ST population as the old-age dependency increased by 0.53 points.

**Graph 3.7. Dependency Ratio of ST Population in India (2001- 2011 Census)**

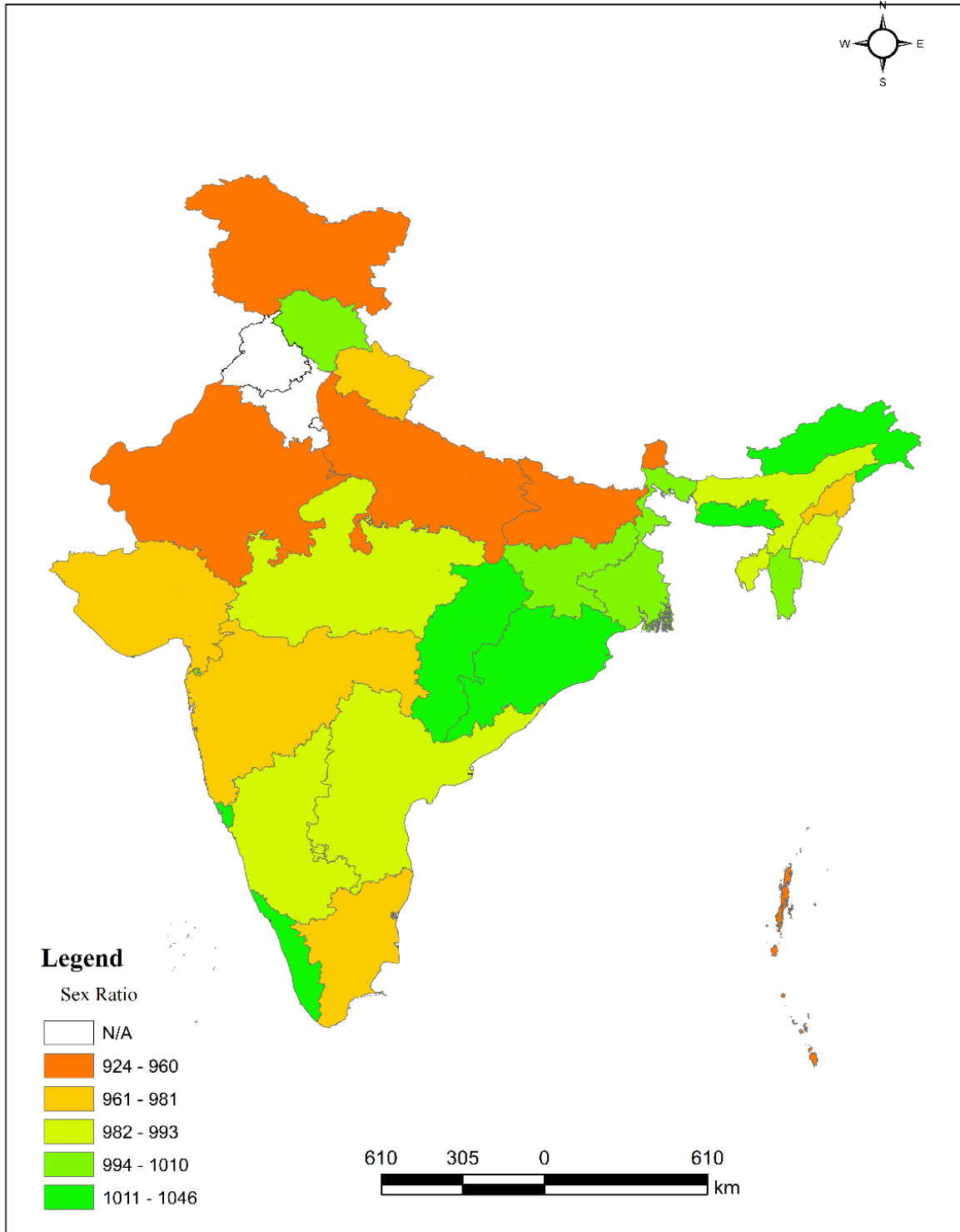


*\*Prepared by the author*

### **Sex ratio of ST population by states (2011, Census)**

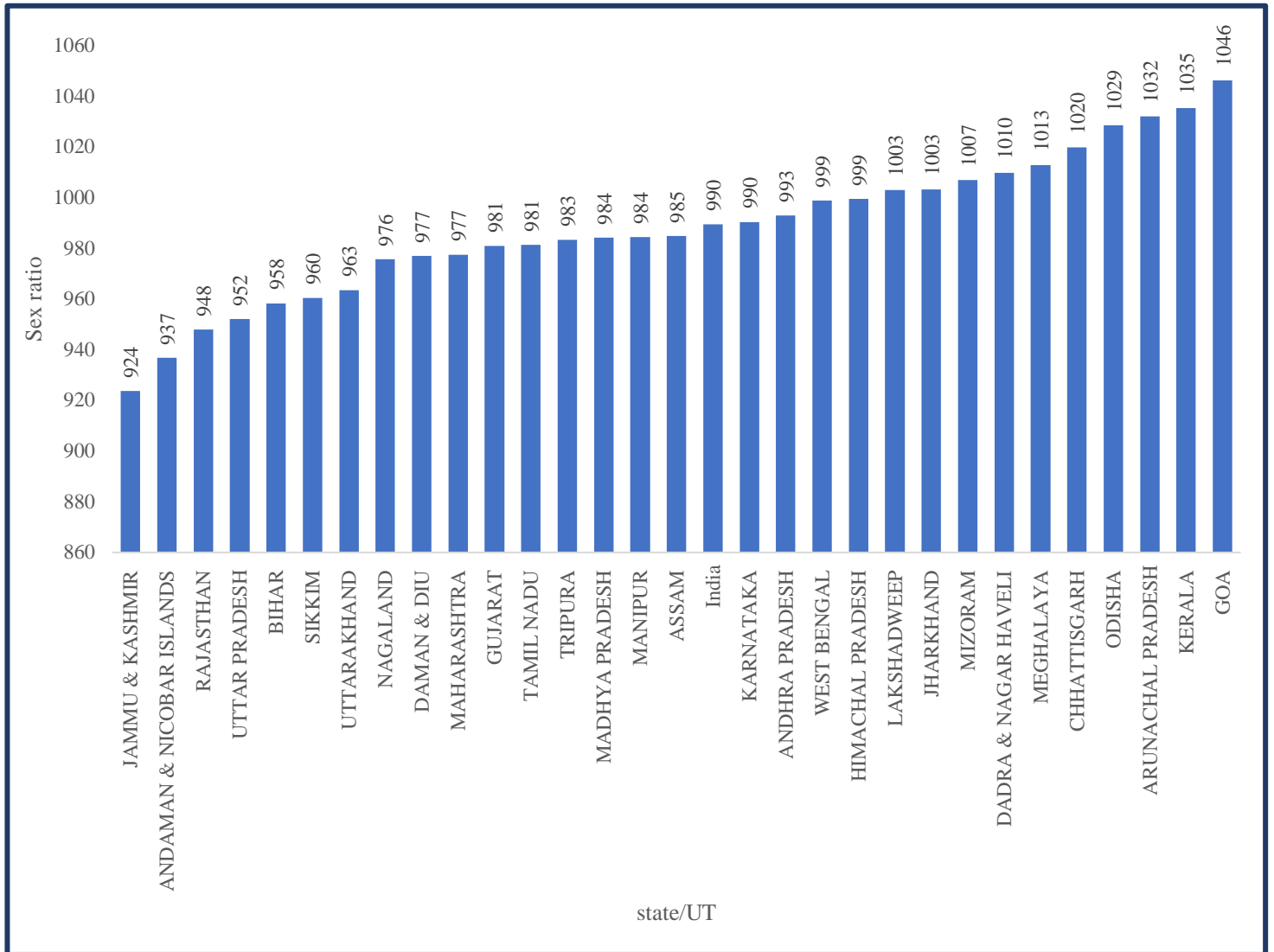
Table A.4(Attached in Appendix) and Map.3.4 show that the overall sex ratio of the Scheduled Tribe population is higher than any other caste group and General population. The overall sex ratio of the Scheduled Tribe population is not uniform over the states; it ranges from 924 to 1046. In the North-eastern states, the tendency of overall sex ratio of ST population is in favour of females than other states like in Arunachal Pradesh it is 1032, in Mizoram, it is 1007 but in some north eastern states like in Tripura, Assam Manipur, Nagaland the sex ratio is below the 990. In Goa, the sex ratio is highest and is 1046. In Chhattisgarh, Odisha, and Kerala, the sex ratios are more favourable to females than males, above 1000. In India's northern and western regions, the Sex ratio is not suitable for females and is lower than in the other belts state. The Sex ratio of the Scheduled Tribe population is the lowest in Jammu and Kashmir, at around 924.

**Map 3.4. Sex Ratio of ST Population in Indian states in India, 2011**



*\*Prepared by the author*

**Graph 3.8. Sex Ratio of ST Population in Indian States in India, 2011.**

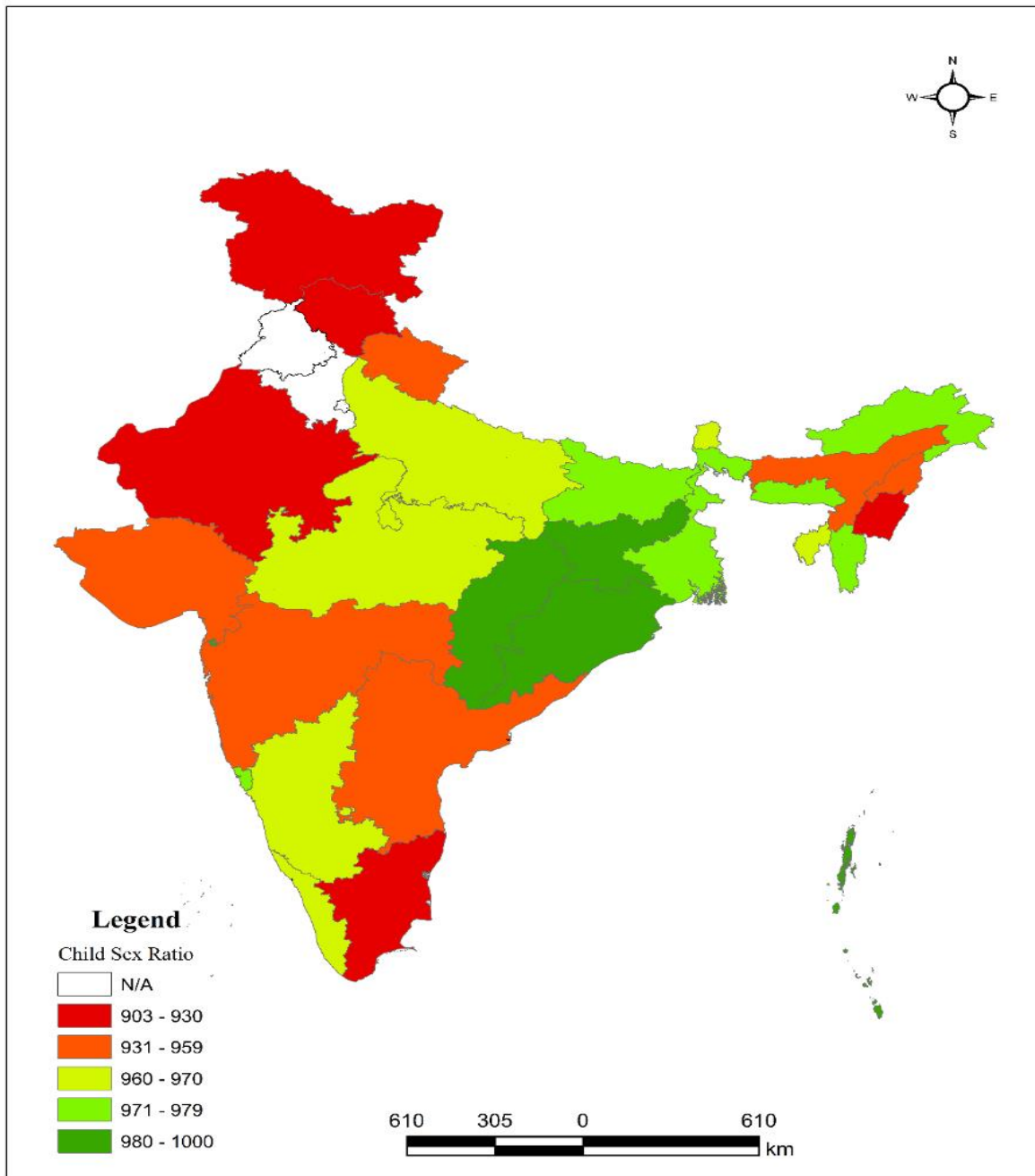


*\*Prepared by the author*

## **Child-Sex Ratio of ST population**

Table A.3(Attached in Appendix) and Map.3.5 show the natural range of child sex ratio is a minimum of 940 girls per 1000 boys. The number of female children is missing if the child sex ratio is lower than 940. At 990 females for every 1,000 men, the tribal population of India has a more excellent sex ratio than the country's overall sex ratio. In contrast, the child sex ratio decreased from 972 in 2001 to 957 in 2011. The national average dropped from 927 in 2001 to 919 in 2011. The child gender ratio among STs is still better than the national average, despite the steeper fall in child sex ratio (down from 973 to 957). The best states for STs' child sex ratios are Chhattisgarh (993) followed by Odisha (980). In the North-Eastern Tribal dominated states, the child sex ratio declined, and the worst situation is in Tripura. In the Northern states like Bihar, Uttar Pradesh, Himachal and Uttarakhand, the child sex ratio & is favourable to males. The condition of Child sex ratio is worst in Jammu & Kashmir and Rajasthan. In the states and UTs, mainly in the predominantly tribal regions of the north-east, sub-Himalayan north, and the middle belt's eastern half encompassing Bihar, Madhya Pradesh, and Orissa, the sex ratio is glaringly female-biased. Sex-selective migration may be blamed for the sex ratio, while genetic influences cannot be ruled out. Migration across Indian states is predominately male-biased, and it is thought to be one of the critical factors affecting the distribution of sexes in society.

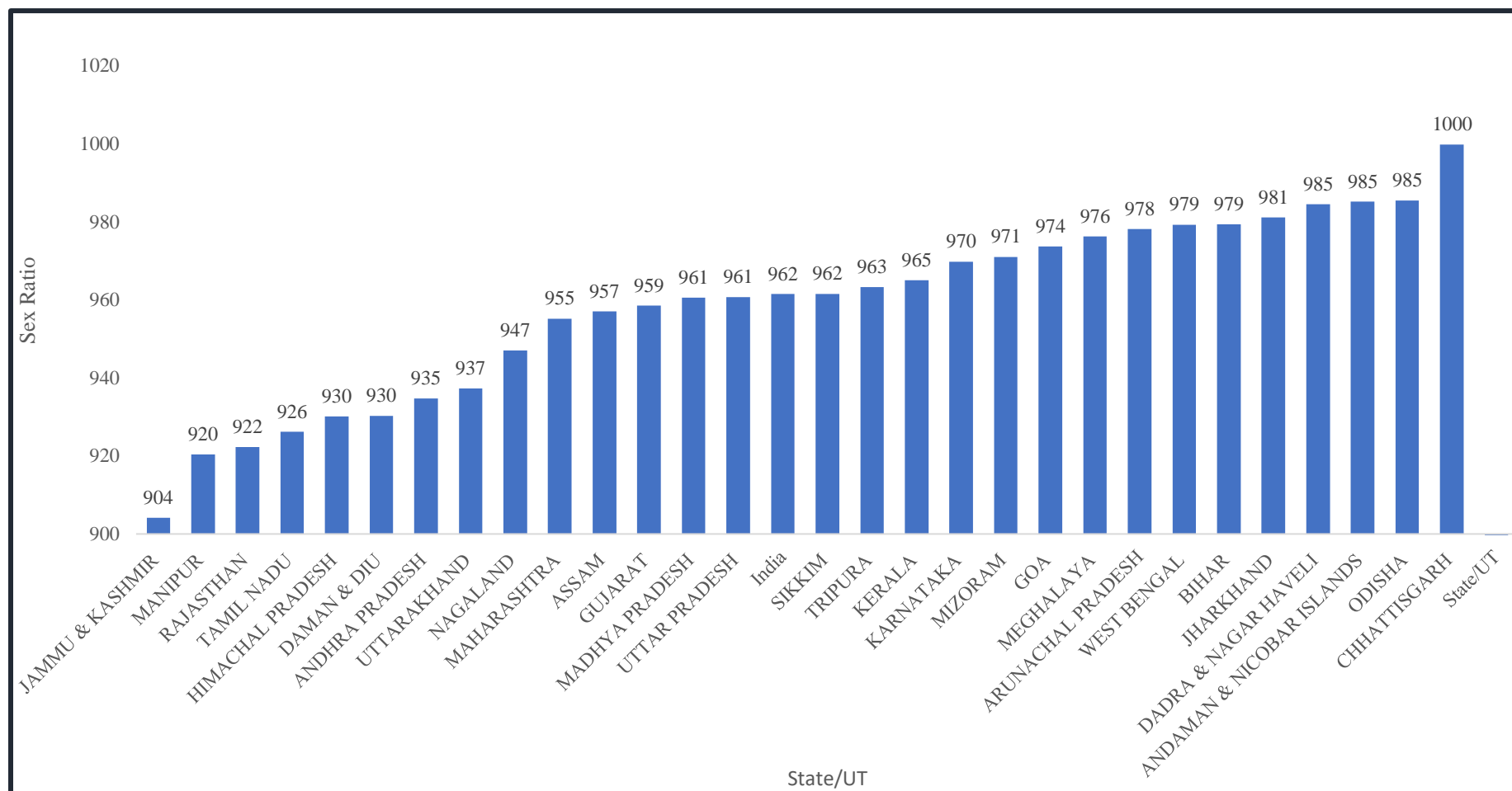
Map 3. 5. Child Sex Ratio of ST Population in Indian states, 2011.



*\*Prepared by the author*



**Graph 3.9. Child Sex Ratio of ST Population in Indian states, 2011**



*\*Prepared by the author*

### **3.3. Discussion**

We have attempted to demonstrate the population history of the Tribal people in India. There is a state-wise variance in the distribution of the Scheduled Tribe population in India. Tribal preferred to be clustered in forest-dominated areas than the plain alluvial areas. The previous studies also support these findings (Raja & Ahamad, 1990). Uttar Pradesh, Haryana, Punjab, Delhi, and the states and the UT have a high percentage of alluvial plains suitable for agriculture. However, neither have any tribal residents, nor do they make up a significant portion of the population. The Scheduled Tribe population as a percentage of the total population is significantly lower in all of these states than nationwide. The states, West Bengal and Assam, which are also geographically well suited for the country's plains and yet have a tribal proportion that is either equal to or slightly higher than the national average, are anomalous cases. The highest increase in percentage share of ST population to total population happened between 1971 and 1981 census, and it was around 1% and lowest in between 1991 and 2001 census. In the 1961 census, the percentage share was 6.86%, but now it is 8.63%.

In 1961 the total population of India was 439234771, and the tribal population was 30131505. In fifty years, the population tripled both in absolute and tribal people. There was a sharp increase in the decadal growth rate of the Scheduled Tribe population between 1971 & 1981. The decline in the decadal growth rate is not uniform. The previous studies also supported these findings (Ministry of Tribal Affairs, 2019)

The decadal growth rates are not homogenous throughout the decades. Like the total population growth, it also follows the exponential growth rate. However, in some states, there is sharp growth in the Scheduled Tribe population because of Government notification for notifying the particular

groups as Schedule Tribe population.

The proportion of the young population of ST increased in the last census interval, and the size of the working-age population also increased. There is a tendency to narrow the base of the age-sex pyramid of the Scheduled Tribe population. These show an improvement in life expectancy and a decline in mortality rate.

The overall sex ratio of the Scheduled Tribe population is higher than any other caste group or the general population. The sex ratio ranges from 924 to 1046 in the states of Goa, Arunachal Pradesh, Mizoram, Manipur, Nagaland and Tripura.

Moreover, this chapter tries to explain the long-term population trends and health indicators of the Scheduled Tribe population. However, because of the volatile definition of the Scheduled Tribe, it becomes difficult to show a proper natural demographic trend of the population indicators. The study findings provide a way forward for rethinking the importance of the demographic journey of the population to the total Indian population.

A decorative border in blue ink, resembling a scroll, frames the central text. It has rounded corners and a vertical strip on the left side that looks like a scroll's edge.

## **CHAPTER – FOUR**

**Trends in fertility and mortality among Scheduled  
Tribe population in India, 1992 to 2022**

## **4. Trends in fertility and mortality among Scheduled Tribe population in India, 1992 to 2022**

### **4.1. Introduction**

The fertility and mortality indicators are crucial for tracking the Sustainable Development Indicators (UN, 2019). Fertility and mortality patterns explain the growth story and demographic transition of that population (Training Manual on Demographic Techniques, 2016). The improvement in the fertility and mortality indicators are generally tracked by the hands such as Under Five Mortality, Infant Mortality Rate (IMR), Crude Death Rate (CDR), Crude Birth Rate (CBR), Total Fertility Rate, Life Expectancy at Birth, etc. Most high-income and low-income countries had high fertility and mortality rates, low levels of life expectancy and low levels of female education and contraceptive awareness. Over the years, all these countries, including India, have experienced an improvement in the fertility and mortality indicators (Dyson, 2002).

The tribal fertility in India is higher than the TFR for India despite more than 50 years of our nation having an anticatalytic stance. Early childbearing rates in India are consistently high, particularly for women from underprivileged socio-economic origins, caste minorities, and ethnic minorities. The National Family and Health Survey (NFHS-5) data analysis shows that rural women, Scheduled Tribes (ST) members, and those from low-income households were more likely to have given birth before 18. Compared to Scheduled Caste (SC), Other Backward Classes (OBC), and general category, ST rural women had more excellent fertility rates. Couples in indigenous populations report the lowest rates of contraception usage in India.

However, neither the gender disparity in child mortality indicators, a key SDG issue, nor the

district-level NMR and U5MR or Infant Mortality relevant to the SDG3 target on avoidable deaths among newborns and children was covered in this study. The current work significantly contributes to our understanding of the trends and in-depth analysis of Total Fertility NMR, U5MR and Infant Mortality rate in India, focusing on the Scheduled Tribes population only and its comparison with the other groups. We have also explored the impact of socio-economic indicators on the targeted variables like Under Five Mortality and Total Fertility Rate within the Schedule Tribe Population.

Sustainable Development goals aspire to lower the Under\_5 mortality, Infant Mortality and Neonatal Mortality in the world and India. The National Health Policy-2017 also aims to minimise the Under-5 mortality as soon as possible. In the international campaign to eliminate the needless mortality of children under the age of five, India will play a crucial role in reducing the world level Under\_5 mortality, Infant Mortality and Neonatal Mortality rates because the highest number of this mortality happened in India. In contrast to the Millennium Development Goals (MDGs), the SDGs are also inclusive of all regions of the nation and are target-oriented. There prevails a high-level difference in the caste group's Neonatal, Infant and Under-five mortalities.

## 4.2. Results

Table 4.1 shows that there is a decreasing trend in the overall total fertility rate in India. In 1992 the total fertility rate was very high for all caste groups, above 3.50. The slow-down rate of TFR is not uniform for all caste groups. The highest slowdown in total fertility rate happened for the SC caste group, followed by the ST population. The total fertility rate of the SC population was 3.92 in 1992 and decreased to 2.08 in 2020. The total fertility rate of the ST population was 3.55, and it declined to 2.09 in 2020. The highest decrease in TFR happened between 1999 to 2006 for the ST population. Among the caste group ST population still has the highest level of TFR, followed by SC, OBC and other caste groups.

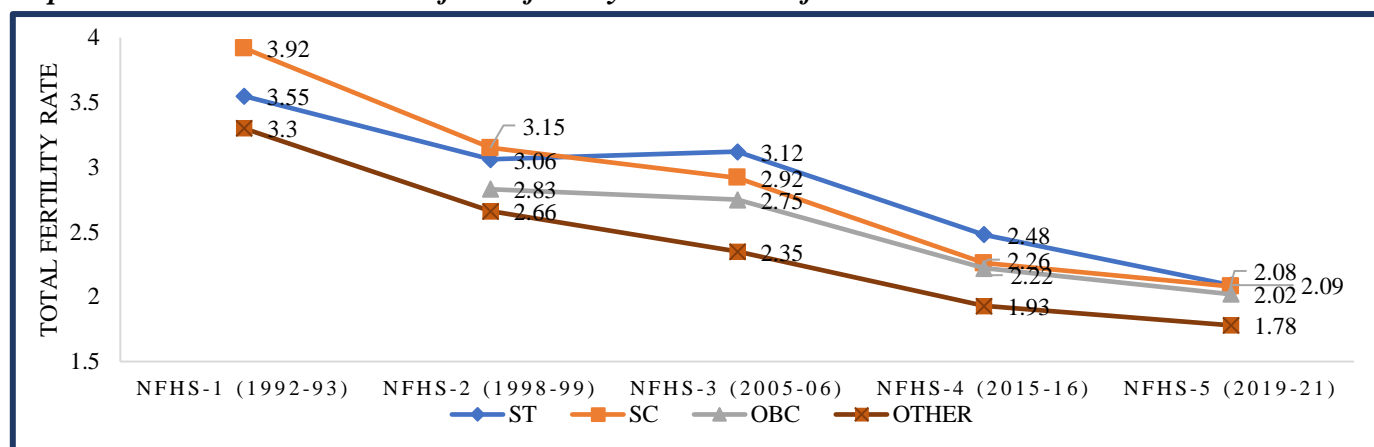
**Table 4.1. The caste-wise trend of total fertility rate in India from 1992 to 2021.**

	NFHS-1	NFHS-2	NFHS-3	NFHS-4	NFHS-5
ST	3.55	3.06	3.12	2.48	2.09
SC	3.92	3.15	2.92	2.26	2.08
OBC		2.83	2.75	2.22	2.02
OTHER	3.3	2.66	2.35	1.93	1.78

Source:

NFHS-1 to NFHS-5 \*Prepared by the author

**Graph 4.1. The caste-wise trend of total fertility rate in India from 1992 to 2021.**



A hypothetical cohort of women would have the average number of children after their reproductive period if they were subjected to the fertility rates of the time throughout their whole lives and were spared from mortality. It is stated in terms of children per woman. The sum of all women's age-specific fertility rates, multiplied by five, represents the total fertility rate. The seven five-year age groups from 15–19 to 45–49 comprise the age-specific fertility rates (WHO, 2022). Table A.9 (Attached in Appendix) and graph 4.2 shows a high-level variance in the TFR among all the states in India in all decades. The decreasing rate of TFR is not uniform throughout the decade among the caste group and states. For the northeastern state, Meghalaya (4.18) had the highest TFR in 2006, and Assam (2.49) had the lowest TFR for the SC population. The decreasing rate of TFR for the North Eastern state is not uniform throughout the decade. The highest decrease happened in Meghalaya, and it is around 1.18 points. Mizoram has the lowest level of TFR among all the North-Eastern states, about 1.5. there still prevails a variance in the TFR level among the caste group in the North-Eastern state majorly ST population has the highest TFR level in all the states, followed by SC, OBC and Others. The highest decrease in TFR in the ST population happened between 2016 to 2020. In some northeastern states like Mizoram, Tripura, Assam, Arunachal Pradesh, and Nagaland, the TFR of the ST population is below replacement level, which is alarming. Only Manipur and Meghalaya have a TFR level above 3.00.

West Bengal has the lowest variation in the TFR among all the caste groups. In 1999 OBC had the lowest total fertility rate among all the caste groups. However, in 2022 the ST population had the lowest TFR among all the caste groups, and it is around 1.42, which is far below than replacement level of TFR. The decreasing rates of TFR are not uniform throughout the decade; the highest decrease in TFR happened for the ST Population. In Jharkhand, the TFR of the ST population was



2.30 in 1999, and it decreased to 2.26. There are insignificant changes in the TFR level of the ST population whether the TFR level of OBC has been reduced more than 1 point in the same time duration followed by SC and Other castes.

Interestingly, the TFR of the ST population has increased from 2.45 to 2.98, while the total fertility rate of other caste groups decreases in the same time interval in Bihar. The highest decrease in TFR happened for the OBC caste group in Bihar. In Orissa, the TFR of the ST population is 2.11, which is the replacement level of fertility; OBC has the lowest level of fertility among all the caste groups. The decreasing rate of TFR is not uniform among the caste group in Orissa. The highest decrease happened for the SC population, around 1 point in Orissa.

The ST population had the highest TFR among all the caste groups in Jammu and Kashmir in 1999. The TFR level has decreased over the period. There has been a drastic decrease in TFR levels among all the caste groups in the last two decades in Jammu and Kashmir. The highest reduction in the total TFR level happened for the ST population, around 2 points, followed by OBC, SC and Others. The current TFR level of all the caste groups is below replacement level, and another caste group has a minor TFR level, followed by SC, ST and OBC. In Himachal Pradesh, the SC caste group has a higher TFR level than ST, followed by others and OBC. The decreasing rate of TFR is highest for the OBC caste group, followed by others, SC and ST. The ST population had the highest TFR level (around 4.18) in 1999, but OBC had the highest total fertility level in 2022 (about 3) in Uttarakhand. The highest level of decrease happened for the ST population, followed by SC and others whether the total fertility rate of OBC increased from 1.83 to 2.13 in

At the same time interval. In 1999 the ST population had the highest level of TFR in Uttar Pradesh, but it decreased over the period and is now 2.72. The trend of reducing TFR levels is not uniform among the caste group. The highest decrease in total fertility level happened for the ST population, followed by SC, OBC and Others. In tribal-dominated Madhya Pradesh, the scheduled type population had a TFR of 3.69 in 1999, but it decreased birth by 2.31 in 2022. There also prevails a high-level difference in the decreasing rate of the total fertility rate; the highest decrease happened for the scheduled caste population, followed by ST, OBC and others. Chhattisgarh has the least TFR among all the central Indian States. In 1999 the other caste population had the lowest TFR, followed by SC, ST and OBC. The highest decrease of TFR happened for the OBC caste, which is above one point, followed by ST, SC and others.

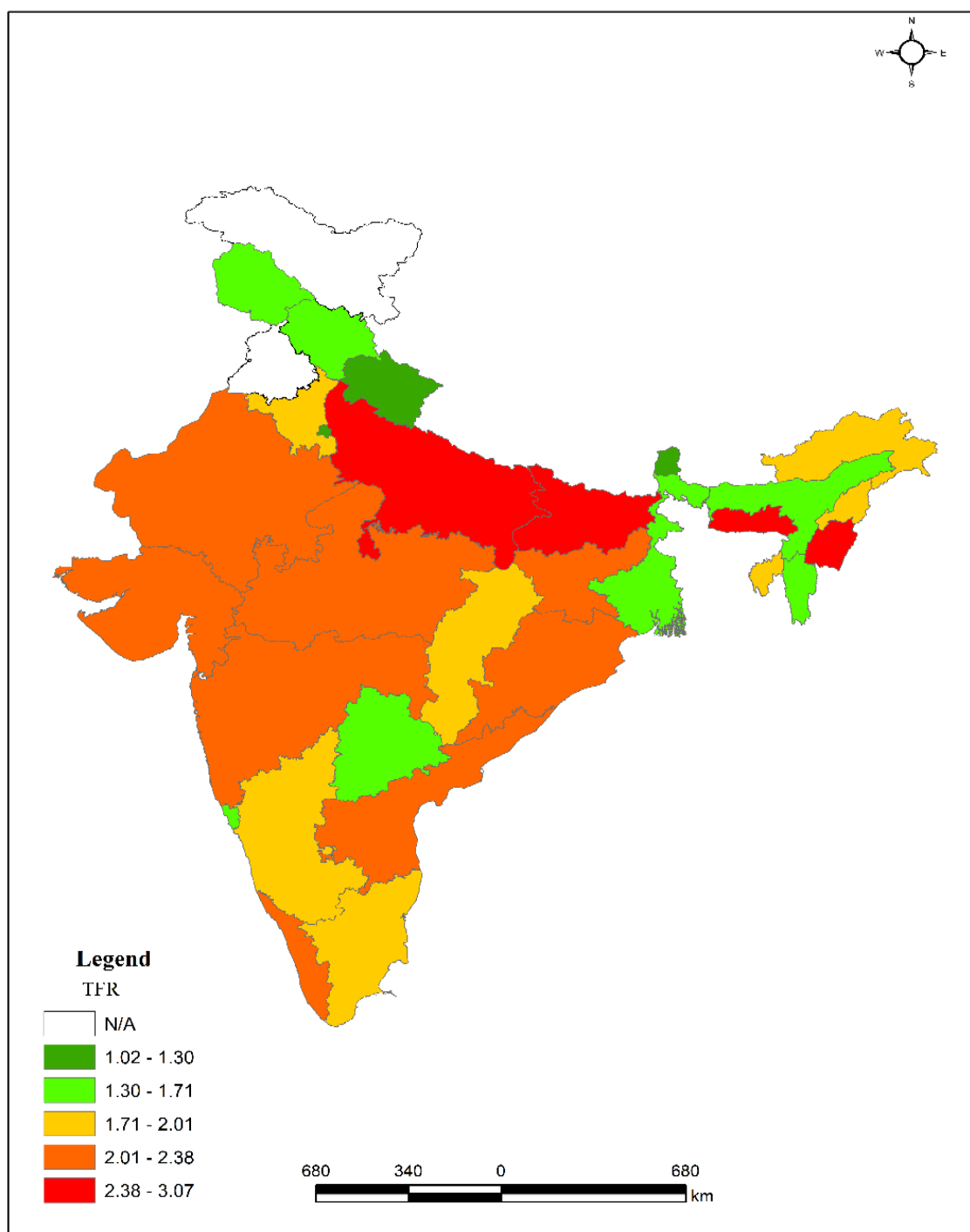
Goa, a state in western India, has the least TFR level of scheduled tribe population, followed by Maharashtra, Gujrat and Rajasthan. The changes in the TFR level are not uniform among the states. The highest decrease in TFR of the ST population happened in Rajasthan, followed by Maharashtra, Gujrat and Goa. In Rajasthan, the TFR of the SC population decreased more rapidly than the ST population, followed by OBC and other caste groups. In Gujrat and Maharashtra, the same trend followed.

Among the southern states of India, Karnataka has the least TFR, which is 1.84, followed by Tamil Nadu, Kerala and Andhra Pradesh. The decreasing rate of TFR is not uniform among the caste group in these southern states. The highest decrease in TFR of the ST population happened in Karnataka, followed by Tamil Nadu, Andhra Pradesh and Kerala. In the case of Kerala, the TFR

The SC population increased over time, reaching 1.61, while in all other southern states, the TFR decreased in the same time interval.

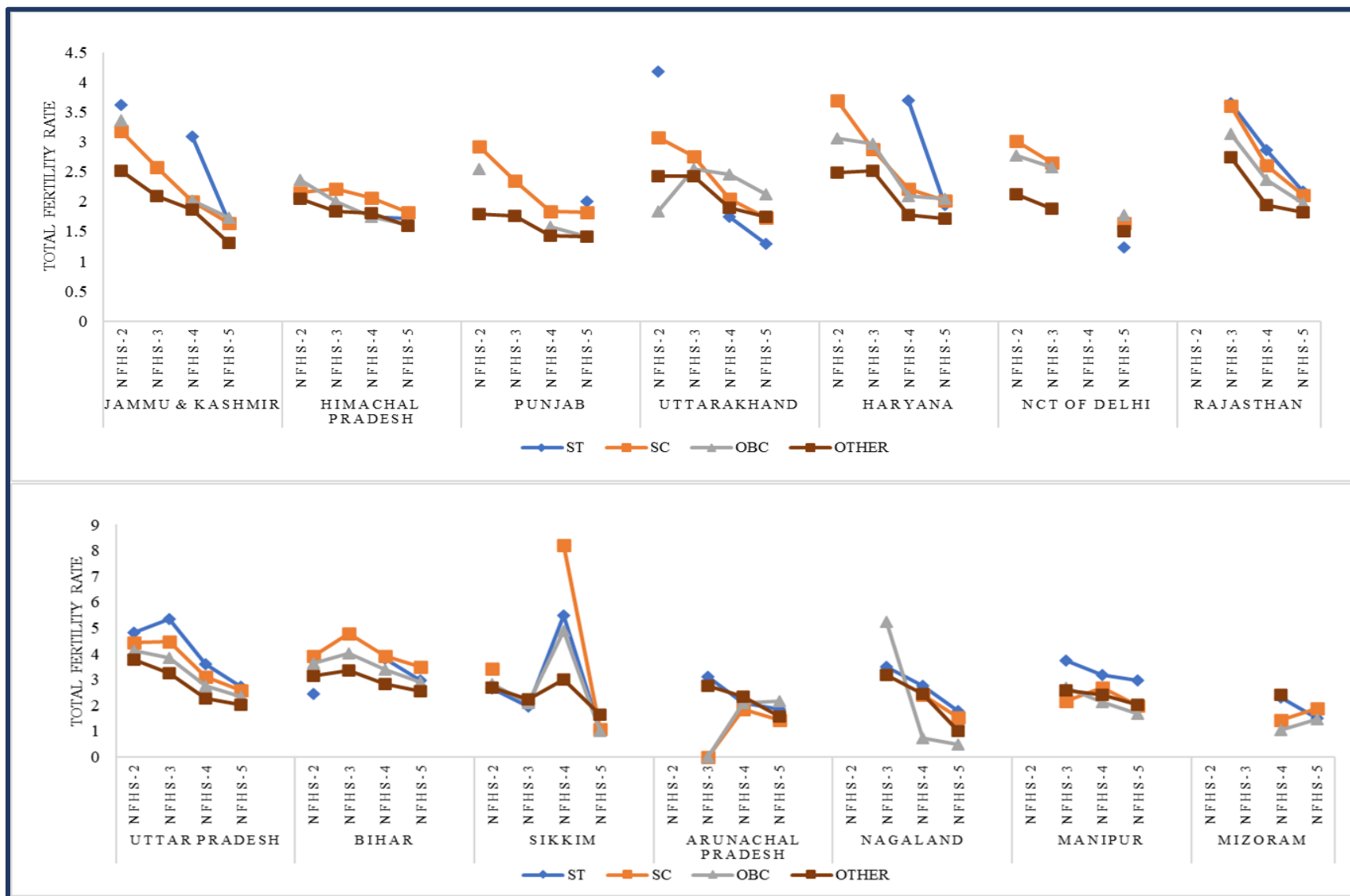
Map 4.1 and Table A.9(Attached in Appendix) show that Meghalaya has the highest TFR of ST population among Indian states, nearly one point higher than the replacement level of fertility. West Bengal has the lowest TFR of ST population level among all states of India, around 1.42. Most alarming is that some states have below the replacement level fertility. So, it will be essential for the Government to track the fertility of the ST population to protect the representative of the ST population to the total population in India.

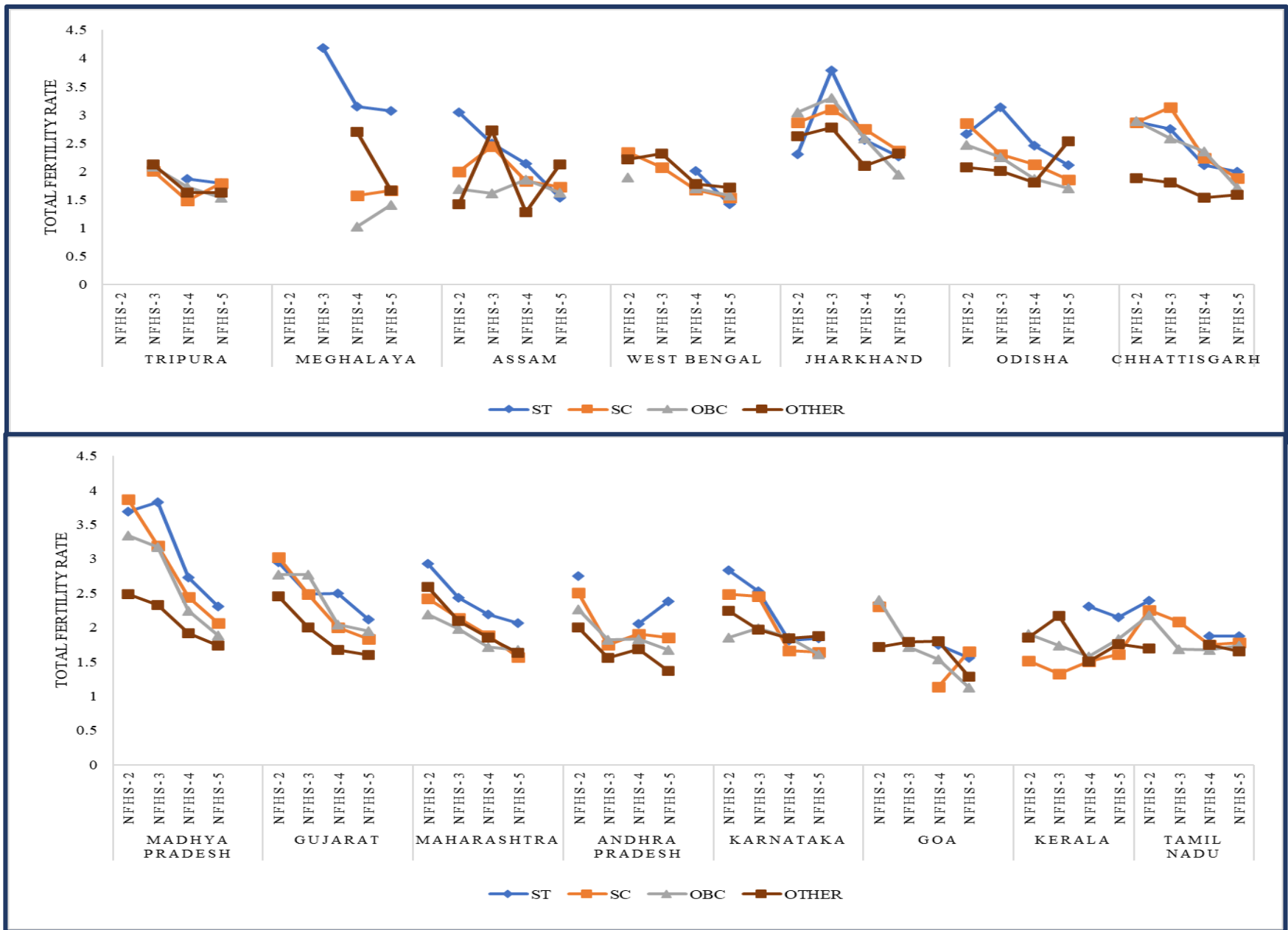
*Map 4.1. State-wise TFR of ST Population (NFHS-5) in India, 2019-2021.*



*\*Prepared by the author*

Graph 4.2. Caste wise trend of total fertility rate in States of India from 1992-2021





## Multivariate Analysis of Total Fertility Rate

Table 4.2 shows the sample description for the NFHS-5 dataset by the socio-economic characteristics of the reproductive-aged women among the caste group. In most of the socio-economic indicators, there is a variance in the sample distribution among the caste groups.

**Table 4. 2. Sample Description of women aged 15-49 years for the Multivariate model of recent fertility [NFHS-5(2019-2021), India]**

Sample Description of women aged 15-49 years for the Multivariate model of recent fertility [NFHS-5(2019-2021), India]								
Indicators	SC		ST		OBC		None of them	
	N	%	N	%	N	%	N	%
<b>Age of the woman (in years)</b>								
15-19	25118	17.95	25563	16.68	48101	17.37	20286	15.21
20-24	24018	17.16	21829	16.14	45868	16.57	20759	15.57
25-29	23008	16.44	23288	17.22	43918	15.86	21527	16.14
30-34	19181	13.7	19191	14.19	37994	13.72	19069	14.3
35-39	18279	13.06	18409	13.61	37364	13.49	18759	14.07
40-44	14668	10.48	14791	10.94	31379	11.33	16366	12.27
45-49	15689	11.21	15168	11.22	32257	11.65	16581	12.43
<b>Woman's level of education</b>								
No education	38027	27.17	37643	27.83	65458	23.64	18141	13.6
Primary	18483	13.21	17760	13.13	31610	11.42	12250	9.19
Secondary	68349	48.84	67918	50.22	140503	50.74	72021	54.01
Higher	15098	10.79	11918	8.81	39310	14.2	30935	23.2
<b>Place of residence</b>								
Urban	32457	23.19	18732	13.85	71910	25.97	45716	34.28
Rural	107500	76.81	116507	86.15	204971	74.03	87631	65.72
<b>Wealth Index</b>								
Poorest	31972	22.84	52658	38.94	45382	16.39	10513	7.88
Poorer	34301	24.51	37459	27.7	59458	21.47	19961	14.97
Middle	31071	22.2	24121	17.84	63602	22.97	25385	19.04
Richer	25042	17.89	14690	10.84	61300	22.14	31532	23.65
Richest	17571	12.55	6311	4.67	47139	17.03	45956	34.46
<b>Told by a health worker about any method of family planning</b>								
Not told	47896	69.38	52042	68.26	90289	67.59	46540	72.05
Yes told	21139	30.62	24203	31.74	43285	32.41	18055	27.95

<b>Husband/ Partner's education level</b>								
No education	3406	21.78	3717	24.66	5344	16.69	1499	10.17
Primary	2470	15.79	2491	16.53	4436	13.86	1354	9.19
Secondary	8030	51.35	7465	49.54	17554	54.83	8342	56.61
Higher	1680	10.74	1306	8.67	4584	14.32	3506	23.79

*Source: NFHS – 5 (Author's calculation)*

The Table 4.3. shows that the Total fertility level of 20-24 aged group woman is 188% higher than the 15-19 age group for the SC caste (which is highest), followed by ST, OBC and other caste groups. And with the increasing age of the woman (shifting to the cohort of higher age group), the percentage decreases and after 30+ age group, it diminishes for all the caste groups; in other words, the net effect of age on fertility is harmful after a certain period. The TFR level of the age group 45-49 (women) ST population is higher than the other caste groups. The net effect of women's education on the TFR is negative. The TFR of the higher education woman is 19% less than the non-educated woman cohort, followed by other OBC and SC caste groups. The impact of education on fertility reduction is the highest among the Scheduled Tribe women. The woman from the rural background has 135% higher TFR than the Urban woman group of the Scheduled Caste woman, followed by the ST, OBC and others. The TFR of the wealthiest cohort of the Scheduled Tribe woman is 55% less than the poorest (wealth\_Index) cohort of women, followed by other OBC and SC caste groups. The TFR of the women group who were not informed about the family planning methods has a 135% higher TFR level than the declared group, and this percentage is highest for the SC caste, followed by the rest caste groups.



**Table 4.3. Multivariate analysis of Total Fertility Rate among the caste group in India in 2021**

<b>Multivariate analysis of Total Fertility Rate</b>				
<b>Age of the woman (in years)</b>	<b>SC</b>	<b>ST</b>	<b>OBC</b>	<b>None of the above</b>
<b>15-19@</b>				
20-24	1.881536***	1.8156538***	1.6394583***	1.6395193***
25-29	1.5027957***	1.4693716***	1.2696741**	1.2216252
30-34	0.95780951	1.1601186	0.87953159	0.73814902
35-39	.61402923*	0.85237575	.50575815***	.40961707***
40-44	.21918054***	0.74178464	.13528558***	.12538715***
45-49	.04381457***	0.67596275	.16079407**	.00226538**
<b>Woman's level of education</b>				
No education	.8243837**	.8878601*	0.93023571	.77072461**
Primary	.82487597***	.88362172**	0.94524305	.76944357***
Secondary	0.88715452	.81074557*	0.89332551	0.84895954
<b>Higher education @</b>				
<b>Place of residence</b>				
<b>Urban@</b>				
Rural	1.3513271***	1.2007842**	1.0732775	1.0945849
<b>Wealth Index</b>				
<b>Poorest@</b>				
Poorer	.89960481*	0.95212718	.84150141***	.83915037*
Middle	0.90461791	.66852469***	.75001798***	0.85714474
Richer	.65083337***	0.91127013	.72317332***	.73062111***
Richest	.71649588***	.45031205***	.67694165***	.63774909***
<b>Told by a health worker about any method of family planning</b>				
Not told	1.3259871***	1.2143427***	1.2174043***	1.2156473***
<b>Yes told@</b>				
<b>Husband/Partner's education level</b>				
No education	1.0239911	.88339015*	0.96436157	0.94399261
incomplete Primary@				
incomplete Secondary	1.0210262	.88858263**	.87956081**	0.88523306
Complete secondary	.61047012*	0.97838457	0.90239957	.40284064***
higher	0.9077119	1.0084659	.86583755**	0.85666488
* p<.1; ** p<.05; *** p<.01				
@	Reference category			
####	Rate ratios of explanatory variables-Assumption of constant age fertility schedule.			

## **Trends in Mortality among Scheduled tribe population in India,1992-2021**

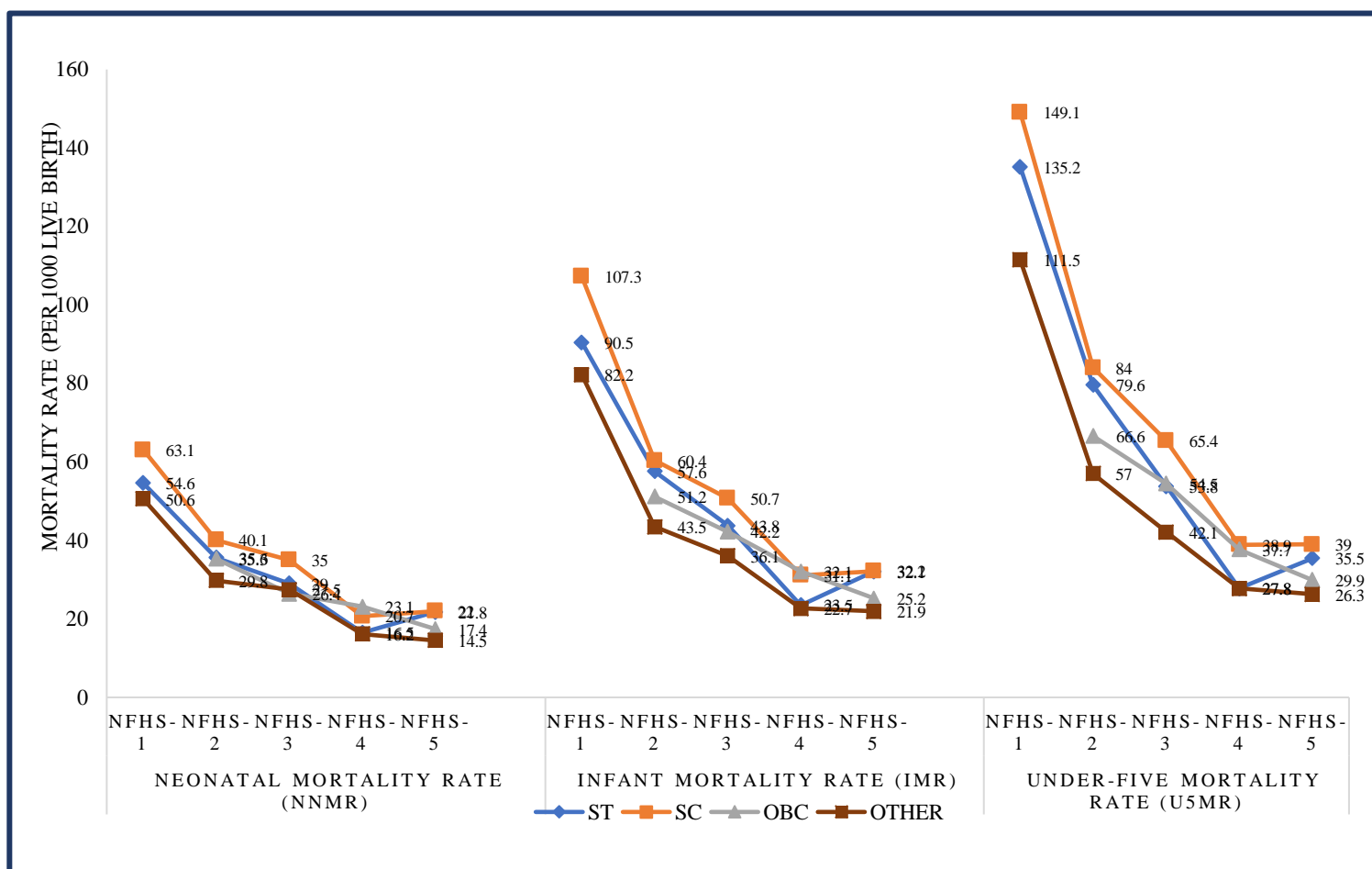
The neonatal, infant and under-five mortality rates per 1000 live birth in India across the caste and tribes. Table.A.9 shows that the decline in neonatal mortality rate can be seen in all the caste/tribes. It is declined from 54.6 per thousand live birth in 1992 to 21.8 per thousand live birth in 2021 for the ST population, 63.1 per thousand live birth in 1992 to 22 per thousand live birth in 2021 for the SC population, 35.3 per thousand live birth in 1998 to 17.4 per thousand live birth in 2021 for OBC population and 50.6 per thousand live birth in 1992 to 14.5 per thousand live birth in 2021 for others. Similarly, the infant mortality rate also shows a declining trend from NFHS-1 to NFHS-5. The infant mortality rate was 57.6 per thousand live birth for the ST population in 1992, and it declined to 32.1 per thousand live birth in 2021. While for SC, OBC and others, infant mortality has declined from 107.3 per thousand live birth to 32.2 per thousand live birth, 51.2 per thousand live birth (during NFHS-2) to 25.2 per thousand live birth and 82.2 per thousand live birth to 21.9 per thousand live birth respectively from NFHS-1 to NFHS-5. The under-five mortality has also been declining since NFHS-1. It was 135.2 per thousand live birth for ST, 149.1 per thousand live birth for SC, 66.6 per thousand live birth for OBC (during NFHS-2) and 111.5 per thousand live birth for others in 1992 during NFHS-1. While it came down to 35.5, 39, 29.9 and 26.3 per thousand live birth during NFHS-5 for ST, SC, OBC and others, respectively. However, the mortality rates for the ST population were consistently higher than OBC and others in all the rounds of NFHS.

**Table 4.3. Child Mortality Rates among different caste/tribes in India since 1992**

Caste/tribe	Neonatal mortality rate (NNMR)					Infant mortality rate (IMR)					Under-five mortality rate (U5MR)				
	NFHS-1	NFHS-2	NFHS-3	NFHS-4	NFHS-5	NFHS-1	NFHS-2	NFHS-3	NFHS-4	NFHS-5	NFHS-1	NFHS-2	NFHS-3	NFHS-4	NFHS-5
ST	54.6	35.6	29	16.5	21.8	90.5	57.6	43.8	23.5	32.1	135.2	79.6	53.8	27.8	35.5
SC	63.1	40.1	35	20.7	22	107.3	60.4	50.7	31.1	32.2	149.1	84	65.4	38.9	39
OBC		35.3	26.4	23.1	17.4		51.2	42.2	32.1	25.2		66.6	54.5	37.7	29.9
OTHER	50.6	29.8	27.5	16.2	14.5	82.2	43.5	36.1	22.7	21.9	111.5	57	42.1	27.8	26.3

Source: NFHS 1-5.

**Graph 4.3. Child Mortality Rates among different caste/tribe**



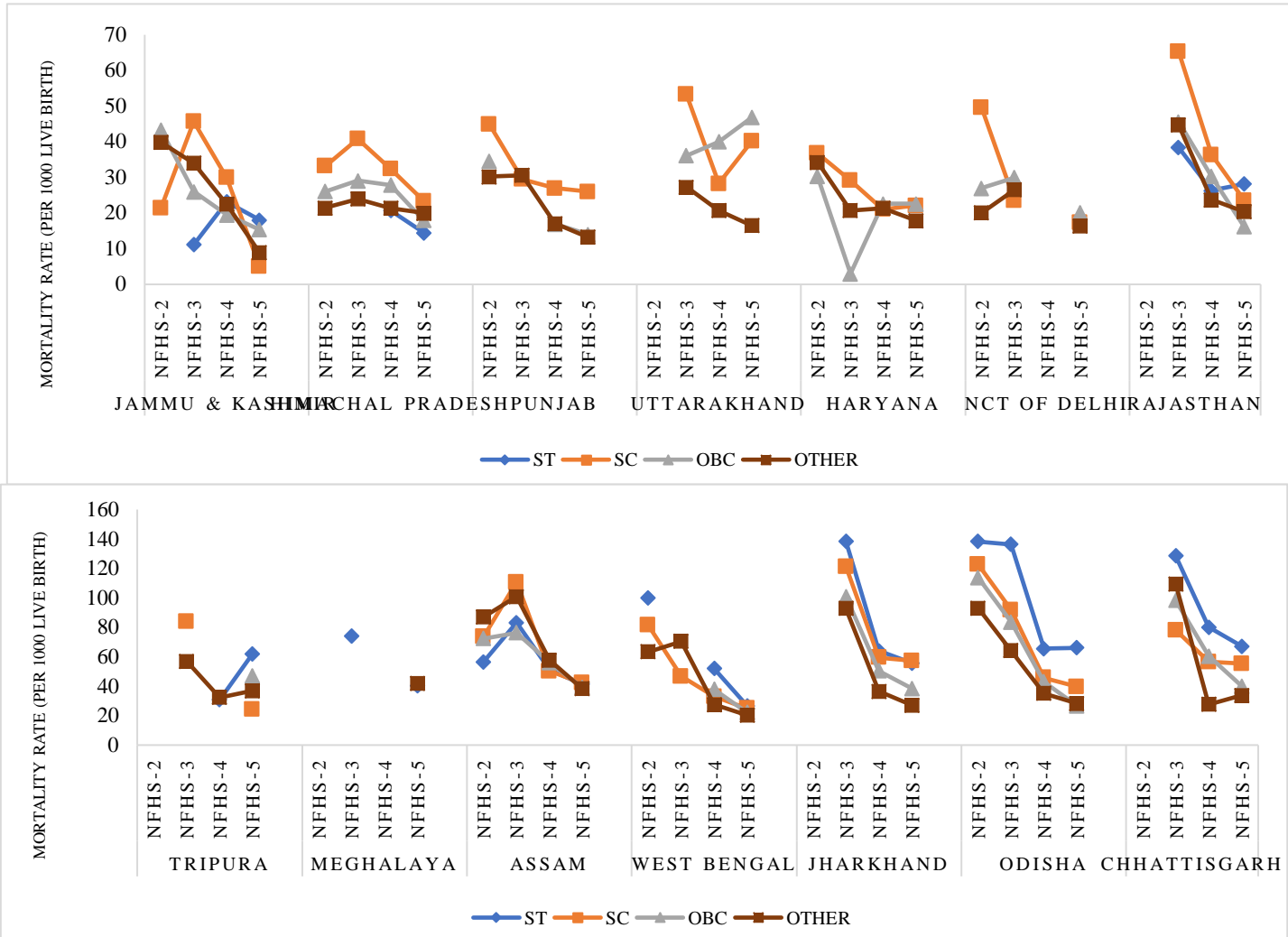
\*Prepared by the author

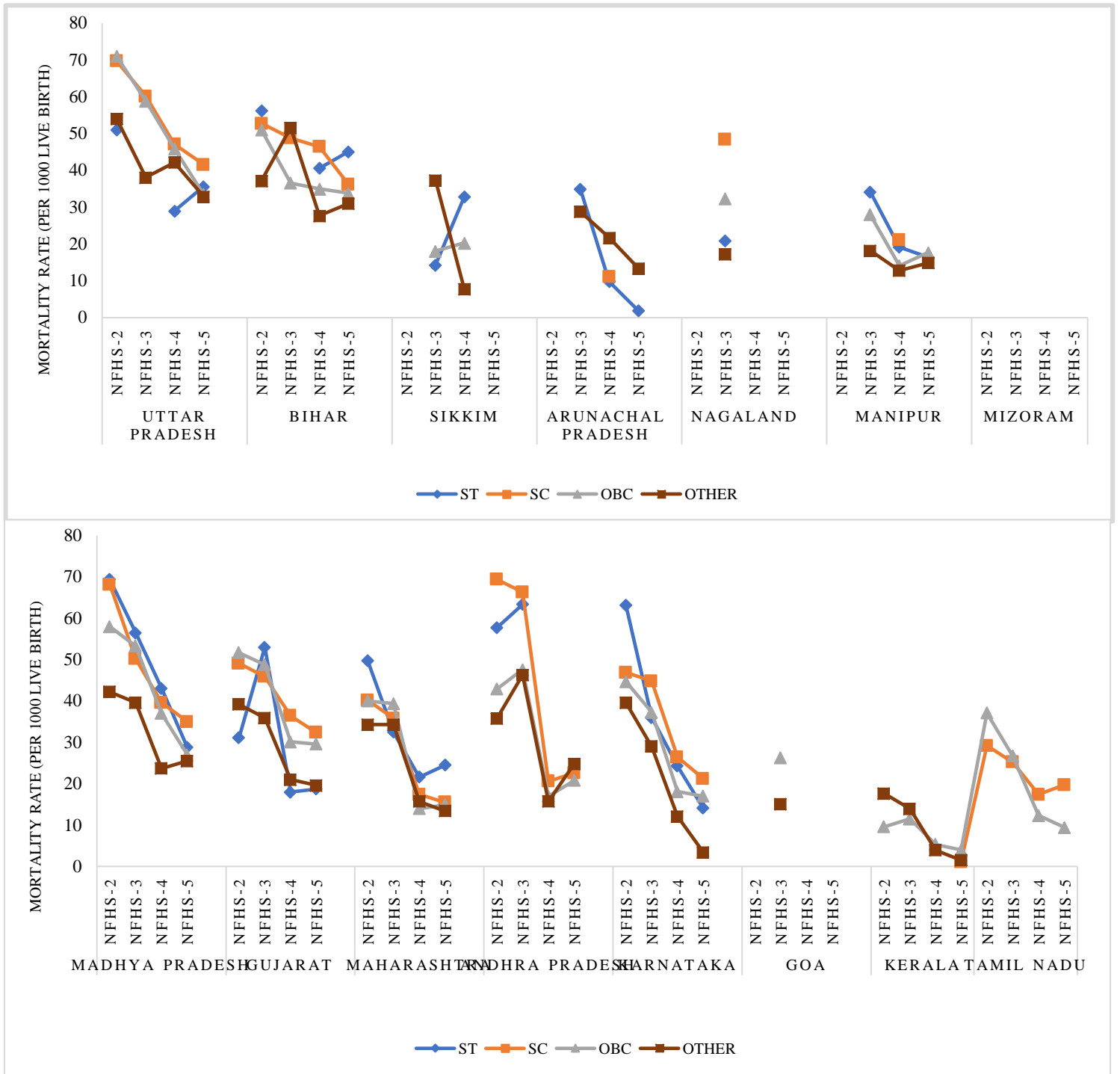
## **Neonatal Mortality**

The neonatal mortality rate in Jammu & Kashmir varied from 2005-06, 2015-16 and from 2019-21. It was 11.2, 23.3 and 18.1 respectively. The neonatal mortality rate was highest in 2005-06 for the SC population, and is reduced to a large extent and reached 5.1 in 2019-21. For Himachal Pradesh, the NMR was 21.7 and 14.5 during NFHS-4 and NFHS-5, respectively. The latest available survey of NFHS-5 data reveals that the highest NMR is observed in the SC population (23.4), followed by others (20) and OBC (18). In 2005-06 highest NMR in Rajasthan was recorded among the SC population, which was 65.3. among all social groups, NMR was reduced substantially. The SC population recorded the highest decrease from 2005-06. Among tribal groups of Rajasthan, NMR declined from 38.4 to 28.2 during 2005-06 to 2019-21. In Uttar Pradesh, NMR in 1998-99 was 51.1, reduced to 29 and 35.6 in 2015-16 and 2019-21, respectively. The highest NMR was found in the SC population in 1998-99 (69.7), which reduced up to a great extent and reached 41.6 in 2019-21. For all social groups, NMR was more significant than the ST population in all the rounds except in the year 2019-21, in which the NMR of OBC and others was lower than the ST population. In Bihar also, NMR is relatively high for the ST population. Survey results reveal that it reduced from 56.3 in 1998-99 to 45.1 in 2019-21. The current situation in Bihar state that NMR for ST is highest among all the social groups. A north-eastern state like Arunachal Pradesh experienced low NMR compared to the northern states of India. In Arunachal Pradesh, NMR was 34.9, 9.8 and 1.9 for the ST population during NFHS-3,4 and five, respectively. Also, NMR was the lowest among all social groups. In 2005-06 NMR in Nagaland was highest for the SC population, while the ST population was in third place with an NMR of 20.9. In Manipur, NMR for the ST population was observed to be 34.2, 19.2 and 16.4 during NFHS-3, 4 and 5, respectively, slightly higher than other social groups. Among all north-eastern states, in 2005-06, the highest NMR for ST population was recorded in Tripura (44.8). Unlike other states in 2019-21, the lowest NMR was recorded in the SC population (12.3), which was about half of the NMR of the ST population and three-time lower than the OBC population. In Meghalaya, NMR is 20.3, reduced by 3.6 since 2005-06. For Assam state, a declining trend of NMR has been recorded since 2005-06 and declined to 16.2 in 2019-21. The NMR is lower for the ST population than for other social groups in the state. In 1998-99 NMR of West Bengal was 58.3, which was

reduced to 23.7 in 2019-21. Over the years, NMR for all social groups has declined; however, the highest reduction was observed in the ST population, about 34.6.

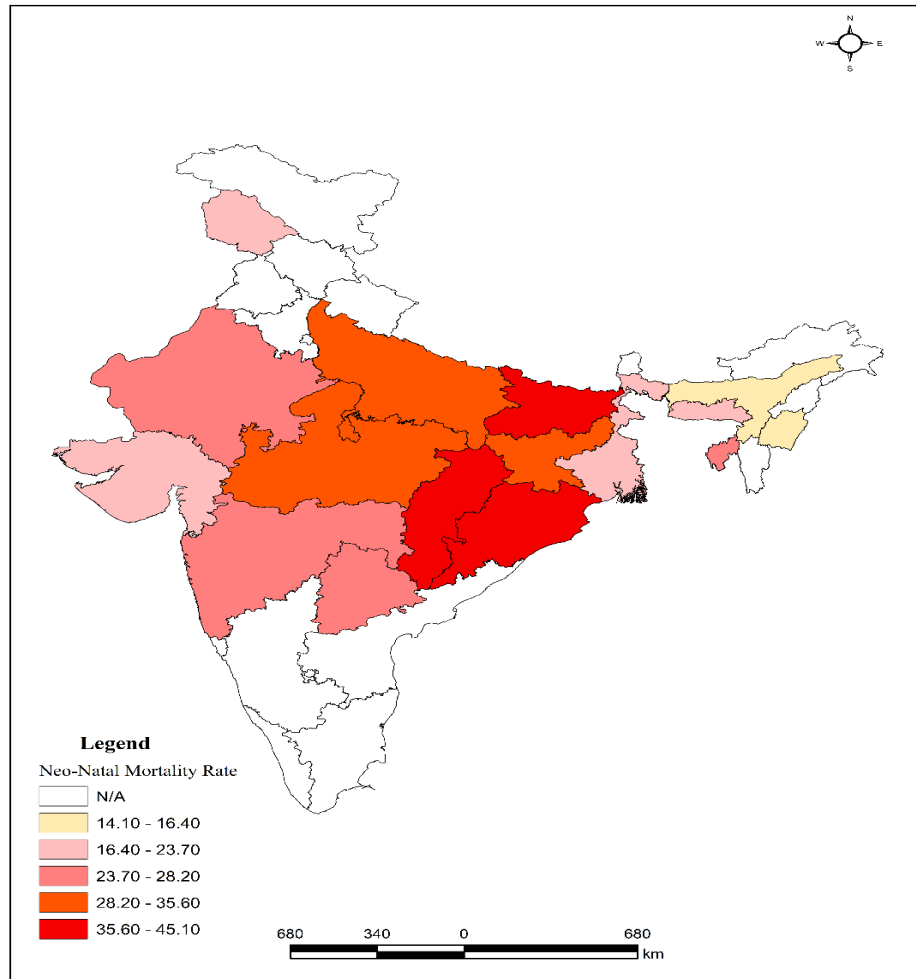
**Graph 4.4. State-wise Neonatal Mortality Rate of ST population in India since 1992**





\*Prepared by the author

**Map 4.2. The neonatal Mortality rate of Scheduled Tribes population in Indian states,2021**



*\*Prepared by the author*

### **Infant Mortality of ST population in India**

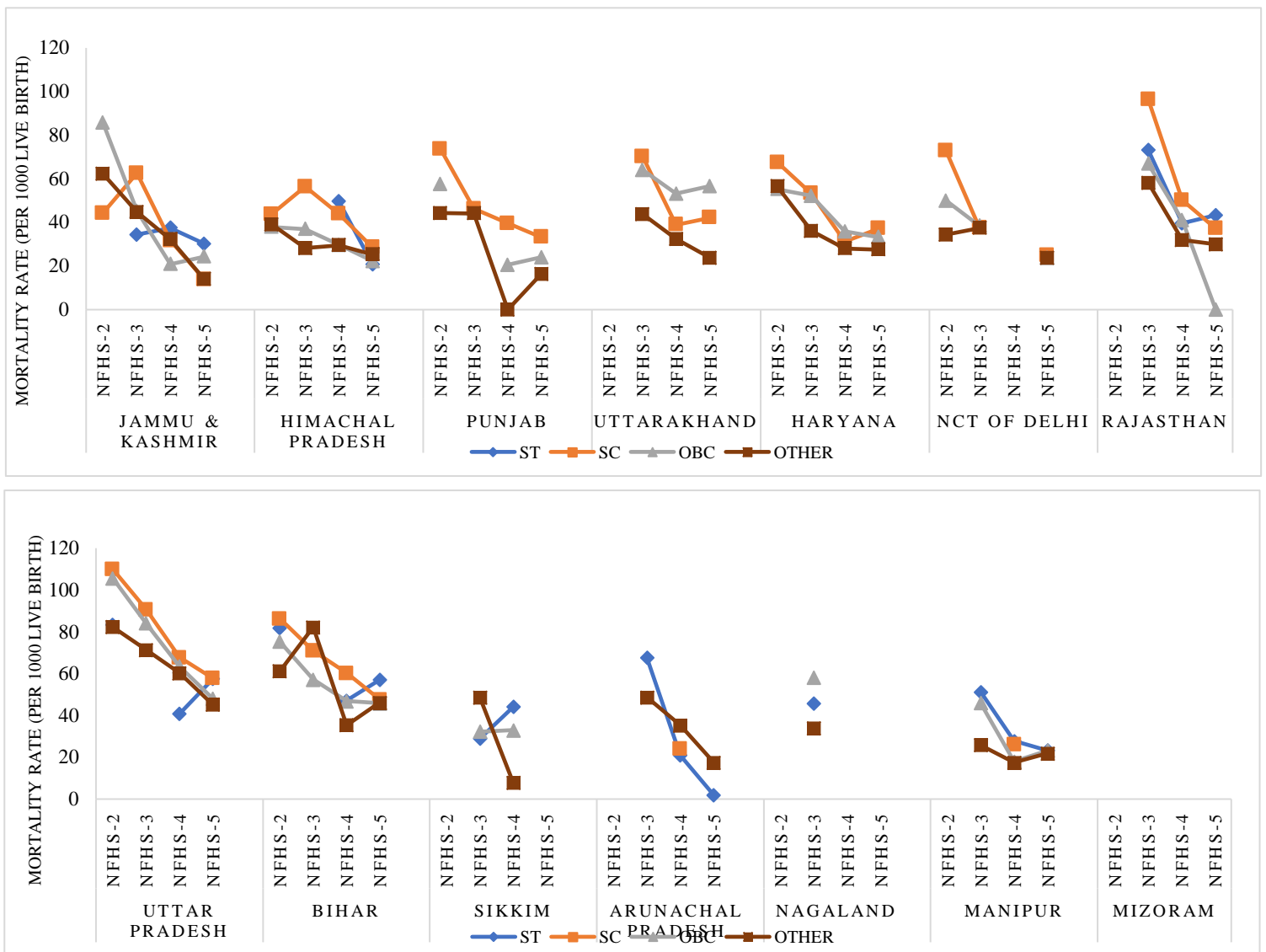
In Jammu & Kashmir, 2005-06, IMR for ST was 34.3, which was reduced to 30.1 in 2019-21. In 1998-99 highest IMR was recorded at 85.7 for OBC. Currently, IMR for ST is the highest among the all-social groups of Jammu and Kashmir. For Himachal Pradesh, IMR was 20.8, the lowest among all the social groups. IMR in Rajasthan was 43.2 in 2019-21. Which was 73.2 in 2005-06 and 39.5 in 2015-16. A significant decrease in IMR was recorded in the SC population, which

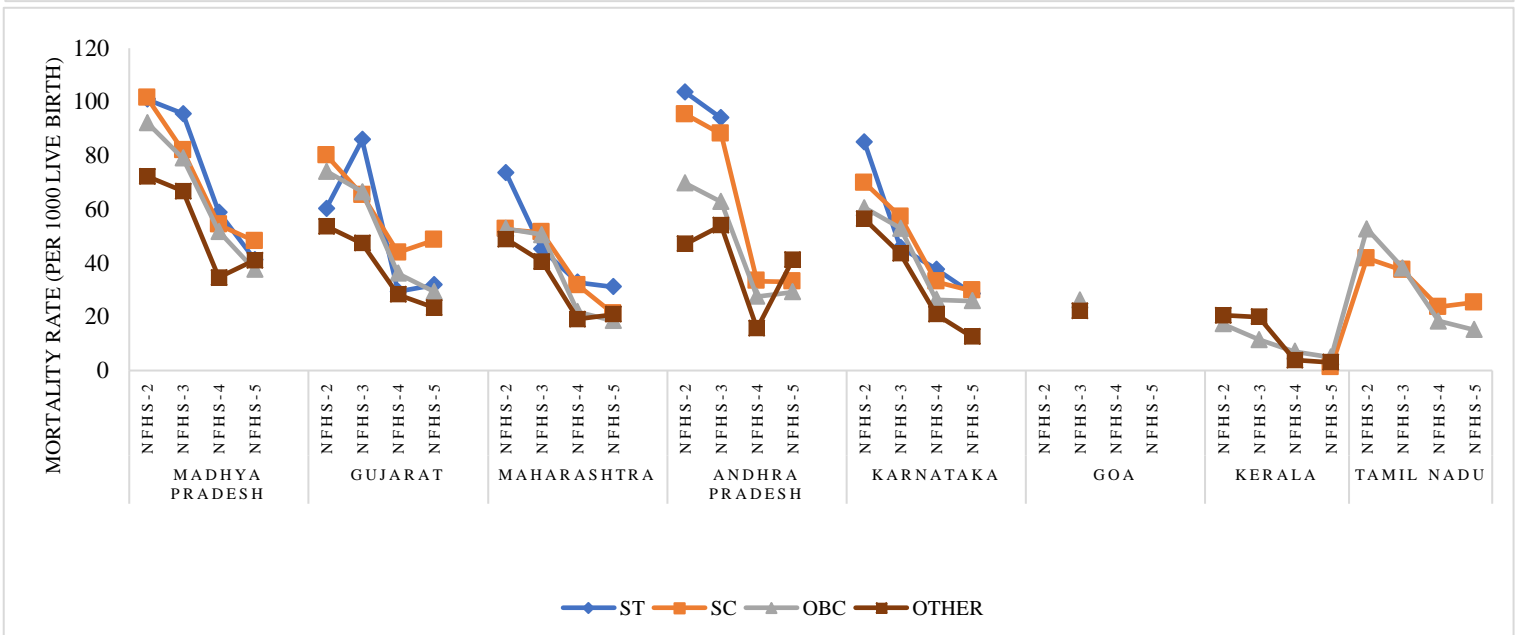
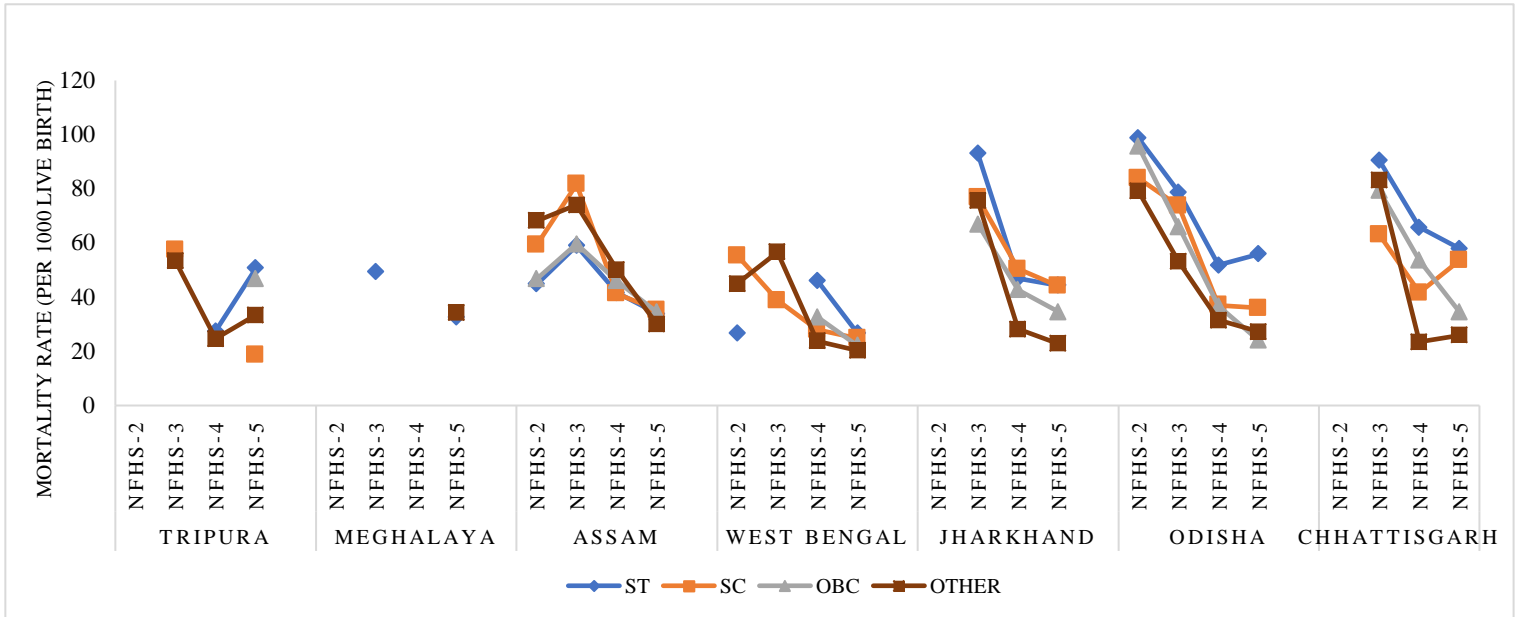
declined from 96.4 to 37.2 from 2005-06 to 2019-21. In Uttar Pradesh, IMR was relatively high in 1998-99, while all groups have recorded a decline in IMR, and for the ST population, it declined from 83.3 to 57.6 from 1998-99 to 2019-21. In Bihar, after 2015-16, IMR increased by 9.9 points which were 47.1 in 2015-16 and 57 in 2019-21. Which was highest among all the social groups. In Sikkim, the IMR was 28.9 in 2005-06 and 44.1 in 2015-16. In Arunachal Pradesh, IMR was 1.9 in 2019-21, which improved to a large extent as it was 67.6 in 2005-06. In 2005-06 IMR was 45.8 in Nagaland. IMR for ST in Manipur was 51.2, 27.8 and 23.1 during NFHS-3, 4 and 5, respectively. In Tripura, the IMR was 27.5 and 50.8 during the fourth and fifth rounds. It was highest for the ST population in 2019-21 among all the social groups. In Meghalaya, the IMR was 49.3 and 32.6 in 2005-06 and 2019-21. In 1998-99 IMR was 44.8 in Assam, which declined to 33.9 in 2019-21. IMR for ST was lower than for all social groups in all the rounds, leaving NFHS-5, in which the IMR for the ST population is lower than SC and OBC but higher than others. For west Bengal, the IMR was 26.8, 46.1 and 26.7 during NFHS-2, 3 and 5, respectively. In 2019-21 the IMR for the ST population was highest among all social groups. In Jharkhand, the IMR has declined from 93 to 44.4 from 1998-99 to 2019-21, which was the highest among all the social groups. In Odisha, we have seen a substantial decrease in IMR from 98.7 to 55.9 from 1998-99 to 2019-21 and remained higher than others. In Chhattisgarh, IMR was always highest for the ST population, which was 90.6, 65.8 and 58 during NFHS-3,4 and five, respectively. In Madhya Pradesh, in 1998-99, the IMR was 101, which declined more than half in 2019-21 and reached 41.3. it remained highest for ST among all social groups leaving the fifth round. In Gujarat, IMR for the ST population was lower than SC and OBC. It was 60.3 in the second round and declined by half in the fifth round (31.9). In 1998-99 IMR of Maharashtra was relatively high, 73.6 that reduced to 31.1 in 2019-21. For the other social groups, it was 21.1, 18.5 and 20.9 for SC, OBC



and other, respectively. Still, there is a wide gap between IMR of another social group and ST. During NFHS-2 and 3, the IMR of Andhra Pradesh was 103.6 and 94.1, respectively. In Karnataka, IMR was 28.7 after significant improvement in health facilities from 1998-99. At that time, IMR was 85. Still, the IMR of the ST population was two and a half times great than other social groups.

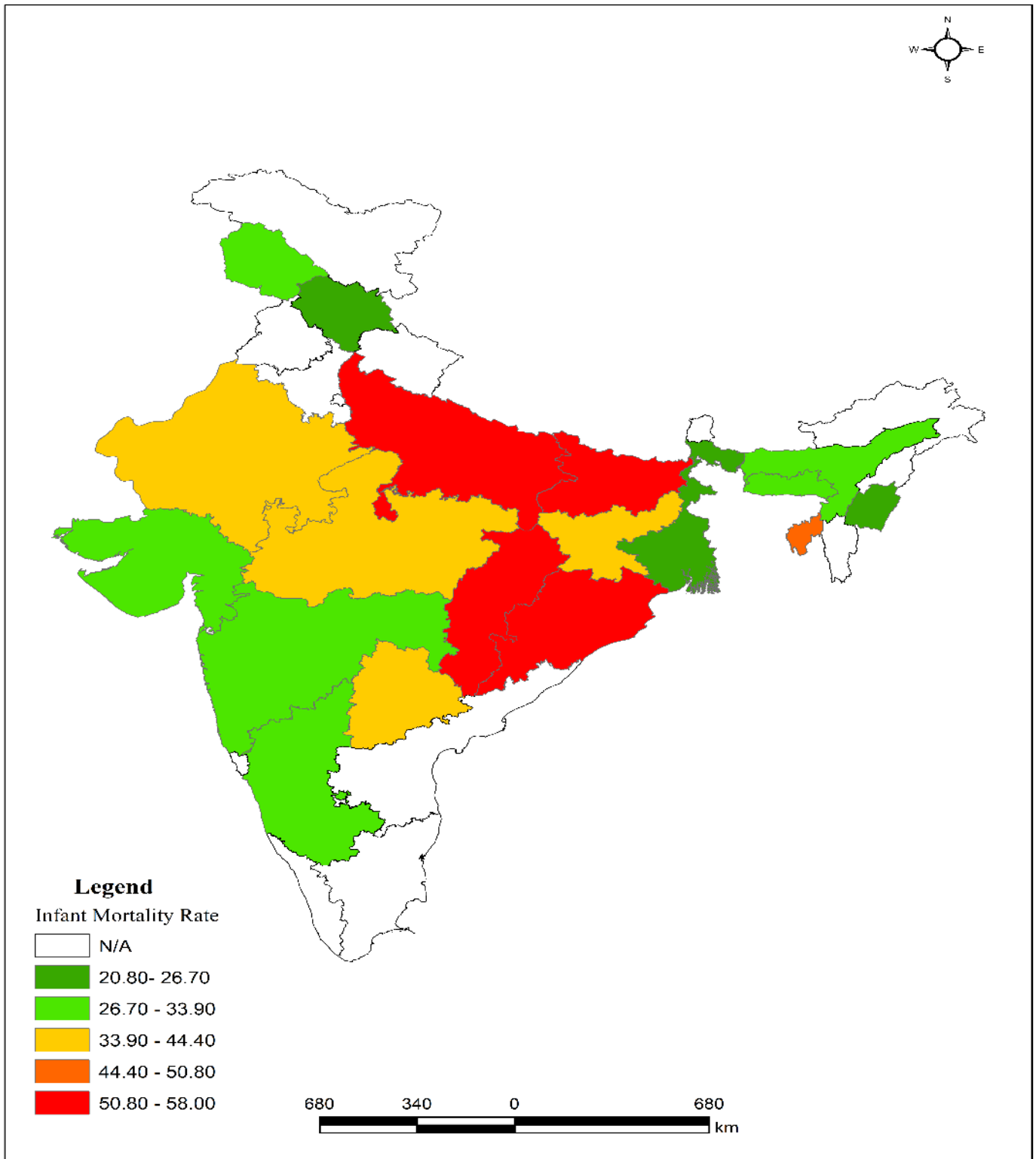
**Graph 4.5. Caste wise Infant Mortality Rate in the States/UT of India (1992-2021)**





\*Prepared by the author

*Map 4.3. Infant Mortality Rate of Scheduled Tribe population in Indian states,2021*

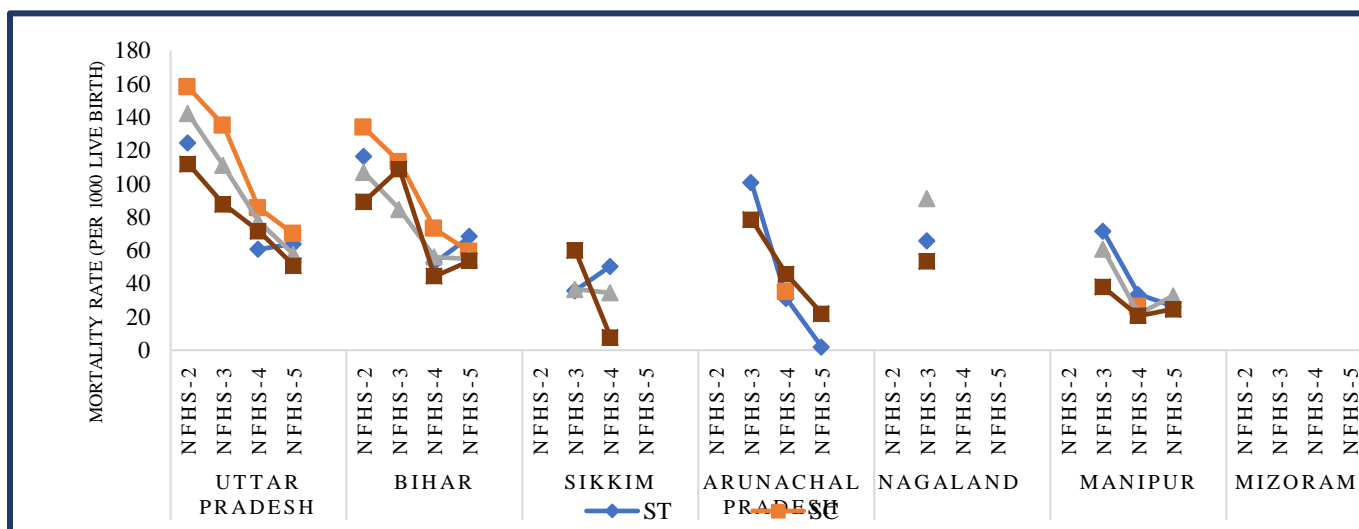


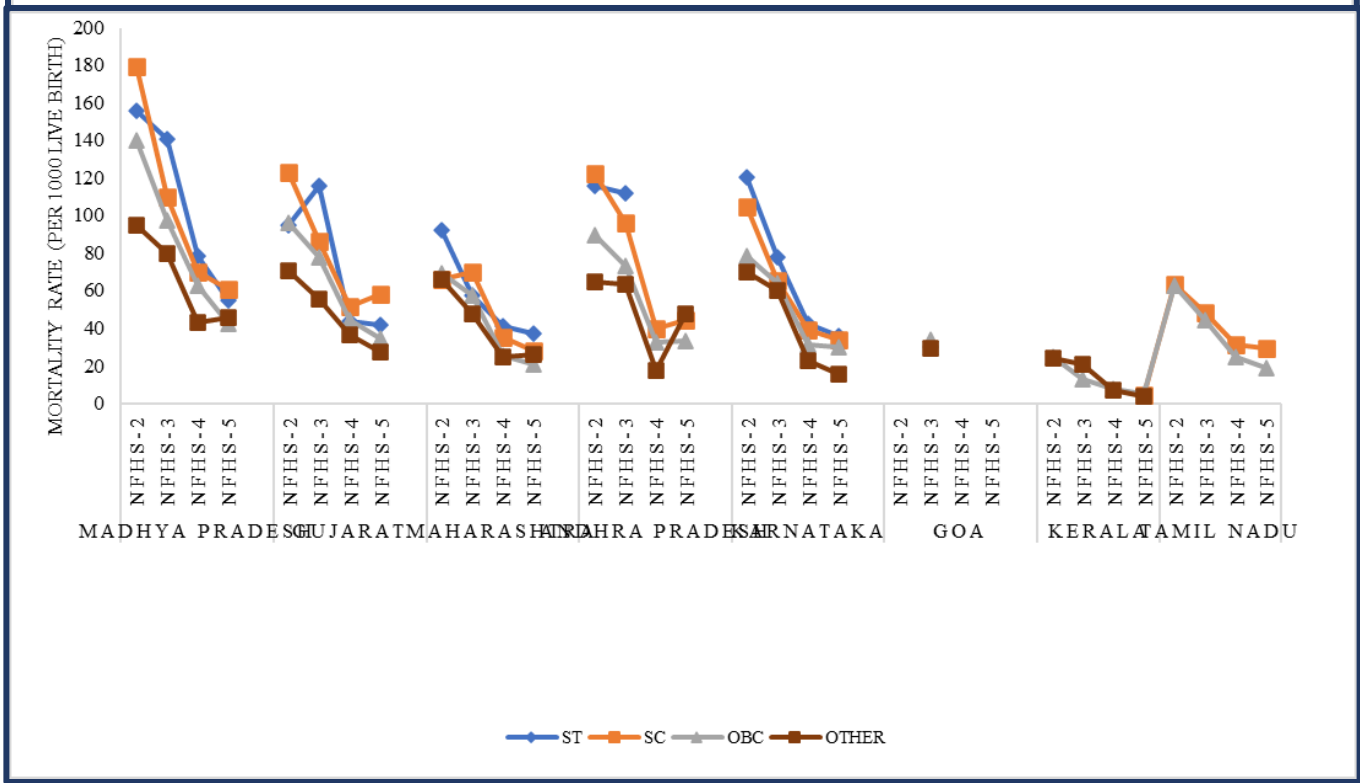
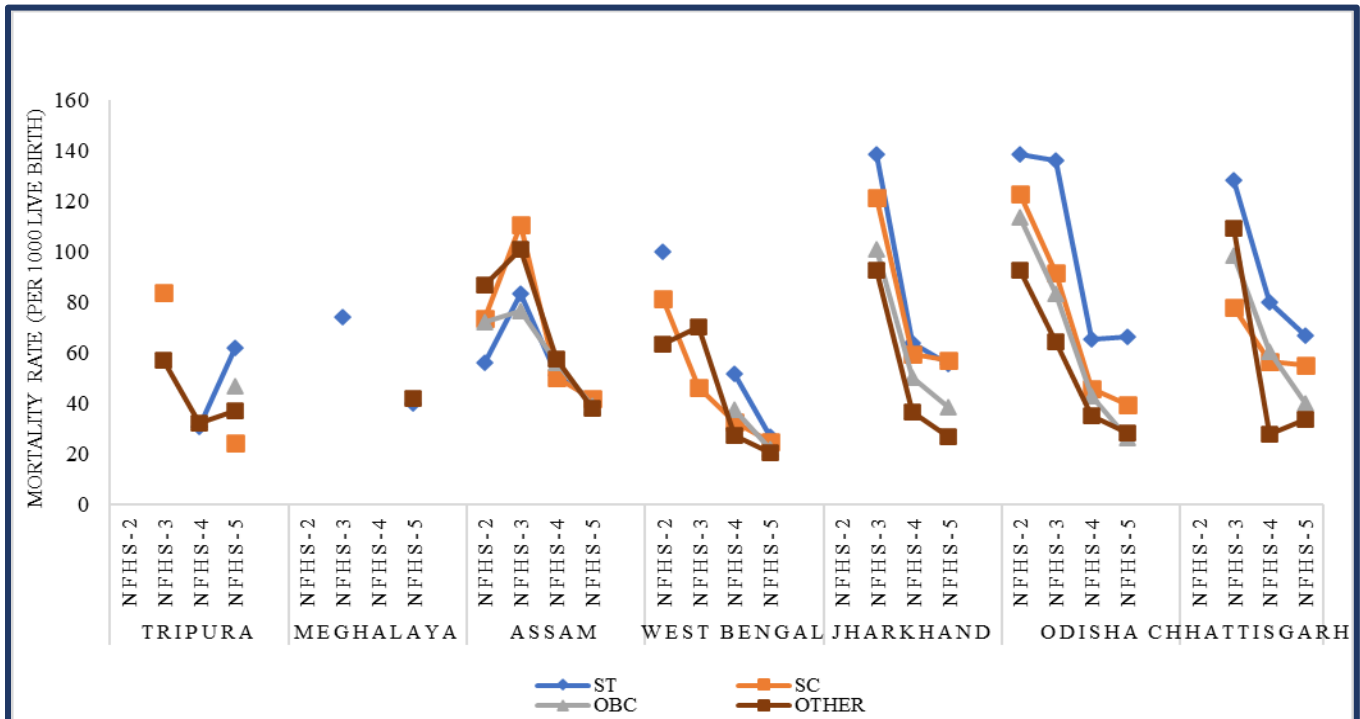
## **Under-Five Mortality of Scheduled Tribe population in India**

U5MR of Jammu and Kashmir in 2015-16 and 2019-21 was 49.3 and 33.1, respectively. U5MR of the ST population was very high compared to other social groups in Jammu and Kashmir. Himachal Pradesh experienced a significant decline in U5MR from 2015-16, from 56.9 to 26.7 in 2019-21, which was lower SC but higher than other social groups. In 2005-06 U5MR of ST population in Rajasthan was above 100, i.e. 113.8 which reduced to 57.8 and 51.6 in NFHS-4 and 5, respectively. Still, it was highest in comparison to other social groups. Uttar Pradesh brings a member of the EAG Group of states that had very high U5MR during the 1990s that has reduced to 64 in 2019-21. NFHS-5 recorded 68.4 U5MR for the ST population in Bihar, 116.6 in 1998-99. Still, for other social groups, U5MR has declined, but from NFHS-4, U5MR of the ST population in Bihar has increased by 11.9. In 2005-06 and 2015-16, U5MR for Sikkim was 35.9 and 50.5, which shows a high increase in U5MR. In Arunachal Pradesh, U5MR has improved over the years, and NFHS-5 recorded u5mr only 1.9, which was 100.9 in 2005-06. In Nagaland U5MR was 65.8 in 2005-06. In Manipur, U5MR has declined by half since 2005-06. U5MR for the ST population in Manipur was quite good compared to other social groups. In Tripura, U5MR has been increased from 30.8 to 61.9 from 2015-16 to 2019-21. U5MR has been doubled within five years, which is a significant concern. It is over 2.5 times as much compared to SC and OBC populations. U5MR for Meghalaya in 2019-21 was 40.2, which has declined from 74 in 2005-06. Assam has also recorded a significant decline in U5MR, but still, it was high (41.3) during NFHS-5. In West Bengal, U5MR was 26.7 in 2019-21, which is QUITE Good compared to other states in ST population but highest among the different social groups of the state. For all other groups, including the ST population, U5MR has shown a declining trend. U5MR for ST population in Jharkhand 55.8 during NFHS-5 has declined from 138.5 since 2005-06, which is the second-

highest U5MR after SC population of the state. In-state like Odisha, U5MR among the ST population was very high compared to SC OBC and other population groups. In 2019-21 it was 66.2, which declined from 138.4 in 1998-99. In Chhattisgarh, the U5MR has remained highest for the ST population in all the rounds of NFHS. It was 128.5 in 1998-99, declining to 67 in 2019-21. In Madhya Pradesh, U5MR was 156 in 1998-99, which has reduced to one-third in 2019-21 (54.6). The U5MR for the ST population was higher than OBC and others while lower than the SC population in all the rounds. In Gujarat, U5MR was the weakest for the ST population in all the NFHS rounds, leaving NFHS-5 higher than OBC and others. It was 94.6 for the ST population in 1998-99 and increased in 2005-06 to 115.8. However, it again declined and reached 41.6 in 2019-21. In Maharashtra, the U5MR has remained the highest for the ST population among all the social groups, which was 92.3 in 1998-99 and declined to 37.3 in 2019-21. For Andhra Pradesh, the U5MR was relatively high and higher than any other social group in Andhra Pradesh. It was 115.9 in 1998-99 and 112 in 2005-06. In Karnataka, U5MR has significantly declined from 120.6 in 1998-99 to 35.6 in 2019-21. However, it was highest among all the social groups in all the rounds.

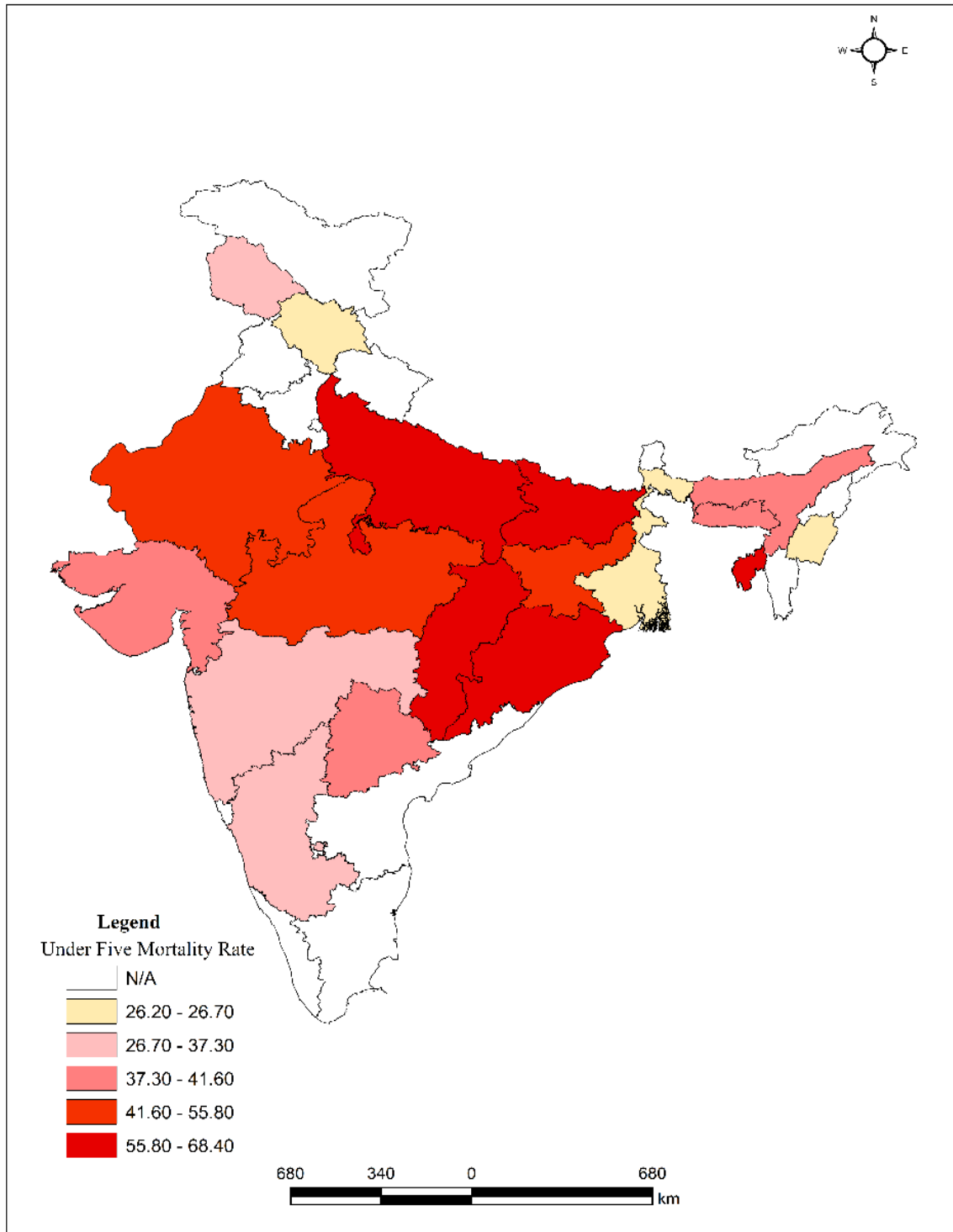
**Graph 4.6. Caste-wise Under-five Mortality Rate in Indian State**





\*Prepared by the author

**Map 4.4. Under Five Mortality Rate of Scheduled Tribe population in the Indian States,2022**



*\*Prepared by the author*

Table 4.4 shows that the under-five mortality varies among the caste group with the socio-economic differential. The male under-five mortality is higher than the female in all caste groups, and the gap is highest for the ST population, at around 7 points. With increasing Mothers' age at first birth, the under-five mortality rate reduces, and the reduction rate is highest for the SC caste group population, followed by ST, OBC and others. With increasing mothers' level of education, the under-five mortality rate diminishes rapidly among the all-caste group.

The difference in under-five mortality rates among the caste group diminishes with increasing the mother's level of education. There is a vast difference in under-five mortalities among the cohort of wealth index in all caste groups. The highest distinction in the under-five mortality rate prevails in the SC caste group, followed by ST, OBC and other caste groups. Institutional birth is essential in reducing the under-five mortality rate. It applies to the all-age group, with around a 16-point difference in the under-five mortality rates with the place of birth in the ST population. Fathers' education level also plays a vital role in reducing under-five mortality rates among the all-caste group. The highest gap prevails in the ST caste group, followed by the SC, OBC and other caste groups. With the difference in access to clean fuel, safe drinking water and toilet facilities, the under-five mortality rate varies among the caste group, and the highest distinction in under-five mortality goes among the ST population for the level of difference for the above-mentioned predictor variables (access to clean fuel, type of toilet and sources of drinking water)



**Table 4.4. Under-five mortality rates among different caste groups by demographic and socio-economic characteristics**

<b>Characteristics</b>	SC	ST	OBC	Others
<b>Sex of the child</b>				
Female	58.8	44.6	50.3	39.1
Male	62.3	51.7	53.6	41.9
<b>Mothers' age at first birth(yr)</b>				
<20	70.6	57.8	61.6	51.7
20-24	51.7	42.9	44.7	35.8
>=25	43.6	32.2	37.5	26.9
<b>Birth order</b>				
First	62.9	49.5	54.4	38.8
Second	51.9	43.1	43.4	33.9
3+	66.3	51.3	58.1	53.1
<b>Mothers' level of education</b>				
No education	76.1	62.7	68.4	56.1
Primary	61.7	47.1	56.4	52
Secondary	42.6	33	37.6	35.2
Higher	26.9	23.6	23	18.7
<b>Wealth Index</b>				
Poorest	80.7	62.1	72.9	63.3
Poorer	63.3	42.9	60.6	53.3
Middle	53.3	34.3	48.3	42.2
Richer	45.9	27.5	40.4	36.4
Richest	35.7	26.8	30.4	27.4
<b>Place of Birth</b>				
Home delivery	61.2	49.9	54.3	52.6
Institutional delivery	41.9	34.6	35	27.6
<b>Antenatal visit during pregnancy</b>				
None	49.3	38.5	42.7	39.8
1 visit	45.9	33	31.4	32.9
2 visit	36.7	26.3	30	24.5
3 visit	32.1	24.8	27	24.5
4+ visit	20.28	23.8	20	10.61
<b>Type of Fuel used for cooking</b>				
Clean fuel & food not cooked	49.6	33.7	42.3	33.7
solid fuel	69.4	54.4	61.3	51.6
<b>Type of Toilet</b>				
Improved toilet	54.4	40.3	46.6	37.9
Not improved toilet	72.3	64.1	64.9	56.8
<b>Sources of drinking water</b>				
Improved water	61.3	48	52.7	40.9
Not improved water	56.5	49.2	47.8	39.3
<b>Fathers' education level</b>				
No_education	82.3	68.2	77.9	56.5
Primary	69.2	60.4	65.1	58.2
Secondary	53.7	39.3	48.1	38.5
Higher education	38.3	24.8	31.7	25.9

Source: NFHS - 5

Table 4.5 shows that gender difference is significant for the under-five mortality rate for all the caste groups. Female children are less likely to die than the male child for ST and other caste groups, while they are more prone to death before reaching the age of five compared to male children for SC and OBC caste groups (at  $p \leq 0.000$ ). Mothers' age at first birth is also significant at  $p \leq 0.00$  level of significance. The under-five mortality rate is likely to be more for the children whose mothers' first age at birth is more than 20 in comparison to the mothers whose age at first birth is less than 20 for SC, ST, and OBC except for other caste groups. While for others, the U5MR is likely to be less for mothers whose age at first birth is between 20-24 and likely to be more for mothers whose age at first birth is more than 25 in comparison to mothers whose age at first birth is less than 20. Birth order is also a significant factor; however, it does not show a similar trend for all caste groups. For the ST population, U5MR is likely to be more for higher birth order in comparison to birth order one; also, for birth order three, it is likely to be less than birth order two. For the SC population, U5MR is likely to be less for the higher-order birth in comparison to birth order one; also, in comparison to two and three birth orders, U5MR is likely to be more for the third birth order. The trend is different for the OBC population; U5MR for the OBC population is likely to be less for second-order birth and likely to be more for the third-order delivery in comparison to the first-order birth. For another caste group, U5MR increases with birth order.

The mother's education level plays a very significant role in reducing U5MR. As the mother's level of education increases, U5MR decreases for the ST population (at  $p \leq 0.000$ ). For SC population, U5MR declines with an increase in education level; however, the likelihood of

mothers having secondary education is slightly higher than for mothers with primary education. At the same time, this trend is different for OBC and other caste groups, where the likelihood of U5MR is high for mothers with primary and secondary education compared to mothers without education. U5MR also decreases with an increase in the wealth index for all caste groups; however, for SC and OBC, U5MR is likely higher for the poorer wealth index than the poorest wealth index. Except for OBC, U5MR is likely to be less for the institutional delivery at  $p \leq 0$  significant levels. Generally, U5MR is likely to be less as the number of ANC visits increases for all; however, for SC, U5MR is likely to be higher for the women who visited for ANC compared to non-visitors. The type of fuel also shows significant results. It indicates that U5MR is likely to be half of the ST population using a non-clean source of fuel in comparison to those using a clean source of energy. At the same time, this trend is totally opposite in the case of SC, OBC, and others.

In the case of the type of toilet used, U5MR is likely more for the ST population using a less improved kind of toilet than those using an enhanced type of toilet. While, for SC, OBC, and others, it is likely to be less than those using an improved type of toilet. Similarly, for the kind of water source, U5MR is expected to be less for those who use an improved source of water in comparison to the not-improved source of water for all castes except OBC. The likelihood of U5MR is less for educated fathers in contrast to those not educated; however it varies according to different education levels differently for all castes groups.

*Table 4.5. Demographic and Socio-economic covariates of under five mortality rate among different castes/tribe*

Characteristics u5m	ST				SC			
	Odds Ratio	z	[95% Conf. Interval]		Odds Ratio	z	[95% Conf. Interval]	
<b>Sex of Child</b>								
<u>Male@</u>								
<b>Female</b>	0.617038*	1850.06	0.617	0.617	1.097553*	537.83	1.097	1.098
<b>Mothers' age at first birth</b>								
<u>&lt;20@</u>								
<b>20_24</b>	1.146189*	492.82	1.146	1.147	1.025404*	132.17	1.025	1.026
<b>more than 25</b>	1.43083*	954.33	1.430	1.432	1.414841*	1257.63	1.414	1.416
<b>Birth order</b>								
<u>1@</u>								
<b>2</b>	1.341895*	919.39	1.341	1.343	0.4452872*	3129.35	0.445	0.446
<b>3</b>	1.016911*	49.04	1.016	1.018	0.9387934*	-282.23	0.938	0.939
<b>Mothers' education level</b>								
<u>No education@</u>								
<b>primary</b>	0.897416*	-299.09	0.897	0.898	0.3391379*	3380.55	0.339	0.339
<b>secondary</b>	0.612021*	1414.70	0.612	0.612	0.4888095*	3063.2	0.489	0.489
<b>higher</b>	0.2010828*	1246.54	0.201	0.202	0.2136068*	2844.68	0.213	0.214
<b>Wealth Index</b>								
<u>Poorest@</u>								
<b>poorer</b>	0.8356341*	-526.75	0.835	0.836	1.339567*	1304.28	1.339	1.340
<b>middle</b>	0.4439816*	1480.58	0.444	0.444	0.5220491*	1887.88	0.522	0.522
<b>richer</b>	0.3250856*	1368.56	0.325	0.326	0.5153622*	1520.23	0.515	0.516
<b>richest</b>	0.1109728*	1364.86	0.111	0.111	0.5479647*	1172.78	0.547	0.549
<b>Place of Birth@ Home</b>								
<b>Place_delivery</b>	0.8612271*	-470.25	0.861	0.862	0.6043949*	2269.27	0.604	0.605
<b>Antenatal care</b>								
<u>Not visited@</u>								
<b>1</b>	1.01779*	29.22	1.017	1.019	2.611279*	2320.55	2.609	2.613
<b>2</b>	0.7262777*	-580.69	0.725	0.727	2.044211*	1824.39	2.043	2.046
<b>3</b>	0.8012077*	-424.70	0.800	0.802	1.25175*	538.87	1.251	1.253
<b>4</b>	0.8262999*	-420.37	0.826	0.827	1.600221*	1245.15	1.599	1.601

<b>Fuel Type@</b>									
<b>Clean Fuel</b>									
<b>Not Clean</b>	0.4931554*	1971.38	0.493	0.494	1.086025	372.93	1.086	1.086	
<b>Toilet</b>									
<b>Improved</b>									
<b>Not improved</b>	1.280758*	906.79	1.280	1.281	0.7951799	1159.85	0.795	0.795	
<b>Source of drinking water</b>									
<b><u>Not improved@</u></b>									
<b>Improved</b>	0.7984599*	-662.94	0.798	0.799	0.8967867	-323.69	0.896	0.897	
<b>Fathers' education level@</b>									
<b>Not_educated</b>									
<b>primary</b>	0.9952642*	-12.95	0.995	0.996	0.8653821*	-522.5	0.865	0.866	
<b>secondary</b>	0.9341865*	-197.27	0.934	0.935	0.9796556*	-86.57	0.979	0.980	
<b>higher</b>	0.7953108*	-308.54	0.794	0.796	0.8900396*	-269.6	0.889	0.891	
<b>don't know</b>	1*				1.508102*	386.48	1.505	1.511	
<b>_cons</b>	0.3684711*	-776.23	0.368	0.369	0.11788*	2348.04	0.118	0.118	

---

**Table 4.6. Demographic and Socio-economic covariates of under-five mortality rate among different castes/tribe**

Characteristics u5m	OBC				Other			
	Odds Ratio	z	[95% Conf. Interval]		Odds Ratio	z	[95% Conf. Interval]	
<b>Sex of Child</b>								
<u>Male@</u>								
Female	1.23206*	1756.9 5	1.232	1.232	0.5365509 *	2331.3 8	0.536	0.537
<b>Mothers' age at first birth</b>								
<u>&lt;20@</u>								
20_24	1.209592*	1397.7 9	1.209	1.210	0.7706046 *	-899.54	0.770	0.771
more than 25	1.300094*	1326.8 3	1.300	1.301	1.25313*	587.96	1.252	1.254
<b>Birth order</b>								
<u>1@</u>								
2	0.6470027 *	2731.7 7	0.647	0.647	1.226619*	622.98	1.226	1.227
3	1.137469*	836.92	1.137	1.138	1.736288*	1581.8 5	1.735	1.737
<b>Mothers' education level</b>								
<u>No education@</u>								
primary	1.504914*	2073.7 7	1.504	1.505	0.8108156 *	-365.22	0.810	0.812
secondary	1.190193*	975.54	1.190	1.191	2.298105	1940.2 7	2.296	2.300
higher	0.6607111 *	1380.3 1	0.660	0.661	1.248659	361.8	1.247	1.250
<b>Wealth Index</b>								
<u>Poorest@</u>								
poorer	0.8922869 *	-635.46	0.892	0.893	1.095352*	230.04	1.095	1.096
middle	0.9261948 *	-360.06	0.926	0.927	0.5840775 *	1120.8 9	0.584	0.585
richer	0.7313807 *	1242.8 6	0.731	0.732	0.5881972 *	1010.5 8	0.588	0.589
richest	0.46891* *	2417.2 9	0.469	0.469	0.3554281 *	1679.1 5	0.355	0.356
<b>Place of Birth@</b>								
<b>Home</b>								
Place_delivery	1.116969*	572.55	1.117	1.117	0.9001856 *	-262.4	0.899	0.901
<b>Antenatal_care</b>								
<u>Not_visited@</u>								

<b>1</b>	0.9814432 *	-69.63	0.981	0.982	1.070485*	125.98	1.069	1.072
<b>2</b>	0.8054043 *	-871.39	0.805	0.806	0.7069741 *	-648.44	0.706	0.708
<b>3</b>	0.6486062 *	1739.4 5	0.648	0.649	0.7997694 *	-466.88	0.799	0.801
<b>4</b>	0.670685* *	1790.9 8	0.670	0.671	0.3964569 *	2049	0.396	0.397
<b>Fuel Type@</b>								
<b>Clean_Fuel</b>								
<b>Not_Clean</b>	1.059812* *	388.1	1.060	1.060	1.405594* *	1090.8	1.405	1.406
<b>Toilet</b>								
<b>Improved</b>								
<b>Not_improved</b>	0.9775871 *	-152.46	0.977	0.978	0.9474635 *	-160.14	0.947	0.948
<b>Source of drinking water</b>								
<b><u>Not_improved@</u></b>								
<b>Improved</b>	1.098714* *	490.37	1.098	1.099	0.6254734 *	-863.74	0.625	0.626
<b>Fathers' education level@</b>								
<b>Not_educated</b>								
<b>primary</b>	0.5597169 *	2652.5 9	0.559	0.560	1.013785* *	30.27	1.013	1.015
<b>secondary</b>	0.6155806 *	2802.0 2	0.615	0.616	0.5252789 *	1515.8	0.525	0.526
<b>higher</b>	0.5724706 *	2145.2 7	0.572	0.573	0.7373819 *	-564.4	0.737	0.738
<b>don't know</b>	0.4536354 *	-774.92	0.453	0.455	1* *			
<b>M</b>								
<b>_cons</b>	0.0312218 *	5388.0 3	0.031	0.031	0.100009* *	1686.4	0.100	0.100

Source: NFHS - 5

### 4.3. Discussion

Compared to Scheduled Caste (SC), Other Backward Classes (OBC), and the general category, the TFR of the ST population is higher. Sustainable Development goals aspire to lower the Total Fertility Rate, Under\_5 mortality, Infant Mortality and Neonatal Mortality in the world and India. There prevails a high-level difference in the caste group's Neonatal, Infant and Under-five mortalities. Over the years, all these countries, including India, have experienced an improvement in the fertility and mortality indicators (Dyson, 2002). The fertility and mortality indicators are crucial for tracking the Sustainable Development Indicators (UN, 2019). Fertility and mortality patterns explain the growth story and demographic transition of that population (Training Manual on Demographic Techniques, 2016). Early childbearing rates in India are consistently high, particularly for women from underprivileged socio-economic origins, caste minorities, and ethnic minorities.

Gender differential still prevails in the Tribal society. The likelihood of dying also differs among the caste group with different predictor variables. Himachal Pradesh experienced a significant decline in U5MR from 2015-16, from 56.9 to 26.7 in 2019-21, which was lower SC but higher than other social groups. U5MR for the ST population in Manipur was quite good compared to other social groups. U5MR has been doubled within five years, which is a significant concern. It is over 2.5 times as much. Assam has also recorded a substantial decline in U5MR, but still, it was high (41.3) during NFHS-5. For all other groups, including the ST population, U5MR has shown a declining trend. In Gujarat, U5MR was the lowest for the ST population in all the NFHS rounds, leaving NFHS-5, which is higher than OBC and others.



This study shows that significant inequalities in U5MR still exist among the caste group but that there is not just one single story applicable to all castes. The relative contribution of four socioeconomic factors to the variability in U5MR was assessed using binary logistic regression. The male under-five mortality is higher than the female in all caste groups, and the gap is highest for the ST population. With increasing mothers' level of education, the under-five mortality rate diminishes rapidly among the all-caste group. The hypothesis H01 is rejected because the socio-economic factors influence the Fertility and Child-mortality of the Scheduled Tribe population in India. The hypothesis H02 is rejected because there is a difference in the influence of the predictor variables in reducing fertility among the caste groups in India. The hypothesis H03 is also rejected because there is a difference in the impact of the predictor variable in lowering child mortality among caste groups in India. The difference in access to clean fuel, safe drinking water and toilet facilities also influences mortality rates. So, improving the socio-economic predictor can minimize the overall child mortality rate among all the caste groups.

A decorative border in the shape of a scroll, with a vertical line on the left, a horizontal line at the top, and a vertical line on the right. The ends of the lines are curled into scroll-like shapes.

## **CHAPTER - FIVE**

### **Healthcare utilization among the Scheduled Tribe Population in India,1992-2022**

#### **5. Healthcare utilization among the Scheduled Tribe Population in India,1992-2022**

## 5.1. Introduction

The healthcare utilization status is the crucial indicator for tracking the progress in SDG indicators because it directly impacts the health output (UN, 2019). Health is "a state of complete physical, mental and social wellbeing and not only merely the absence of disease or infirmity" (WHO, 2011). Healthcare means to care for maintaining good health by taking measures of prevention, diagnosis, treatment, and caring for mental and physical impairment of people. Proper utilisation of healthcare is possible when the demand for healthcare and supply are equal (Sellars et al., 2010). The Universal Health Coverage program aspires to provide all individuals and communities with the proper health services they need to mitigate the financial hardship (UN, 2005). Health status and healthcare utilisation directly or indirectly determine the structure of the population. Dramatic changes over the last few decades in demographics and epidemiological transitions from infectious to chronic non-communicable diseases, as well as associated risk patterns around the world, have substantially impacted population health (Hayward & Warner, 2005).

Besides "traditional" ailments such as TB, malaria, malnutrition and poverty-driven disease, India has current health concerns such as chronic degenerative diseases like heart disease and cancer, substance misuse, HIV/AIDS, mental stress and pollution and disaster-related disease (GBD, 2019). Inequity in health status and utilisation of healthcare in the states, caste and living place is a significant concern in India (OXFAM, 2021). Changes in disease patterns, advances in nutritional and health infrastructure, eliminating and managing major killer illnesses, and socio-economic growth have contributed to India's epidemiological shift (Yadav & Arokiasamy, 2014).

Tribal people have remained disenfranchised regarding geography, socio-economic status, and

health(Ministry of Tribal Affairs, 2019). The socio-cultural, demographic, economic, and educational, including common beliefs, traditional customs, myths, and practices related to health and disease, play an obstacle to improving the health status of Tribal people. The health status of Tribals is poorer than other groups. The health indicators, health status and utilizations of healthcare by Tribal people have significantly improved through the ages. However, a gap exists between the Tribal and other caste populations. Tribal people have a locational disadvantage in accessing healthcare facilities and services. The fact that they live in distant places has provided a natural explanation for the lack of a government-sponsored healthcare system in these areas. Due to the poor purchasing power of indigenous people, these locations are not a preferred destination for private health care providers. Primary health care requirements in tribally dominated regions are primarily met by ethnomedicinal systems and expertise passed down through community healthcare professionals (Tribal healers) such as Viadu, Veiga, and others. Establishing tribal healthcare data systems, including priorities for data generation, interpretation, and reporting and metrics based on indigenous ideas of welfare and health, is urgently needed. The time has come to collect tribe-specific data, priorities tribal groups based on their degree of development and vulnerability, and implement developmental programmes appropriately.

Currently, 75 tribal groups have been designated as PVTGSs (especially vulnerable tribal groups) (earlier known as Primitive Tribal Groups). Further attention, greater relevance, and greater urgency are required for the problems and solutions for the smaller tribal groupings, sometimes known as "vanishing tribes"(Ministry of Tribal Affairs, 2019). We attempted to demonstrate the trend of healthcare utilization among the Tribal population in India. We will also try to explain the caste-wise healthcare utilizations difference.

## 5.2. Results:

Table 5.1 and Graph 5.1 show an improvement in the overall healthcare utilizations by the ST population from NFHS-4 to NFHS-5. Because of the small sample representative in NFHS-3, there is a decline in the healthcare utilizations by the Scheduled Tribe population in NFHS-4. However, after NFHS-4, there has been an increasing trend of improvement in healthcare utilization by the ST population. Though it has improved, many women (above 40%) are far from the ANC visit. The child vaccination rate increased drastically, from 31.3% (NFHS-4) to 76.8% (NFHS-5); the percentage of non-vaccination children also decreased. There is a sharp in the percentage of having a Vaccination card. The percentage of unmet needs also decreased from NFHS-4 to NFHS-5. Access to ORS for children also increased from NFHS-4 to NFHS-5. The access to health facilities and health providers in the case of ARI decreased from the NFHS- 4 to NFHS-5.

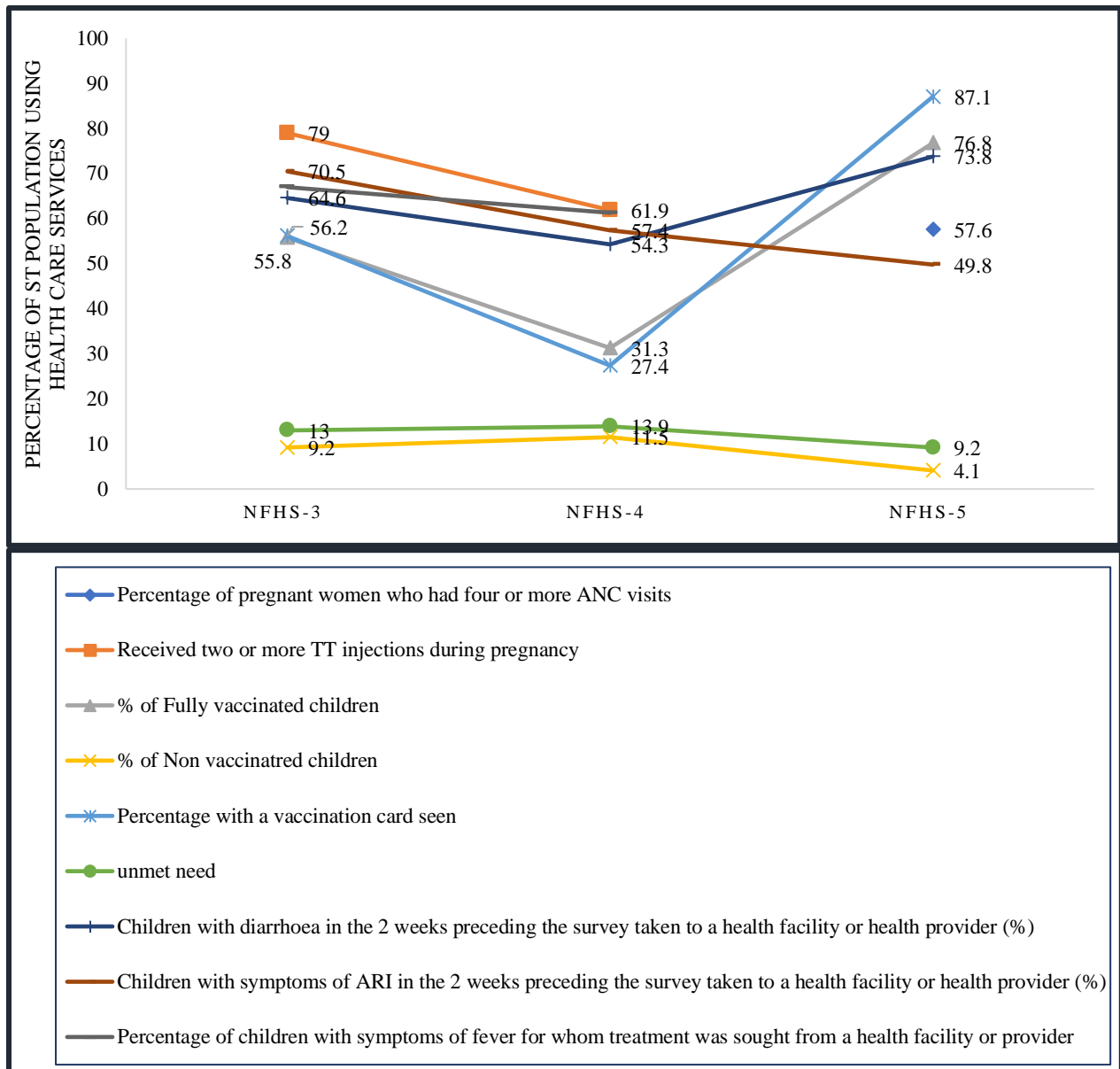
**Table 5. 1. Health care utilization indicators of ST people at the national level (1992-2021)**

Indicators	NFHS-3	NFHS-4	NFHS-5
Percentage of pregnant women who had four or more ANC visits			57.6
Received two or more TT injections during pregnancy	79	61.9	
% of Fully vaccinated children	55.8	31.3	76.8
% of Non-vaccinated children	9.2	11.5	4.1
Percentage with a vaccination card seen	56.2	27.4	87.1
unmet need	13	13.9	9.2
children who had diarrhoea in the two weeks before the survey were taken to a health facility or health provider (%)	64.6	54.3	73.8
Children with symptoms of ARI in the two weeks preceding the survey were taken to a health facility or health provider (%)	70.5	57.4	49.8
Percentage of children with symptoms of fever for whom treatment was sought from a health facility or provider	67	61.3	

Source: NFHS 1- 5

**Graph 5.1. Health care utilisation indicators of ST population at the national level (1992-**

2021)



*\*Prepared by the author*

Table 5.2 shows that the gap between the utilisation of health by ST and other populations was

minimized over the period. The pregnancy registration percentage is relatively high for all castes, above 92%. The rate of MCP card registration is also higher for all castes, and it is around 95%. The percentage of women who visited four or more ANC schemes is deficient, and a 7% gap prevails between the ST and other populations. The overall vaccination rate also improved from the previous years, and the gap between the ST and others was also minimized. In the case of Neonatal tetanus and fully child vaccination, the same changes happened. The percentage of non-vaccinated children also decreased, but a gap exists between the ST and other caste populations. The death registration is not also a hundred per cent in all caste groups. For other caste groups, the death registration is higher than the different castes, and it is least for the ST caste. The percentage of women who use mensuration protection is also lower for all caste groups and least for the ST caste. The unmet need decreased over the period, but there was no variance among the caste groups. Around 20% of the children do not have access to healthcare facilities during diarrhoea, which is the least for the ST population. The proportion of children who have ARI symptoms in the two weeks preceding the survey taken to a health facility or health provider is also deficient, and it is lowest for the ST population.

**Table 5.2. Current healthcare utilization by ST scenario, comparison with other castes at the national level in India, (NFHS-5, 2021)**

Caste/ Tribe	Percentage of pregnancies that were registered	Percentage of mothers has given an MCP card	Percentage of pregnant women who had four or more ANC visits	Had birth protected against neonatal tetanus	% Of Fully vaccinated children	% Of Non-vaccinated children	Percentage with a vaccination card seen	Death registration	Mensuration protection	Unmet need	Children who had diarrhoea in the two weeks before the survey was brought to a hospital or other medical institution (%)	Children with symptoms of ARI in the two weeks preceding the survey were taken to a health facility or health provider (%)
SC	93.8	96.5	55.3	91.9	76.7	3.4	85.5	67.9	76.7	9.2	75.8	56.9
ST	94.3	96.2	57.6	90.7	76.8	4.1	87.1	67.1	65.6	9.2	73.8	49.8
OBC	93.8	95.7	57.2	92	77.1	3.5	86	69.4	77.7	9.6	76.8	55.2
OTHER	93.9	95.6	64.4	92.6	75.8	3.8	85.3	77.1	83.7	9.4	77	59.5

Source: NFHS – 5.



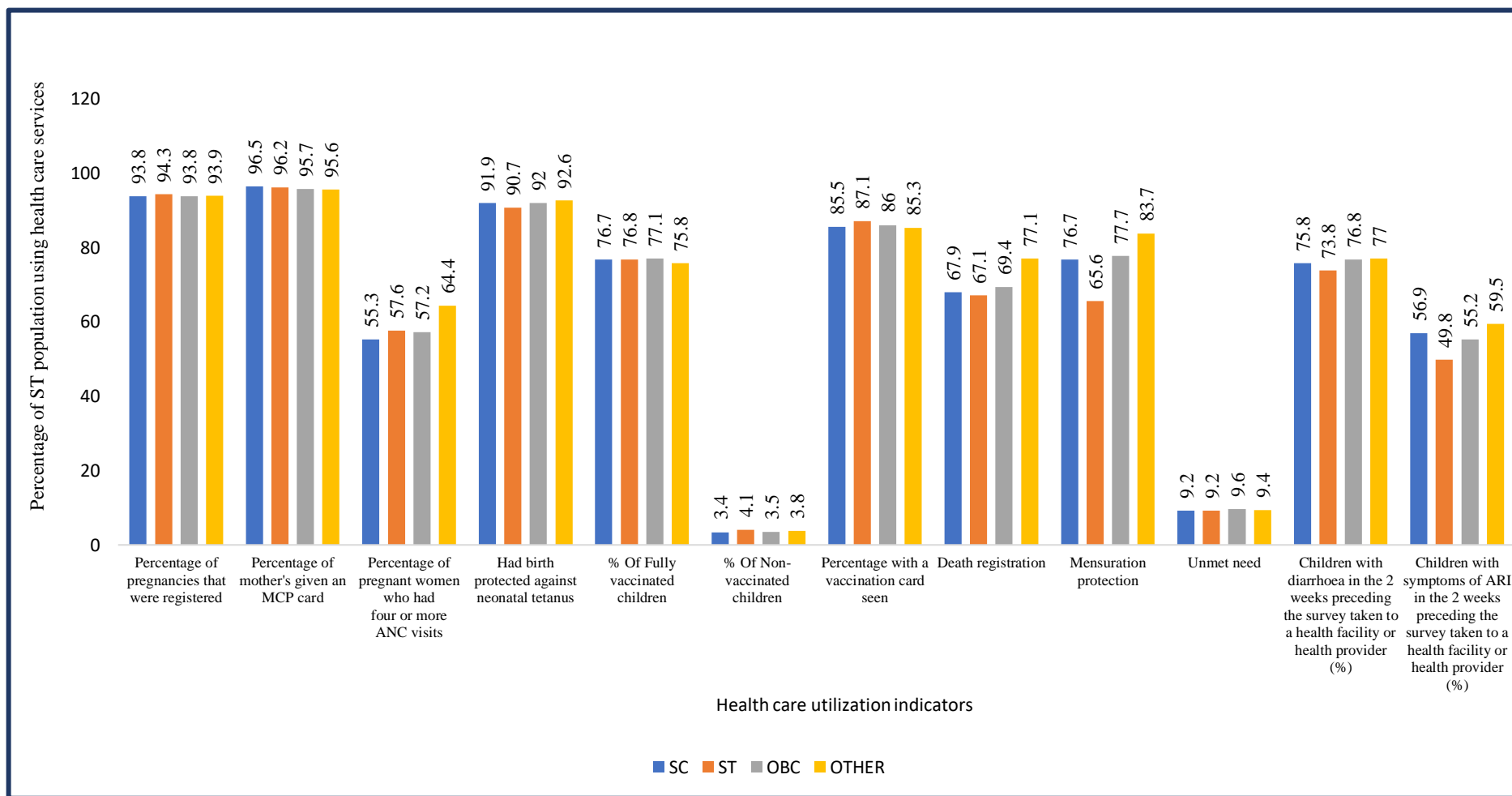
Table 5.3 (appendix) shows that the health care utilisation of the Scheduled Tribe population is not uniform in all the states. In some states, the health care utilisation by the Scheduled Tribe population is performing better than the national average. The trend in improving health care utilisation is not constant through the ages. In India, still above 40% of pregnant women of the Scheduled Tribe population are far away from the four or more ANC visits. The full vaccination rate has significantly improved from 55.8% in 2006 to 76.8% in 2012. ST children, although 4.1% of ST children are still away from vaccination. The exciting thing is that 87.1% of children have vaccination cards. However, only 76.8% of children are fully vaccinated, so their reluctance about child vaccination still prevails in the tribal society. Among all the states, Orissa has the highest level of vaccination cards seen among the ST children, whereas Andhra Pradesh has the least percentage. In Arunachal Pradesh, around 10.3% of ST children are far away from the vaccination, which is the nation's highest, followed by Meghalaya, Andhra Pradesh, Jharkhand and Sikkim. Rajasthan has the lowest number of vaccinated children among all the states in India, followed by Orissa, Tripura and Maharashtra. Around 87.8% of ST pregnant women had four or more ANC visits in Goa in 2022, which is the national highest, while in Bihar, it is 17.5%. In North-Eastern states, the percentage of ST pregnant women who had four or more ANC visits is not satisfying, and it is below the national average except in Manipur, where the percentage is 80.4. In Meghalaya, the tribal women have the highest level of unmet needs, around 27.3%, whereas, in Tamil Nadu, it is the lowest, 4.7%. The North-Eastern state, on average, has a higher level of unmet needs than the national average. In tribal-dominated Madhya Pradesh, Chattishgarh, and Jharkhand, the unmet need of the ST population is near the national average. In India's Western and Southern regions, the ST population have lower unmet need than the national average. In the case of Diarrhea treatment, children taken to the health facility, the percentage for

whom treatment was sought from a health provider data are not available for some tribal-dominated states.

Table 5.4 explain that though there is an improvement in the health care utilisation by all the caste in India, still there prevails an inequality in health care utilisation among the caste group. In most of the north-eastern states, the children of the ST population are not vaccinated as other caste groups, which are above the national level. The percentage of non-vaccinated children is higher for the OBC category than in the other caste group in Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Rajasthan, and Orrisa. The percentage of non-vaccinated children is higher in the ST population than in other caste groups in many tribal-dominated northern and eastern states. There is no such difference in the percentage of pregnancies registered among all the caste groups in all states and UTs in India. In the case of the percentage of mothers given MCP cards, there is no such difference among all the caste groups in all states in India. The SC category has the lowest percentage of pregnant women with four or more ANC visits than other caste groups in India. In most northeastern states, the percentage of tribal pregnant women is lower than in any other caste group.

The table explains that though there is an improvement in the health care utilisation by all the caste in India, still there prevails an inequality in healthcare utilisation among the caste group. The percentage of non-vaccinated children is higher in the ST population than in other caste groups in many tribal-dominated northern and eastern states. There is no such difference in the percentage of pregnancies registered among all the caste groups in all states and UTs in India. The SC category has the lowest percentage of pregnant women who had four or more ANC visits than other caste groups in India.

**Graph 5.2. Current healthcare utilization among the different castes in India (NFHS-5, 2019-21)**



Source: NFHS – 5 (2019-2021).

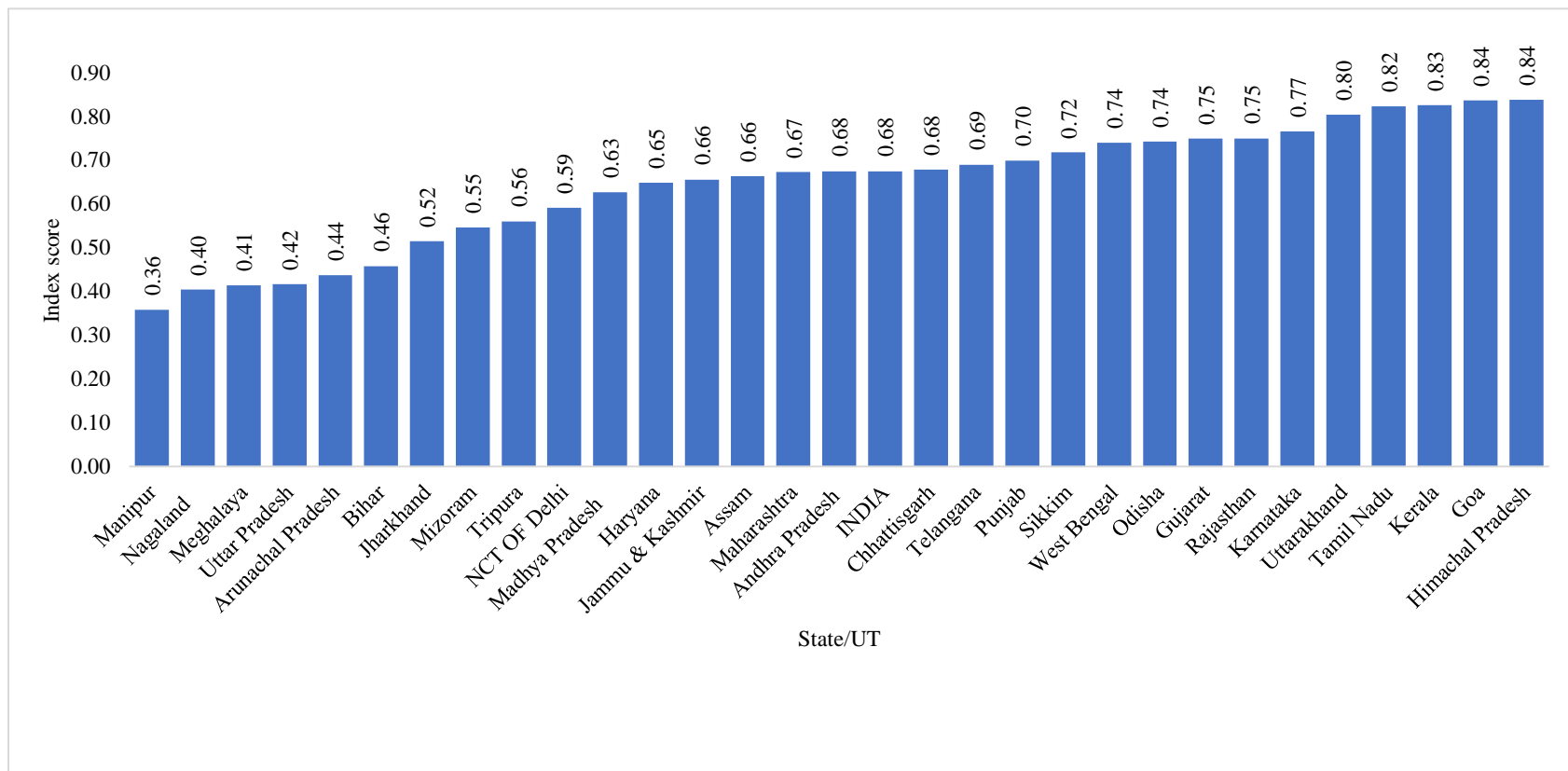
\*Prepared by the author

## **Health Care Utilization by Scheduled Tribe Population in Indian states**

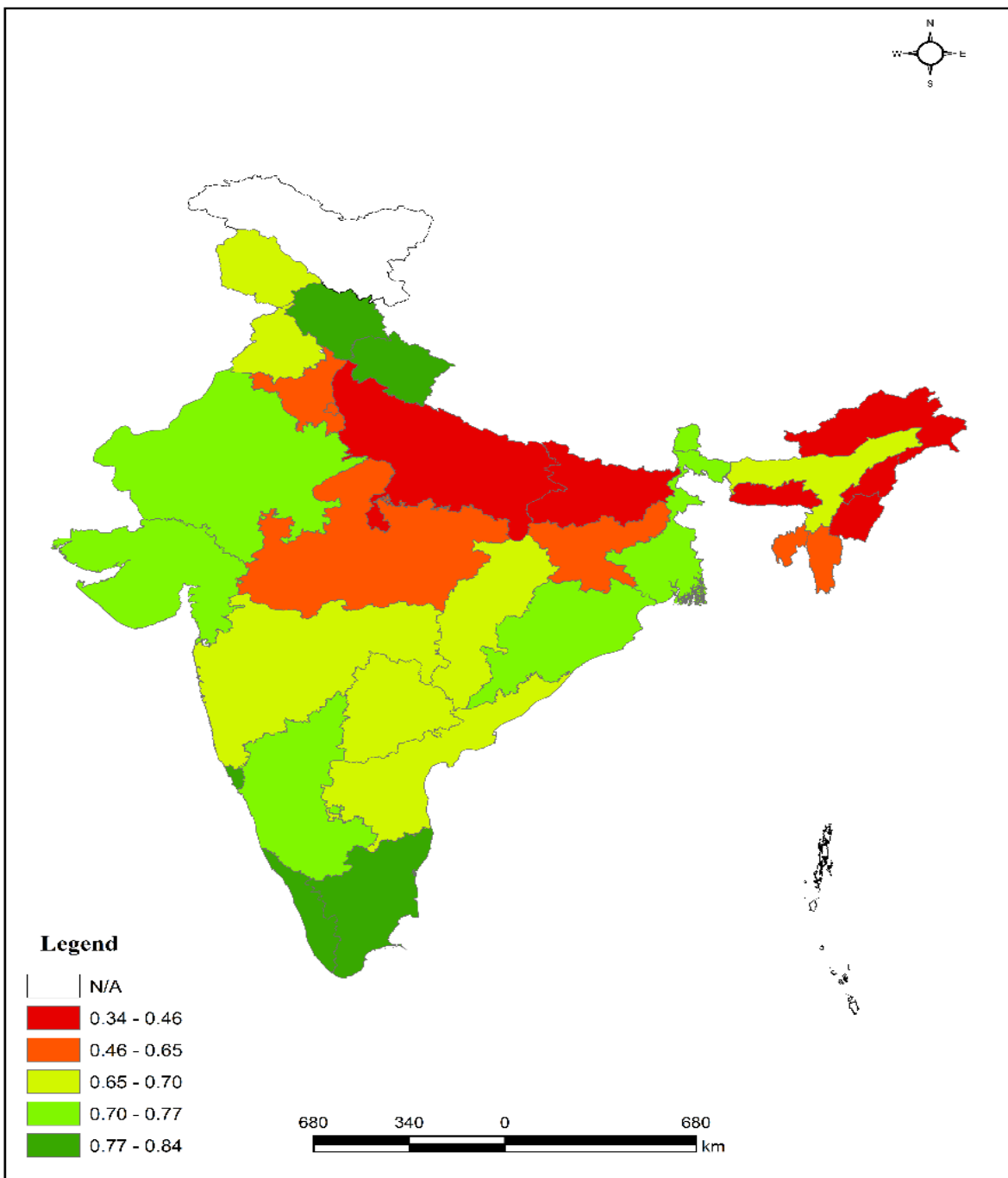
Table 5.4 and Map 5.1 shows that the current overall health care utilization by the Scheduled Tribe population is not uniform for all the states. Some states perform better, and some are poorer than the national average. In the northeastern states, most of the states belong to an index score of 0.60. Among these states, Manipur performed lowest in health utilisation by the ST population. In contrast, Assam performed best in health care utilisation by the ST population and is around 0.66, which is just below the national average. Himachal Pradesh and Goa have the highest level of health care utilisation by the Scheduled Tribe population, followed by Tamil Nadu, Kerala, Uttarakhand, and Karnataka. Madhya Pradesh, Chhattisgarh, mainly a tribal-dominated area, has the lowest level of health care utilisation of the Scheduled Tribe population compared to the national average. In the western part of India, Rajasthan has better health care utilisation by the Scheduled Tribe population, followed by Gujrat and Maharashtra. In the southern part of India, Kerala Perform better in terms of health care utilisation by ST population than any other state, followed by Tamil Nadu, Karnataka, Telangana and Andhra Pradesh. The most alarming thing is that where the concentration of ST population is highest, the situation of the health care utilization is lowest here.

*\*Prepared by the author*

**Graph 5.3. Index of healthcare utilization by Scheduled Tribe population in Indian states**



*Map 5.1. State-wise score of Utilization of Health Care by ST in India,2021*



*\*Prepared by the author*

### **5.3. Discussion**

Tribal people's worse health status is a widespread issue. India's underprivileged tribal people have far lower health statistics than the average population. Most tribal people reside in isolated rural hamlets in mountainous, wooded, or desert regions, where they are more at risk for disease due to illiteracy, challenging physical conditions, hunger, poor access to drinkable water, and a lack of personal hygiene and sanitation. This is made worse by the fact that these populations are unaware of the precautions that must be taken to protect their health, that they are far from medical facilities, that there are no all-weather roads or affordable transportation options, and that medical facility staff act insensitively and discriminatorily, that there are financial limitations and many other factors. Government initiatives to enhance access to primary care and increase public knowledge of health issues have not produced the anticipated results. It should be no surprise that indigenous people have more severe and prolonged diseases, with women and children at risk.

The healthcare utilization status is the crucial indicator for tracking the progress in SDG indicators because it directly impacts the health output. The Universal Health Coverage program aspires to provide all individuals and communities with the proper health care service they need to mitigate financial hardship. Inequity in health status and utilization of healthcare in the states, caste and living place is a significant concern in India. Changes in disease patterns, advances in nutritional and health infrastructure, elimination and management of substantial killer illnesses, and socio-economic growth have contributed to India's epidemiological shift.

Tribal people have remained disenfranchised regarding geography, socio-economic status, and health. Tribal people have a locational disadvantage in accessing healthcare facilities and services.

Ethnomedicinal systems essentially meet primary health care requirements in tribally dominated regions. Currently, 75 tribal groups have been designated as PVTGSs (especially vulnerable tribal groups) (earlier known as Primitive Tribal Groups). Further attention, greater relevance, and greater urgency are required for the problems and solutions for the smaller tribal groupings.

The state of healthcare has improved—utilization by the ST population from NFHS-4 to NFHS-5. Because of the small sample representative in NFHS-3, there is a decline in the healthcare utilization by the Scheduled Tribe population in NFHS-4. Though it has improved, many women are far from the ANC visit. The percentage of unmet needs also decreased from NFHS-4 to NFHS-5. Access to ORS for children also increased from NFHS-4 to NFHS-5.

The percentage of non-vaccinated children also decreased, but a gap exists between the ST and other caste populations. The death registration is not also a hundred per cent in all caste groups. For another caste group, the death registration is higher than the other caste, and it is least for the Scheduled Tribe caste. The percentage of women who use mensuration protection is also lower for all caste groups and least for the ST caste. The unmet need decreased over the period, but there was no variance among the caste groups.

The current overall health care utilization by the Scheduled Tribe population is not uniform for all the states. Among these states, Manipur performed lowest in health utilization by the ST



population. In contrast, Assam performed best in health care utilization by the ST population, around 0.66, just below the national average. In the western part of India, Rajasthan has better health care utilization by the Scheduled Tribe population, followed by Gujrat and Maharashtra. In the southern part of India, Kerala Perform better in terms of health care utilization by the ST population than any other state, followed by Tamil Nadu, Karnataka, Telangana and Andhra Pradesh.

## 6. Summary and Conclusion

### Conclusion

The health and population dynamics provide long-term fertility trends, mortality, population growth, and the population's age-sex structure and explain the predictor variables that influence the people and health dynamics. Population and health dynamics based on the census and NFHS data have many utilities for health officials, policymakers and local administration. These long-term statistics are mainly used for exploring the demographic journey and health transition throughout the decades. The Government and policymakers need the study health and population dynamics among the Scheduled Tribe population to uplift the most vulnerable and economically backward caste (ST) by making social welfare programmes such as local level health care providers, vaccination, health awareness, a package for socio-economic upliftment, and establishing educational facilities in the tribal-dominated areas.

We explained the changes in total population and Scheduled Tribe population and the decadal population growth since the 1961 census in India. We also explained the differences in child sex ratio, age-sex structure and overall sex ratio of ST population in Indian states and UTs. Because of knowledge spill-over and mainstreaming of the Scheduled Tribe population, the overall child sex ratio is not favourable to females. The study explains the distribution and concentration of the Scheduled Tribe population in Indian states and UTs. We found that the distribution of the Scheduled Tribe population is not homogeneous in India; it is mainly concentrated in some forest and hilly-dominated pockets of India. The Scheduled Tribe population focuses primarily on India's central and north-eastern parts. In the southern states, the percentage of Scheduled Tribe

population to the total population is insignificant, whereas, in the northern and western India, the Tribal population resides in hilly and desert areas.

The study tried to cover the long-term pattern in fertility and mortality among the Scheduled Tribe population. It also tried to find out the significant predictor variables capable of minimising the child mortality level among the ST population. It also showed the regional variance in Child mortality, Neonatal Mortality, Infant Mortality, and Total Fertility rates among the caste group. Government can categorize the tribal-dominated areas to make good need-based policies to mitigate the avoidable child mortality rate. In some parts of tribal-dominated areas, the TFR of the Tribal is below the replacement level of fertility. This is alarming to the extinction of the tribal. It needs proper protection to save the existence of vulnerable groups. Government should take a particular family planning program instead of the national level program to protect the presence of tribes in Indian society.

Furthermore, the study explained the trend and current healthcare utilization by the Scheduled Tribe population in different states of India. The healthcare utilization status is the crucial indicator for tracking the progress in SDG indicators. Dramatic changes over the last few decades have substantially impacted improving the Tribal health. Tribal people have remained disenfranchised regarding geography, socio-economic status and health. The current health care utilization by the Scheduled Tribe population is not uniform for all the states because of socio-economic and distance barriers. Some states perform better, and some are poorer than the national average. The most alarming thing is where the concentration of ST population is highest, the situation of the health care utilization is lowest.

## **Strength and limitation**

The study has covered a long period of population dynamics since 1962; it used nationally representative data like Census and NFHS to cover the critical dimensions of population dynamics, fertility & mortality, and health status at the state level. It also tried to cover the current situation of Indian states according to the healthcare utilization by the Scheduled Tribe population. The study is based on secondary data from NFHS and Census, which gave us a national and state-level broad picture; it does not talk much about why tribal populations are lagging and the causes of the difference in health outcomes among the different Tribes in the Indian states. The Tribal lifestyle factors and culture play a significant role in determining the health output of the Tribal. So, it is needed to do primary data collection. It can be done in the future. Causal analysis cannot be done due to the cross-sectional nature of the census data with the limited number of socio-economic variables. Further, it is difficult to adjust all the socio-economic and demographic factors that are likely to impact the total fertility rate and under-five mortality rate among the caste group in India. It is also challenging to explain the inclusive picture of health care utilization among the Scheduled Tribe population because of fewer limitations of availability of health care utilization data.

## **Policy Implication**

Establishing tribal healthcare data systems is urgently needed. Primary healthcare has been proven to be a highly effective and efficient way to address the leading causes and risks of poor health and well-being. Just establishment of PHCs and sub-centres cannot overcome the poor health of

the tribal population. The scarcity of a trained workforce to deliver quality health services is the major problem in India. There is a need for particular focus in the Census of India better to understand the Tribals in India in a depth manner. There is a lack of information and understanding of the tribal community's health culture, systems, and state in India; the Government should focus on minimizing this data gap. The Government should provide more role and power to the ground-level administration like Gram-sabha, Panchayat and District administration to make decisions on the health care infrastructure and social institutions. Proper decentralized health care models are needed to address the severity of tribal health. The use of modern technology and information technology, like mobile phones, tab, and the internet, can detour the distance, minimize the health care barriers, and enable a quick jump in access to health knowledge.

### **Future scope of the study**

A comprehensive assessment of Tribal health and population is strongly suggested as a future course of action. Also, an in-depth study on the Tribal health and lifestyle would help policymakers determine the causes of the poor health of Tribal people. More particular Tribal specific studies are needed to address the area-specific problem to mitigate the issue of heterogeneity. Such a study would be helpful for the policymakers in designing an intervention for improving the status of Tribal health in every pocket of India.

## 7. References

1. Atal, Y. (2016). *Indian Tribes in Transition: The need for reorientation—1st Edition*.  
<https://www.routledge.com/Indian-Tribes-in-Transition-The-need-for-reorientation/Atal/p/book/9780815395928>
2. Bailey F. G. (1960). *Tribe Caste and Nation (1960)*. Oxford University Press.  
<http://archive.org/details/dli.ernet.504813>
3. Balgir, R. S. (1997). *Tribal Health Problems, Disease Burden and Ameliorative Challenges in Tribal Communities with Special Emphasis on Tribes of Orissa*. 16.
4. Behera, M. C. (2020). *Tribal Studies in India* | SpringerLink.  
<https://link.springer.com/book/10.1007/978-981-32-9026-6>
5. BÉTEILLE, A. (1986). The concept of tribe with special reference to India. *European Journal of Sociology / Archives Européennes de Sociologie / Europäisches Archiv Für Soziologie*, 27(2), 297–318.
6. Bloom, D. E., & Williamson, J. G. (1998). *Demographic Transitions and Economic Miracles in Emerging Asia*. 37.
7. Bora, J. K., Raushan, R., & Lutz, W. (2019). The persistent influence of caste on under-five mortality: Factors that explain the caste-based gap in high focus Indian states. *PLOS ONE*, 14(8), e0211086. <https://doi.org/10.1371/journal.pone.0211086>
8. Boro, B., & Saikia, N. (2020). (PDF) *A qualitative study of the barriers to utilizing healthcare services among the tribal population in Assam*.  
[https://www.researchgate.net/publication/344611693\\_A\\_qualitative\\_study\\_of\\_the\\_barriers\\_to\\_utilizing\\_healthcare\\_services\\_among\\_the\\_tribal\\_population\\_in\\_Assam](https://www.researchgate.net/publication/344611693_A_qualitative_study_of_the_barriers_to_utilizing_healthcare_services_among_the_tribal_population_in_Assam)
9. Bose, A. (1996). Demographic transition and demographic imbalance in India. *Health*

*Transition Review*, 6, 89–99.

10. Census, R., India. (2011). *Census of India | Government of India*.  
<https://censusindia.gov.in/census.website/data/census-tables>
11. Christopher, S. (2020). *'Scheduled Tribe Dalit' and the Recognition of Tribal Casteism—*  
*Stephen Christopher, 2020*.  
<https://journals.sagepub.com/doi/full/10.1177/2394481120945824>
12. Constitution of India. (1950). *THE CONSTITUTION (SCHEDULED TRIBES) ORDER, 1950*. 15.
13. Debnath, S., & Venkateshwara, V. (2021). *Education and Health Status Among Scheduled Tribes in India: An Overview by Dr. Devath Suresh, Varayogula Venkateshwara Swamy: SSRN*. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3767775](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3767775)
14. Dyson, T. (2002). *ON THE FUTURE OF HUMAN FERTILITY IN INDIA*. 17.
15. GBD. (2019). *Global Burden of Disease (GBD 2019)*. Institute for Health Metrics and Evaluation. <https://www.healthdata.org/gbd/2019>
16. Govt.of.India. (1952). *Constitution of India|Legislative Department | Ministry of Law and Justice | GoI*. <https://legislative.gov.in/constitution-of-india>
17. Hasnain, N. (2007). *Tribal India by Nadeem Hasnain*.  
<https://www.goodreads.com/book/show/18335546-tribal-india>
18. Hayward, M., & Warner, D. (2005). *The Demography of Population Health* (pp. 809–825).  
[https://doi.org/10.1007/0-387-23106-4\\_28](https://doi.org/10.1007/0-387-23106-4_28)
19. Kirk, D. (1996). Demographic Transition Theory. *Population Studies*, 50(3), 361–387.
20. Krishnan, V. (2020, July 14). *A TRIBE IS IN TRANSITION -FUTURE WILL BE A PREDATION OR MUTUALISM?*

21. *Lesson 3: Demographic Indicators | Population Europe*. (n.d.). Retrieved June 30, 2022, from <https://population-europe.eu/lesson-3-demographic-indicators>
22. Maharatna, A. (2011). *Tribal Demography: | Economic and Political Weekly*. <https://www.epw.in/journal/2006/04/book-reviews/tribal-demography.html>
23. Ministry of Tribal Affairs. (2019). *Tribal Health action Plan*.
24. MOHFW. (2021). *National Family Health Survey*. <http://rchiips.org/nfhs/>
25. Mohindra, K., & Labonte, R. (2010). *A systematic review of population health interventions and Scheduled Tribes in India | BMC Public Health | Full Text*. <https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-10-438>
26. Nagda. (2017). *Tribal Population And Health In Rajasthan: Studies of Tribes and Tribals: Vol 2, No 1*. <https://www.tandfonline.com/doi/abs/10.1080/0972639X.2004.11886496>
27. Naik, I. C. (2020). *Scheduled Caste: An Ethnographic Study of “Dombo” in Odisha*. SSDN Publishers & Distributors.
28. *National Commission for Scheduled Tribes | Government of India*. (2022). <https://ncst.nic.in/>
29. *Notestein.EconomicProbsPopChange.pdf*. (n.d.). Retrieved June 25, 2022, from <https://u.demog.berkeley.edu/~jrw/Biblio/Eprints/%20M-O/Notestein.EconomicProbsPopChange.pdf>
30. Odisha Welfare Department. (2022). *Adivasi Journal | ST & SC Development, Minorities & Backward Classes Welfare Department*. <https://stsc.odisha.gov.in/publication/adivasi-journal>
31. OXFAM. (2021). *India Inequality Report 2021: India’s Unequal Healthcare Story*. <https://www.oxfamindia.org/press-release/india-inequality-report-2021-indias-unequal->



healthcare-story

32. Raja, M., & Ahamad, A. (1990). 9788170222583: *Atlas of Tribal India* - AbeBooks - Moonis Raza & Aijazuddin Ahmad: 8170222583. <https://www.abebooks.com/9788170222583/Atlas-Tribal-India-Moonis-Raza-8170222583/plp>
33. Rani, M., & Sharma, R. (2007). Socioeconomic and Demographic Characteristics of Tribes of Uttarakhand, India. *Tribal Health Bulletin (ISSN 09714677)*, 13.
34. Ranjan, S. (2009). *Tribal Development in India—Contemporary Issues and Perspectives*.
35. Schoumaker, B. (n.d.). *tfr2: A Stata module for computing fertility rates and TFRs from birth histories*. 30.
36. Sellars, B., Garza, M. A., Fryer, C. S., & Thomas, S. B. (2010). Utilization of Health Care Services and Willingness to Participate in Future Medical Research: The Role of Race and Social Support. *Journal of the National Medical Association*, 102(9), 776–786.
37. Singh, B. (1984). Tribal Development in Retrospect and Prospect: Sixth Plan Mid-Term Appraisal. *Indian Journal of Public Administration*, 30(4), 1064–1081. <https://doi.org/10.1177/0019556119840412>
38. Singh, K. S. (1985). *Tribal Society in India: An Anthro-Historical Perspective*. South Asia Books.
39. Skardhamar, T. (2014). Lifetime conviction risk—A synthetic cohort approach. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 15. <https://doi.org/10.1080/14043858.2014.883175>
40. Srinivasan. (2013). *Reproductive Health Care of Tribal Women in Kolli Hills at Nammakal District, Tamil Nadu by S. Srinivasan, Ponnuswami Ilango: SSRN*. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2389352](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2389352)

41. *Training Manual on Demographic Techniques*. (2016, May 31). UNFPA India.  
<https://india.unfpa.org/en/publications/training-manual-demographic-techniques>
42. UN. (2005). *Universal Health Coverage*. <https://in.one.un.org/task-teams/universal-health-coverage/>
43. UN. (2019). *Family Planning and the 2030 Agenda for Sustainable Development (Data Booklet)*. United Nations. <https://doi.org/10.18356/e154e49d-en>
44. WHO. (2011). *Constitution of the World Health Organization*.  
<https://www.who.int/about/governance/constitution>
45. WHO. (2022). *Indicator Metadata Registry Details*.  
<https://www.who.int/data/gho/indicator-metadata-registry/imr-details/3344>
46. Yadav, S., & Arokiasamy, P. (2014). Understanding epidemiological transition in India. *Global Health Action*, 7, 10.3402/gha.v7.23248.

## 8. Appendix:

Table A.1 Timeline of State Formation in India

Sl. No	States	Zone	Capital	Founded Year	Official Languages.
1	Andhra Pradesh	Southern	Amaravati, Hyderabad	1. Nov. 1956	Telugu
2	Arunachal Pradesh	North-Eastern	Itanagar	20. Feb. 1987	English
3	Assam	North-Eastern	Dispur	26. Jan. 1950	Assamese
4	Bihar	Eastern	Patna	26. Jan. 1950	Hindi, Urdu
5	Chhattisgarh	Central	Naya Raipur	1. Nov. 2000	Hindi
6	Goa	Western	Panaji	30. May. 1987	Konkani, Marathi
7	Gujarat	Western	Gandhinagar	1. May. 1960	Gujarati
8	Haryana	Northern	Chandigarh	1. Nov. 1966	Hindi, Punjabi
9	Himachal Pradesh	Northern	Shimla	25. Jan. 1971	Hindi, English
10	Jharkhand	Eastern	Ranchi	15. Nov. 2000	Hindi, Urdu
11	Karnataka	Southern	Bangalore	1. Nov. 1956	Kannada
12	Kerala	Southern	Thiruvananthapuram	1. Nov. 1956	Malayalam
13	Madhya Pradesh	Central	Bhopal	1. Nov. 1956	Hindi
14	Maharashtra	Western	Mumbai	1. May. 1960	Marathi
15	Manipur	North-Eastern	Imphal	21. Jan. 1972	Meitei, English
16	Meghalaya	North-Eastern	Shillong	21. Jan. 1972	English, Khasi
17	Mizoram	North-Eastern	Aizawl	20. Feb. 1987	English, Hindi, Mizo
18	Nagaland	North-Eastern	Kohima	1. Dec. 1963	English

---

19	Odisha	Eastern	Bhubaneswar	26. Jan. 1950	Odia
20	Punjab	Northern	Chandigarh	1. Nov. 1956	Punjabi
21	Rajasthan	Northern	Jaipur	1. Nov. 1956	Hindi, English
22	Sikkim	North- Eastern	Gangtok	16. May. 1975	English, Bhutia, Gurung, Lepcha, Limbu, Manggar, Mukhia, Newari, Rai, Sherpa, Tamang
23	Tamil Nadu	Southern	Chennai	26. Jan. 1950	Tamil, English
24	Telangana	Southern	Hyderabad	2. Jun. 2014	Telugu, Urdu[38]
25	Tripura	North- Eastern	Agartala	21. Jan. 1972	Bengali, Kokborok, English
26	Uttar Pradesh	Central	Lucknow	26. Jan. 1950	Hindi, Urdu
27	Uttarakhand	Central	Dehradun	9. Nov. 2000	Hindi, Sanskrit
28	West Bengal	Eastern	Kolkata	1. Nov. 1956	Bengali, Nepali, Hindi, Urdu, Santali, Odia and Punjabi

---

Table A.2. ST population in Indian state since 1961

State/UT	Census Year	Total Population	Total ST Population	Proportion of ST population to total population	Proportion of ST population to total all India ST population	Percentage of ST population to total population of State/Union Territory	Percentage of ST population to total all India total ST population	Decade Growth of ST Population (1961-2011)
<b>INDIA</b>	1961	43,92,34,771	3,01,31,505	0.07	1.00	6.86	100.00	
	1971	54,81,59,652	3,81,05,162	0.07	1.00	6.95	100.00	0.23
	1981	66,52,87,849	5,16,28,638	0.08	1.00	7.76	100.00	0.30
	1991	84,64,21,039	6,77,58,380	0.08	1.00	8.01	100.00	0.27
	2001	1,02,87,37,436	8,43,26,240	0.08	1.00	8.20	100.00	0.22
	2011	1,21,08,54,977	10,45,45,716	0.09	1.00	8.63	100.00	0.21
<b>Andhra Pradesh @@</b>	1961	3,59,83,447	13,24,191	0.04	0.04	6.86	4.39	
	1971	4,35,02,708	16,57,657	0.04	0.04	3.81	4.35	0.30
	1981	5,35,49,673	31,76,001	0.06	0.06	5.93	6.15	0.65
	1991	6,65,08,008	41,99,481	0.06	0.06	6.31	6.20	0.28
	2001	7,62,10,007	50,24,104	0.07	0.06	6.59	5.96	0.18
	2011	8,45,80,777	59,18,073	0.07	0.06	7.00	5.66	0.16
<b>West Bengal</b>	1961	3,49,26,279	20,53,665	0.06	0.07	6.86	6.82	
	1971	4,43,12,011	25,32,969	0.06	0.07	5.72	6.65	0.27
	1981	5,45,80,647	30,70,672	0.06	0.06	5.63	5.95	0.19
	1991	6,80,77,965	38,08,760	0.06	0.06	5.59	5.62	0.22
	2001	8,01,76,197	44,06,794	0.05	0.05	5.50	5.23	0.15

	2011	9,12,76,115	52,96,953	0.06	0.05	5.80	5.07	0.18
<b>Kerala</b>	1961	1,69,03,715	2,12,987	0.01	0.01	6.86	0.71	
	1971	2,13,47,375	2,69,356	0.01	0.01	1.26	0.71	0.22
	1981	2,54,53,680	2,61,475	0.01	0.01	1.03	0.51	-0.03
	1991	2,90,98,518	3,20,967	0.01	0.00	1.10	0.47	0.20
	2001	3,18,41,374	3,64,189	0.01	0.00	1.14	0.43	0.13
	2011	3,34,06,061	4,84,839	0.01	0.00	1.45	0.46	0.29
<b>Odisha</b>	1961	1,75,48,846	42,24,007	0.24	0.14	6.86	14.02	
	1971	2,19,44,615	50,71,937	0.23	0.13	23.11	13.31	0.21
	1981	2,63,70,271	5915067	0.22	0.11	22.43	11.46	0.15
	1991	3,16,59,736	70,32,214	0.22	0.10	22.21	10.38	0.17
	2001	3,68,04,660	81,45,081	0.22	0.10	22.13	9.66	0.15
	2011	4,19,74,218	95,90,756	0.23	0.09	22.85	9.17	0.16
<b>Rajasthan</b>	1961	2,01,55,602	23,09,832	0.11	0.08	6.86	7.67	
	1971	2,57,65,806	31,25,506	0.12	0.08	12.13	8.20	0.23
	1981	3,42,61,862	41,83,124	0.12	0.08	12.21	8.10	0.29
	1991	4,40,05,990	54,74,881	0.12	0.08	12.44	8.08	0.27
	2001	5,65,07,188	70,97,706	0.13	0.08	12.56	8.42	0.26
	2011	6,85,48,437	92,38,534	0.13	0.09	13.48	8.84	0.26
<b>Bihar</b>	1961	46447457	3153108	0.07	0.10	6.79	10.46	
	1971	56353369	4932767	0.09	0.13	8.75	12.95	0.45
	1981	87526803	5810867	0.07	0.11	6.64	11.26	0.16
	1991	86374465	6616914	0.08	0.10	7.66	9.77	0.13
	2001	109944338	7845419	0.07	0.09	7.14	9.30	0.17
	2011	137087586	9981615	0.07	0.10	7.28	9.55	0.24
<b>Maharashtra ##</b>	1961	3,95,53,718	23,96,955	0.06	0.08	6.86	7.95	
	1971	5,04,12,235	29,54,249	0.06	0.08	5.86	7.75	0.27
	1981	6,27,84,171	57,72,038	0.09	0.11	9.19	11.18	0.67
	1991	7,89,37,187	73,18,281	0.09	0.11	9.27	10.80	0.24
	2001	9,68,78,627	85,77,276	0.09	0.10	8.85	10.17	0.16
	2011	11,23,74,333		0.09	0.10	9.35	10.05	0.20

1,05,10,213

<b>Gujarat</b>	1961	2,06,33,350	27,54,552	0.13	0.09	6.86	9.14	
	1971	2,66,97,475	37,34,422	0.14	0.10	13.99	9.80	0.22
	1981	3,40,85,799	48,48,586	0.14	0.09	14.22	9.39	0.26
	1991	4,13,09,582	61,61,775	0.15	0.09	14.92	9.09	0.24
	2001	5,06,71,017	74,81,160	0.15	0.09	14.76	8.87	0.19
	2011	6,04,39,692	89,17,174	0.15	0.09	14.75	8.53	0.18
<b>Uttar Pradesh</b>	1961	7,37,54,573	-	-	-	-	-	
	1971	8,83,41,521	1,98,565	0.00	0.01	0.22	0.52	
	1981	11,65,87,985	2,32,705	0.00	0.00	0.20	0.45	0.16
	1991	13,91,12,287	2,87,901	0.00	0.00	0.21	0.42	0.21
	2001	17,46,87,270	3,64,092	0.00	0.00	0.21	0.43	0.23
	2011	20,98,98,633	4,05,330	0.00	0.00	0.19	0.39	0.11
<b>Punjab</b>	1961	1,88,45,474	7,795	0.00	0.00	0.04	0.03	
	1971	2,38,44,742	-	-	-	-	-	
	1981	3,00,91,427	-	-	-	-	-	
	1991	3,73,87,632	-	-	-	-	-	
	2001	4,64,04,198	-	-	-	-	-	
	2011	5,41,50,250	-	-	-	-	-	
<b>Madras</b>	1961	3,36,86,953	-	-	-	-	-	
	1971	4,11,99,168	3,11,515	0.01	0.01	0.76	0.82	
	1981	4,84,08,077	5,20,226	0.01	0.01	1.07	1.01	0.51
	1991	5,58,58,946	5,74,194	0.01	0.01	1.03	0.85	0.10
	2001	6,24,05,679	6,51,321	0.01	0.01	1.04	0.77	0.13
	2011	7,21,47,030	7,94,697	0.01	0.01	1.10	0.76	0.20
<b>Karnataka (mysore)</b>	1961	2,35,86,772	-	-	-	-	-	
	1971	2,92,99,014	-	-	-	-	-	
	1981	3,71,35,714	1825203	0.05	0.04	4.91	3.54	
	1991	4,49,77,201	19,15,691	0.04	0.03	4.26	2.83	0.05
	2001	5,28,50,562	34,63,986	0.07	0.04	6.55	4.11	0.59
	2011	6,10,95,297		0.07	0.04	6.95	4.06	0.20

42,48,987

**Arunachal Pradesh**

*	1961	3,36,558		-	-	-	-	
	1971	4,67,511	3,69,408	0.79	0.01	79.02	0.97	
	1981	6,31,839	4,41,167	0.70	0.01	69.82	0.85	0.18
	1991	8,64,558	5,50,351	0.64	0.01	63.66	0.81	0.22
	2001	10,97,968	7,05,158	0.64	0.01	64.22	0.84	0.25
	2011	13,83,727	9,51,821	0.69	0.01	68.79	0.91	0.30
<b>Meghalaya</b>	1961	7,69,380		-	-	-	-	
	1971	10,11,699	8,14,230	0.80	0.02	80.48	2.14	
	1981	13,35,819	10,76,345	0.81	0.02	80.58	2.08	0.28
	1991	17,74,778	15,17,927	0.86	0.02	85.53	2.24	0.34
	2001	23,18,822	19,92,862	0.86	0.02	85.94	2.36	0.27
	2011	29,66,889	25,55,861	0.86	0.02	86.15	2.44	0.25
<b>Mizoram</b>	1961	2,66,063		-	-	-	-	
	1971	3,32,390	3,13,299	0.94	0.01	94.26	0.82	
	1981	4,93,757	4,61,907	0.94	0.01	93.55	0.89	0.39
	1991	6,89,756	6,53,565	0.95	0.01	94.75	0.96	0.35
	2001	8,88,573	8,39,310	0.94	0.01	94.46	1.00	0.25
	2011	10,97,206	10,36,115	0.94	0.01	94.43	0.99	0.21
<b>Assam</b>	1961	1,08,37,329	11,64,641	0.11	0.04	10.75	3.87	
	1971	1,46,25,152	16,06,648	0.11	0.04	10.99	4.22	0.32
	1981 #	1,99,02,826		-	-	-	-	
	1991	2,24,14,322	28,74,441	0.13	0.04	12.82	4.24	
	2001	2,66,55,528	33,08,570	0.12	0.04	12.41	3.92	0.14
	2011	3,12,05,576	38,84,371	0.12	0.04	12.45	3.72	0.16
<b>Kerala</b>	1961	1,69,03,715	2,12,987	0.01	0.01	1.26	0.71	
	1971	2,13,47,375	2,69,356	0.01	0.01	1.26	0.71	0.23
	1981	2,54,53,680		0.01	0.01	1.03	0.51	-0.03



			2,61,475					
	1991	2,90,98,518	3,20,967	0.01	0.00	1.10	0.47	0.20
	2001	3,18,41,374	3,64,189	0.01	0.00	1.14	0.43	0.13
	2011	3,34,06,061	4,84,839	0.01	0.00	1.45	0.46	0.29
<b>Madhya Pradesh</b>								
<b>\$\$</b>	1961	32372408	4789854.833	0.15	0.16	20.63	15.90	
	1971	41654119	8387403	0.20	0.22	20.14	22.01	0.56
	1981	66189181	11987031	0.18	0.23	22.97	23.22	0.36
	1991	66181170	15399034	0.23	0.23	23.27	22.73	0.25
	2001	81181826	18850070	0.23	0.22	23.22	22.35	0.20
	2011	98172007	23139686	0.24	0.22	23.57	22.13	0.21
<b>UT</b>								
<b>Tripura</b>						-		
	1961	11,42,005	364642	0.32	0.01	31.93	1.21	
	1971	15,56,342	4,50,544	0.29	0.01	28.95	1.18	0.21
	1981	20,53,058	5,83,920	0.28	0.01	28.44	1.13	0.26
	1991	27,57,205	8,53,345	0.31	0.01	30.95	1.26	0.38
	2001	31,99,203	9,93,426	0.31	0.01	31.05	1.18	0.15
	2011	36,73,917	11,66,813	0.32	0.01	31.76	1.12	0.16
<b>Nagaland</b>								
<b>^</b>	1961	3,69,200	3,43,688	0.93	0.01	6.95	1.14	
	1971	5,16,449	4,57,602	0.89	0.01	88.61	1.20	0.21
	1981	7,74,930	6,50,885	0.84	0.01	83.99	1.26	0.35
	1991	12,09,546	10,60,822	0.88	0.02	87.70	1.57	0.49
	2001	19,90,036	17,74,026	0.89	0.02	89.15	2.10	0.51
	2011	19,78,502	17,10,973	0.86	0.02	86.48	1.64	-0.04
<b>NCT OF Delhi</b>								
	1961	26,58,612		-	-	-	-	
	1971	40,65,698		-	-	-	-	
	1981	62,20,406		-	-	-	-	
	1991	94,20,644		-	-	-	-	
	2001	1,38,50,507		-	-	-	-	
	2011	1,67,87,941		-	-	-	-	
<b>Himachal Pradesh</b>								
	1961	28,12,463	2,25,278	0.08	0.01	6.95	0.75	
	1971	34,60,434	1,41,610	0.04	0.00	4.09	0.37	0.30
	1981	42,80,818	1,97,263	0.05	0.00	4.61	0.38	0.33

	1991	51,70,877	2,18,349	0.04	0.00	4.22	0.32	0.10
	2001	60,77,900	2,44,587	0.04	0.00	4.02	0.29	0.11
	2011	68,64,602	3,92,126	0.06	0.00	5.71	0.38	0.47
<b>Manipur</b>	1961	7,80,037	2,49,066	0.32	0.01	6.95	0.83	
	1971	10,72,753	3,34,466	0.31	0.01	31.18	0.88	0.27
	1981	14,20,953	3,87,977	0.27	0.01	27.30	0.75	0.15
	1991	18,37,149	6,32,173	0.34	0.01	34.41	0.93	0.49
	2001	22,93,896	7,41,141	0.32	0.01	32.31	0.88	0.16
	2011	28,55,794	11,67,422	0.41	0.01	40.88	1.12	0.45
<b>Puducher ry</b>	1961	3,69,079		-	-	-	-	
	1971	4,71,707				-	-	
	1981	6,04,471		-	-	-	-	
	1991	8,07,785	-	-	-	-	-	
	2001	9,74,345		-	-	-	-	
	2011	12,47,953		-	-	-	-	
<b>Andaman &amp; Nicobar Islands</b>	1961	63,548	14,120	0.22	0.00	6.95	0.05	
	1971	1,15,133	18,102	0.16	0.00	15.72	0.05	0.21
	1981	1,88,741	22,361	0.12	0.00	11.85	0.04	0.21
	1991	2,80,661	26,770	0.10	0.00	9.54	0.04	0.18
	2001	3,56,152	29,469	0.08	0.00	8.27	0.03	0.10
	2011	3,80,581	28,530	0.07	0.00	7.50	0.03	-0.03
<b>Dadra &amp; Nagar Haveli</b>	1962	57,963	51,257	0.88	0.00	6.95	0.17	
	1971	74,170	64,445	0.87	0.00	86.89	0.17	0.23
	1981	1,03,676	81,714	0.79	0.00	78.82	0.20	0.24
	1991	1,38,477	1,09,380	0.79	0.00	78.99	0.16	0.29
	2001	2,20,490	1,37,225	0.62	0.00	62.24	0.16	0.23
	2011	3,43,709	1,78,564	0.52	0.00	51.95	0.17	0.26
<b>Lakshadw eep</b>	1961	24,108	23,392	0.97	0.00	6.95	0.08	

	1971	31,810	29,540	0.93	0.00	92.86	0.08	0.30
	1981	40,249	37,760	0.94	0.00	93.82	0.07	0.25
	1991	51,707	48,163	0.93	0.00	93.15	0.07	0.24
	2001	60,650	57,321	0.95	0.00	94.51	0.07	0.17
	2011	64,473	61,120	0.95	0.00	94.80	0.06	0.06
<b>Goa</b>	1960	6,26,667		-	-	-	-	
	1971	8,57,771	15,308	0.02	0.00	1.78	0.04	
	1981	10,86,730	10,721	0.01	0.00	0.99	0.02	-0.36
	1991	12,71,379	12,100	0.01	0.00	0.95	0.02	0.12
	2001	15,05,872	14,563	0.01	0.00	0.97	0.02	0.19
	2011	17,01,792	1,64,638	0.10	0.00	9.67	0.16	2.43

Table A.3. Child Sex Ratio of Indian State in 2011.

State/UT	Child Sex_Ratio
India	962
JAMMU & KASHMIR	904
HIMACHAL PRADESH	930
UTTARAKHAND	937
RAJASTHAN	922
UTTAR PRADESH	961
BIHAR	979
SIKKIM	962
ARUNACHAL PRADESH	978
NAGALAND	947
MANIPUR	920
MIZORAM	971
TRIPURA	963
MEGHALAYA	976
ASSAM	957
WEST BENGAL	979
JHARKHAND	981
ODISHA	985
CHHATTISGARH	1000
MADHYA PRADESH	961
GUJARAT	959
DAMAN & DIU	930
DADRA & NAGAR HAVELI	985
MAHARASHTRA	955
ANDHRA PRADESH	935
KARNATAKA	970
GOA	974
LAKSHADWEEP	903
KERALA	965
TAMIL NADU	926
ANDAMAN & NICOBAR ISLANDS	985

Table A.4. Overall Sex Ratio of Indian State in 2011.

state/UT	sex_ratio
India	990
JAMMU & KASHMIR	924
HIMACHAL PRADESH	999
UTTARAKHAND	963
RAJASTHAN	948
UTTAR PRADESH	952
BIHAR	958
SIKKIM	960
ARUNACHAL PRADESH	1032
NAGALAND	976
MANIPUR	984
MIZORAM	1007
TRIPURA	983
MEGHALAYA	1013
ASSAM	985
WEST BENGAL	999
JHARKHAND	1003
ODISHA	1029
CHHATTISGARH	1020
MADHYA PRADESH	984
GUJARAT	981
DAMAN & DIU	977
DADRA & NAGAR HAVELI	1010
MAHARASHTRA	977
ANDHRA PRADESH	993
KARNATAKA	990
GOA	1046
LAKSHADWEEP	1003
KERALA	1035
TAMIL NADU	981
ANDAMAN & NICOBAR ISLANDS	937

Table A.5: Health care utilization indicators of ST population at the State level (1992-2021)

Indicators	Percentage of pregnant women who had four or more ANC visits			Received two or more TT injections during pregnancy			% Of Fully vaccinated children			% Of Non-vaccinated children			Percentage with a vaccination card seen		
	NFHS -3	NFHS -4	NFHS -5	NFHS -3	NFHS -4	NFHS -5	NFHS -3	NFHS -4	NFHS -5	NFHS -3	NFHS -4	NFHS -5	NFHS -3	NFHS -4	NFHS -5
<b>INDIA</b>			57.6	79	61.9		55.8	31.3	76.8	9.2	11.5	4.1	56.2	27.4	87.1
<b>Jammu &amp; Kashmir</b>	69.3	55.8	66.8	72	61.9	79.3	69	34.7	82.5	5.2	17.3	2.8	79.3	37.6	83.8
<b>Himachal Pradesh</b>	56.1	60	71.5	71	80	74.3	75.8		87.3	0.3		0	87.8		76.8
<b>Punjab</b>			61.1			86.3									
<b>Uttarakhand</b>	25.1	21.5	67.1	72.3	65.1	93.3	55.4			0			59.3		
<b>Haryana</b>	36.7		36.3	76.2		63.6									
<b>NCT OF Delhi</b>			83.6			75.2									
<b>Rajasthan</b>	30.9	28.6	55.9	78.4	49.9	83.1	47.9	3.3	79.2	9.1	6.3	1.6	46.4	5.9	83.3
<b>Uttar Pradesh</b>	14.6		28.7	70		72	34.1		53.1	20.9		5.3	37.9		81.5
<b>Bihar</b>	11.2		17.5	75.9		79.5	49.5		71.8	9.2		3.9	48.9		76.8
<b>Sikkim</b>	77.4	64.1	55.7	97.3	78.6	89.4	86.6	77.3	92.2	0	2.7	5.8	83.4	55.8	94.2
<b>Arunachal Pradesh</b>	24.1	30.7	35.9	52.1	33.6	65.6	32.5	22.4	63.7	24.3	30	10.3	39.2	23.7	82.1
<b>Nagaland</b>	14.8	33.8	17.8	58.2	51.5	74.9	37.9	21.3		17.7	16.6		55.2	26.1	
<b>Manipur</b>	44.3	41.6	80.4	78.9	66.7	79.1	50.8	23.3	59.6	9.1	9.1	7.3	56.6	26.2	75.4
<b>Mizoram</b>	61.8		59.5	74.5		73.4									
<b>Tripura</b>	53.3	28	42.7	85.1	31.3	89.4	69.4		57.9	8.5		3.2	81.3		81.4
<b>Meghalaya</b>	50.5	53.5	52.5	65.8	51	63.9	61.7	33.1	64.1	12.4	16.9	9.2	66.1	31.8	77.1
<b>Assam</b>	46.5	34.2	59.9	85.8	53.4	90	48.4	36.1	67.5	9.3	30.6	4.4	52.9	38.9	88.8
<b>West Bengal</b>	79.9	44.5	70.9	89.4	81.8	88.1	91		90.4	25		2.3	84.2		94.7

<b>Jharkhand</b>	22.3	25.8	32.7	83.4	54.1	83.2	62.4	28.9	76	3.2	3.9	5.8	64.2	38	90.2
<b>Odisha</b>	59.9	64	69.8	88.2	73.3	89.1	74.4	30.4	88.6	7.3	22.3	1.8	76.7	34.4	97.4
<b>Chhattisgarh</b>	51.3	47.8	55.9	87.5	67.8	84.3	69.8	42.2	79	1.3	4	3.2	64	27.9	89.9
<b>Madhya Pradesh</b>	24.6	25.9	55.5	74.7	51.7	85.4	41	22.3	76.4	10.2	7.8	4.1	37.8	12.4	88.4
<b>Gujarat</b>	55.8	53.2	77.6	71.6	60.4	84.5	55	39.5	80.2	11.6	13.1	4.9	54.6	31.6	90.7
<b>Maharashtra</b>	60.9	44.5	65.5	79	75.9	75.2	50.4	39.3	74.7	12.1	14	3.1	51.6	29.3	83.5
<b>Andhra Pradesh</b>	58.8	67.5	59.8	90	85.9	80.8	55.4	26.7	70	3	12	7.1	51.4	4.1	72.1
<b>Karnataka</b>	71.1	62.4	70.6	82.4	60.1	84.1	53.1	39.7	82	21.1	10.1	4.6	54.2	39.7	88.4
<b>Goa</b>	83.8	94.6	87.8	79	84.6	97.3									
<b>Kerala</b>	83.3		86	92.7		95.5									
<b>Tamil Nadu</b>	77		85.3	51		79.1	32.4			6.7			69.1		
<b>Telangana</b>	68.6		67.3	73.1		83.7	78		69.5	0		5.4	65.4		87.3

Table A.6. Health care utilization indicators ...continue

Indicators	unmet need			Children who had diarrhoea in the two weeks before the survey were transported to a hospital or other medical institution ( % )			Children with symptoms of ARI in the two weeks preceding the survey were taken to a health facility or health provider (%)			The percentage for whom treatment was sought from a health facility or provider		
	NFHS-3	NFHS-4	NFHS-5	NFHS-3	NFHS-4	NFHS-5	NFHS-3	NFHS-4	NFHS-5	NFHS-3	NFHS-4	NFHS-5
<b>INDIA</b>	13	13.9	9.2	64.6	54.3	73.8	70.5	57.4	49.8	67	61.3	
<b>Jammu &amp; Kashmir</b>	18.5	24	8.5	62.6		69.8	80.4			76.2		69
<b>Himachal Pradesh</b>	14.7	5.9	10.9	52.2						50.6		77.1
<b>Punjab</b>			19.4									
<b>Uttarakhand</b>	17.7	8.6	6.6							70.4		
<b>Haryana</b>	32.9		7.5									
<b>NCT OF Delhi</b>		19.8	7.4			24						
<b>Rajasthan</b>	12	15.7	7.1	71.7		74.9	90.6		39.9	80.7	72.9	83.6
<b>Uttar Pradesh</b>	25.5		14.7	46.1		68.1				67.6		69.1
<b>Bihar</b>	23.5		15.9	57.8		73.5			52.3	64.3		68.5
<b>Sikkim</b>	22.4	15.7	15.5								46.2	62.6
<b>Arunachal Pradesh</b>	22.4	17.3	13.4	46.1	37.1	53.9	61.1	50.5	48	35	40.8	53.1
<b>Nagaland</b>	21.9	26.4	9.2	20.9	16.4	30	38.8	26.4	9.7	31.3	22.8	28.3
<b>Manipur</b>	29	16.3	10.5	22.7	18.6	48.5	32		22.8	36.5	26	38.3
<b>Mizoram</b>	19.8		19.3	40.1		44.5	62.9			49.8		55.6
<b>Tripura</b>	10.5	17.8	9.2			61.3				64.8	42.5	62.7
<b>Meghalaya</b>	21.8	38.9	27.3	71.6	73.4	71.5	76.8			78.5	57.9	77.8



<b>Assam</b>	13.8	12.8	10.2	46.3		54.2	53		42.5	44.6		46.8
<b>West Bengal</b>	7.2	6.4	9							75.5		81.3
<b>Jharkhand</b>	22.1	29.2	12.6	49.7	38.3	58.7	46.8		46.4	59.3	50.4	57.7
<b>Odisha</b>	13.2	17.8	6.2	61.2	55.2	46.5	58.2		23.5	64.5	62	60.7
<b>Chhattisgarh</b>	12.6	9.9	10.4	73.3		63.3	70		22.7	63.2	67.6	59.4
<b>Madhya Pradesh</b>	10.7	11.8	6.5	63	62.1	64.5	64.3		49.4	63	50.9	70.1
<b>Gujarat</b>	15.3	9.8	7.3	63.8		72.3	62.4		60	57.7		78.8
<b>Maharashtra</b>	9.3	11.2	9.9	72.7	99.7	74.5	81.9		52.9	79.4	65.4	82.7
<b>Andhra Pradesh</b>	7.6	6.3	6.5								79.3	78.6
<b>Karnataka</b>	7.6	5.3	7.4	64.4		73.2				78.4		67.9
<b>Goa</b>	13.8	12	7.8									
<b>Kerala</b>	10.8	16.3	7.5									
<b>Tamil Nadu</b>	10.3	6.5	4.7									
<b>Telangana</b>	3.5		7.1			77.3				59.9		71.5

Table A.7. Current healthcare utilisation by ST scenario, comparison with other castes (NFHS-5, 2019-21)

State/UT	Caste/ Tribe	Percentage of pregnancies that were registered	Percentage of mothers has given an MCP card	Percentage of pregnant women who had four or more ANC visits	Had birth protected against neonatal tetanus	% Of Fully vaccinated children	% Of Non- vaccinated children
<b>INDIA</b>	SC	93.8	96.5	55.3	91.9	76.7	3.4
	ST	94.3	96.2	57.6	90.7	76.8	4.1
	OBC	93.8	95.7	57.2	92	77.1	3.5
	OTHER	93.9	95.6	64.4	92.6	75.8	3.8
<b>Jammu &amp; Kashmir</b>	SC	96.6	98.9	78.6	89.2	95	2.5
	ST	92.4	94.4	66.8	87.5	82.5	2.8
	OBC	98.2	94.9	81.8	93.7	84.6	4.1
	OTHER	98.1	97.7	82.7	92.6	85.4	4.8
<b>Himachal Pradesh</b>	SC	96.8	98.5	67.2	88.4	89.1	1.1
	ST	98.8	99.8	71.5	86.2	87.3	0
	OBC	96.9	98.4	66	88.8	88.2	4.1
	OTHER	96.8	98.7	73.4	91.8	90.5	1.6
<b>Punjab</b>	SC	93	97.5	57.7	89.6	73.9	3.8
	ST	90.7	96.6	61.1	91.5		
	OBC	89.3	95.9	62.9	90.1	81.6	2.7
	OTHER	80.6	98.4	33.3	71.2	76.2	2.9
<b>Uttarakhand</b>	SC	92.8	95.7	49.8	91.2	74.1	0.9
	ST	99.6	100	67.1	95.4		
	OBC	96	97.1	64	94.3	77.8	4.3
	OTHER	95.9	97.8	65.1	94	85.9	3.3
<b>Haryana</b>	SC	97.9	97.8	58.4	90.5	79.1	3.1
	ST	97.4	97.1	36.3	76.3		
	OBC	97.3	96.5	58	90.3	72.6	4
	OTHER	96.6	96.1	65	91.6	78.6	4.4
<b>NCT OF Delhi</b>	SC	96.7	94.8	73.7	93.7	77.7	3
	ST	100	89.2	83.6	88.7		
	OBC	92.9	94.9	82.4	94.8	80.4	1.9
	OTHER	95.4	93.6	78.1	92.9	73.7	4
<b>Rajasthan</b>	SC	96.1	98.6	52.3	93	82.9	1.5
	ST	96.3	97.9	55.9	93.4	79.2	1.6
	OBC	96.5	98	55.7	93.3	79.9	3.1
	OTHER	96.1	98.1	57.7	94.3	80.3	3.8

<b>Uttar Pradesh</b>	SC	91.6	96.2	39.4	92	70.6	5.1
	ST	89.3	88.4	28.7	83.4	53.1	5.3
	OBC	91.7	95.8	42.4	92.1	69.6	5
	OTHER	90.8	95.8	47.6	93	70.1	4.1
<b>Bihar</b>	SC	83.5	90.7	19.3	89	67.8	3.3
	ST	75.9	90.4	17.5	90.1	71.8	3.9
	OBC	85.4	89.9	26	89.8	73.6	2.8
	OTHER	79	85.6	35.1	89.7	67.7	4.3
<b>Sikkim</b>	SC	96.1	89.1	47.5	88.1		
	ST	96	95.5	55.7	92.7	92.2	5.8
	OBC	97.9	95	63.2	91.6	87	2.6
	OTHER	84.6	92.3	49.5	93.3		
<b>Arunachal Pradesh</b>	SC	84.4	95.7	34.4	70.8	55.6	11.8
	ST	84.9	95.3	35.9	76	63.7	10.3
	OBC	93.6	96.3	51.2	88.4	71.9	2.5
	OTHER	89.6	96.6	35	80.5	71.6	7.4
<b>Nagaland</b>	SC	78	92.5	55.5	96.1		
	ST	67.7	92.2	17.8	80.4		
	OBC						
	OTHER	65.9		45.5	80.3		
<b>Manipur</b>	SC	81.7	90.1	88.3	85.8	69.9	0
	ST	59.5	83.8	80.4	77.9	59.6	7.3
	OBC	87.2	90.3	88.8	70.8	66.1	2.1
	OTHER	89.6	91.4	85	68.4	76.2	0.2
<b>Mizoram</b>	SC	75.9	92.7	19.3	59.9		
	ST	93.1	96.2	59.5	80.9		
	OBC	79.6		22.7	48		
	OTHER						
<b>Tripura</b>	SC	94.9	94.6	61	95.8	75.5	0.6
	ST	89.8	90.5	42.7	92	57.9	3.2
	OBC	93.3	94.4	58.2	97.6	81.5	1.5
	OTHER	95.8	93.8	54.1	95.6	70.7	2.2
<b>Meghalaya</b>	SC	96.7	91	53.2	94.3		
	ST	89.9	93	52.5	82.4	64.1	9.2
	OBC	82.4	100	44.7	64.1		
	OTHER	87.2	98.1	47.4	75.8	67.3	9
<b>Assam</b>	SC	97.8	99.3	49.9	94.9	66.6	6
	ST	96.7	99	59.9	94.2	67.5	4.4
	OBC	97.8	99.1	60.6	96.4	72.3	3.4
	OTHER	96.8	98.4	44.5	93.6	63.8	5.9
<b>West Bengal</b>	SC	98.7	98.2	79	94.7	91.5	0
	ST	98.9	99.4	70.9	92.9	90.4	2.3
	OBC	98.6	98.4	74	93.8	88.8	0

	OTHER	97.3	98.4	75.4	95.2	85.8	1.3
<b>Jharkhand</b>	SC	89.3	91.6	37.2	90.5	72.8	2.6
	ST	92.1	93.5	32.7	91.4	76	5.8
	OBC	89.3	91.4	41.7	90.7	73	3.1
	OTHER	88.4	85.6	74.2	89.6	74	3.5
<b>Odisha</b>	SC	98.1	99.4	79.1	94.8	91.8	1.3
	ST	98.4	99.3	69.8	94	88.6	1.8
	OBC	98.9	99.5	82.3	96.4	92.1	2.6
	OTHER	97.4	99.4	82	95.1	88.1	2.5
<b>Chhattisgarh</b>	SC	94.4	97.8	59.3	92.1	74.4	2.3
	ST	95.8	95.8	55.9	91.9	79	3.2
	OBC	96	98.2	62.5	91.9	83.3	2.4
	OTHER	94.6	98.6	64.2	91.7	70.2	1
<b>Madhya Pradesh</b>	SC	96.3	96.5	56.5	96.2	81	2.9
	ST	96.3	96.5	55.5	93.7	76.4	4.1
	OBC	96.3	96.9	57.5	95.2	78.3	3.5
	OTHER	95.3	96.4	62.1	95.5	71.5	4.1
<b>Gujarat</b>	SC	96.4	98.3	76.7	86	77.2	3.2
	ST	97.1	98.2	77.6	91.5	80.2	4.9
	OBC	96	98	75.2	89.5	75.6	4.2
	OTHER	96.1	96	80.8	88.8	74.9	5.3
<b>Maharashtra</b>	SC	96.3	97	68.7	93.1	67.1	8.1
	ST	93.3	95.2	65.5	86.4	74.7	3.1
	OBC	96.8	95.2	70.5	90.1	80	3.3
	OTHER	95.6	95.3	71.6	90.1	71.7	6.2
<b>Andhra Pradesh</b>	SC	97.5	97.6	66.7	93.1	73.6	5.1
	ST	97.5	97.8	59.8	87.6	70	7.1
	OBC	97.5	96.8	68.3	93.5	71.7	5.3
	OTHER	93.1	93.9	68.4	92.2	76.7	1.9
<b>Karnataka</b>	SC	98.3	97.6	70.9	92.5	87.9	1.5
	ST	98.4	98	70.6	93.5	82	4.6
	OBC	98.1	97.6	72.3	93.6	86	2.6
	OTHER	98.5	97.1	65.3	95.7	76.5	1.6
<b>Goa</b>	SC						
	ST	100	100	87.8	97.2		
	OBC	98.6	100	92.2	97.3		
	OTHER	98.2	99.7	94.3	96.2		
<b>Kerala</b>	SC	99.5	99	77.1	95	83	3.8
	ST	100	100	86	96.9		
	OBC	96.9	91.5	79.2	95.5	75.2	2.1
	OTHER	94.6	87	78	94.6	79.7	0.7

<b>Tamil Nadu</b>	SC	98.8	99	90.2	89.9	90.4	0.8
	ST	100	100	85.3	87.6		
	OBC	97.6	98.7	90.1	90.1	89.9	1.9
	OTHER	98.2	99.5	83	75.6	73.3	0
<b>Telangana</b>	SC	95.6	97.5	66	90.4	83.8	3.3
	ST	92.7	97	67.3	85.6	69.5	5.4
	OBC	94.5	96.6	71.5	89.8	80.6	4.2
	OTHER	88.9	95	76.5	89.8	63.9	21.2

**Table A.8.: Current healthcare utilisation by ST scenario...continue**

<b>State/UT</b>	<b>Caste/ Tribe</b>	<b>Percentage with a vaccination card seen</b>	<b>Death registration</b>	<b>Mensuration protection</b>	<b>Unmet need</b>	<b>Children with diarrhoea in the two weeks preceding the survey were taken to a health facility or health provider (%)</b>	<b>Children with symptoms of ARI in the two weeks preceding the survey were taken to a health facility or health provider (%)</b>
<b>INDIA</b>	SC	85.5	67.9	76.7	9.2	75.8	56.9
	ST	87.1	67.1	65.6	9.2	73.8	49.8
	OBC	86	69.4	77.7	9.6	76.8	55.2
	OTHER	85.3	77.1	83.7	9.4	77	59.5
<b>Jammu &amp; Kashmir</b>	SC	94.5	74.7	76.1	9.6	66.5	58.1
	ST	83.8	75	51	8.5	69.8	

	OBC	88.7	79.5	65.3	7.9	80.6	
	OTHE R	84	76.4	77.8	7.4	75.8	41.7
<b>Himachal Pradesh</b>	SC	90.2	93	89.6	7.7	65.4	
	ST	76.8	93.7	92.5	10.9		
	OBC	84.7	92.1	91.9	10.5		
	OTHE R	89.1	95.3	92.5	6.8	64.1	
<b>Punjab</b>	SC	83.3	89	90.6	9.8	75.4	40
	ST		90.8	84.2	19.4		
	OBC	85.4	94.5	95.6	11.2	75	
	OTHE R	85.2	76.4	96.5	9.5	85.1	48.1
<b>Uttarakhand</b>	SC	82.9	71.2	89.4	7.7	81.7	
	ST			98.9	6.6		
	OBC	84.7	67.9	88.7	8.6	82.8	
	OTHE R	88.4	75.1	93.8	9.6	74.8	
<b>Haryana</b>	SC	88.2	85.5	94.1	7.5	79.5	47.6
	ST			90.7	7.5		
	OBC	87	85.1	91.4	8.6	72.2	43.9
	OTHE R	85.9	89.1	94.2	6.9	77.3	44.4
<b>NCT OF Delhi</b>	SC	90.9	86.5	96.5	6.5	13.4	60
	ST			97.1	7.4	24	
	OBC	91.2	89.7	96.1	5.7	11.8	52.3
	OTHE R	88.6	90.7	97.8	5.7	8.1	55.2
<b>Rajasthan</b>	SC	91.3	77.4	83.1	7.6	77.6	48.7
	ST	83.3	69.1	72.3	7.1	74.9	39.9
	OBC	85.3	78.4	85.7	7.9	81.1	45.8
	OTHE R	86.5	79.3	90.6	7.2	82.5	31.7
<b>Uttar Pradesh</b>	SC	83.7	56	68.3	13.3	67.9	42.5
	ST	81.5	43.2	63.3	14.7	68.1	
	OBC	83.7	60.1	72.2	13.1	71.1	42.9
	OTHE R	83.5	69.1	80.6	11.5	70.2	51.3
<b>Bihar</b>	SC	74.4	31.3	49.2	12.7	66.9	72.1

	ST	76.8	33.2	56.6	15.9	73.5	52.3
	OBC	78	37.8	59.9	12.9	65.1	63.8
	OTHE R	75.6	43.1	70.8	16.6	57.7	53.1
<b>Sikkim</b>	SC			73.7	7.8		
	ST	94.2	71.1	88	15.5		
	OBC	91.2	82.3	85.1	10.4		
	OTHE R			95.1	11		
<b>Arunachal Pradesh</b>	SC	72.9	51.3	90.5	13.2		
	ST	82.1	30	92.5	13.4	53.9	48
	OBC	91.3	58.2	87.3	8		
	OTHE R	81.1	53.1	90.3	8.3		
<b>Nagaland</b>	SC			87.3	7.9		
	ST			80.4	9.2	30	9.7
	OBC				14.2		
	OTHE R			62.9	7.7		
<b>Manipur</b>	SC	87.4	36.7	81.3	12.5		
	ST	75.4	53.4	83.1	10.5	48.5	22.8
	OBC	88.4	42.1	82.8	13		
	OTHE R	92.2	38.2	83.9	12.7	51.5	
<b>Mizoram</b>	SC			44.4	14.3		
	ST			91.6	19.3	44.5	
	OBC			59.8	10.5		
	OTHE R						
<b>Tripura</b>	SC	93.3	80.7	67.3	7.4		
	ST	81.4	68.2	63.5	9.2	61.3	
	OBC	92.6	72.4	78.1	6.3		
	OTHE R	85.8	88.8	71.9	8.8	61	
<b>Meghalay a</b>	SC			84.6	19.1		
	ST	77.1		63.5	27.3	71.5	
	OBC				25.8		
	OTHE R	83.6		79.6	25.1		
<b>Assam</b>	SC	85.2	71.9	67.4	10.5	60.2	25.7
	ST	88.8	54.7	75.5	10.2	54.2	42.5

	OBC	92.2	63.4	72.4	10.4	56.3	45
	OTHE R	87.7	67.9	62.4	11.5	51.4	50.1
<b>West Bengal</b>	SC	95.1	78	82.4	6.1	86.3	62.9
	ST	94.7	69.8	73.3	9		
	OBC	94.1	82	87.6	7.7	84.4	73.3
	OTHE R	91.8	80.3	84.5	7.2	70.1	65.7
<b>Jharkhan d</b>	SC	88.4	36.1	71.9	11.8	59.4	
	ST	90.2	35.1	68	12.6	58.7	46.4
	OBC	91.1	43.4	78.5	10.9	59.9	44.8
	OTHE R	93.3	50.7	85	10.9	64.3	
<b>Odisha</b>	SC	97.1	68.9	82.4	6.7	58	44.6
	ST	97.4	62.1	69	6.2	46.5	23.5
	OBC	96.5	73.3	85.5	7.6	58.6	43.8
	OTHE R	92.1	72.7	92.4	8	66.5	49.4
<b>Chhattisga rh</b>	SC	90.4	72.6	71.8	9.1	79.5	
	ST	89.9	74.3	58.8	10.4	63.3	22.7
	OBC	91.3	79.9	72.7	6.9	81.7	48.6
	OTHE R	94.3	79.2	81.5	7.3		
<b>Madhya Pradesh</b>	SC	88.9	69.7	61	8.3	68	52.3
	ST	88.4	67.1	41.2	6.5	64.5	49.4
	OBC	87.6	77.1	64.7	7.6	65.6	41.1
	OTHE R	79.7	81	76.5	8.8	64	57.8
<b>Gujarat</b>	SC	83.2	94.3	69.4	11.4	65.9	
	ST	90.7	91.8	53.8	7.3	72.3	60
	OBC	86.2	92.8	65.6	10.7	69.1	61.2
	OTHE R	85.9	94.2	78.6	10.7	70.3	
<b>Maharash tra</b>	SC	80.3	89.1	87.3	9	70.3	62.8
	ST	83.5	83.3	71.2	9.9	74.5	52.9
	OBC	89.8	91.7	86.9	9.2	77.5	69.1
	OTHE R	82	90.2	86.8	9.7	69.3	63.3



<b>Andhra Pradesh</b>	SC	77.9	72	87.8	4.7	67.7	
	ST	72.1	55	75.5	6.5		
	OBC	75.5	81.8	84	4.5	71.7	51.9
	OTHE R	80.7	87.9	86.9	4.7	90.8	
<b>Karnataka</b>	SC	92.8	86.6	83.5	6.2	70.4	46.3
	ST	88.4	82.8	78.5	7.4	73.2	
	OBC	92.5	87.5	85.4	5.9	74.5	59.1
	OTHE R	86.4	85.3	85.7	8.4	75.4	
<b>Goa</b>	SC			100	6.9		
	ST			96.8	7.8		
	OBC		100	95.1	6.4		
	OTHE R		100	97.9	9.2		
<b>Kerala</b>	SC	86.1	97.1	88.1	13		
	ST		89.9	86.1	7.5		
	OBC	87.6	97.2	94.3	12.4	87.3	77.5
	OTHE R	90.8	98.1	92.8	12.7	84	
<b>Tamil Nadu</b>	SC	95.9	93.4	98	6.7	55	
	ST		86.7	94.1	4.7		
	OBC	95.3	93	98.5	7.7	62.6	30.5
	OTHE R	85.9	97.5	100	13.9		
<b>Telangana</b>	SC	89	75.5	92.5	6.4	63.6	60.7
	ST	87.3	68.3	88.3	7.1	77.3	
	OBC	88.5	72.8	93.9	6.3	74.3	59.9
	OTHE R	69.5	78	94.7	11.2	88.2	

Table A.9 State-wise Infant, Neonatal, Under-five Mortality and Total fertility rate among different caste group in India,2021

		Infant and Child Mortality Rates (per 1,000 live births)																			
		2.1 Neonatal mortality rate (NNMR)					2.2 Infant mortality rate (IMR)					2.3 Under-five mortality rate (U5MR)					22. Total fertility rate (children per woman)				
		NF HS -1	NF HS -2	NF HS -3	NF HS -4	NF HS -5	NF HS -1	NF HS -2	NF HS -3	NF HS -4	NF HS -5	NF HS-1		NF HS -3	NF HS -4	NF HS -5	NFH S-1	NFH S-2	NFH S-3	NFH S-4	NFH S-5
<b>INDIA</b>	ST	54.6	35.6	29	16.5	21.8	90.5	57.6	43.8	23.5	32.1	135.2	79.6	53.8	27.8	35.5	3.55	3.06	3.12	2.48	2.09
	SC	63.1	40.1	35	20.7	22	107.3	60.4	50.7	31.1	32.2	149.1	84	65.4	38.9	39	3.92	3.15	2.92	2.26	2.08
	OB C		35.3	26.4	23.1	17.4		51.2	42.2	32.1	25.2		66.6	54.5	37.7	29.9		2.83	2.75	2.22	2.02
	OT HE R	50.6	29.8	27.5	16.2	14.5	82.2	43.5	36.1	22.7	21.9	111.5	57	42.1	27.8	26.3	3.3	2.66	2.35	1.93	1.78
	Jammu & Kashmir	ST			11.2	23.2	18.1			34.3	37.5	30.1			49.3	33.1		3.62		3.09	1.65
	SC		21.5	45.7	30	5.1		44.3	62.6	31.7	13.8		62.8	72.2	42.3	17.1		3.18	2.57	2.01	1.64
	OB C		43.3	26	19.5	15.4		85.7	45.3	20.9	24.4		107.7	55.1	20.9	24.8		3.36		2.02	1.73
	OT HE R		39.9	34	22.5	8.9		62.3	44.7	32.2	14		76.7	53.3	35.8	16.1		2.51	2.1	1.87	1.31
<b>Himachal Pradesh</b>	ST				20.7	14.5				49.6	20.8			56.9	26.7					1.75	1.71
	SC		33.	40.	32.	23.		43.	56.	43.	28.		57	63.	46.	32.		2.15	2.21	2.06	1.82

			2	8	4	4		7	4	9	5		.9	4	5	8					
	OB C		26. 1	29. 1	27. 9	18		38	36. 9	29. 6	22. 3		47 .2	36. 9	29. 6	24. 1		2.37	2	1.74	1.61
	OT HE R		21. 5	24	21. 4	20		39. 1	28. 2	29. 5	25. 3		45 .8	33. 1	33. 8	28. 1		2.05	1.83	1.81	1.59
<b>Punjab</b>	ST																				2.01
	SC		44. 9	29. 5	27	26		73. 7	46. 2	39. 6	33. 3		94 .6	61. 5	45. 9	38		2.93	2.35	1.84	1.82
	OB C		34. 6		16. 9	14		57. 6		20. 5	24		72 .5		23. 7	24		2.55		1.58	1.42
	OT HE R		30. 2	30. 6	17. 1	13. 3		44. 3	44. 1	22. 4	16. 3		51 .4	50. 5	24. 2	22		1.79	1.76	1.43	1.41
<b>Uttara khand</b>	ST																	4.18		1.75	1.3
	SC			53. 3	28. 3	40. 2			70. 2	38. 9	42. 1			97. 3	43. 8	52. 7		3.08	2.76	2.05	1.73
	OB C			36. 1	40	46. 8			64	53. 2	56. 6			83. 9	67. 7	64. 5		1.83	2.54	2.45	2.13
	OT HE R			27. 3	20. 7	16. 5			43. 8	32. 4	23. 7			52. 2	34. 8	26. 4		2.42	2.42	1.9	1.75
<b>Harya na</b>	ST																			3.7	1.95
	SC		36. 8	29. 2	21. 1	22. 1		67. 5	53. 3	31. 3	37. 2		92 .1	73. 9	42	43. 5		3.7	2.88	2.21	2.02
	OB C		30. 3	3	22. 6	22. 6		55. 3	52. 1	35. 9	33. 2		74 .7	62. 3	43	40		3.06	2.97	2.09	2.05
	OT HE R		34. 3	20. 7	21. 4	17. 9		56. 5	36. 1	28. 1	27. 5		74 .8	49. 7	34	30. 2		2.49	2.52	1.77	1.72
<b>NCT OF</b>	ST																				1.24

<b>Delhi</b>																					
	SC		49. 6	23. 5		17. 3		72. 8	37. 4		24. 8		94 .7	51. 3		31. 5		3.01	2.65		1.64
	OB C		27	30		20. 1		49. 9	38. 5		23. 7		62 .4	47. 5		32. 7		2.77	2.57		1.78
	OT HE R		20. 1	26. 6		16. 4		34. 4	37. 4		23. 6		42 .1	43. 2		29. 1		2.12	1.89		1.5
<b>Rajast han</b>	ST			38. 4	26. 3	28. 2			73. 2	39. 5	43. 2			113 .8	57. 8	51. 6			3.65	2.86	2.17
	SC			65. 3	36. 4	23. 6			96. 4	50. 2	37. 2			123 .1	61. 8	43. 8			3.6	2.61	2.11
	OB C			45. 6	30. 3	16. 2			66. 9	41	23. 2			80. 8	48. 1	30. 9			3.13	2.37	1.98
	OT HE R			44. 7	23. 7	20. 4			58. 1	31. 9	29. 9			69. 9	35. 4	36. 2			2.75	1.94	1.82
<b>Uttar Prades h</b>	ST		51. 1		29	35. 6		83. 3		40. 8	57. 6		12 4. 5		60. 7	64		4.83	5.34	3.61	2.72
	SC		69. 7	60. 2	47. 1	41. 6			90. 7	67. 7	57. 8		15 8. 1	135 .1	85. 5	70		4.44	4.46	3.09	2.57
	OB C		71	58. 9	45. 9	33. 5		105 .7	84. 1	63. 5	48		14 2. 2		77. 4	57. 5		4.12	3.83	2.76	2.35
	OT HE R		54. 1	38. 1	42. 2	32. 9		82. 3	71. 4	60. 2	45. 2		11 2. 1	87. 7	71. 7	50. 8		3.77	3.23	2.28	2.03
<b>Bihar</b>	ST		56. 3		40. 6	45. 1		81. 9		47. 1	57		11 6. 6		52. 5	68. 4		2.45		3.81	2.98
	SC		52. 8	48. 8	46. 5	36. 2		86. 3	71	60. 2	47. 6		13 3. 8	113 .1	73	59. 2		3.91	4.78	3.92	3.48

	OB C		51	36. 6	35	33. 8		75. 3	57. 2	46. 8	45. 8		10 6. 8	84. 7	56. 1	54. 9		3.64	4.03	3.38	2.88
	OT HE R		37. 2	51. 6	27. 7	31		61. 2	82. 2	35. 4	46. 1		89 .3	108 .9	44. 6	53. 7		3.13	3.36	2.84	2.56
<b>Sikki m</b>	ST			14. 3	32. 8				28. 9	44. 1				35. 9	50. 5			2.66	1.94	5.5	1.02
	SC																	3.42		8.2	1.07
	OB C			18. 1	20. 3				32. 3	32. 9				36. 7	34. 6			2.83	2.08	4.9	1
	OT HE R			37. 3	7.8				48. 7	7.8				59. 9	7.8			2.69	2.22	3	1.63
<b>Aruna chal Prades h *</b>	ST			34. 9	9.8	1.9			67. 6	21	1.9			100 .9	31. 1	1.9			3.1	2.09	1.84
	SC				11. 2					24. 2					34. 8				*	1.85	1.44
	OB C																		*	2.08	2.15
	OT HE R			28. 8	21. 7	13. 4			48. 7	35. 2	17. 5			78. 6	45. 7	22. 1			2.76	2.35	1.58
<b>Nagala nd ^</b>	ST			20. 9					45. 8					65. 8					3.48	2.75	1.77
	SC			48. 4																2.4	1.54
	OB C			32. 3					58. 1					91					5.25	0.72	0.49
	OT HE R			17. 2					33. 8					53. 5					3.18	2.44	1.02
<b>Manip</b>	ST			34.	19.	16.			51.	27.	23.			71.	33.	26.			3.75	3.19	2.96

<b>ur</b>				2	2	4			2	8	2			4	5	2						
	SC				21.					26.					26.					2.16	2.67	1.97
	OB C			28	14.	17.			45.		23.			60.	21.	32.				2.7	2.13	1.66
	OT HE R			18.	12.	14.			25.	17.	21.			37.	20.	24.				2.57	2.42	2.01
<b>Mizor am</b>	ST																				2.3	1.5
	SC																				1.43	1.89
	OB C																				1.04	1.45
	OT HE R																				2.39	
<b>Tripur a</b>	ST			44.	14.					27.	50.				30.	61.					1.87	1.79
	SC			45.	20.	12.			57.		18.			83.		24.				2.01	1.48	1.79
	OB C					36.					46.					46.				2.08	1.73	1.54
	OT HE R			29	12	19.			53.	24.	33.			56.	32.	36.				2.13	1.63	1.62
<b>Megha laya</b>	ST			23.		20.			49.		32.			74		40.				4.18	3.15	3.07
	SC																				1.58	1.66
	OB C																				1.03	1.41
	OT HE R					13.					34.					42					2.7	1.67
<b>Assam</b>	ST		32.	43.	23.	16.		44.		41.	33.		56	83.		41.			3.05	2.49	2.14	1.54

	SC		32. 7	67. 3	27. 3	23. 3		59. 3	81. 7	41. 3	35. 3		73 .5	110 .7	50. 2	42. 2		2	2.45	1.83	1.73
	OB C		34. 3	39. 2	34. 6	27. 7		46. 7	59. 6	46	34. 4		72 .4	76. 4	56. 1	39. 1		1.69	1.61	1.85	1.62
	OT HE R		40. 5	48. 1	34. 8	21. 5		68. 2	74	50. 1	30		86 .9	100 .9	57. 6	38. 3		1.42	2.73	1.28	2.12
<b>West Bengal</b>	ST		58. 3		44. 1	23. 7		26. 8		46. 1	26. 7		10 0. 1		51. 9	26. 7		2.31		2.01	1.42
	SC		31. 7	28. 7	22. 7	15. 6		55. 4	38. 8	27. 9	24. 8		81 .5	46. 6	32. 9	24. 8		2.34	2.07	1.68	1.54
	OB C				23. 2	17. 7				32. 7	22. 1				37. 8	22. 1		1.89		1.7	1.58
	OT HE R		31. 8	42. 9	18. 4	14. 3		45	56. 6	23. 8	20. 3		63 .4	70. 4	27. 4	20. 3		2.21	2.31	1.78	1.72
<b>Jhark hand</b>	ST			64. 3	32. 8	31. 3			93	46. 8	44. 4			138 .5	64	55. 8		2.3	3.79	2.56	2.26
	SC			52. 3	40. 9	39. 3			76. 7	50. 4	44. 1			121 .3	59. 5	57. 2		2.86	3.1	2.75	2.37
	OB C			45	32. 8	24. 2			66. 9	42. 7	34. 6			100 .8	50. 5	38. 5		3.05	3.3	2.59	1.94
	OT HE R			60. 7	19. 3	16. 3			75. 5	28. 2	22. 9			92. 7	36. 4	27. 1		2.62	2.77	2.1	2.31
<b>Odish a</b>	ST		56. 1	54	35. 5	41. 6		98. 7	78. 7	51. 8	55. 9		13 8. 4	136 .3	65. 6	66. 2		2.66	3.14	2.46	2.11
	SC		48. 9	46. 4	28. 3	25		83. 9	73. 7	37	36		12 2. 7	91. 8	45. 7	39. 7		2.85	2.3	2.13	1.85
	OB C		71	52. 5	26. 2	18. 8		95. 6	66	36. 7	24. 1		11 3. 8	83. 5	42. 9	26. 6		2.47	2.25	1.87	1.7

	OT HE R		43. 1	31. 7	21. 6	21		79. 1	53. 1	31. 5	27. 2		92 .9	64. 2	35. 2	28. 3		2.07	2.01	1.81	2.53
<b>Chhat tisgarh</b>	ST			67	48. 3	41. 2			90. 6	65. 8	58			128 .5	80	67		2.88	2.75	2.11	2
	SC			32. 1	38. 2	44. 3			63. 1	41. 7	53. 6			78. 1	56. 4	55. 3		2.86	3.14	2.24	1.88
	OB C			58. 3	42. 4	24. 7			79. 4	53. 6	34. 6			98. 3	60. 5	40		2.89	2.58	2.36	1.72
	OT HE R			63. 3	17. 9	17. 2			83. 1	23. 5	25. 9			109 .3	27. 6	33. 8		1.88	1.8	1.53	1.59
<b>Madh ya Prades h \$\$</b>	ST		69. 4	56. 5	43. 1	28. 8		101	95. 6	58. 9	41. 3		15 6	140 .7	78. 5	54. 6		3.69	3.82	2.73	2.31
	SC		68. 2	50. 2	39. 6	35		101 .5	81. 9	54. 3	48. 2		17 9.	110 .1	69. 6	60. 5		3.87	3.19	2.44	2.06
	OB C		58	53. 3	37	27		92. 3	79	51. 7	37. 6		13 9.	97. 6	62. 6	42. 2		3.34	3.17	2.24	1.88
	OT HE R		42. 2	39. 6	23. 7	25. 5		72. 3	66. 8	34. 6	41		94 .8	79. 9	42. 8	45. 4		2.49	2.33	1.92	1.74
<b>Gujar at</b>	ST		31. 1	53	18	7		60. 3	86	29. 3	31. 9		94 .6	115 .8	43. 9	41. 6		2.95	2.49	2.5	2.12
	SC		49. 1	45. 9	36. 4	32. 4		80. 1	65. 4	43. 9	48. 5		12 3	86. 6	51. 3	58. 1		3.02	2.49	2	1.83
	OB C		51. 7	48. 8	30. 1	29. 6		74. 2	66. 5	36. 1	29. 4		96	78. 1	44. 3	34. 4		2.77	2.77	2.04	1.95
	OT HE R		39. 2	35. 9	21	19. 6		53. 7	47. 3	28. 3	23. 4		70 .3	55. 7	36. 6	27. 5		2.45	2	1.67	1.6
<b>Mahar</b>	ST		49.	32.	21.	24.		73.	45.	32.	31.		92	57.	41.	37.		2.93	2.43	2.19	2.06



<b>ashtra ##</b>			8	5	6	5		6	2	8	1		.3	8	4	3					
	SC		40. 2	35. 8	17. 4	15. 5		52. 6	51. 4	31. 7	21. 1		66 .1	69. 8	35. 3	28. 2		2.42	2.14	1.88	1.57
	OB C		40	39. 4	14	14. 9		52. 8	50. 6	21. 8	18. 5		69 .2	57. 8	25. 6	20. 9		2.19	1.98	1.72	1.67
	OT HE R		34. 3	34. 3	15. 7	13. 4		48. 9	40. 5	19. 1	20. 9		65 .9	47. 4	24. 4	26		2.59	2.1	1.85	1.63
<b>Andhr a Prades h @@</b>	ST		57. 7	63. 4				103 .6	94. 1				11 5. 9					2.75	*	2.05	2.38
	SC		69. 4	66. 3	20. 6	22. 6		95. 4	88. 1	33. 3	33. 1		12 2. 4	96. 1	40. 1	44. 1		2.51	1.75	1.91	1.85
	OB C		42. 9	47. 6	17	20. 8		69. 7	62. 8	27. 6	29. 2		89 .5	73. 1	32. 7	33. 3		2.26	1.82	1.83	1.67
	OT HE R		35. 7	46. 3	15. 7	24. 8		47. 1	54	15. 7	41. 3		64 .7	63. 2	17. 8	47. 5		2	1.56	1.68	1.37
<b>Karna taka</b>	ST		63. 2	36	24. 3	14. 1		85	45. 8	37. 7	28. 7		12 0. 6	77. 9	42. 3	35. 6		2.83	2.53	1.81	1.84
	SC		46. 9	44. 8	26. 4	21. 2		69. 9	57. 2	33	29. 7		10 4. 6	65. 4	39. 3	33. 9		2.49	2.45	1.66	1.64
	OB C		44. 7	37. 3	18. 1	17		60. 6	53	26. 4	25. 9		78 .2	63. 8	31. 2	29. 7		1.85	1.99	1.85	1.61
	OT HE R		39. 6	29	12. 1	3.4		56. 4	43. 5	20. 9	12. 6		69 .8	60. 4	23	15. 6		2.24	1.97	1.84	1.87
<b>Goa</b>	ST																			1.75	1.56
	SC																	2.31		1.13	1.65
	OB			26.					26.					33.				2.4	1.72	1.54	1.12

	C			3					3				6								
	OT HE R			15					22. 2				29. 2					1.72	1.79	1.8	1.28
<b>Kerala</b>	ST																		2.31	2.15	
	SC					1.1					1.1				4.1			1.52	1.32	1.5	1.61
	OB C		9.6	11. 5	5.3	4		17. 3	11. 5	7.1	4.9		24 .5	12. 9	7.5	5.2		1.9	1.74	1.58	1.83
	OT HE R		17. 6	13. 9	3.9	1.5		20. 5	19. 9	3.9	3		23 .9	20. 7	7.2	3.6		1.85	2.17	1.5	1.76
<b>Tamil Nadu</b>	ST																	2.39		1.87	1.87
	SC		29. 2	25. 2	17. 4	19. 7		41. 8	37. 4	23. 6	25. 3		63 .3	48. 3	31	29		2.25	2.08	1.75	1.78
	OB C		37. 1	26. 7	12. 3	9.4		52. 7	38. 2	18. 4	15. 2		63	44. 6	24. 8	18. 9		2.18	1.68	1.67	1.74
	OT HER																	1.69		1.75	1.65