

The State of Nutrition Amongst the Marginalized Community of India: De-Coding NFHS-5

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Abstract

Introduction: The nutritional status of marginalized communities, particularly Scheduled Castes (SCs) and Scheduled Tribes (STs), remains a critical concern in India. The National Family Health Survey-5 (NFHS-5) provides comprehensive data on health and nutritional indicators across demographic groups, highlighting persistent disparities. This review analyses the nutritional status of SCs and STs in India using NFHS-5 data, examining key health indicators such as stunting, wasting, anaemia, child mortality, and access to healthcare services. **Methodology:** This review is based on a detailed analysis of NFHS-5 data, focusing on health and nutritional indicators relevant to SC and ST populations. Comparative analysis with national averages and across various states is conducted to identify regional disparities. **Results:** The analysis reveals significant disparities in nutritional and health indicators for SC and ST populations compared to national averages. Specifically, 40% of SC children and 45% of ST children are stunted, while 20% of SC children and 23% of ST children are wasted, compared to national averages of 35.5% and 19.3%. Anaemia among women is 59% for SCs and 65% for STs, against a national average of 57%. Infant mortality rates are 43 per 1,000 live births for SCs and 44 for STs, higher than the national average of 35. Access to improved drinking water and sanitation facilities is also lower for SCs (92% and 68%) and STs (83% and 60%) compared to national averages of 94% and 70%. **Conclusion:** NFHS-5 highlights significant nutritional and health disparities faced by SC and ST communities in India. The data emphasizes the need for targeted interventions to address malnutrition, improve healthcare access, and enhance living conditions for these marginalized groups.

Keywords: NFHS-5, Nutritional status, Scheduled Castes, Scheduled Tribes, health disparities

INTRODUCTION

Over the past few decades, India's economy has grown significantly, making it one of the largest economies in the world with the quickest rate of expansion. India's economy has changed significantly since economic liberalization in the early 1990s, marked by an increase in GDP, industrialization, and the growth of the service sector. India's nominal GDP (GDP at current prices) growth rate is estimated to be 9.6% as of May 31, 2024, for the financial year 2023–2024 (FY24). This is a drop from FY2022–2023's growth rate of 14.2%. Whereas, the real GDP (GDP at constant prices) growth rate for India is predicted to reach 8.2% in FY24, up from 7.0% in FY2022–2023. India was placed 134th out of 193 nations on the Human Development Index (HDI) in the United Nations Development Programme's (UNDP) 2023–2024 Human Development Report (HDR). The Human Development Index (HDI) is a composite index that evaluates average performance in human development by considering three factors: gross national income (GNI), expected years of education, mean years of education, and life expectancy at birth. India moved up to the medium human development category in 2022 with an increase in its HDI value from 0.633 in 2021 to 0.644 in 2022. With a Gender Inequality Index (GII) value of 0.437, which is better than the global average of 0.462 and the South Asian average of 0.478, the HDR also demonstrates that India has made progress in eliminating gender inequality.

India is a multireligious nation with a wide range of religious practices and beliefs. According to the Census of India (2011), the majority of people in India practice the following religions: Hinduism (79.8%), Islam (14.2%), Christianity (2.3%), Sikhism (1.7%), Buddhism (0.7%), and Jainism (0.4%).

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Additionally, other religions such as Judaism, Bahá'í Faith, and Zoroastrianism collectively account for 0.9% of the population. The multiplicity of religions in India shapes the country's cultural, social, and political environment, influencing many facets of daily life and governance. India's social structure is further complicated by the caste system, a hierarchical framework based on inherited groups. The principal classifications include Scheduled Castes (SCs), which make up 16.6% of the population, and Scheduled Tribes (STs), who account for approximately 8.6% of the population. Other Backward Classes (OBCs) constitute about 41% of the population, while the remaining individuals belong to higher castes. Despite efforts to address social inequalities, the caste system continues to impact various aspects of Indian society, including access to education, employment, and social services.

Scheduled Castes and Scheduled Tribes constitute a substantial proportion of India's population, with SCs comprising about 16% and STs approximately 8% of the total population, according to the 2011 Census (Census, 2011). These communities historically have faced social and economic marginalization, resulting in disparities in access to education, employment opportunities, and healthcare services. Such disparities manifest starkly in health outcomes, where SCs and STs consistently exhibit poorer nutritional indicators compared to the general population.

Malnutrition is a complex problem that affects millions of people globally and includes both undernutrition and overnutrition. Undernutrition, defined as insufficient nutrient intake, can cause wasting, stunting, and deficiencies in certain micronutrients, which can have a serious negative influence on a child's physical and mental development. Conversely, overnutrition refers to consuming too much of some nutrients, which increases the risk of obesity and other non-communicable diseases like diabetes, hypertension, and cardiovascular conditions. In addition to endangering a person's health, malnutrition hinders economic growth by lowering productivity and raising medical expenses. The World Health Organisation (WHO) emphasises the crucial impact that malnutrition has on public health, noting that it accounts for approximately half of all child deaths worldwide.

Nutrition directly reflects the sufficiency and quality of a person's diet and its capacity to meet their physiological needs, and thus is a crucial indicator of malnutrition. To sustain health, promote growth and development, and fend off disease, proper nutrition entails a balanced diet of macronutrients (proteins, fats, and carbs) and micronutrients (vitamins and minerals). One of the main causes of malnutrition, which can present as either undernutrition or overnutrition, is inadequate nutrition, which can be brought on by an unbalanced or insufficient diet. Undernutrition, defined as a lack of certain vital nutrients, causes stunting, wasting, and deficits in certain micronutrients, all of which have a negative effect on children's development of their immune systems, growth, and cognitive abilities. Overconsumption of specific nutrients leads to overnutrition, which in turn causes obesity and related chronic illnesses such as diabetes, heart disease, and high blood pressure.

The nutritional status of marginalized communities in India, particularly among Scheduled Castes (SCs) and Scheduled Tribes (STs), has long been a matter of concern due to persistent disparities in health outcomes and access to essential services (Maity, 2017). Despite India's progress in various socioeconomic indicators, these communities continue to face significant challenges in achieving optimal health and well-being (Kamat, 2008). The National Family Health Survey-5 (NFHS-5), conducted from 2019 to 2021, serves as a crucial source of data that illuminates the extent and nature of these disparities across different states and demographic groups (NFHS-5, 2021).

NFHS-5 provides a comprehensive snapshot of health and nutrition indicators, enabling detailed analysis of factors contributing to nutritional deficiencies among SC and ST populations. Key indicators such as child stunting, wasting, maternal anaemia, infant mortality rates, and access to sanitation and

clean drinking water are critical metrics for assessing the health status of these communities. Understanding these metrics is essential not only for identifying areas of intervention but also for formulating targeted policies aimed at improving health equity and bridging the gap in health outcomes between marginalized and non-marginalized groups.

This paper aims to delve into NFHS-5 data to elucidate the nutritional challenges faced by SCs and STs in India, emphasizing regional disparities and contextual factors influencing health outcomes. By critically analyzing these data, the research seeks to highlight the urgency of tailored interventions and policy initiatives to address malnutrition and improve healthcare access for India's most vulnerable populations. The findings are expected to contribute to evidence-based policymaking and advocacy efforts aimed at fostering inclusive development and ensuring equitable health outcomes across the nation.

METHODOLOGY

This study employs a rigorous methodology centered on secondary data analysis of the National Family Health Survey-5 (NFHS-5), conducted from 2019 to 2021 across all states and union territories of India. NFHS-5 is a nationally representative survey that provides comprehensive data on health, nutrition, and demographic indicators, including detailed information on Scheduled Castes (SCs) and Scheduled Tribes (STs) populations.

Data Source and Sampling: NFHS-5 employs a stratified, multi-stage cluster sampling design to ensure representation across urban and rural areas within each state. The survey sample includes a substantial proportion of SC and ST households, allowing for robust analysis of health and nutrition outcomes specific to these marginalized communities. Data collection involved trained field investigators administering standardized questionnaires to eligible households, collecting information on demographics, health behaviors, and health status indicators.

Variables of Interest and Analysis: Key variables analysed in this study include:

- **Nutritional Status:** Measured through indicators such as child stunting (low height-for-age), wasting (low weight-for-height), and underweight (low weight-for-age) among children under five years, and BMI status among women aged 15-49 years.
- **Maternal and Child Health:** Coverage of maternal health services, including antenatal care visits, institutional deliveries, and postnatal care, as well as child immunization coverage.
- **Anaemia Prevalence:** Among women aged 15-49 years, reflecting a critical health indicator related to nutritional deficiencies.
- **Mortality Rates:** Infant mortality rate (IMR) and under-five mortality rate (U5MR), providing insights into child survival outcomes across SC and ST populations.
- **Access to Basic Amenities:** Including improved drinking water sources, sanitation facilities, and clean cooking fuel, essential for ensuring environmental health and preventing communicable diseases.

Ethical Considerations: The study adheres to ethical guidelines ensuring confidentiality and anonymity of survey respondents. NFHS-5 data are publicly available and anonymized, maintaining privacy and confidentiality in accordance with international standards for survey research.

Limitations: While NFHS-5 provides comprehensive and nationally representative data, limitations include potential recall bias in self-reported data, under-reporting of certain health conditions, and challenges in capturing real-time changes in health status. These limitations are addressed through rigorous quality assurance measures during data collection and analysis.

Thus, the methodology employed in this study ensures robust analysis of NFHS-5 data to elucidate the nutritional challenges faced by SC and ST populations in India. By leveraging detailed demographic and health information, this analysis contributes to evidence-based policymaking aimed at improving health equity and well-being among marginalized communities.

RESULTS

The analysis of National Family Health Survey-5 (NFHS-5) data reveals significant disparities in health and nutritional indicators among Scheduled Castes (SCs) and Scheduled Tribes (STs) populations in India compared to national averages (Table 1). These findings underscore the persistent challenges faced by marginalized communities in achieving optimal health outcomes.

Nutritional Status:

- **Child Stunting and Wasting-** In India, stunting affects approximately 40% of children in SC communities and 45% in ST communities. In SC communities, about 20% of children are wasted, while the figure rises to 23% among ST children.
- **Maternal Nutrition:** High prevalence of anaemia among women from Scheduled Castes (59%) and Scheduled Tribes (65%) has been found during the survey.
- **Underweight Women:** The prevalence of underweight women, defined as having a Body Mass Index (BMI) less than 18.5 kg/m², is alarmingly high in these groups, with 23% of SC women and 29% of ST women falling into this category.

Table 1: Key results from NFHS-5 data analysis for SCs and STs in India

Indicator	Scheduled Caste (%)	Scheduled Tribe (%)	National Average (%)
Nutritional Status			
Child Stunting	40	45	35.5
Child Wasting	20	23	19.3
Women Anaemia	59	65	57
Women Underweight	23	29	18.7
Maternal and Child Health			
Infant Mortality Rate (per 1000 live births)	43	44	35
Under five Mortality rate (per 1000 live births)	52	57	41
Institutional Births	89	81	89.4
At least 4 ANC Visits	59	51	58.6
Access to Basic Amenties			
Improved Drinking water	92	83	94
Improved Sanitation	68	60	70
Access to Clean Cooking Fuel	50	36	59

Maternal and Child Health:

- **Child Mortality:** The prevalence of infant mortality rates and under-five mortality rates are 43 per 1,000 for SCs, 44 per 1,000 for STs and 52 per 1,000 for SCs, 57 per 1,000 for STs respectively.

- **Maternal Health Services:** Suboptimal utilization of maternal health services, such as ANC visits (59% for SCs, 51% for STs) and institutional deliveries (89% for SCs, 81% for STs), indicates barriers to accessing quality healthcare among SC and ST women.

Access to Basic Amenities:

- **Drinking Water and Sanitation:** Access to improved drinking water is amongst 92% for SCs and 83% for STs while access to sanitation facilities is amongst 68% for SCs and 60% for STs.
- **Clean Cooking Fuel:** Access to clean cooking fuel is evidently low i.e. 50% for SCs and 36% for STs.
- **Regional Disparities:** Variations in health and nutrition outcomes across states, with states like Madhya Pradesh, Bihar, and Odisha exhibiting poorer indicators for SC and ST populations, reflect regional disparities in socio-economic development, healthcare infrastructure, and cultural factors influencing health behaviours. Addressing these disparities requires targeted regional strategies and tailored interventions to ensure equitable access to healthcare and improve health outcomes for marginalized communities (NFHS-5, 2021).

DISCUSSION

Child stunting and wasting are critical indicators of malnutrition, reflecting chronic and acute nutritional deficiencies, respectively. These conditions are prevalent among children in marginalized communities, such as Scheduled Castes (SCs) and Scheduled Tribes (STs) in India, highlighting significant health disparities. Stunting refers to impaired growth and development that children experience due to chronic malnutrition. It is typically measured by comparing a child's height-for-age to international standards. Children are considered stunted if their height-for-age is more than two standard deviations below the World Health Organization (WHO) Child Growth Standards median. Stunting results from prolonged insufficient nutrient intake, poor maternal health and nutrition, recurrent infections, and inadequate psychosocial stimulation. The long-term impact of stunting is profound, as it not only affects physical growth but also impairs cognitive development, educational performance, and future economic productivity. This condition perpetuates intergenerational cycles of poverty and poor health outcomes, as stunted children are more likely to face challenges in reaching their full potential as adults.

Wasting, on the other hand, indicates acute malnutrition and is measured by comparing a child's weight-for-height to international standards. Children are considered wasted if their weight for height is more than two standard deviations below the WHO Child Growth Standards median. Wasting reflects recent and severe weight loss due to inadequate dietary intake or a recent illness causing loss of appetite, malabsorption, or increased nutritional needs. Wasting poses an immediate threat to children's survival, as it weakens the immune system, making them more susceptible to infections and diseases. Acute malnutrition can lead to severe medical complications, delayed recovery from illness, and increased mortality risk if not promptly addressed. The high prevalence of stunting and wasting among SC and ST children highlights persistent challenges in addressing chronic and acute malnutrition. These conditions are indicative of broader socioeconomic issues, including poverty, food insecurity, inadequate access to healthcare, and poor sanitation and hygiene practices. The consequences of stunting and wasting extend beyond individual health, affecting community well-being and national development.

Maternal health refers to the health of women during pregnancy, childbirth, and the postpartum period. It encompasses both physical and mental well-being and includes access to healthcare services to ensure safe pregnancies and childbirth. Anaemia is a condition characterized by a deficiency of red blood cells or hemoglobin in the blood, leading to reduced oxygen-carrying capacity. This deficiency can result

from various factors, including nutritional deficiencies (especially iron), chronic diseases, or genetic conditions. High rates of anaemia among women (59% for SCs, 65% for STs) highlight significant nutritional deficiencies that impact maternal health and contribute to adverse pregnancy outcomes. Anaemia increases the risk of maternal mortality, preterm birth, and low birth weight, underscoring the need for targeted interventions to improve iron supplementation and dietary diversity among women in SC and ST communities (Figueiredo et al., 2018).

Undernutrition among women is a significant public health issue. This reflects inadequate nutrition and poor health status among adult females in these communities (Siddiqui et al., 2020). It refers to a deficiency of calories and essential nutrients in the diet, leading to various forms of malnutrition, including underweight, stunting, and wasting. It can result from insufficient food intake, poor dietary quality, or an inability to absorb nutrients due to illness. Undernutrition among women not only compromises their health but also has far-reaching implications for maternal and child health outcomes. Being underweight is specifically measured using the Body Mass Index (BMI), calculated as weight (in kilograms) divided by height (in meters square) (kg/m^2). A BMI of less than 18.5 indicates underweight status. This condition suggests chronic energy deficiency and inadequate intake of essential nutrients, leading to weakened immunity, increased susceptibility to infections, and reduced physical and cognitive capacity. The high prevalence of underweight women in SC and ST communities underscores the broader issues of food insecurity, poverty, and limited access to healthcare and education. Undernourished women are more likely to experience health problems such as anemia, osteoporosis, and complications during pregnancy and childbirth. Their weakened immune systems make them more susceptible to infections and illnesses.

Child Mortality refers to the death of children under the age of five. It is a crucial indicator of a country's health and well-being. The two primary measures of child mortality are Infant Mortality Rate (IMR) i.e. the number of deaths of infants under one year old per 1,000 live births and Under-Five Mortality Rate (U5MR) defined as the number of deaths of children under five years old per 1,000 live births. The Scheduled Castes (SCs) and Scheduled Tribes (STs) in India face significant disparities in child mortality rates compared to the general population. According to S and S (2024), several factors contribute to the high mortality rates among SC and ST communities including limited access to healthcare facilities, inadequate prenatal and postnatal care, high poverty levels among SC and ST communities which limits access to nutritious food, clean water, and sanitation, educational disparities resulting in lower health literacy, affecting health-seeking behavior and awareness of available healthcare services.

Maternal Health Services refers to services provided to women during pregnancy, childbirth, and the postpartum period to ensure a safe and healthy pregnancy and delivery. These include antenatal care (ANC) visits, skilled attendance at birth, and postnatal care. Antenatal Care (ANC) Visits are regular medical check-ups during pregnancy to monitor the health of the mother and the developing fetus. These visits help in early detection and management of potential complications. Institutional Deliveries are births that take place in a healthcare facility such as a hospital or clinic, attended by skilled health professionals. Institutional deliveries are crucial for ensuring the safety of both mother and child during childbirth. The lower rates of ANC visits and institutional deliveries among SC and ST women indicate significant barriers to accessing quality maternal healthcare. These barriers can include geographic inaccessibility, financial constraints, cultural practices, and lack of awareness about the importance of these services. According to Bale et al. (2003), enhancing access to maternal health services is critical for reducing maternal and neonatal mortality rates and improving overall maternal health outcomes. Ensuring that more women, especially those from vulnerable communities like SCs and STs, can utilize these services is essential for advancing health equity and improving public health outcomes.

Improved Drinking Water means sources of water that are protected from outside contamination, particularly faecal matter. This includes piped water, boreholes, or tube wells, protected dug wells, protected springs, and rainwater collections. Sanitation facilities prevent human contact with faeces and promote a clean environment. This includes flush/pour flush toilets connected to a sewer system, septic tanks, or pit latrine, as well as composting toilets. Significant gaps exist between SC and ST communities in terms of access to improved drinking water and sanitation facilities. These disparities highlight the challenges faced in ensuring environmental health and hygiene among these households. Limited access to safe drinking water leads to higher incidences of diseases such as diarrhea, cholera, and typhoid, which are prevalent in areas with poor water quality. UNICEF (2023) emphasizes that ensuring access to safe drinking water and adequate sanitation facilities is crucial for improving public health. The disparities in access for SC and ST households underline the need for targeted interventions to address these environmental health challenges. Improving these services can lead to better health outcomes and reduce the burden of waterborne and sanitation-related diseases.

Clean Cooking Fuels are the ones that produce less indoor air pollution compared to traditional biomass fuels (like wood, crop waste, and animal dung). Clean cooking fuels include liquefied petroleum gas (LPG), biogas, electricity, ethanol, and solar cookers. The use of traditional biomass fuels for cooking produces high levels of household air pollution, which includes harmful pollutants like particulate matter, carbon monoxide, and other toxic substances. Prolonged exposure to indoor air pollution increases the risk of respiratory diseases such as chronic obstructive pulmonary disease (COPD), lung cancer, and acute respiratory infections, particularly affecting women and children who spend more time near the cooking area. Phillip et al. (2023) highlights the importance of promoting access to clean cooking technologies to improve respiratory health outcomes among SC and ST households. Such interventions are critical for achieving better health and reducing the disease burden associated with indoor air pollution.

CONCLUSION

NFHS-5 data highlights substantial disparities in health and nutritional indicators among SC and ST communities in India, underscoring the urgent need for targeted interventions and policy reforms. Addressing these disparities requires comprehensive strategies aimed at improving nutrition, enhancing maternal and child health services, and ensuring equitable access to basic amenities. Efforts must focus on strengthening healthcare infrastructure, promoting health education, and fostering inclusive development to achieve sustainable improvements in health outcomes for India's marginalized populations. Continued monitoring and evaluation of interventions are essential to track progress and inform evidence-based policymaking towards achieving health equity and well-being for all.

Addressing these challenges requires a multi-sectoral approach, involving collaboration between government agencies, civil society organizations, and community stakeholders to achieve sustainable improvements in health equity and well-being for India's marginalized populations. Continued monitoring and evaluation of interventions are essential to track progress and ensure effective implementation of policies aimed at narrowing health disparities and promoting inclusive development across the nation.

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