

Anthropological Insights into the Integration of Traditional Ethnomedicinal Practices within Contemporary Medical Systems among the Particularly Vulnerable Tribal Groups of India

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Abstract: Particularly Vulnerable Tribal Groups (PVTGs) in India suffer from poor health conditions and are highly susceptible to various diseases. These communities often lack access to essential modern healthcare systems and facilities because of their remote inhabitation and cultural constraints. Their health-related perspectives are usually influenced by their cultural beliefs and practices, which challenge healthcare professionals to understand and address because of the prevalent stigma. An inclusive understanding of these social and cultural determinants is crucial for the development of an efficacious plan of action to reduce the disease burden among these groups. This study aims to explore how employing anthropological methodologies can serve as an effective tool for identifying and addressing the challenges faced by modern healthcare facilities while advocating for the incorporation of ethnomedicinal practices into wide-ranging health policy frameworks to improve the health outcomes of PVTGs in India.

Keywords: Community health, Disease burden, Ethnomedicine, Health policy, PVTGs

Introduction

More than 700 scheduled tribes (STs) call India their home (National Commission for Scheduled Tribes, 2023). For a prolonged period, these communities have experienced severe social, educational, and economic backslides because of the dearth of modern-day infrastructure, traditional sustainability practices, and isolation from mainstream

societies (Eswarappa, 2022). Particularly vulnerable tribal groups (PVTGs) are a subcategory of STs, which are also known as primitive tribal groups (PTGs) because they are considered to be at greater risk of marginalisation than other STs are (Thamminaina *et al.*, 2020). The principal traits of these tribal communities are their smaller size, marginal interaction level with mainstream society, and low socioeconomic status (Eswarappa, 2022). After India's independence, the Dhebar Commission (1960–1961) noted that some tribal groups differed in their rate of development. As a result, during the Fourth Five-Year Plan, the Indian government created a PVTG categorisation within the scheduled tribe category. Presently, 18 states and one Union Territory across the nation have 75 recognised PVTGs (Dhebar, 1961). Some of the most susceptible PVTGs are found in the Andaman and Nicobar Islands, where populations in places such as the Great Andamanese are declining drastically (Banerjee, 2019).

The total number of deaths, illnesses, impairments, disabilities, and injuries resulting from diseases, injuries, and risk factors is referred to as the disease burden. The standard method of measurement is to sum the years of life lost from early death and the corresponding number of “healthy” years of life lost from incapacity (WHO, 2009). Since the turn of the century, social scientists and healthcare systems have been involved, and this relationship has grown even more as serious health problems continue to arise in both urban and rural areas worldwide (Kroeger, 1983; Berridge & Stewart, 2012). The comprehensive measurement of health markers via a holistic approach is the hour's mission. This is particularly crucial in nations with low to middle incomes, such as India, where population density is higher and economic rates are lower than those in developed countries, where almost all aspects of the public sector, including health, are given financial and administrative autonomy, administrations develop initiatives and actions using locally generated data (Bossert & Beauvis, 2002).

However, the reality is different, especially for indigenous inhabitants of India. Despite repeated attempts to lower the disease burden and enhance general health conditions among tribal people, there is a notable increase in the gap between indigenous and nontribal patients in healthcare settings (Kumar *et al.*, 2020). This might be explained by administrators' incapacity because they do not have the necessary experience in creating population-specific strategies to overcome health obstacles.

Most of the time, there are differences in healthcare practices among the tribal communities of India that severely affect their health conditions (Ghosal *et al.*, 2024). Studies conducted in the latter half of the 20th century have demonstrated the significance of socio-cultural, ecological, and religious considerations in tribal health in India (Basu, 1996; Islary, 2014). The findings of these studies imply that such factors

affect how marginalised people perceive their health and seek treatment (Nasrin & Chowdhury, 2021). Researchers have also discussed the prevalence of conventional healing methods and the extent to which indigenous people embrace contemporary medical procedures (Stuttaford *et al.*, 2014). In some cases, pricing and accessibility may also contribute to underreporting in contemporary healthcare systems (Lopez-Gonzalez *et al.*, 2009).

This review aims to examine the various factors that impact PVTGs in India as they are being integrated into the modern healthcare system, which inadvertently leads to an increased disease burden. It also proposes how anthropological knowledge can help address these issues and provide policy recommendations to further mitigate the disease burden of the PVTGs in India.

Methodology

The present study is a review to analyze the literature on health challenges and disease burdens, particularly vulnerable tribal groups (PVTGs) in India, and the role of anthropological insights in addressing these issues. A comprehensive literature search using databases such as PubMed, Google Scholar, JSTOR and Scopus, which focussed on peer-reviewed articles, books, government reports, and reputable NGO publications from the 21st century, was considered. The search terms included “Particularly Vulnerable Tribal Groups (PVTGs),” “tribal health in India,” “disease burden,” “ethnomedicine,” “health policy,” “cultural beliefs,” and “anthropological approaches to health.”

The study included studies on health status, disease burden, and healthcare access among PVTGs; sociocultural determinants of health; the integration of traditional and modern healthcare practices; and policy recommendations for tribal health improvement. Studies not specific to PVTGs, those lacking empirical data, and non-English publications were excluded.

Data were extracted via a standardised form, focusing on study objectives, design, PVTG characteristics, health issues, socio-cultural factors, anthropological methodologies, and policy recommendations. The review used a medical anthropology framework to explore cultural contexts, social determinants, integrative approaches, and policy implications, and it assessed quality via the Critical Appraisal Skills Programme (CASP) checklist.

Limitations included limited data on certain PVTGs, potential publication bias, and heterogeneity in study designs. This methodology offered a rigorous approach for examining health challenges and the role of anthropological insights in providing valuable guidance for policymakers, healthcare providers, and researchers.

Overview of Particularly Vulnerable Tribal Groups (PVTGs) in India

PVTGs are a subset of Indian tribal community that are more vulnerable than other populations (Eswarappa, 2022). In India, there are 75 PVTGs dispersed across 18 states and 1 Union Territory (UT). With 13 PVTGs, including the *Bonda*, *Dongria Kondh*, and *Lanjia Saora*, the state of Odisha has the most. There are seven PVTGs in Madhya Pradesh and five in Chhattisgarh (Minz, 2020). The *Great Andamanese* and the *Onge* are two of the five PVTGs that consider Andaman & Nicobar Islands their homes (Banerjee, 2019).

PVTGs can be distinguished from other tribes on the basis of their unique cultural and socio-economic characteristics. They perpetually sustain an economy that barely provides for them while also making very good use of the natural resources at their disposal (Sharma & Roy, 2016). Typical economic activities include hunting, gathering, shifting cultivation, and production of handicrafts. Their cultural heritage manifests in several ways, including distinct languages, customs, festivals, and traditional knowledge systems. Social structures are often based on clans or kinship groups that have a high level of cohesion (Sahani & Nandy, 2013). PVTGs face major socio-economic hurdles— inadequate literacy levels, malnutrition, and poor health status coupled with a lack of access to basic services such as clean drinking water, healthcare, and education (Singh *et al.*, 2023). These people live in remote areas, rendering them more vulnerable to their inability to integrate into mainstream development programmes. The low economic standards reported among the populations are further characterized by higher values of poverty indicators that are compounded by unemployment rates resulting from the depletion of environmental resources, forced displacement and a lack of market access— which threatens their traditional livelihood systems (Datta *et al.*, 2015).

Findings and Discussion

PVTGs are found to heavily rely on indigenous medical knowledge to address health risks, as seen in the *Chenchus* of Andhra Pradesh, whose ethnomedicinal practices have reduced fatalities from snake bites (Pasupuleti, 2023), and in the *Totas* of West Bengal, ethnomedicines are extensively used to treat gum bleeding and fever (Dutta, 2021; Mitra & Mukherjee, 2023). Similarly, the *Hill Korwas* of Chhattisgarh and the *Baigas* of Madhya Pradesh, despite facing extreme climatic conditions, have developed a rich understanding of ethnomedicine to manage fluctuations in body temperature (Dhanjal & Sharma, 2022; Nagwanshi *et al.*, 2023). However, as observed in the case of the *Irulas* of Tamil Nadu and the *Gadabas*, *Kondhs*, and *Porjas* of Andhra Pradesh, they regularly struggle with bacterial infections and malnutrition related issues, despite having access

to traditional healthcare systems (Ganesh *et al.*, 2021; Rao, 2022). Moreover, the *Juangs* of Odisha and *Bharias*, *Baigas*, and *Sahariyas* of Madhya Pradesh also experience health adversities related to alcoholism and water borne infections and even record cases of mental health challenges, that are often exacerbated by negligence and ill-treatment (Debnath, 2016; Panda *et al.*, 2021; Sahoo *et al.*, 2024). This shows that the health problems among the PVTGs reportedly arises from an amalgamation of different factors, which are discussed at the later stages of the present review.

Furthermore, to understand the disease dynamics among the PVTGs, the common diseases and health issues that are prevalent are categorized into three sections:

1. **Communicable diseases:** Communicable diseases are prevalent due to limited access to clean water, improper sanitation, and a lack of healthcare facilities. One of the most prevalent diseases among PVTGs is malaria, which typically occurs in remote areas with static water bodies and is ideal for mosquito breeding (Sonowal & Konch, 2021). Diarrhoea is ranked second in number with contamination of water sources and improved hygiene practices, contributing significantly to illnesses (Sahoo *et al.*, 2015; Kanrar *et al.*, 2023). Tuberculosis also occurs because of overcrowded living conditions and inadequate ventilation (Jain *et al.*, 2015). Skin infections are also prevalent, with limited access to clean water and proper sanitation practices that increase the risk of skin infections. Upper respiratory tract infections also occur because of exposure to smoke from indoor cooking fires, smoking tobacco, and damp living conditions, all of which contribute significantly to respiratory problems (Jain *et al.*, 2015; Sahoo *et al.*, 2015).
2. **Non-communicable diseases:** Non-communicable diseases have become a growing concern among PVTGs in India. These types of diseases include malnutrition, due to limited accessibility to proper diets, food sources, and poverty, which subsequently results in dietary deficiency that significantly impacts overall health and immunity (Sonowal & Konch, 2021; Jain *et al.*, 2015), followed by iron deficiency anaemia, largely among females and children, along with sickle cell disease (Sahoo *et al.*, 2015; Kanrar *et al.*, 2023). Chronic respiratory illness primarily occurs due to exposure to smoke from different sources, such as cooking fires and environmental pollution from factories situated near their habitat. In addition, stress due to marginalisation, poverty, stigma, and tough living conditions also leads to mental health issues among PVTGs, which remain unaddressed in most cases (Jain *et al.*, 2015).
3. **Maternal and child health:** PVTG communities witness maternal and child health issues that more specifically inflate maternal and child mortality rates on numerous

occasions. This condition occurs because of several factors, including inadequate access to modern healthcare facilities and qualified medical professionals, which compromise prenatal care. This is followed by maternal malnutrition, which affects foetal development and increases the risk of complications during pregnancy and childbirth. Second, the delivery of babies at home by traditional medicinal practitioners without proper medical support can be risky for both mothers and children (Sahoo *et al.*, 2024).

Further, compared with the national average, PVTGs in India have worse health indicators, such as greater infant mortality, shorter life expectancy, and a higher frequency of anaemia and malnutrition (Kunitz, 2002). Since the use of ethnomedicines among the PVTGs are still prevalent across the country, a lack of access to conventional medical care, with the traditional care system, could prevent major diseases from remaining untreated. Moreover, the health indicators of PVTGs are at risk of changes due to climatic fluctuations in the country. For example, more mosquitoes reproduce because of irregular rainfall patterns, which can exacerbate malaria outbreaks (Sahoo *et al.*, 2015).

Barriers to Healthcare Access

PVTGs often face difficulties accessing modern healthcare services. These difficulties often act as barriers for the communities. These barriers may include the following:

1. **Socio-cultural barriers:** Certain PVTGs are concerned with modern medicine because of cultural beliefs and the societal stigma surrounding illnesses. These concerns often lead to delayed treatment. Additionally, limited education and awareness about health issues make it difficult for PVTGs to understand the advantages of modern healthcare or to recognize symptoms that require medical attention (Islary, 2014; Kumar *et al.*, 2020). The preference for traditional healing practices among PVTGs further limits the utilisation of formal healthcare services.
2. **Economic and logistical barriers:** Most PVTGs in India live in poverty, which makes it challenging for them to afford transportation to health facilities, medications, and user fees associated with the treatment of various diseases. They often reside in geographically isolated or remote areas, with limited access to roads and public transportation services. This also makes accessing available healthcare facilities physically challenging and time-consuming (Kumar & Kumar, 2022).
3. **Institutional barriers:** The remote locations of inhabited areas indicate that PVTGs often have limited access to healthcare facilities. Very few hospitals, clinics, and

well-qualified medical personnel are available, which leads to a shortage of nearby public health services.

Additionally, institutional barriers, such as miscommunication between PVTGs and healthcare providers due to linguistic differences, hinder proper diagnosis and treatment for community members (Balgir, 2006; Islary, 2014; Kumar *et al.*, 2020).

These barriers collectively contribute to the complex situation in which PVTGs face a high risk of poor health outcomes. Addressing these challenges requires a comprehensive approach involving government initiatives, community outreach programs, and culturally sensitive healthcare delivery models, which are discussed later in this article.

Integrative Approaches to Health Interventions

To identify the sources and impacts of the increase in the rate of new disease conditions and find ways to mitigate damage, researchers can utilize integrative epidemiological and anthropological methodologies (Oliver-Smith, 1996). Health is viewed as a dynamic balance between an organism and its environment, involving a complex interplay of the body with both physical and cultural factors (Islary, 2014). Anthropologists have an idiosyncratic advantage over other disciplines in this respect, as they measure the interactions between different bio cultural factors and their underlying factors that affect health in a community (Hunt & Barker, 2001). They also possess the expertise to investigate sociocultural elements and their relationship with the burden of diseases affecting overall health conditions.

Tribal health should be viewed in terms of cultural contexts, as well as a component of a social structure and organisation that is always changing and adjusting to changes in a larger community and that can mould the approach according to the dynamics of social change (Davies & Spencer, 2010; Islary, 2014).

Medical anthropologists in India have been examining health traditions and beliefs embraced by different tribal communities, focusing on those with roots that have predated the development of modern medicine. The World Health Organization (2002) defined traditional medicine as the total amount of knowledge, skills, and practices based on theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement, or treatment of physical and mental illness.

There is a noteworthy cultural lag between contemporary medical systems and traditional knowledge of healing. Traditional healers often possess local influence; thus, policymakers and government agencies can integrate them into the contemporary medical system to promote and empower the tribal population. However, social

acceptance is crucial for the integration of these healthcare systems. Approaches should be taken to reduce the cultural barrier and use both, as this can be a significant step in reducing the disease burden (WHO, 2013).

Policy Implications and Recommendations

Each society defines health and disease according to its cultural norms. An individual's perspective on health is often influenced by his culture, both personally and socially, and it might not be easily identifiable because of the presence of social stigma in society. Therefore, it is important to identify hidden sentiments, research etiological parameters, and formulate methods accordingly.

Anthropologists play a critical role in providing ethical judgments about communities so that they can communicate scientific ideas effectively and gain an unbiased understanding of community beliefs, thoughts, and attitudes toward those words (Kroeger, 1983; Marks, 2009). These can be impactful in dealing with policymakers. However, in a developing country such as India, where there is no systematic interaction between social scientists and policymakers, along with the strong influence of politicians, the healthcare of tribal populations is often neglected. Therefore, a deeper understanding of these processes is recommended to understand the impact of change on human health and develop effective strategies to reduce diseases in the country (WHO, 2002).

Presently, public health institutes in the country are seeking specialists in social science domains to carry out Advocacy, Communication, and Social Mobilisation (ACSM) in communities to reduce the disease burden among indigenous populations. Anthropologists can play a significant role in these inquiries about health owing to their expertise and understanding in analysing cultural barriers and creating ways to engage with the population. Their ability to perform information, education and communication (IEC) has been proven (Manderson, 1998). They create public health approaches that influence or reinforce health-related behaviours. IEC materials can be used to increase ground-level initiatives through the use of mass media and other information broadcasting agencies to promote behaviour change methods among the tribes of the country (Iyengar & Massey, 2019).

To conclude, health-related goals rarely align with specific country and community needs. Local priorities and conditions influence the success of interventions and control programs, and long-term interventions must recognize and address community-specific social, economic, and political situations for sustainable healthcare improvements. Anthropological engagement ensures that regional expertise, cultural influences on

disease patterns, and societal obstacles to optimal health are considered. Although the sociocultural contexts in which people experience ill health conditions and seek recovery are only a small piece of a larger puzzle, interventions that ignore these components risk failing when the frameworks around them disintegrate.

Conclusion

The present review emphasizes the challenges faced by Particularly vulnerable tribal groups (PVTGs) in India regarding healthcare access and overall health outcomes. Despite numerous efforts to bridge the gap between indigenous and nontribal populations, PVTGs continue to experience greater disease burdens, including communicable and non-communicable diseases, as well as maternal and child health issues. The barriers to healthcare access for PVTGs are multifaceted, including socio-cultural, economic, logistical, and institutional obstacles. The field of anthropology, which encompasses history, ecology, health, economy, politics, religion, and power, offers a unique lens to view disease burdens in a community. The study opines that the Government should examine public health policies using anthropological parameters to better understand the root causes hindering the improvement of society's health, especially among tribal communities.

This review underscores the critical need for tailored health interventions that consider the unique socio-cultural and economic contexts of PVTGs. Integrative approaches that combine traditional medical practices with modern healthcare are essential for reducing the disease burden among these communities. Anthropologists play a pivotal role in this integration process, providing cultural insights and facilitating community engagement. For effective policy implementation, it is crucial to involve local stakeholders, leverage anthropological expertise, and promote community-based participatory approaches. The review advocates that the inclusion of traditional healers in the healthcare system improved access to healthcare facilities, and the use of culturally sensitive health communication strategies. Addressing the health disparities associated with PVTGs requires concerted efforts from policymakers, healthcare providers, and social scientists to develop sustainable, community-specific healthcare solutions. This holistic approach promises to enhance the health and well-being of PVTGs and ensure that they are not left behind in India's development trajectory.

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