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Malaria in Tribal Communities of Odisha: A Narrative Review of Prevalence, Risk Factors, and Public Health Implications

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Abstract

Malaria remains one of the most significant vector-borne diseases affecting global public health, particularly in tropical and subtropical regions where ecological and socio-economic conditions support sustained transmission. Despite substantial progress in malaria prevention and control during the past two decades, the disease continues to pose a major health challenge in many developing countries. In India, malaria incidence has declined due to strengthened surveillance systems, improved diagnostic services, and expanded vector control interventions. However, the distribution of malaria remains uneven, with a higher burden observed in geographically remote and socio-economically disadvantaged areas. The state of Odisha has long been recognized as one of the malaria-endemic regions of the country, particularly in districts with a high concentration of tribal populations. This study presents a narrative review of existing literature on malaria among tribal communities in Odisha. The review aims to examine patterns of disease prevalence, identify key environmental and socio-economic risk factors, and discuss the broader public health implications of malaria in these regions. Relevant peer-reviewed studies and reports were identified through systematic searches of major academic databases, including PubMed, Google Scholar, and Scopus. The findings indicate that malaria transmission in tribal regions is shaped by a complex interaction of ecological conditions, poverty, occupational exposure, inadequate housing, and limited access to healthcare services. The predominance of *Plasmodium falciparum* further increases the risk of severe disease outcomes, particularly among children and pregnant women. Strengthening primary healthcare services, improving community awareness, and implementing integrated and culturally sensitive public health strategies are essential for sustainable malaria control in tribal regions of Odisha.

Keywords: Malaria, Tribal communities, Public health, Vector-borne diseases, Health inequality, Plasmodium falciparum

1. Introduction

Malaria is still one of the most important vector-borne diseases that continue to affect public health globally, especially in tropical and subtropical regions where climatic conditions are favorable for the breeding of mosquitoes and the transmission of the disease. According to

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the World Health Organization, malaria continues to be a major source of health problems in many developing countries, and those people who are most at risk of infection and mortality are living in rural areas (WHO, 2023). Although much progress has been made in controlling the disease, it still exists in many regions of the world where poverty, climate, and lack of health infrastructure are responsible for its continued transmission.

In India, there have been substantial decreases in the incidence of malaria during the last decade due to enhanced surveillance, vector control measures, and early diagnostic treatment. However, malaria continues to be a serious public health problem in some states, especially in areas where tribal populations reside. Tribal populations live in forested and ecologically remote areas with poor housing conditions, lack of sanitation, and poor access to healthcare facilities, which makes them more susceptible to the risk of malaria infection and also hinders the control of the disease (Dash et al., 2021).

Among the Indian states, Odisha has been identified as one of the malaria endemic states in the country. Some of the districts with a large number of tribal populations like Koraput, Malkangiri, Rayagada, and Kalahandi have been reporting a higher incidence of malaria cases compared to other parts of the country. The environmental conditions prevailing in these districts, such as dense forests, high rainfall, favorable temperatures, and the presence of effective mosquito vectors, are responsible for the continued transmission of malaria in these areas. Long-term epidemiological studies carried out in tribal villages of Koraput district have shown continued foci of Plasmodium falciparum malaria for several decades, thus establishing the chronic nature of malaria transmission in the tribal areas of Odisha (Sahu et al., 2013).

The existing studies have also brought to light the importance of socio-economic and behavioral factors in determining the risk of malaria among the tribal population. A community-based cross-sectional study carried out among the tribal population of Koraput district has shown that although the majority of the population had basic knowledge about the symptoms and prevention of malaria, there were still some knowledge gaps, especially among women and economically backward sections of the community (Bindhani & Nayak, 2024). Such observations suggest that although public health efforts have been helpful in improving community awareness, there still exist behavioural and information barriers that affect the adoption of preventive practices like the use of mosquito nets and healthcare-seeking practices. Another major concern in the tribal areas where malaria is prevalent is the coexistence of malaria with other health issues, especially malnutrition. Observations made in the tribal-dense areas of Odisha have revealed that malaria and malnutrition often coexist in children below the age of five years. A community-based study revealed that a large number of children who were screened were found to be infected with malaria and also had severe acute malnutrition, indicating a complex interplay between infectious diseases and malnutrition that further worsens the vulnerability of children to health risks (Mahapatra et al., 2018). The coexistence of infection and malnutrition poses a significant risk of morbidity and mortality to children in deprived tribal settings. Clinical studies have also shown that malaria continues to be a significant cause of morbidity in children in tribal areas. A hospital-based study carried out in the tribal area of Kalahandi district showed that cases of severe

malaria were most prevalent in children under the age of five years, with Plasmodium falciparum being identified as the main parasite causing severe morbidity and hospitalization (Edassery et al., 2024). Besides the socio-economic factors, there could also be biological and genetic elements that could affect the vulnerability to malaria in tribal communities. Studies carried out in the malaria-endemic tribal areas of Odisha have found the existence of haemoglobinopathies and glucose-6-phosphate dehydrogenase (G6PD) deficiency in some of the most susceptible tribal communities, which could have significant implications for the epidemiology and management of malaria in these tribes (Dixit et al., 2022). These genetic characteristics could influence both the susceptibility to malaria infection and the tolerability of some antimalarial drugs.

Realizing the continued toll of malaria in such distant areas, the Government of India and the Government of Odisha have launched various targeted interventions, such as vector control strategies, distribution of long-lasting insecticidal nets, community screening programs, and early diagnosis and treatment programs through the National Vector Borne Disease Control Program and other strategies for malaria elimination. These efforts have led to a substantial decrease in the number of malaria cases in the past few years; however, the tribal population in forested and inaccessible areas continues to be disproportionately affected by the disease. Despite the continued efforts in malaria control, the disease remains a major public health concern in tribal areas because of the complex interplay of ecological, socio-economic, cultural, and biological factors that influence disease transmission. It is important to comprehend these multi-dimensional factors to design public health interventions that are context-specific and culturally acceptable. Hence, this narrative review seeks to compile existing knowledge on the prevalence of malaria, risk factors, and overall public health implications of malaria in tribal populations of Odisha.

Malaria is still one of the biggest challenges to public health in many developing countries, especially in tropical and subtropical areas. In India, the problem of malaria is largely confined to tribal and forested areas where, because of environmental factors, socio-economic inequalities, and the lack of access to healthcare, the disease continues to persist. States like Odisha have always contributed significantly to the number of malaria cases, especially in the tribal areas where the environment is conducive to the breeding of mosquitoes and the spread of the disease. Hence, the purpose of this review is to understand the prevalence of malaria in the tribal areas of Odisha and to identify the key factors that contribute to the problem of malaria. Specifically, the study seeks (i) to examine the prevalence of malaria and identify key environmental and socio-economic determinants influencing its transmission, and (ii) to analyze the relationship between malaria vulnerability, nutritional conditions, and community health practices while reviewing the effectiveness of public health interventions.

2. Literature Review

Malaria is one of the most important vector-borne diseases in tropical and subtropical regions of the world, especially in developing countries. Although there has been significant progress in the control of the disease in the past few decades, the disease still persists and remains a major health problem in endemic regions of the world. According to the World Health

Organization (2023), the disease persists in endemic regions of the world. In India, the disease has been a major health problem, and in the past, it was estimated that the economic and health burden of the disease was significant (Sharma, 2012). In most of the studies conducted in the past, it was observed that the tribal population of India, who mostly inhabit the forest areas of India, are at a higher risk of acquiring the disease due to various reasons (Dash et al., 2008; Valecha et al., 2009). In the eastern part of India, the state of Odisha has been recognized as a major endemic area of the disease, especially in districts where the tribal population is high. Even though the overall rate of malaria infection has decreased in response to targeted interventions, transmission remains in remote and underserved areas. These findings suggest that malaria in tribal areas appears to be influenced by a multitude of environmental, socio-economic, and community-level factors. Thus, in the following sections, existing literature has been categorized into major thematic areas: Malaria Prevalence, environmental determinants, socio-economic determinants, nutritional determinants, and health interventions.

2.1 Malaria Prevalence in Tribal Regions of Odisha

A large number of epidemiological studies have confirmed the endemicity of malaria in tribal and forested areas of India. Some of the early studies on the epidemiology of malaria have emphasized that forest-dominant districts are important contributors to the national burden of malaria in India (Dash et al., 2008). Likewise, Studies carried out in the state of Odisha have repeatedly confirmed that the transmission of malaria is an ongoing process in districts with high forest density and pockets of tribal population. For instance, Sahu et al. (2013) confirmed that the transmission of malaria is an ongoing process in Koraput district, and that the ecological and geographical factors of isolation continue to impede the control of the disease. The study confirmed that the cases of malaria continue to be concentrated in the distant tribal villages where the health infrastructure is limited.

Moreover, recent epidemiological studies carried out in the state of Chhattisgarh have revealed that the patterns of malaria incidence are still diverse across different ecological settings, with higher incidence in the southern parts of the state dominated by tribal populations (Gahwai et al., 2025). Taken together, these results indicate that ecological exposure and socio-economic marginalization are still important factors in the maintenance of malaria hotspots in tribal states. Recent global studies have also indicated that although the incidence of malaria has declined in some countries, there are still pockets of high incidence in remote and socio-economically disadvantaged areas (WHO, 2023).

2.2 Environmental Risk Factors

Environmental factors are important in understanding the dynamics of malaria transmission. The mosquito vectors that cause malaria can only survive in a favourable environment that is characterized by high temperatures, high humidity, and sufficient rainfall. Research studies that have focused on the distribution of malaria around the world have pointed out that forests and tropical environments are ideal for the breeding of mosquitoes (Hay et al., 2005). Climate change is also an important factor that determines the dynamics of malaria transmission. Patz et al. (2005) pointed out that Temperature and rainfall are important factors that determine the survival of mosquitoes and the incubation period of the parasite, which in turn determines

the distribution of malaria. Similarly, Dhiman et al. (2014) showed that rainfall and humidity are important factors that determine the seasonal distribution of malaria in India. Recent studies have also focused on the impact of climate change on malaria transmission. Mordecai et al. (2017) showed that temperature affects the survival of mosquitoes and the incubation period of the parasite, which in turn determines the dynamics of malaria transmission. The results of their study indicate that the moderate climate of the tropics is most conducive to the transmission of malaria. The role of environmental factors in determining the dynamics of malaria transmission in forested areas cannot be overstated. Studies carried out in the tribal districts of India have revealed that the presence of dense forests, climatic factors, and human settlement patterns contribute to the creation of a conducive environment for the transmission of malaria. For example, an epidemiological study carried out in the Balaghat district of Madhya Pradesh revealed that the forest environment and human settlement patterns are responsible for the continued transmission of malaria in tribal villages (Singh et al., 2013).

In the Indian scenario, it has been observed that the forested regions and areas with stagnant water bodies are ideal breeding sites for the vectors of malaria-carrying mosquitoes (Dhiman et al., 2010). Environmental factors have been found to play a pivotal role in determining the dynamics of malaria transmission. Temperature, rainfall, and humidity are the factors that directly affect the breeding sites of mosquitoes, survival of the vectors, and development of the parasite. Studies on the global ecology of malaria have revealed that environmental factors such as rainfall and temperature have been found to significantly influence the distribution and seasonal patterns of malaria in tropical regions (Patz et al., 2008; Hay et al., 2005). During periods of high rainfall and monsoon seasons, the environmental factors tend to create ideal breeding sites for the vectors of malaria-carrying mosquitoes, resulting in seasonal peaks of malaria cases. Moreover, the Intergovernmental Panel on Climate Change has suggested that climate change may influence the geographical distribution and magnitude of vector-borne diseases such as malaria, which are affected by environmental factors that support the breeding of mosquitoes (IPCC, 2021).

2.3 Socio-Economic Determinants

Apart from ecological factors, socio-economic factors are also important in determining vulnerability to malaria. Poverty, poor housing, and poor access to healthcare services have been established as important determinants of malaria transmission in developing countries. Poor housing conditions have been established as an important determinant of malaria vulnerability. A systematic review that investigated the relationship between housing quality and malaria transmission showed that poor housing infrastructure, such as the lack of screened windows, closed eaves, and closed walls, is an important risk factor for increased exposure to mosquito bites and malaria infection (Tusting et al., 2015). Similarly, studies that investigated the economic burden of malaria have established that the disease imposes a heavy economic burden on poor households in terms of increased healthcare costs and productivity losses (Worrall et al., 2005). National surveys such as the National Family Health Survey (NFHS 5) have also established important health disparities among tribal communities, including poor housing conditions, poor access to healthcare services, and high

levels of poverty. These findings suggest that socio-economic factors are important determinants of malaria vulnerability among tribal communities.

2.4 Malaria and Nutritional Vulnerability

Malaria is also linked to nutritional susceptibility, especially among children and women in resource-poor settings. Infectious diseases like malaria can cause undernutrition due to loss of appetite, impaired nutrient absorption, and increased metabolic rates during illness (Caulfield et al., 2004). A large amount of research work in the global health sector has emphasized the relationship between infectious diseases and poor nutritional status. It has been observed that frequent infections are major contributors to child undernutrition and anemia in developing countries (Black et al., 2013; Bhutta et al., 2013). Research work carried out in various developing parts of the world has also shown that children infected with malaria are more prone to malnutrition than non-infected children (Deribew et al., 2010). Research work carried out in various developing parts of the world has also shown that children infected with malaria are more prone to malnutrition than non-infected children. Research work carried out in India has also indicated that malaria and malnutrition often co-exist in tribal populations. For example, a study carried out in the tribal areas of Odisha revealed a high prevalence of co-existing malaria infection and severe acute malnutrition in children below five years (Mahapatra et al., 2018). Recent studies conducted on tribal areas of India further support that poverty, poor dietary practices, poor sanitation, and poor access to healthcare are major contributing factors to the cycle of malaria and malnutrition (Verma et al., 2025). International news sources have also suggested that malaria is a contributing factor to poor growth achievement and high mortality rates among children in areas where malaria is endemic (UNICEF, 2021).

2.5 Public Health Interventions

Over the past two decades, several national and international initiatives have been implemented to reduce malaria transmission. In India, malaria control programs have largely been implemented through the National Vector Borne Disease Control Programme, which focuses on early diagnosis, prompt treatment, and vector control strategies. In recent years, India has also adopted a national malaria elimination framework aiming to achieve zero malaria transmission by the coming decades (Ministry of Health and Family Welfare, 2016). These strategies emphasize improved surveillance, vector management, and community participation. In Odisha, targeted initiatives have been particularly effective in reducing malaria incidence. One notable program is the DAMaN initiative introduced by the state government to address malaria in remote tribal areas. The program focuses on mass screening, distribution of insecticide-treated bed nets, and improved healthcare access in hard-to-reach communities. International organizations have also contributed to malaria control efforts through technical and financial support. The World Bank and the World Health Organization have supported malaria prevention programs through funding, surveillance strengthening, and health system development.

2.6 Community Awareness and Health Practices

Community knowledge and cultural beliefs have been recognized as important factors in

malaria prevention and control. Research has indicated that community perceptions of disease causation can significantly influence treatment-seeking and preventive practices. Heggenhougen et al. (2003) emphasized that effective malaria control programs must take into account local cultural beliefs and practices. Similarly, Winch et al. (2002) emphasized the significance of community participation in the design of malaria intervention programs. Research carried out in the tribal areas of India has also identified the use of traditional medicinal plants for the treatment of malaria symptoms. Das et al. (2015) emphasized that indigenous healthcare practices are an important part of the healthcare system in tribal areas. Recent research carried out in Odisha has indicated that although awareness about malaria symptoms has improved due to health education programs, preventive practices like regular use of bed nets are not uniform in the community (Bindhani & Nayak, 2024).

3. Methodology

In this study, a narrative review method is used to combine the existing literature on malaria in tribal areas of Odisha. The narrative review is strictly based on secondary sources of information, including peer-reviewed articles, government publications, and publications from national and international health institutions. The relevant literature was searched systematically from the major academic databases like Google Scholar, PubMed, JSTOR, and Scopus. In addition, official publications and epidemiological statistics were accessed from government and institutional websites, including the World Health Organization, National Vector Borne Disease Control Programme, and Ministry of Health and Family Welfare. The literature search was done by using a combination of keywords such as *malaria, tribal population, Odisha, malaria epidemiology, risk factors,* and *public health*. The retrieved literature was analysed to identify the key themes of malaria prevalence, environmental factors, socio-economic conditions, nutritional susceptibility, public health measures, and community health practices in the tribal areas. The literature was analysed critically to combine the findings of the selected studies to give a comprehensive insight into the patterns and factors of malaria in tribal areas of Odisha. Through thematic analysis of the existing literature, this review aims to highlight key public health challenges and identify important research gaps related to malaria control and prevention in tribal communities.

4. Public Health Implications

The implications of the results of this review have important implications for public health policy and malaria control programs in the tribal areas of Odisha. Although there has been considerable progress in lowering the number of malaria cases at the national level, the disease still continues to exist in the tribal areas of the country, which are environmentally and socio-economically exposed to healthcare services. The first important implication is that there is a need to improve the healthcare infrastructure in the forested and remote areas of the country. Early diagnosis and treatment and preventive programs are necessary to lower the morbidity and mortality rates of malaria in the tribal population. National malaria control programs conducted by the National Vector Borne Disease Control Program and public health programs conducted by the National Health Mission are important in providing healthcare services to the vulnerable populations. These programs need to be expanded with better outreach programs and mobile health clinics to further improve their effectiveness in

geographically remote areas. Environmental management is also an important part of malaria control. Methods such as vector control, effective water management, and effective distribution and use of insecticide-treated bed nets can go a long way in preventing the breeding of mosquitoes and their exposure to humans. Moreover, the review highlights the significance of addressing socio-economic factors. Poverty, poor living conditions, and food insecurity can be risk factors for increased vulnerability to malaria and poor health outcomes. The integration of malaria control programs with nutrition programs, livelihood development, and social protection programs may also be useful in addressing health inequities in tribal populations. Finally, community engagement and culturally appropriate health education programs are critical for improving practices related to malaria control. Improved awareness of early treatment-seeking, proper use of bed nets, and environmental sanitation can enhance the effectiveness of public health programs and support long-term malaria control.

5. Conclusion

Malaria remains a serious public health concern in many tropical areas, especially among the most vulnerable populations living in remote and ecologically sensitive areas. The current review aims to synthesize the existing literature to discuss the complex factors contributing to malaria transmission in tribal areas of Odisha. The existing evidence from previous studies suggests that the prevalence of malaria has remained disproportionately high in tribal areas due to a combination of complex environmental, socio-economic, and health-related factors. Environmental factors such as dense forest, high rainfall, conducive temperature, and the presence of breeding habitats for mosquitoes create a conducive environment for the transmission of malaria. At the same time, socio-economic factors such as poverty, poor housing, lack of access to healthcare, and occupational hazards also contribute to the risk of infection among the tribal population. These factors are responsible for the continued transmission of malaria despite major advances in the control of malaria in the country. The current review also emphasizes the critical link between malaria and nutritional risk. Malaria infection can lead to anaemia, malnutrition, and adverse health outcomes, especially in children and women in developing countries. In recent years, several public health initiatives launched under the national malaria control programs, including the National Vector Borne Disease Control Program, have made significant contributions to the reduction in the incidence of malaria in India. However, the lack of health infrastructure, awareness, and development in the socio-economic sector continues to pose a challenge to the elimination of malaria. The key findings of the review suggest that the control of malaria requires a comprehensive and context-specific approach that addresses environmental management, socio-economic development, nutritional improvement, and community participation. Hence, improving access to healthcare, living conditions, and health education practices that are appropriate to the culture of the people are important steps towards reducing the vulnerability of tribal populations to malaria.

References

Ahorlu, C. K., Koram, K. A., Ahorlu, C., De Savigny, D., & Weiss, M. G. (2006). Socio-cultural determinants of treatment delay for childhood malaria in southern Ghana. *Tropical Medicine & International Health*, *11*(7), 1022-1031.

Bhutta, Z. A., Das, J. K., Rizvi, A., Gaffey, M. F., Walker, N., Horton, S., ... & Black, R. E. (2013). Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?. *The lancet*, *382*(9890), 452-477.

Bindhani, B. K., & Nayak, J. K. (2024). Malaria awareness and prevention practices among tribal individuals in southern Odisha, India: A cross-sectional study. *Papers on Anthropology, 33*(1), 49–62.

Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., De Onis, M., ... & Uauy, R. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. *The lancet*, *382*(9890), 427-451.

Caulfield, L. E., Richard, S. A., & Black, R. E. (2004). Undernutrition as an underlying cause of malaria morbidity and mortality in children less than five years old. *The Intolerable Burden of Malaria II: What's New, What's Needed: Supplement to Volume 71 (2) of the American Journal of Tropical Medicine and Hygiene*.

Dash, A. P., Valecha, N., Anvikar, A. R., & Kumar, A. (2008). Malaria in India: challenges and opportunities. *Journal of biosciences*, *33*(4), 583-592.

Deribew, A., Alemseged, F., Tessema, F., Sena, L., Birhanu, Z., Zeynudin, A., ... & Biadgilign, S. (2010). Malaria and under-nutrition: a community based study among under-five children at risk of malaria, south-west Ethiopia. *PLos one*, *5*(5), e10775.

Dhiman, R. C., Chavan, L., Pant, M., & Pahwa, S. (2011). National and regional impacts of climate change on malaria by 2030. *Current Science*, 372-383.

Dhiman, R. C., Pahwa, S., Dhillon, G. P. S., & Dash, A. P. (2010). Climate change and threat of vector-borne diseases in India: are we prepared?. *Parasitology research*, *106*(4), 763-773.

Dixit, S., Das, A., Rana, R., Khuntia, H. K., Ota, A. B., Pati, S., ... & Ranjit, M. (2022). A community based study on haemoglobinopathies and G6PD deficiency among particularly vulnerable tribal groups in hard-to-reach malaria endemic areas of Odisha, India: implications on malaria control. *Malaria Journal*, *21*(1), 340.

Edassery, A., Meher, A. K., Gupta, V., & Rodriguez, R. (2024). Clinico-epidemiological profiles & outcome of severe malaria in children under-five in the tribal area of Kalahandi, Odisha. *Indian Journal of Medical Research*, *159*(1), 17-25.

Gahwai, D. K., Kaviprawin, M., Kumar, G. P., Panigrahi, D. K., Das, J. K., Patel, K., ... & Parasuraman, G. (2025). Epidemiology of malaria in Chhattisgarh, India: a surveillance data analysis, 2015–2023. *Transactions of The Royal Society of Tropical Medicine and Hygiene*, *119*(12), 1335-1341.

Ghosh, S. K., & Rahi, M. (2019). Malaria elimination in India—the way forward. *Journal of vector borne diseases*, *56*(1), 32-40.

Government of India. (2021). *National Family Health Survey (NFHS-5), 2019–21: India fact sheet*. Ministry of Health and Family Welfare.

Government of Odisha. (2017). *DAMaN: Durgama Anchalare Malaria Nirakaran programme*. Department of Health & Family Welfare.

Government of Odisha. (2017). *Durgama Anchalare Malaria Nirakaran (DAMaN): Operational guidelines*. Department of Health and Family Welfare, Government of Odisha.

Government of Odisha. (2024). *Malaria surveillance report*. Directorate of Public Health, Government of Odisha.

Government of Odisha. (2024). *State malaria surveillance report*. Directorate of Public Health.

Hay, S. I., Guerra, C. A., Tatem, A. J., Noor, A. M., & Snow, R. W. (2004). The global distribution and population at risk of malaria: past, present, and future. *The Lancet infectious diseases*, *4*(6), 327-336.

Integrated Disease Surveillance Programme. (2022). *Annual surveillance report*. Government of India.

Intergovernmental Panel on Climate Change. (2021). *Climate change 2021: Impacts, adaptation and vulnerability*. Cambridge University Press.

Mahapatra, A., Mohapatra, S., Mitter, N., Dash, S. S., Mishra, R. P., & Satapathy, D. M. (2018). Malaria and malnutrition co-existence among under-five children of tribal dense regions of Odisha: a community based study. *Int J Community Med Public Health*, *5*(7), 3024-8.

Mordecai, E. A., Cohen, J. M., Evans, M. V., Gudapati, P., Johnson, L. R., Lippi, C. A., ... & Weikel, D. P. (2017). Detecting the impact of temperature on transmission of Zika, dengue, and chikungunya using mechanistic models. *PLoS neglected tropical diseases*, *11*(4), e0005568.

National Health Mission. (2023). *Community health worker programme guidelines*. Government of India.

Patz, J. A., Campbell-Lendrum, D., Holloway, T., & Foley, J. A. (2005). Impact of regional climate change on human health. *Nature*, *438*(7066), 310-317.

Patz, J. A., Olson, S. H., Uejio, C. K., & Gibbs, H. K. (2008). Disease emergence from global climate and land use change. *Medical Clinics of North America*, *92*(6), 1473-1491.

Sahu, S. S., Gunasekaran, K., Vanamail, P., & Jambulingam, P. (2013). Persistent foci of falciparum malaria among tribes over two decades in Koraput district of Odisha State, India. *Malaria journal*, *12*(1), 72.

Sharma, R. K., Thakor, H. G., Saha, K. B., Sonal, G. S., Dhariwal, A. C., & Singh, N. (2015). Malaria situation in India with special reference to tribal areas. *Indian Journal of Medical Research*, *141*(5), 537-545.

Spielman, A. (2003). The behavioural and social aspects of malaria and its control. *UNDP/World Bank/WHO. Special programme for research & training in tropical diseases (TDR)*.

Tusting, L. S., Ippolito, M. M., Willey, B. A., Kleinschmidt, I., Dorsey, G., Gosling, R. D., & Lindsay, S. W. (2015). The evidence for improving housing to reduce malaria: a systematic review and meta-analysis. *Malaria journal*, *14*(1), 209.

Tusting, L. S., Willey, B., Lucas, H., Thompson, J., Kafy, H. T., Smith, R., & Lindsay, S. W. (2013). Socioeconomic development as an intervention against malaria: a systematic review and meta-analysis. *The Lancet*, *382*(9896), 963-972.

UNICEF. (2021). *Malaria and child health: Global progress report*. United Nations Children's Fund.

UNICEF. (2021). *Malaria prevention and child health report*. United Nations Children's Fund.

World Bank. (2020). *World development report: Poverty and health*. World Bank Publications.

World Health Organization. (2015). *Guidelines for the treatment of malaria* (3rd ed.). WHO.

World Health Organization. (2016). *Global technical strategy for malaria 2016–2030*. WHO.

World Health Organization. (2023). *World malaria report 2023*. WHO.

Worrall, E. (2009). The relationship between socioeconomic status and malaria: a review of the literature.