

## The Global Burden of Parasitic Diseases: Prevalence, Mortality and Economic Costs

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## DESCRIPTION

Parasitic diseases are a major global health challenge, especially in low and middle-income countries. Parasitic diseases are transmitted through vectors like mosquitoes, sandflies and freshwater snails or through contaminated food, water and soil. The burden of these diseases extends beyond health, affecting education, productivity, and economic growth. Parasitic diseases affect more than one-third of the world's population, with the highest burden in tropical and subtropical regions, particularly sub-Saharan Africa, Southeast Asia and Latin America. Many of these diseases are classified as Neglected Tropical Diseases (NTDs) because they predominantly affect impoverished and marginalized communities. The prevalence of parasitic diseases varies by region, socioeconomic status and environmental factors.

Malaria, caused by the Plasmodium parasite and transmitted by female Anopheles mosquitoes, is one of the deadliest parasitic diseases. According to the World Health Organization (WHO), in 2022, there were approximately 247 million cases of malaria globally, with 6,19,000 deaths, most of which occurred in sub-Saharan Africa. Children under five and pregnant women are mostly infected. Schistosomiasis is a parasitic infection caused by schistosoma species, affects over 240 million people worldwide, with most cases reported in sub-Saharan Africa. The disease is transmitted through contact with contaminated freshwater inhabited by infected snails. Schistosomiasis causes chronic illness, leading to liver and intestinal damage, anemia, and growth delays in children. Lymphatic Filariasis (Elephantiasis) is caused by filarial worms and transmitted by mosquitoes (Culex, Anopheles and Aedes), lymphatic filariasis affects over 120 million people, with 40 million suffering from chronic disabilities. The disease causes painful swelling of the limbs and genitals. Leishmaniasis is transmitted by sandflies; leishmaniasis

has three forms-cutaneous, mucocutaneous and visceral, each with distinct health consequences. Over 7,00,000 to 1 million new cases are reported annually, with the visceral form (also known as kala-azar) being the most severe, causing fever, weight loss and organ enlargement.

These diseases disproportionately affect low-income communities with limited access to healthcare, clean water and sanitation. The presence of disease-carrying vectors like mosquitoes and freshwater snails increases the risk of transmission in tropical and subtropical climates. Parasitic diseases contribute significantly to global mortality rates, especially in low-income regions. The most fatal parasitic disease is malaria, which is a leading cause of death among children in sub-Saharan Africa. Malaria is responsible for about 6,19,000 deaths annually, with more than 75% of these deaths occurring in children under five. However, challenges such as drug resistance and climate change continue to pose risks to malaria control efforts. While schistosomiasis is rarely fatal, chronic infection can cause long-term complications such as liver damage, bladder cancer and intestinal bleeding. The disease indirectly contributes to mortality by weakening the immune system and making people more susceptible to other infections.

The economic costs of parasitic diseases are immense, affecting individuals, families, communities and national economies. The cost burden can be classified into direct costs (medical expenses, diagnostics and treatments) and indirect costs (lost productivity, disability and social stigma). The treatment of parasitic diseases requires hospitalization, medications and diagnostic tests, which increase healthcare expenditure. Agricultural workers suffering from filariasis may be unable to engage in manual labor, leading to reduced farm output. Chronic illness from soil-transmitted helminth infections also affects children's cognitive abilities reducing their potential to succeed academically.

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