Research and Reports in Tropical Medicine

Dovepress
Taylor & Francis Group

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REVIEW

Visceral Leishmaniasis Service Delivery in Somalia: A Comprehensive Literature Review

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Abstract: Visceral leishmaniasis (VL) is a neglected tropical disease (NTD) that affects millions of people globally, particularly in low- and middle-income countries. It is caused by the *Leishmania* parasite, transmitted through sandfly bites, leading to severe illness and high mortality if untreated. Globally, VL is prevalent in East Africa, South Asia, and parts of South America, with East Africa accounting for a significant proportion of cases. Somalia, a country with a fragile healthcare system, faces a growing burden of the disease, particularly in rural and conflict-affected areas. Despite efforts to control the disease, it remains a public health challenge due to a lack of comprehensive data on its exact burden. In Somalia, VL service delivery is hindered by several barriers, including an under-resourced health system, shortages of skilled healthcare providers, inadequate diagnostic equipment, medication shortages, and weak infrastructure. The ongoing conflict and insecurity have exacerbated these challenges, particularly in areas most affected by VL. Stigma, cultural misconceptions, economic constraints, and limited access to healthcare further impede effective VL management. Current programs, supported by international organizations, provide some relief but are insufficient to address the widespread challenges comprehensively. To improve VL service delivery in Somalia, several strategies are recommended. Integration of VL services into primary healthcare, expanding training for healthcare workers, and increasing domestic funding are critical steps to reduce dependency on international aid. Strengthening community engagement, increasing awareness about VL, and leveraging technological innovations like telemedicine and DHIS2 for surveillance and care are vital. Public-private partnerships should be enhanced to ensure the availability of affordable treatments. Through a multifaceted approach that addresses systemic barriers and builds local capacities, sustainable improvements in VL control and service delivery in Somalia can be achieved.

Keywords: service delivery, visceral leishmaniasis, barriers, neglected tropical diseases

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Introduction

Visceral leishmaniasis also known as kala-azar, is a parasitic disease caused by protozoa of the genus Leishmania donavani complex, which includes *Leishmania donavani* and *Leishmania infantum*.[1,2] It is transmitted to humans through the bite infected female phlebotomine sand flies.[3] The leishmania disease manifests in three clinical forms including cutaneous leishmaniasis (CL), mucocutaneous leishmaniasis (ML) and visceral leishmaniasis (VL).[4] Visceral leishmaniasis is the most severe and potentially fatal form, which primarily affects internal organs, including the liver, spleen and bone marrow, leading to severe systemic illness. It is a major public health problem, particularly in tropical and subtropical regions, and it's classified as one of the world's neglected tropical diseases (NTDs).[5] VL disproportionately affects the poorest and most marginalized populations in endemic regions. The disease's epidemiology is linked to poverty, malnutrition, displacement, and environmental changes, making it a significant public health challenge in many low and middle income countries (LMICs).[6]

The pathogenesis of VL is complex and involves a combination of parasite factors, host immune response, and environmental influences.[7] The immune response plays a crucial role in determining the outcome of infection. In individuals with a strong cell-mediated immune response, the infection may be controlled and remain asymptomatic.[8] However, in individuals with a weakened immune system, the parasite can proliferate unchecked, leading to the development of clinical disease.[9] Factors such as malnutrition, co-infections (eg, HIV), and genetic susceptibility can predispose individuals to severe forms of VL.[10,11]

Received: 26 April 2025
Accepted: 13 September 2025
Published: 18 September 2025

The clinical presentation of VL varies depending on the stage of the disease and the immune status of the host.[3] The incubation period typically ranges from several weeks to months, although it can be longer in some cases. The onset of symptoms is often insidious, with the disease progressing gradually over time. The hallmark symptoms of VL include prolonged fever, significant weight loss, hepatosplenomegaly (enlargement of the liver and spleen), and pancytopenia (a reduction in the number of red and white blood cells, as well as platelets). Patients may also present with generalized weakness, anemia, and hypergammaglobulinemia (elevated levels of antibodies in the blood).[12–15] As the disease progresses, massive splenomegaly becomes more pronounced and can lead to complications such as hypersplenism, where the spleen becomes overactive in removing blood cells, exacerbating the anemia and pancytopenia.

In the absence of treatment, VL is almost always fatal, with death typically resulting from complications such as hemorrhage, secondary bacterial infections, or severe malnutrition. Even with treatment, the disease can cause long-term health consequences, including chronic anemia and immune suppression. In some cases, treated individuals may develop post-kala-azar dermal leishmaniasis (PKDL), a condition characterized by the appearance of nodular or hypopigmented skin lesions that can persist for years.[16,17]

Global Burden of Visceral Leishmaniasis

Epidemiology of Visceral Leishmaniasis

Visceral leishmaniasis is endemic in over 70 countries across Asia, East Africa and Latin America with an estimated 50,000 to 90,000 cases annually.[1] However, the true incidence is much higher due to underreporting and misdiagnosis particularly in remote and conflict-affected areas.[18]

South Asia

In the Indian subcontinent, primarily in India, Bangladesh, and Nepal, VL accounts for approximately 50–70% of the global reported cases.[19] In India, the state of Bihar alone account for over 50% of the cases in India.[20] The disease primarily effects the rural populations living in poverty with poor housing conditions, malnutrition and limited access to healthcare.[21] Efforts to control the disease in South Asia particularly in India, Bangladesh and Nepal have made significant progress which has led to a substantial decline of reported cases achieving elimination of VL as a public health problem.[22–27]

East Africa

East Africa is another region with a high burden of visceral leishmaniasis primarily in Sudan, South Sudan, Ethiopia, Kenya and Somalia.[28,29] The epidemiology of the disease in this region is complex, with the disease associated with conflict, displacement and environmental changes. It often encounters frequent outbreaks, linked to population movements and the breakdown of health systems.[6,30,31] Visceral leishmaniasis in East Africa is characterized by high morbidity and mortality rates, particularly among malnourished children and immunocompromised individuals. The challenges of accessing and delivering healthcare in conflict-affected and remote areas, combined with weak health system, make VL a major public health concern in the region.[6,28,32,33]

Latin America

Brazil accounts for 90% of the cases in the region. The disease is endemic in several states, particularly in the northeast, where poverty, deforestation, and urbanization have contributed to its spread. The migration of people from rural to urban areas has resulted in the emergence of the disease in urban settings, complicating control efforts.[34–37] Other countries in the region, such as Paraguay, Venezuela, and Colombia, also report cases, though on a much smaller scale contd to Brazil.[38]

Other Regions

While the majority of cases in south Asia, East Africa and Latin America, the disease is also prevalent in other parts of the world, including the Mediterranean, Central Asia and North Africa. These regions report sporadic cases often associated with zoonotic transmission from domestic dogs, which serve as reservoirs for leishmania infantum. Like many other endemic regions, the disease in these regions is often associated with rural poverty, limited access to healthcare, and the presence of sandfly vectors.[39–42]

Visceral Leishmaniasis Burden in Somalia

A Brief History of Visceral Leishmaniasis in Somalia

Visceral leishmania in Somalia dates back several decades, with sporadic cases reported in the mid-20th century. However in the late 20th and early 21st centuries, the disease was recognized as a public health problem in the country.[43–45] Somalia's complex history of political instability, armed conflict, and displacement has created conditions conducive to the spread of VL, particularly in the southern and central regions where the disease is most prevalent.[46,47]

In the colonial era, and during the military government regime, there were few reported cases of visceral leishmaniasis,[48–51] as the focus of public health efforts was on largely other infectious diseases including Malaria, Tuberculosis and Cholera. However, with the collapse of the central government in 1991 and the subsequent outbreak of civil wars, the country's health infrastructure broke down, leading to an increase in the emergence of neglected tropical diseases primarily visceral leishmaniasis.[52] The conflict resulted in large scale displacement of populations to rural areas, coupled with poor living conditions, malnutrition, and limited access to healthcare, which created an environment where neglected tropical diseases mainly visceral leishmaniasis could spread more easily.[47]

In the early 2000s, as many international humanitarian partners including Médecins Sans Frontières (MSF) documented, visceral leishmaniasis emerged as a more visible public health problem particularly in the south and central regions, including the Bay, Bakool, Gedo and Lower Shabelle regions.[53,54] The disease was primarily reported among internally displaced persons (IDPs) and nomadic communities, who were living in overcrowded and poor sanitary conditions, which made them susceptible to sandfly proliferation. In addition to that, the lack of reliable surveillance systems, and the continuing conflict made it uneasy to assess the true burden of visceral leishmaniasis during this period.[55] However, it was believed that the disease was becoming an increasingly public health problem.

Epidemiology of Visceral Leishmaniasis in Somalia

The epidemiology of the disease is influenced by a range of factors, including environmental conditions, population movement and the lack of access to health services due to ongoing conflict in the endemic areas.[6] The disease is currently prevalent in the south and central regions of the country, where the presence of sandfly parasite vectors and animal reservoirs such as domestic animals, contribute to its transmission.[43,44] These regions have historically been hotspots for VL due to their favorable environmental conditions for sandfly breeding and the presence of animal reservoirs. The disease was also recently reported in the northeastern regions including Puntland, although the burden is relatively smaller compared to the southern regions.[56] The geographical distribution of VL in Somalia and East Africa in general is closely linked to the presence of specific sandfly species, such as *Phlebotomus orientalis* and *Phlebotomus martini*, which are known vectors of *Leishmania donovani*.[57–60]

While the exact number of cases is difficult to determine due to underreporting and limited surveillance, it is estimated that hundreds of cases occur each year, with the majority of cases reported in the southern regions.[61] The disease is often fatal if left untreated, and the case fatality rate in some areas is believed to range from 2% to as a high as 39%, particularly in settings where access to treatment is limited and among specific groups such as VL/HIV coinfection.[62,63] The transmission of VL in Somalia is influenced by seasonal patterns, with the peak transmission period typically occurring during the rainy season, when sandfly populations are most active. The disease is transmitted by the bite of infected sandflies, which may acquire the parasite from animal reservoirs, such as domestic dogs and livestock, or directly from infected humans, before transmitting it to humans. The presence of these animal reservoirs in close proximity to human dwellings contributes to the ongoing transmission of VL in endemic areas.[64]

Current Status of Visceral Leishmaniasis Service Delivery in Somalia

The delivery of visceral leishmaniasis services in Somalia faces significant challenges due to the countries ongoing political instability, financial hardships and the limited health infrastructure.[55]

Service Availability

The availability of services is heavily influenced by the country's healthcare infrastructure, which has been severely damaged by decades of conflict and instability. Healthcare facilities providing VL services are limited or unavailable, particularly in the rural and conflict-affected areas where the endemicity of the disease is highest.[65] The majority of facilities are not equipped to diagnose and treat VL and most of the services are concentrated in urban centers and large towns, where hospitals and health clinics are more likely to be staffed with trained personnel and equipped with the necessary diagnostic tools and medications.[66] For example, the capital city of Mogadishu, despite its own challenges, has some facilities capable of managing VL cases, though these are often overwhelmed by demand. In contrast, rural areas, where many of the at-risk populations reside, often lack even basic healthcare services, let alone specialized VL care. This geographical disparity significantly impacts on the availability of VL services, leaving many patients in rural areas without access to timely diagnosis and treatment.

Diagnostic Services

Diagnostic services are limited, with a scarcity of laboratories capable of conducting the necessary tests to confirm VL cases.[67] The diagnosis of VL typically relies on a combination of clinical evaluation, serological tests (such as the rK39 rapid diagnostic test), and parasitological confirmation (eg, spleen or bone marrow aspiration).[68] However, the availability of these diagnostic tools varies widely across the country. In urban centers, some hospitals and clinics have the capacity to perform serological tests, but parasitological confirmation, which requires more specialized equipment and expertise, is often unavailable.[69] In many rural areas, diagnostic services are nonexistent, leading to underdiagnosis and misdiagnosis of the disease.

Treatment Services

The treatment of VL is also severely limited, with many healthcare facilities lacking the necessary medications and resources to manage the disease effectively.[31] The standard treatment available for VL includes antimonial drugs, such as sodium stibogluconate, or paromycine and in some areas a limited supply of liposomal amphotericin B, which is considered the treatment of choice in many settings, due to its higher efficacy and lower toxicity compared to antimonials, though its high cost and limited availability restrict access.[70] However, the availability of these drugs remains inconsistent, with stockouts and supply chain disruptions common, particularly in conflict-affected regions. In some areas, traditional healers may be the only option for patients, leading to delays in receiving effective treatment and increasing the risk of mortality.[71]

Surveillance Programs

The surveillance of the disease is hindered by the country's weak health information systems and the lack of a coordinated national strategy for disease monitoring and relative priority given to other communicable diseases such as polio and others.[72] The ongoing conflict and insecurity in many parts of the country have made it difficult to establish and maintain robust surveillance systems.[73,74] As a result, data on the incidence and prevalence of VL are often incomplete or outdated, complicating efforts to target resources and interventions effectively. In areas where surveillance systems do exist, they are often rudimentary, relying on passive case detection through healthcare facilities, which may miss a significant number of cases, particularly in remote or underserved areas.

The Accessibility of Visceral Leishmaniasis Services in Somalia

The accessibility of health services in general is severely compromised by the country's poor infrastructure and the vast distances that many patients must travel to reach healthcare facilities. The road network is underdeveloped, with many areas, particularly in rural regions, lacking paved roads or reliable transportation. During the rainy season, many roads become impassable, further isolating communities and limiting access to healthcare services. For patients in remote areas, the nearest healthcare facility may be several hours or even days away, making it difficult to seek timely diagnosis and treatment.[75,76]

Insecurity in many parts of the country, particularly in southern and central regions, also restricts movement and access to healthcare services. Conflict-related barriers, such as roadblocks, checkpoints, and violence, can prevent patients from reaching healthcare facilities, leading to delays in diagnosis and treatment. In some cases, entire regions may be cut off from healthcare services due to ongoing fighting or the presence of armed groups, leaving populations without any access to VL care.[77,78]

The cost of standard treatment, including medications, hospitalization, and supportive care, is often prohibitively expensive for many patients.[79] While some international organizations and NGOs provide free or subsidized treatment in certain areas, these services are not universally available, and many patients are forced to pay out of pocket for their care. This financial burden can lead to delays in seeking treatment, as patients may need to borrow money or sell assets to afford the necessary care. In some cases, patients may forgo treatment altogether, leading to fatal outcomes. Free of-charge VL services are available in some parts of the country, primarily through the efforts of international organizations, NGOs, and humanitarian agencies including UNICEF and WHO.[80] These organizations often operate in partnership with local health authorities to provide free diagnosis, treatment, and follow-up care for patients. However, the availability of these services is limited and often concentrated in specific regions or urban centers.[31] In many rural and conflict-affected areas, free services including those for VL are not available, leaving patients without access to essential care. Even where free services are available, patients may still face indirect costs, such as transportation, accommodation, and lost income, which can further limit access to care.[81]

Barriers to Visceral Leishmaniasis Service Delivery in Somalia

The delivery of health services particularly NTD services including VL in Somalia faces significant barriers that compromise the ability to diagnose, treat, and control the disease effectively. These barriers are multifaceted, including health system constraints, infrastructural challenges, sociocultural factors, economic difficulties, and political and security issues.

Health System Barriers

Resource Limitations

The Somali health system has been severely weakened by decades of conflict, political instability, and underinvestment. This has resulted in a lack of essential resources, including trained healthcare staff, medical equipment, and medications necessary for the diagnosis and treatment of VL.[75]

Staffing Shortages

There is a critical shortage of trained healthcare professionals in Somalia, particularly in rural and conflict-affected areas where VL is most prevalent. The limited number of doctors, nurses, and laboratory technicians has been exacerbated by the ongoing emigration of skilled workers seeking better opportunities abroad and the concentration of these health personnel in the urban areas and large towns. The healthcare workers often lack specialized training in the management of VL, leading to misdiagnosis and suboptimal treatment. Additionally, the overburdened staff are unable to provide the necessary follow-up care for VL patients, increasing the risk of relapse and mortality.[75,82]

Equipment Deficiencies

The diagnostic process for VL requires specific equipment and laboratory facilities, such as serological test kits, microscopes, and centrifuges. However, many healthcare facilities in Somalia lack these essential tools, especially in remote and underserved areas. The absence of proper diagnostic equipment leads to delays in diagnosis, misdiagnosis, and underreporting of VL cases. Even in facilities where basic diagnostic tools are available, they are often outdated, poorly maintained, or in short supply, further hindering accurate and timely diagnosis.[83]

Medication Shortages

The treatment of VL requires specific medications, including antimonial drugs like sodium stibogluconate, paromycine and liposomal amphotericin B. However, the availability of these medications in Somalia is inconsistent due to supply chain disruptions, lack of funding, and logistical challenges. Frequent stockouts of essential drugs are common, forcing healthcare providers to resort to less effective or inappropriate treatments. Additionally, the lack of standardized treatment protocols and the irregular supply of medications contribute to the emergence of drug-resistant strains of the Leishmania parasite, complicating efforts to control the disease.[75]

Infrastructural Barriers

Healthcare Infrastructure

The infrastructure of healthcare facilities in Somalia is inadequate, particularly in regions where VL is endemic. Many hospitals and clinics operate in dilapidated buildings with limited access to clean water, electricity, and sanitation facilities. This lack of basic infrastructure hampers the ability of healthcare providers to deliver quality care and maintain hygienic conditions, which are crucial for the treatment of immunocompromised VL patients.[75]

Transportation and Communication

The geographical landscape of Somalia, combined with its underdeveloped transportation network, poses significant challenges to accessing healthcare services. The majority of roads in rural areas are unpaved and often become impassable during the rainy season. The lack of reliable transportation means that patients, particularly those in remote areas, must travel long distances on foot or by makeshift means to reach the nearest healthcare facility. This not only delays the diagnosis and treatment of VL but also discourages patients from seeking care altogether. Additionally, the lack of communication infrastructure in many parts of the country limits the ability to coordinate healthcare services, share information, and respond to disease outbreaks. The absence of reliable communication channels makes it difficult for healthcare workers to receive training, report cases, and access the latest guidelines on VL management.[84]

Sociocultural Barriers

Stigma

Stigma associated with NTDs in particular Leprosy and VL is a significant barrier to service delivery in Somalia. The visible symptoms of VL, such as severe weight loss, splenomegaly (enlarged spleen), and skin changes, can lead to social isolation and discrimination. In some communities, VL is mistakenly believed to be a curse or punishment from a higher power, leading to further marginalization of affected individuals. This stigma discourages patients from seeking timely medical care, as they may fear being ostracized by their community or judged by healthcare providers.[85]

Community Perceptions

Misconceptions about NTD in particular VL are widespread in many parts of Somalia, particularly in rural and low-literacy populations. Some communities may not recognize the disease as a medical condition that requires treatment and may instead attribute the symptoms to supernatural causes or other illnesses including Malaria and Typhoid. This lack of understanding about the disease can lead to delays in seeking treatment and a preference for traditional healers over formal healthcare services. In some cases, families may prioritize traditional remedies, believing them to be more effective or safer than biomedical treatments, despite the lack of evidence supporting their efficacy.[86]

Traditional Beliefs and Practices

Traditional beliefs and practices play a significant role in shaping health-seeking behavior in Somalia. Many communities have long-standing traditions of consulting traditional healers, who are often the first point of contact for individuals with health concerns. While traditional healers may provide supportive care and remedies, they are generally not equipped to diagnose or treat VL effectively. Reliance on traditional medicine can result in delays in seeking appropriate care, leading to worsening of the disease and increased mortality. Additionally, some traditional practices, such as the use of herbal concoctions or bloodletting, can have harmful effects and may exacerbate the condition of VL patients.[71]

Economic Barriers

The economic impact of VL on affected households is substantial. In addition to the direct costs of medical care, families must also contend with indirect costs, such as transportation to healthcare facilities, lost income due to illness, and the need to care for sick relatives. For many families, the financial strain of VL can push them further into poverty, creating a cycle of vulnerability that is difficult to break. In some cases, families may resort to selling assets, borrowing money, or withdrawing children from school to cover the costs of treatment, further exacerbating their economic hardship.[87]

Political and Security Barriers

Impact of Conflict and Instability

Somalia has been plagued by ongoing conflict and political instability for several decades, which has had a profound impact on the delivery of healthcare services, including those for VL. In regions where VL is endemic, such as southern and central Somalia, conflict and insecurity have severely disrupted healthcare services, making it difficult for patients to access care.[55] The presence of armed groups, frequent clashes, and widespread violence have led to the destruction of healthcare facilities, displacement of populations, and a general breakdown of law and order in many parts of Somalia. Insecurity in these regions restricts the movement of healthcare workers, patients, and supplies, making it difficult to establish and maintain VL services. Healthcare providers operating in conflict zones face significant risks, including the threat of attacks, abductions, and killings, which further exacerbates the shortage of healthcare personnel in these areas. Additionally, ongoing conflict has led to the displacement of millions of people, many of whom live in overcrowded and unsanitary conditions in internally displaced persons (IDP) camps, where the risk of VL transmission is high and access to healthcare is limited.[65]

Governance and Policy Challenges

The governance and policy environment in Somalia poses significant barriers to the effective delivery of VL services. The central government in Somalia has limited control over large parts of the country, particularly in the south and central regions, where armed groups and local clans exert considerable influence.[55] This lack of centralized authority hampers efforts to coordinate and implement national health programs, including those for VL. The Somali health system suffers from weak governance, characterized by limited oversight, accountability, and regulatory capacity. This has led to the fragmentation of health services, with different regions and actors implementing their own programs and priorities, often with little coordination or standardization.[65] The absence of a coherent national strategy for VL control has resulted in gaps in service delivery, with some regions receiving more attention and resources than others. Additionally, the lack of reliable health data and surveillance systems makes it difficult to assess the true burden of VL in Somalia and to allocate resources effectively.

Policy Gaps

Despite the significant burden of VL in Somalia, there has been limited attention to the disease in national health policies and strategies. The focus of health policy in Somalia has been on addressing more visible and immediate health crises, such as cholera outbreaks, malnutrition, and maternal and child health. As a result, VL has not received the necessary attention and resources to mount an effective response. The lack of a national VL control program, inadequate funding, and insufficient integration of VL services into the broader health system are significant barriers to improving service delivery for the disease.

Recommendations and Way Forward

Enhancing visceral leishmaniasis (VL) service delivery in Somalia requires addressing several key barriers, including the insufficient integration of VL services into primary healthcare, lack of sustained capacity-building for healthcare workers, over-reliance on international aid, limited local research capacity, inadequate community engagement in remote areas, underutilization of technological innovations, and weak public-private partnerships. To overcome these barriers, Somalia should focus on integrating VL services within the broader primary healthcare system, ensuring that diagnosis and treatment are available at the local level. Continuous training and capacity-building initiatives for healthcare workers, particularly in underserved regions, will be essential to ensure they are equipped to manage VL cases effectively.

To promote sustainability and reduce reliance on international aid, the Somali government should increase domestic funding for VL control programs, ensuring long-term local ownership of these initiatives. Local training programs should be institutionalized, making them independent of external funding and allowing Somali healthcare professionals to receive the skills needed to provide effective care. Expanding operational research and building local research capacities are critical to ensure that Somalia can contribute to global VL knowledge and innovate in the field. Empowering local leaders, NGOs, and community groups to intensify awareness campaigns, especially in remote areas, will promote timely health-seeking behavior and reduce the stigma and misinformation surrounding VL.

Technological innovations, such as the District Health Information Software 2 (DHIS2) and telemedicine, should be scaled up to improve disease surveillance, patient management, and access to care, particularly in underserved areas. Recent advances in VL diagnostics and treatments, such as rapid diagnostic tests (RDTs) and combination therapies, should be integrated into the standard of care, ensuring they are widely accessible and effectively monitored. Finally, strengthening public-private partnerships will enhance the availability and affordability of essential VL medications and supplies. Collaborating with pharmaceutical companies and private healthcare providers, as well as expanding drug donation programs, will reduce the financial burden on patients and improve treatment adherence. By addressing these barriers and implementing these recommendations, Somalia can significantly improve VL service delivery and the effectiveness of its control programs.

Conclusion

This review highlights significant disparities in the availability, accessibility, and quality of visceral leishmaniasis (VL) services in Somalia. Diagnostic services are concentrated in urban areas, leaving rural and remote populations underserved. Similarly, treatment facilities are scarce, heavily reliant on international aid and NGO-run clinics. Although surveillance systems exist, they are hampered by resource shortages and instability, leading to underreporting and delayed outbreak responses.

Key barriers to effective VL service delivery include health system limitations, such as inadequate infrastructure, shortages of trained healthcare workers, and insufficient access to diagnostic tools and medications. These challenges are compounded by infrastructural issues like poor road networks and lack of transportation, which prevent patients from accessing healthcare facilities. Sociocultural barriers, including stigma, traditional beliefs, and reliance on traditional medicine, delay timely care. Economic barriers, especially the high cost of treatment, exacerbate the problem in a context of widespread poverty. Furthermore, political and security challenges, including conflict, weak governance, and policy gaps, undermine efforts to enhance VL services, particularly in conflict-affected areas.

This review concludes that overcoming these barriers requires a multifaceted approach, involving health system strengthening, sociocultural interventions, financial support mechanisms, and political stability, with collaboration between government, international organizations, and local stakeholders.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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