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Research article

WESTERN AND TRADITIONAL AFRICAN MEDICINE IN THE FIGHT AGAINST TROPICAL DISEASES IN AFRICA

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Abstract. Based on the intensity of infection and the severity of tropical diseases in patients, epidemiologists attribute many regions of the African continent to being the most problematic in the world. The wide prevalence of tropical diseases has a negative impact not only on the health of the local population but also on the incomes of some sectors of the economy, in particular, trade and tourism. However, to date, almost no state in Sub-Saharan Africa has its own full-fledged system of epidemiological control and the provision of adequate assistance to those in need. The vast majority of the rural and urban population, if necessary, turn to traditional healers, which is explained by the significant financial accessibility of this type of medical care and its openness to all segments of the population. Health care institutions in most African countries experience a deficit of modern medical and diagnostic equipment and qualified high- and middle-tier personnel needed to ensure wider coverage of the population with affordable and high-quality medical care. Assistance in this to the states of the continent is provided by various specialized organizations, including the World Health Organization, UNICEF, the African Center for Disease Control and Prevention, as well as epidemiological surveillance services. It is concluded that at present, it is the traditional methods of prevention and treatment of diseases characteristic of the climatic features of Africa that are widely demanded by the population, both in rural areas and in cities. In recent decades, in many countries on the continent, traditional medicine has received a status equal to professional medicine.

Keywords: Western medicine, tropical diseases, medicines, danger, infections, mortality, preventive measures, traditional African medicine

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INTRODUCTION

Medical and biological studies of recent decades have led scientists to a disappointing conclusion: despite the fight against diseases characteristic of the hot (tropical) zone of the Earth, their number and diversity are not decreasing; on the contrary, the appearance of new, previously unknown ones is recorded every year.

Since the length limitation of the paper does not allow us to cover all aspects of this problem, we will consider only some of them, the most relevant from the author's point of view.

Tropical diseases include diseases that prevail or occur only in tropical and subtropical areas and pose a serious danger to public health. The group of tropical diseases includes more than 100 diseases spread by airborne droplets and alimentary route with water and food, caused by bacteria, viruses, protozoa, helminths, and fungi. A large number of infections are also transmitted by flying insects that transmit bacteria or viruses when bitten by humans or animals through the circulatory system. The spread of some diseases is facilitated by the hot and humid climate of a number of regions of the continent and the absence of a cold season, during which insects do not reproduce.

The most dangerous diseases that have been repeatedly recorded in African countries and transmitted to humans through animals include: AIDS, Ebola virus disease, Marburg fever; African trypanosomiasis, or sleeping sickness; Crimean-Congo hemorrhagic fever, Lassa fever. The intensity of infection and the severity of the course of diseases of this group allow experts to classify many regions of the African continent as the most problematic in the world. Tropical medicine is designed to fight these specific ailments, studying the diseases most common in regions with an appropriate climate.

SOME FEATURES OF COLONIAL-ERA MEDICINE

Raising the topic of the fight against tropical diseases, it is hardly fair not to note the role – both positive and negative – that colonial medicine played in the formation of today’s healthcare in African countries. As early as the early 1950s, representatives of international organizations pointed out the need to control the health of the local population, however, as a labor force at industrial and agricultural facilities owned by the colonizers: in the construction of roads and buildings, in mines and plantations. In 1952, at a meeting of the World Health Assembly, the issues of preventive medicine in the colonies were discussed from the point of view of its economic benefits. For example, the well-known Swedish economist G. Myrdal stated that «any success of health care leads to an increase in population, i.e., labor force, and to an increase in consumption. Improving the health of the population requires increased investment» [Myrdal 1952: 24].

According to the so-called theory of the vicious circle of poverty 1, which was supported by the largest colonial powers in the world, the treatment of the population of subordinate territories is far from being a priority, so material and technical resources should not be invested in its development. Therefore, the level of medical institutions for Africans could not be compared with hospitals for the military personnel of colonial armies and hospitals for white settlers.

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1 The vicious circle of poverty is a problem of developing countries when low per capita income does not allow for savings and investments at the level necessary to achieve the minimum economic growth rate. According to this concept, small improvements in economic conditions are usually offset by the growth of population.
And yet, in colonial times, in the territories of most modern countries in tropical Africa, a system of primary health care was laid down – rural medical centers [Doyle 2023]. It is on this primary care that the national health systems in Kenya, Senegal, Rwanda, Namibia, Guinea, and many other countries in the continent rely today. In 1904, a plan was drawn up for the Native Medical Service, the first health service in Africa, modelled on the one that existed in France at the time and soon spread throughout French West Africa. In 1905, the organization of a network of free medical care points for the local population began. A noticeable improvement in the health of Africans was also associated with the introduction of compulsory vaccination against smallpox in 1904. In Senegal, for example, thanks to vaccinations, the incidence of smallpox decreased significantly, and from 1925 to 1958, there were only 4 years when more than 400 people fell ill with smallpox [Webb 2014: 51]. Vaccination against yellow fever was of considerable benefit; Malaria control has been successful due to the drainage of swamps and timely hospitalization of patients [Webb 2014: 52].

Quinine was used very successfully to prevent malaria among the local population, which put an end to the epidemic in Ruanda-Urundi in 1934–1935. This program continued during World War II [Webb 2014: 54].

At the same time, the medicine of colonial times, aimed at working with the local population, was characterized by significant shortcomings and problems. For example, France did not have enough resources, qualified personnel, and medicines to send to remote areas of its colonies. By 1914, fewer than 100 doctors were working in rural health posts in Senegal; by 1946, there were only 152 health posts in French West Africa. Funding problems affected the quality of medical care: for example, the medical center in Stanley Poole (later Brazzaville) in the French Congo, designed to serve 80 thousand people, was allocated only 200 francs annually. In addition, Western research institutes were more willing to study diseases that affected Europeans in the first place (such as malaria and yellow fever) than cholera and sleeping sickness, which affected Africans [Neill 2012].

For research in the field of tropical medicine, European countries with colonies in regions with a hot climate created appropriate scientific structures: for example, in 1887, the Pasteur Institute began its work in Paris, which later opened a department dealing with relevant problems in Africa and became one of the world leaders in the study of infectious tropical diseases; in 1889, the London School of Hygiene and Tropical Medicine was founded. Specialized faculties and medical schools were opened at European universities.

At the same time, the provision of the local population with medical institutions (as a rule, first-aid posts) was extremely low: according to statistics for 1957, in Cameroon, Ghana, the Seychelles, Nigeria, and Sudan, there were less than one bed per 1000 inhabitants and from 1 to 2 beds in Algeria, Egypt, Tanganyika, Togo, Bechuanaland, and Madagascar. There was also a catastrophic shortage of medical personnel, and this problem «migrated» from colonial times to the era of independent development of African countries. It has not been solved to this day. According to data for 1957, one doctor accounted for from 10 thousand to 20 thousand inhabitants of Uganda, Kenya, Gambia, Libya, Zanzibar, Congo, Bechuanaland, Cape Verde Islands; from 50 thousand inhabitants, one doctor.

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to 100 thousand inhabitants of French West Africa, British Cameroon, Rwanda-Urundi, British Togo [WHO 1957].

Work with the local population was carried out not only at a minimum financial level but also sometimes with a clear disregard for the human dignity of Africans. Numerous instances of cruelty to patients by European doctors are known. For example, American specialists S. Laws and E. Montero studied the long-term consequences of major health campaigns carried out in the 1920s and 1950s by the French colonial authorities in tropical Africa, in the territories of the modern Central African Republic, Chad, the Republic of the Congo and Gabon. Millions of people were subjected to forced medical examinations and injections of drugs, some of which had severe side effects such as blindness, gangrene, and death.

One of the conclusions made by S. Laws and E. Montero is that forced examinations and injections, sometimes accompanied by the threat of weapons, strengthened a deep distrust of Western medicine, which had been passed down from generation to generation. Many Africans are reluctant to come into contact with European medicine providers conducting vaccination and immunization activities in regions with a high risk of tropical diseases. It is not uncommon (for example, during prolonged droughts in East Africa) that humanitarian missions are not allowed to enter the territories of villages whose inhabitants should be provided with preventive and curative assistance. Perhaps this mistrust is one of the factors contributing to the high incidence of disease in the modern world: countries in sub-Saharan Africa account for a disproportionate share of the global burden of disease. The region accounts for 90% of all malaria deaths, 70% of HIV-infected deaths, and one of the highest mortality rates in the world among infants and young children, not least due to diseases prevalent in hot climates [Lowes, Montero 2021: 1289].

**TROPICAL DISEASES: PRESSURE ON THE POOREST**

The problems of material and technical support inherent in state medical institutions sharply limit the possibilities of timely and adequate provision of assistance to the population. Urban residents seek professional medical care much more often than residents of rural areas. At the same time, modern high-tech, and therefore expensive, types of treatment are available to a few patients, and only in large cities. But these services are provided very little, and they do not affect the overall indicators of the provision of health services to the population of a particular country. At present, in the countries of sub-Saharan Africa, the emphasis is on health education activities, orienting the population mainly towards the treatment rather than the prevention of diseases. A significant part of the work with patients is taken over by the so-called community health workers – representatives of local communities who have completed basic medical courses.

The priority areas of national healthcare in most African countries are the development of primary healthcare, the prevention of infectious diseases, and maternal and child health [Health in Africa 2024]. However, it is very alarming that so far, almost no state in sub-Saharan Africa, where tropical diseases are widespread, has its own full-fledged system for combating them and providing adequate medical care to those in need. Infectious and parasitic diseases caused by helminths, protozoa, fungi, viruses and bacteria primarily affect the poorest and most marginalized people who do not have access to health services: victims of armed conflict and hostilities, victims of natural
disasters, slum dwellers on the outskirts of cities. The lack of potable water, basic sanitation, and primary health facilities (health posts) in these areas makes disease prevention, treatment, and control of further spread much more difficult.

At the same time, without timely therapy, infections with tropical diseases can put a person on the brink of life and death, and survivors are often doomed to severe lifelong consequences. For example, onchocerciasis and trachoma lead to blindness; Buruli ulcer and some forms of leishmaniasis destroy soft tissues and bones, cause thrombosis of the vessels of the extremities and the development of «elephantiasis»; schistosomiasis and soil-transmitted helminthiases cause severe anemia, retardation of growth and development in children. But for various reasons, these and other dangerous diseases attract much less attention from national and international health authorities than those considered «main» – malaria, tuberculosis, and AIDS – for the fight against which significant funding is received from the relevant sources. In addition, there is not always a proper statistical record of «non-main» diseases, and therefore there are no plans to allocate funds from state budgets to eliminate them [WHO 2023: 14].

However, «non-main» diseases are very widespread on the continent and attract the attention of local authorities at the peaks of their manifestation. This happened, for example, in 2021 in Nigeria, when about 122 million of its citizens, or almost 2/3 of the country’s population, were at risk of contracting trachoma, onchocerciasis, lymphatic filariasis, schistosomiasis, Buruli ulcer, leishmaniasis, and trypanosomiasis. At the same time, the Minister of Health of Nigeria, O. Ehanire, and UNICEF expert, B. Ogunjobi, called the poorest population, deprived of access to adequate medical care, the most vulnerable category of citizens. At a conference in the city of Port Harcourt, dedicated to the outbreak of «non-main» diseases in the country, their negative consequences were emphasized: malfunctions in the immune system, a decrease in the physical and mental development of children, and a decrease in labor productivity.

COUNTERMEASURES

The wide range of tropical diseases has a negative impact not only on the health of the local population, but also on the development of tourism in the so-called meningitis belt of Africa – a vast geographical area where meningococcal disease is widespread. The meningitis belt fully or partially includes the Gambia, Ghana, Senegal, Guinea, Guinea-Bissau, Mali, Burkina Faso, Cameroon, Niger, Nigeria, the Central African Republic, Chad, Sudan, South Sudan, Kenya, Uganda, Eritrea, Ethiopia. Flying insects, which are often carriers of infections, pose a significant danger to vacationers, especially those who are not vaccinated.

In order to prevent the spread of disease vectors over long distances – to neighboring countries and to other continents – border sanitary and epidemiological control services have been created, the work of which is based on constant monitoring of weekly morbidity rates, timely detection of the focus of infection and prompt mass vaccination. The activities of these services are determined by documents developed by experts of the World Health Organization. One such document is the guidance on vector surveillance and control at ports, airports and ground crossings, approved by WHO in 2016. Particular attention was paid to vector-borne diseases – infectious diseases carried by blood-sucking insects.

insects and other arthropods; infection occurs when a person or animal is bitten by an insect. Up to 60% of the world’s population is at risk of contracting vector-borne diseases such as malaria, dengue fever, chikungunya, Zika virus, yellow fever, identified in more than 100 countries. As the speed and volume of travel and transport increase around the world, so does the likelihood of the spread of infectious agents and pathogens that can cause vector-borne diseases [WHO 2016: 12].

As for countering the spread of diseases directly in African countries, first of all, the activities of the African Center for Disease Control (CDC) should be noted. This organization was established in 2016 at the meeting of the XXVI Assembly of Heads of State and Government of the African Union with the aim of improving public health and strengthening its capacity to detect, prevent, control, and respond quickly and effectively to disease threats. According to its founders, the continent's people need a safer, healthier, more inclusive, and prosperous Africa, one that can effectively prevent disease transmission, conduct surveillance, and be prepared to respond effectively to public health threats. Headquartered in Addis Ababa, the Centre has regional offices in Eastern, Northern, Central, Southern, and West Africa, and works closely with the African Medicines Agency (AMA), established in 2019.

Russia does not stand aside when combating epidemics is concerned: among the scientific institutions working on this problem are the E.I. Martsinovsky Institute of Medical Parasitology, Tropical and Vector-borne Diseases; the Clinic of Tropical Medicine; the Russian Anti-Plague Institute "Microbe" of Rospotrebnadzor; the Central Research Institute of Epidemiology of Rospotrebnadzor, etc. Russian epidemiologists, virologists, and bacteriologists took active part in suppressing the outbreak of Ebola fever, which swept through Guinea, Liberia, and Sierra Leone in 2014–2016. Largely thanks to the active actions of Russian doctors, thousands of human lives were saved, while the healthcare systems of these countries were unprepared for the outbreak of this disease. In accordance with bilateral agreements in the field of healthcare, the Russian Federation provides and plans to expand multifaceted advisory and material and technical assistance, as stated by President Vladimir Putin at the second Russia-Africa Economic and Humanitarian Forum held in July 2023 in St. Petersburg. “We plan to help African partners strengthen national health systems, improve their reliability, technical equipment, speed, and resilience in the fight against the epidemic. To this end, a large-scale program of assistance to African countries to combat infections until 2026 with a total cost of 1.2 billion rubles is being launched”, said Vladimir Putin.

For decades, African students, including future epidemiologists, microbiologists, and bacteriologists, have been studying at medical institutes in many Russian cities, to whom Russian specialists pass on their knowledge and practical experience. Specialized departments operate at the universities of Moscow, St. Petersburg, Nizhny Novgorod, Perm, Ufa, Arkhangelsk, Vladivostok, and some other Russian cities.

At the international level, the response to tropical diseases is defined in such documents as The Global Strategy on Water, Sanitation and Hygiene to Combat Neglected Tropical Diseases 2021–2030 [WHO 2021]; One Health: An Approach to Neglected Tropical Diseases 2021–2030 [WHO 2022]. These documents emphasize the need for a sustained flow of logistical, financial, and scientific resources to support core programs.

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around the world within the broader framework of primary healthcare and the strengthening of national health systems, as well as the need to develop a national human resource in bacteriology and epidemiology.

African researchers make a significant contribution to the fight against tropical diseases. In 2019, the African Union (AU) published The Health Research and Innovation Strategy for Africa (HRISA), a policy document aimed at promoting the further development of medical technologies and innovation on the continent [NEPAD 2019].

Specialists from South Africa, Botswana, Zambia, Nigeria, and other countries took part in the development of the “African Strategy”. Great importance was attached to the development of holistic medicine, which combines modern and ancient methods of treatment, taking into account the internal and external connections of a living organism and evaluating a person from the standpoint of spirit, soul, energy, somatics, and their social and natural environment. A representative of this field of medicine, K. Chibale (Zambia), who works at the University of Cape Town (South Africa), was awarded the degree of Doctor of Science at the University of Basel (Switzerland). According to experts, limited opportunities, an insufficient volume of clinical trials in African countries, as well as socio-political and economic problems, constitute the factors hindering innovation in the field of healthcare.

TRADITIONAL MEDICINE IS GAINING GROUND

Despite this, free medical care is guaranteed in many African countries, but getting it is not easy. In rural areas, existing health posts tend to be unable to treat a growing population, so local authorities support healers, herbalists, and midwives. According to the definition given by WHO specialists, traditional medicine preserves the total of accumulated knowledge, skills, and practices that are based on the theories, beliefs, and experiences of indigenous peoples and representatives of different cultures and are used to maintain health, as well as for prevention, diagnosis, improvement or treatment of physical and mental disorders [Stevens, Mascarenhas, Mathersa 2009: 646].

The remedies used by African traditional medicine help in the treatment of tuberculosis and various types of hepatitis, slow down the development of AIDS and leprosy. However, active deforestation in recent decades has led in some cases to the impossibility of collecting on the necessary scale the plant raw materials needed for the preparation of different herbal medicines.

In addition to the fact that traditional medicine is generally available and inexpensive, it is also an integral part of the lives of vast masses of people. For millions of Africans, especially rural Africans, herbal treatments and therapies practiced by traditional healers are often the only form of healthcare available. Therefore, even at the beginning of this century, up to 80% of Africans still turn to the traditional medicine [Grishina 2020: 197]. Along with modern methods of prevention and treatment of tropical diseases, numerous traditional remedies are in use, which have been popular since ancient times. But the Western healthcare system, which was propagated in the colonies, dealt a serious blow to traditional medicine. Since medical practitioners in the African tradition were priests, fortune-tellers, herbalists, healers, who often received initiation in secret societies, the colonial authorities accused them of witchcraft and forbade them to perform rituals aimed at curing the sick. For example, in French West Africa in 1897, the activities of healers

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were officially banned. For many years, folk medicine, an integral part of traditional culture and lifestyle, was practically outlawed [WHO 2013: 15].

In recent decades, the status of traditional medicine in different African countries has increased significantly, and in a number of countries, it is established at the level of modern European medicine. For example, in South Africa, the activities of traditional healers are regulated by the Health Professions Act of 1982. According to this document, traditional healers must have a license and appropriate qualifications. The work of healers in Mali (1980), Guinea (1984), Senegal (1985), Mauritius (1989), Namibia (1992), Benin (2002) and many other African states was also regulated by law. In addition, to stimulate the development of traditional medicine, its practitioners were sharing their experience with interested colleagues [Chatterjee, Bhunch, Patel, Sharma 2011: 107; Kayombo, Uiso, Mbwambo, Mahunnah 2007: 3]. In 2010, the WHO Regional Office for Africa adopted the “Guidelines for Registration of Traditional Medicines in the WHO African Region”, which emphasized the role of traditional medicine in providing assistance to those in need, outlined the main directions for its development, and determined the general legislative regulation of the activities of healers for the continent [WHO 2010: 11].

Traditional medicine courses have been introduced in the curricula of ECOWAS member States, as well as in South Africa, Tanzania and the Democratic Republic of the Congo for medical and pharmaceutical students. Since 2003, the Day of Traditional African Medicine has been celebrated annually in these countries on August 31. The widespread use and high demand for this field of medical knowledge by the population is explained by its significant financial accessibility and openness to all segments of the population. According to some data, in 2011 in Africa, there was one traditional healer per 500 people, compared to one conventional medicine doctor per 40,000 people [Abdullahi 2011: 118]. This situation still persists at present, and healers remain providers of medical care for millions of rural residents. In the face of a shortage of medical institutions and professional medical personnel, including epidemiologists, the population of most countries on the continent, as centuries ago, uses traditional means and methods of treatment.

Africans resort to a wide range of plant-based medicines, some of which have the ability to relieve the symptoms of malaria. According to the research of the American scientist James Webb, in regions where there is a high risk of contracting this disease, the roots ofaconite, a poisonous perennial herbaceous plant of the buttercup family, have been used since ancient times as a strong diaphoretic agent that reduces the suffering of the patient. For centuries, a kind of pill made from the webs of some species of spiders has also been used in the fight against malaria [Webb, 2014: 56]. Despite the effectiveness of these and similar methods of treatment, according to experts, traditional medicine is characterized by a low therapeutic effect that accumulates for a long time – up to several years. According to the Russian Africanist I.G. Rybalkina, in the context of an acute shortage of specialists in modern medicine, which is not least due to the «brain drain» to more economically prosperous countries, the services of traditional healers for the treatment and prevention of diseases are in high demand by both urban and especially rural populations [Rybalkina 2017: 39].

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CONCLUSION

Even now, time-tested folk remedies, which are justifiably popular, continue to remain the main way of treating tropical diseases for millions of Africans. In addition to the unsatisfactory scientific, technical, personnel, and material conditions of modern Western medicine in many countries on the continent, this is not least due to the distrust of the local population in «non-local» doctors, their methods of treatment, and their medicines. The healthcare systems of most African countries are in serious need of modernization, qualified national personnel of the high and middle tier, and wider coverage of the population with affordable and quality medical care. It seems that, based on the increase in public interest in folk methods of healing, caused not least by the above factors, their development fits well into the modernization of health care systems in African countries. In addition, traditional medicine is a valuable component of the common cultural heritage of the peoples inhabiting the African continent, and a huge, hitherto poorly studied layer of world culture. The preservation and development of the experience of ancestors is facilitated by associations of traditional healers – for example, in Malawi, South Africa, Tanzania, Kenya, Mozambique, Eswatini – recognized by the state and usually cooperating with national ministries of health.

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ЗАПАДНАЯ И ТРАДИЦИОННАЯ АФРИКАНСКАЯ МЕДИЦИНА В БОРЬБЕ С ТРОПИЧЕСКИМИ БОЛЕЗНЯМИ В АФРИКЕ

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Аннотация. Исходя из интенсивности заражения и тяжести протекания тропических заболеваний у пациентов, эпидемиологи относят многие регионы Африканского континента к наиболее проблемным в мире. Широкий ареал распространенности тропических инфекционных заболеваний отрицательно сказывается не только на здоровье местного населения, но и на доходах некоторых секторов экономики, в частности, торговли и туризма. Однако до настоящего времени практически ни одно государство Тропической Африки не имеет собственной всеобъемлющей системы эпидемиологического контроля и оказания полноценного содействия нуждающимся. Большинство сельского и городского населения при необходимости обращаются к знахарям, что объясняется значительной финансовой доступностью этого вида медицинской помощи и его открытостью для всех слоев населения.

Учреждения здравоохранения большинства стран Африки испытывают дефицит современного лечебно-диагностического оборудования и квалифицированных кадров высшего и среднего звена, необходимых для обеспечения более широкого охвата населения доступной и качественной медицинской помощью. Помощь в этом государствам континента оказывают различные специализированные организации, в том числе Всемирная организация здравоохранения, ЮНИСЕФ, Африканский центр по контролю и профилактике заболеваний, а также службы эпидемиологического надзора.

Сделан вывод, что в настоящее время именно традиционные методы профилактики и лечения заболеваний, характерные для климатических особенностей Африки, широко воспринимаются населением, как в сельской местности, так и в городах. В последние десятилетия во многих странах континента традиционная медицина получила статус, приравненный к профессиональной медицине.

Ключевые слова: западная медицина, тропические болезни, медикаменты, опасность, заражение, смертность, меры профилактики, традиционная африканская медицина