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Parasites: Hidden threats to the health of living organisms and ecosystems: Mini review

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Abstract

Parasites spread around the world, parasitizing on the bodies of humans, animals and plants, causing many health and environmental damages. Parasites are organisms that live at the expense of another organism, called a host, without benefiting them. Many parasites cause serious infectious diseases in humans, such as malaria, elephantiasis, hepatitis B, and echinococcosis., some parasites affect the absorption of nutrients from food, leading to malnutrition, especially in children Some parasites cause physical deformities and disability, such as elephantiasis. Some parasites cause deadly diseases, such as malaria.

Parasites affect animal health and parasites cause many infectious diseases in animals, such as brucellosis, scabies, and trypanosomiasis. Some parasites affect animal productivity, such as low milk production in cows. Some parasites cause deadly diseases in animals, such as tapeworm disease.

Keywords: Parasites, hidden organisms, animal health and the environment

Introduction

Parasites are a serious problem that threatens human and animal health and may be transmitted between humans and animals. In this research we try to collect as many references as possible for the purpose of:

1. Understanding the risk of parasite spread: This research helps assess the risk of parasite spread to human and animal health, enabling effective preventive steps to reduce their harm.
2. Development of innovative treatments and preventions: Understanding the mechanisms of action of parasites contributes to the development of innovative treatments and prophylaxis to combat the diseases that cause them.
3. Maintaining ecological balance: This research provides insight into the complex relationship between parasites and the environment, which contributes to maintaining ecological balance.

Research Objectives

1. **Review of scientific references:** This research aims to review scientific references related to the effects of parasites on human and animal health and the environment.
2. **Data Analysis and Evaluation:** It aims to analyze and evaluate data derived from various scientific references.
3. **Provide a concise and comprehensive summary:** Aims to provide a brief and comprehensive summary of the risks of the spread of parasites and ways to combat them.

Multiple effects of parasites: From human health to the environment

Review of References

First: Effects on human health.

The folds of nature hide a world rich in life, a world full of tiny creatures known as "parasites". These organisms may seem tiny in size, but they have a tremendous ability to affect human health.

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1. Physical effects

Malnutrition: Some parasites affect the body's ability to absorb nutrients, leading to malnutrition, especially in children, and hindering their growth and development.

Anemia: Anemia is a common disease that affects different age groups, and its causes are attributed to several factors, the most important of which is iron deficiency in the body. Some types of parasites, such as *ancylostomiasis* worms, play an important role in exacerbating anemia through specific mechanisms.

Organitis: Some parasites can lead to inflammation in organs, such as the liver or lungs, causing severe symptoms, such as abdominal pain or shortness of breath.

2. Psychological effects

Depression: Some studies have shown that parasitic infections, such as African trypanosomiasis, may lead to depression. (PLoS Neglected Tropical Diseases, 2013). Multiple studies have also shown a possible link between parasitic infections and depression. For example, a published study found that people with African trypanosomiasis were more likely to develop depressive symptoms than people without it. **Anxiety:** Physical symptoms of a parasitic infection, such as diarrhea or abdominal pain, can lead to anxiety and stress.

Insomnia: Some parasites, such as elephantiasis, can lead to sleep disturbances, such as insomnia.

Social Impacts

Social stigma: Some parasitic diseases, such as scabies, can lead to social stigma, affecting the patient's life and social relationships. (2023) (Stephen, truancy at school or work: The physical symptoms of a parasitic infection can lead to truancy at school or work, affecting education or productivity. (CDC, 2023).

Poverty: Some parasitic diseases, such as malaria, lead to poverty, due to treatment costs and loss of working capacity.

Examples of parasites that infect humans

1. **Schistosomiasis:** More than 230 million people worldwide suffer from schistosomiasis, a parasitic disease that causes organ damage and hinders development. (WHO, 2023). Verjee, 2019
2. **Malaria:** Malaria kills nearly 435,000 people annually and infects more than 200 million people worldwide
3. **Chagas disease:** More than 6 million people suffer from Chagas disease, a parasitic disease that causes heart disease and inflammation of the digestive system. (WHO, 2023).
4. **Primary worms:** Plasmodium: are single-celled parasites that cause malaria, and are one of the most dangerous parasitic diseases in the world. (WHO, 202) Giardiasis: Unicellular parasites that cause giardiasis, an intestinal disease that causes diarrhea and abdominal pain.
5. **Tapeworms:** Bovine tapeworm: A parasitic worm that causes bovine tapeworm, an intestinal disease that causes abdominal pain and weight loss. Alvi *et al.*, (2023) ^[7].
6. **Pork tapeworm:** A parasitic worm that causes swine tapeworm, an intestinal disease that causes abdominal pain and headaches.

Dwarf tapeworm: A parasitic worm that causes dwarf tapeworm, an intestinal disease that causes diarrhea and abdominal pain.

Unicellular parasites: Trypanosomiasis: They are single-celled parasites that cause Chagas disease, a disease that causes heart disease and inflammation of the digestive system.

Leishmaniasis: They are single-celled parasites that cause leishmaniasis, a disease that causes skin ulcers and diseases of internal organs.

Plasmodium pneumoniae: Unicellular parasites that cause Pneumoniae, a disease that causes inflammation in the lungs.

The Burden of Parasitic Diseases on Public Health

Parasitic diseases are a heavy burden on public health, causing millions of deaths and disabilities every year.

Mortality rates

Malaria: Malaria causes nearly 435,000 deaths annually, mainly in sub-Saharan Africa.

Chagas disease: Chagas disease causes approximately 12,000 deaths annually, mainly in South America.

Elephantiasis: Elephantiasis causes approximately 40,000 deaths annually, mainly in Southeast Asia.

Disability Rates

Human African trypanosomiasis: Human African trypanosomiasis (Sleeping sickness) causes permanent central nervous system disability in 50% of untreated cases.

Schistosomiasis: Schistosomiasis causes damage to organs, such as the liver and kidneys, and leads to permanent disability in 10% of cases.

Elephantiasis: Elephantiasis causes swelling of the limbs, leading to permanent physical disability. Yimer *et al.*, (2015) ^[22].

Economic Impacts

Parasitic diseases cause significant economic losses due to treatment costs and loss of productivity. (World Bank, 2023). The cost of malaria treatment is estimated at US\$12 billion per year.

The cost of treating Chagas disease is estimated at US\$8.4 billion per year.

Global response

Global efforts are being made to reduce the burden of parasitic diseases, such as:

Malaria Elimination Initiative: Aims to reduce the number of malaria cases by 90% by 2030. (WHO, 2023). The Chagas Disease Elimination Initiative: aims to eliminate vector-transmitted Chagas disease by 2030. (WHO, 2023). Elephantiasis Eradication Initiative: aims to eliminate elephantiasis as a public health problem by 2020. (WHO, 2023).

Second: The effect of parasites on animal health

Parasites affect the health of animals significantly, resulting in significant economic losses for farmers and animal breeders. Examples of the effects of parasites on animal health:

Low productivity

Some parasites, such as tapeworms, lead to reduced productivity, such as reduced milk or meat production. Some parasites, such as scabies, cause the animal to weaken and lose hair, affecting its ability to produce.

Death

Some parasites, such as trypanosomes, lead to animal death, especially if left untreated Antoine *et al.* (2009) ^[11]. Some parasites, such as nematodes, lead to the death of small animals, such as rabbits and chickens.

Diseases

Some parasites cause serious diseases in animals, such as brucellosis, which affects the reproductive system of animals. (OIE, 2023). Some parasites cause serious diseases in animals, such as brucellosis, which affects the reproductive system of animals. Some parasites cause infectious diseases in animals, such as rabies, which can be transmitted to humans. (Amisshah-Reynolds, 2020) ^[9].

Parasites play an important role in animal health, as some can cause serious infectious diseases, such as rabies.

Rabies is transmitted by the bite of an infected animal, such as dogs and foxes, and can be fatal to humans if not promptly treated. Parasites are major pathogens of other animal diseases such as trichomoniasis, giardiasis and leishmaniasis, which may also pose a threat to human health.

Malnutrition

Some parasites affect an animal's ability to absorb nutrients, leading to malnutrition, especially in young animals.

Some parasites, such as tapeworms, can lead to vitamin B12 deficiency, affecting an animal's nervous system.

Weakened immune system

Some parasites affect an animal's immune system, making it more susceptible to disease.

Some parasites, such as trypanosomes, can lead to anemia, affecting an animal's ability to resist infection. Taylor & Parasites play an important, even a major role, in the transmission of diseases between animals and humans, forming what are known as human-animal diseases.

These diseases, which include rabies, malaria and zoonosis, pose a significant public health risk, especially in areas with poor hygiene and close contact between humans and animals.

The ways of transmission of these diseases vary, through direct contact with infected animals or eating their contaminated products, or the bites of infected insects.

The fight against diseases shared by humans and animals is a shared responsibility between the veterinary health, public health and agriculture sectors, and requires concerted efforts that include prevention through health education, hygiene improvement, vector insect control, as well as effective treatment of infected people.

Types of parasites that infect animals

Internal parasites

Nematodes

Roundworms: infect the digestive systems of animals, such as dogs, cats and pigs.

Hookworms: infect the small intestines of animals, such as cows, sheep and horses. Yusuf *et al.*, (2024) ^[24].

Pulmonary worms: infect the lungs, such as sheep and goats.

Tapeworms

Bovine tapeworm: infects the digestive tract of animals, such as cows, sheep and horses.

Pig tapeworm: infects the digestive tract of animals, such as pigs.

Dwarf tapeworm: infects the digestive tract of animals, such as dogs and cats.

3. Protozoans

Trypanosomes: Infect the blood of animals, such as cattle, sheep and horses.

Giardiasis: Infects the digestive tract of animals, such as dogs, cats and pets.

2. Ectoparasites

Ticks: infect the skin of animals, such as cows, sheep and horses.

Fleas: infect the skin of animals, such as dogs, cats and rabbits.

Lice: infects the skin of animals, such as sheep and goats

Flies: infects the skin of animals, such as cows, sheep and horses. **Bautista Mosquitoes:** infect the skin of animals, such as dogs, cats and birds.

Examples of parasitic diseases in animals

Elephantiasis: Causes swelling in the legs of animals, such as elephants and horses.

Scabies: Causes severe itching and hair loss in animals, such as dogs and cats.

Trypanosomiasis: Causes anemia and weakness of animals, such as cattle, sheep and horses.

Brucellosis: affects the reproductive system of animals, such as cows, sheep and goats. AMEEN, (2011). (2007).

The effect of parasites on the productivity and general health of animals

Diseases between animals and humans, forming what are known as zoonosis, pose a significant public health risk, especially in areas with poor hygiene and close contact between humans and animals.

The modes of transmission of these diseases vary, through direct contact with infected animals or ingestion of their contaminated products, or insect bites carrier of infection.

The fight against diseases shared by humans and animals is a shared responsibility between the veterinary health, public health and agriculture sectors, and requires concerted efforts that include prevention through health education, hygiene improvement, vector insect control, as well as effective treatment of infected people.

Ways of transmission of diseases from animals to humans:

Direct contact

Touching infected animals or their secretions. Exposure to the bites of insects that feed on infected animals.

Eating contaminated food

Eat the meat of infected animals without cooking it adequately. Drink the milk of infected animals. Eat fruits and vegetables contaminated with animal waste.

Inhalation of polluted air

Inhalation of air contaminated with animal droppings. Inhalation of air contaminated with eggs or larvae of parasites.

Examples of diseases common to humans and animals:

Rabies: transmitted through the bite of infected dogs

Third: Effects on the environment

1. **Biodiversity loss:** Parasites can lead to the extinction of some animal and plant species, affecting biodiversity.
2. **(CBD, 2023). Ecosystem changes:** Parasites can lead to changes in the ecosystem, such as changing animal behavior or affecting the nutrient cycle. (IPBES, 2023).
3. **Impact on agriculture:** Parasites cause serious damage to crops, leading to reduced productivity and food loss. (2021) These facts confirm that parasites are not tiny organisms that do not affect our lives, but rather creatures that hide in their smallness a tremendous ability to affect human health, physically, psychologically and socially.

Prevention of parasitic infections

Keeping the environment clean

Clean the barns regularly. Safely dispose of animal feces.

The use of antiparasitic drugs

Use preventive drugs regularly. Treat animals infected with parasites quickly.

Influence on animal behavior: Some parasites affect animal behavior: Some parasites change the animal's behavior, making it more vulnerable. Some parasites alter the animal's behavior, which helps in the spread of parasites in the ecosystem.

Direct Impact

Water pollution

Some types of pollution, such as water pollution with sewage, can lead to the spread of parasitic diseases, such as schistosomiasis and giardiasis can debilitate the immune system, making humans more susceptible to parasitic diseases. Ali *et al.*, (2021) ^[21].

Air pollution:

Some types of pollution, such as air pollution with dust, can lead to the spread of certain parasitic diseases, such as lung disease. Some types of pollution, such as air pollution with chemicals, can weaken the immune system, making humans more susceptible to parasitic diseases.

Indirect impact

Climate Change

Some types of pollution can weaken the immune system, making humans more susceptible to parasitic diseases some types of pollution can lead to changes in animal behavior, leading to the spread of certain parasitic diseases.

It is important to reduce environmental pollution to limit the spread of parasitic diseases.

The role of climate change in changing parasite patterns of spread

Climate change affects parasite patterns significantly by:

Temperature changes: High temperatures expand the spread of some types of parasites, such as mosquitoes, that transmit some parasitic diseases, such as malaria. High temperatures increase the reproduction rates of some types of parasites, such as Chagas disease.

Rainfall changes: Increased rainfall leads to an increased prevalence of some types of parasites, such as schistosomiasis. Increased rainfall leads to flooding, which

leads to the spread of some types of parasites, such as leishmaniasis.

Sea level changes:

Sea level rise inundates some coastal areas, leading to the spread of some types of parasites, such as elephantiasis. Sea level rise leads to changes in animal behavior, leading to the spread of some types of parasites, such as rabies.

Examples of the impact of climate change on parasite patterns of spread.

Prevalence of malaria in Africa

Climate change is one of the most important factors in the spread of malaria in Africa. High temperatures help spread mosquitoes, which transmit malaria.

Prevalence of Chagas disease in South America: Climate change is one of the most important factors in the spread of Chagas disease in South America.

Climate change and Chagas disease in South America

Climate change poses a growing threat to public health in South America, contributing significantly to the spread of Chagas disease.

Effect of high temperatures

increased reproduction of disease vectors: High temperatures are associated with increased reproduction of Chagas disease vectors, such as *Triatoma infestans*. Álvarez-Duhart *et al.*, (2024) ^[6]

Expanding the spread of tankers: Rising temperatures are expanding the spread of these vectors to new areas, increasing the risk of infection.

Extending the period of activity of vectors: Vectors become more active for a longer period of the year as temperatures rise, increasing the chances of transmission.

Effect of rainfall changes

Reproduction of *Triatoma sordida*: Increased rainfall is associated with the reproduction of *Triatoma sordida*, another species of vector of Chagas disease.

Changing tanker habitats: Rainfall changes alter tanker habitats, which can push them closer to human habitats.

Impact of other climate changes

Droughts: Droughts lead to animal migration, which may expose them to the bites of Chagas disease vectors

Floods: Floods destroy people's homes, which can force them to live in unsafe places, where vectors of Chagas disease are spreading.

Public health impacts

Increased number of cases: These factors are expected to lead to an increase in the number of Chagas cases in South America.

Worsening the severity of the disease: Climate changes may worsen the severity of the disease in people who are already infected.

Increasing the burden of health care: An increase in the number of Chagas disease cases will increase the burden of health care on countries in South America

Abstract

Climate change poses a serious threat to public health in

South America, contributing to the spread of Chagas disease. Therefore, urgent action is needed to combat climate change and limit the spread of this disease.

High temperatures help increase the reproduction rates of *Triatoma infestans*, which transmit Chagas disease.

Parasitic infection control strategies

Treatment with drugs

Antiparasitic drugs: Antiparasitic drugs are used to treat parasitic infections. Antiparasitic drugs can be used prophylactically to prevent parasitic infections.

Antiparasitic drugs: their preventive and therapeutic uses Antiparasitic drugs are a class of drugs that will be used to combat parasitic infections, whether internal (e.g. nematodes, tapeworms, trypanosomes) or external (e.g. lice, fleas, ticks) Yusuf *et al.*, (2024) ^[24]

Therapeutic Uses

Treatment of proven parasitic infections: Antiparasitic drugs are used to eliminate disease-causing parasites, such as malaria, filariasis, echinococcosis.

Treatment of diseases related to parasitic infections: Some antiparasitic drugs are used to treat infections related to diseases, such as diarrhea caused by parasites.

Preventive Uses

Prevent parasitic infections: Some antiparasitic drugs are used to prevent parasitic infections, especially in endemic areas.

Transmission control: Some antiparasitic drugs are used to reduce the spread of parasitic infections, especially among members of the same family.

Chemotherapy: Chemotherapy is used to treat certain parasitic infections, such as leishmaniasis. Chemotherapy can be toxic, so it should be used with caution.

Vaccines

Vaccines against some types of parasites: There are vaccines against some types of parasites, such as malaria and rabies. Vaccines help prevent parasitic infections.

Vaccines against parasite vectors: There are vaccines against some parasite vectors, such as mosquitoes. Vaccines help prevent the spread of parasitic infections.

Infection vector control

Pest control: The use of insecticides to control insects that transmit parasitic infections. The use of insect traps to control insects that transmit parasitic infections,

Rodent control: The use of pesticides for rodents to control rodents that transmit parasitic infections. Using rodent traps to control rodents that transmit parasitic infections. Health **education:** Educating people about the dangers of parasitic infections. Educate people on how to prevent parasitic infections. Encourage people to seek treatment in case of parasitic infections. World Health Organization (1987)

Improve Personal Hygiene

Wash hands regularly with soap and water. Avoid touching the face. Wear clean clothes. Avoid contact with infected animals.

Improving hygiene: Providing safe drinking water. Waste disposal safely. Combating environmental pollution.

Improving agricultural practices: Use pesticides responsibly. Use drip irrigation to reduce the spread of insects. Growing pest-resistant crops.

Improving health care: Providing antiparasitic drugs. Provide vaccines against parasitic infections. Providing health care for animals.

Examples of parasitic infection control strategies

Malaria control: Use of antimalarial drugs. Use mosquito nets to prevent mosquito bites. Spraying insecticides to combat mosquitoes.

The role of prevention in reducing the spread of parasitic diseases

Prevention plays an important role in reducing the spread of parasitic diseases by.

Improved sanitation

Improved sanitation helps prevent the spread of waterborne parasitic infections, such as schistosomiasis and giardiasis. Improved sanitation helps prevent the spread of soil-borne parasitic infections, such as ascariasis.

Hand hygiene

Washing your hands regularly with soap and water helps prevent the spread of parasitic oral-borne infections, such as giardiasis and amoeba. Regular hand washing with soap and water helps prevent the spread of parasitic infections transmitted by touching infected animals, such as rabies.

Food hygiene

Cooking food thoroughly helps prevent the spread of foodborne parasitic infections, such as tapeworm and helminthiasis. Washing fruits and vegetables well helps prevent the spread of foodborne parasitic infections, such as giardiasis.

Infection vector control

Pest control helps prevent the spread of insect-borne parasitic infections, such as malaria and elephantiasis. Rodent control helps prevent the spread of rodent-borne parasitic infections, such as schistosomiasis. Rodents are one of the most common pests in the world, causing significant damage to public health and the economy. Many parasitic diseases are transmitted through rodents, such as filariasis, plague and typhoid. Rodent traps have traditionally been used to control these pests, but more studies are needed to evaluate the effectiveness of these traps in reducing the spread of parasitic diseases.

Health Education

Educating people about the dangers of parasitic infections helps prevent their spread. Educating people on how to prevent parasitic infections helps prevent their spread.

Awareness of the dangers of parasitic infections: an effective tool to prevent and limit their spread.

Health education plays an important role in the prevention of diseases, including parasitic infections.

Parasitic infection is a common disease that affects humans and animals, and is spread through contact with contaminated soil or water, eating contaminated food, or insect bites this

infection causes a variety of symptoms, some mild and some serious, which can lead to severe health complications. Studies have shown that lack of health awareness is one of the main factors in the spread of parasitic infections. When people are unaware of the risks of this infection and ways to prevent it, they are more likely to be infected. Therefore, awareness of the risks of parasitic infections is an essential step to prevent them. This can be achieved through educational programs implemented by health institutions, including the dissemination of information about parasitic infections, modes of transmission, symptoms, and ways to prevent them.

Ways to prevent parasitic infections include

Wash hands frequently with soap and water, especially after using the toilet, before eating, and after contact with animals.
Cook food thoroughly, avoiding raw or undercooked meat.
Drink only safe water.
Avoid contact with contaminated soil or water.
Use insect repellent to prevent insect bites.
Get appropriate medical treatment if any symptoms of parasitic infection appear.

Improving Healthcare

The provision of antiparasitic drugs helps to treat parasitic infections and prevent their spread. Providing vaccines against parasitic infections helps prevent their spread. Examples of the role of prevention in reducing the spread of parasitic diseases:

Control of schistosomiasis: Improving sanitation to prevent the spread of schistosomiasis eggs in water. Educate people on how to prevent schistosomiasis. Elephantiasis control: Control mosquitoes that transmit elephantiasis. Provide preventive medications to people at risk of elephantiasis.

The role of health awareness in raising awareness of the importance of preventing parasitic infections

Health awareness plays an important role in raising awareness of the importance of preventing parasitic infections through:

Dissemination of information: Dissemination of information about the risks of parasitic infections. Dissemination of information on how to prevent parasitic infections. Dissemination of information on methods of treatment of parasitic infections. W. H. O., (1987)

Changing behaviors: Encourage people to adopt healthy behaviors. Encourage people to seek treatment in case of parasitic infections.

Community Empowerment: Enable the community to take steps to prevent parasitic infections. Enabling the community to participate in parasitic infection control.

Use various means

Using various means to spread health awareness, such as: the media. Schools. Health centers. Non-governmental organizations.

Focus on high-risk groups: Focus on groups most at risk of parasitic infections, such as children. Pregnant women. People with weakened immunity.

Cooperation between different entities: Cooperation between various entities to limit the spread of parasitic infections, such as: government ministries. International organizations. Private sector.

Note: Health education must be continuous and effective. Young & Willie, 1984) ^[23] Health education should be adapted to target groups. Examples of the role of health education in raising awareness of the importance of preventing parasitic infections: WHO's "Fight Malaria" campaign. (Yamey, 2004) ^[20] WHO "Eliminate elephantiasis" campaign Health awareness campaigns carried out by the Ministry of Health in various countries.

Health awareness plays an important role in reducing the spread of parasitic infections through the dissemination of information, changing behaviors, empowering the community, using various means, focusing on the most vulnerable groups, and cooperation between various parties. Althobeti *et al.*, (2022) ^[4] Parasites play an important role in ecosystems, by controlling animal and plant populations, recycling nutrients, and influencing animal behavior.

Effects

Climate change affects parasite patterns of spread significantly through temperature changes, precipitation and sea level.

Prevention

Prevention plays an important role in reducing the spread of parasitic diseases, through improved sanitation, hand hygiene, food hygiene, vector control, health education, and improved health care.

Awareness

Health awareness plays an important role in raising awareness of the importance of preventing parasitic infections, through the dissemination of information, changing behaviors, empowering the community, using various means, focusing on the most vulnerable groups, and cooperation between various parties. Althobeti *et al.*, (2022) ^[4]

Challenges

Climate change: Climate change is expanding the spread of some parasite species, such as mosquitoes, that transmit parasitic diseases, such as malaria.

Poverty: Poverty leads to a lack of access to clean water and sanitation, leading to the spread of some parasitic diseases, such as schistosomiasis.

War and conflicts: War and conflicts exacerbate the problem of parasitic infections, due to lack of health services and lack of awareness.

Recommendations

Investing in parasitic infection control

1. Strengthening health care systems.
2. Development of new vaccines against parasites.
3. Vector control.

Raising awareness of the importance of preventing parasitic infections

1. Dissemination of information about the risks of parasitic infections.
2. Encourage people to adopt healthy behaviors

3. Cooperation between various parties to limit the spread of parasitic infections
 1. Government ministries.
 2. International organizations.
 3. Private sector.

Conclusion

Parasitic infection control: a necessary endeavor for global health

Parasites, organisms that live at the expense of another, pose an important public health challenge, especially as their prevalence worsens as a result of climate change. Therefore, the control of parasitic infections becomes an urgent necessity to ensure the health and well-being of communities.

This can be achieved through sustainable investments in key areas including:

1. **Infrastructure:** Improving sanitation and providing clean water to ensure a healthy environment that prevents the spread of waterborne parasitic diseases.
2. **Awareness and Education:** Raising community awareness of the importance of preventing parasitic infections, methods of transmission, and methods of prevention, including personal hygiene, safe eating, and controlling infectious insects.
3. **International Cooperation:** Strengthening cooperation between various actors, such as governments, international organizations, the private sector, and scientific research institutions, to develop effective strategies to combat parasitic infections, exchange experiences and information, and provide financial and technical support to developing countries.

In addition, the preservation of biodiversity plays an important role in controlling some parasites naturally. For example, some predators help control vector populations, while plants purify water and reduce parasite breeding habitats.

Controlling parasitic infections is a shared responsibility that requires concerted efforts from all members of society. By investing in prevention, collaboration and environmental conservation, we can ensure a healthy future free of parasitic diseases.

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