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Research Article

THE EFFECT OF PARASITES ON HUMAN HEALTH

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Abstract:

The aim of the study is to determine the types of parasites that affect human life, what is the path of transmission of infection with parasites to humans, what are the symptoms associated with the presence of parasites in the human body, what are the ways to prevent humans from being infected with parasites. A questionnaire was conducted via Google Drive, the questionnaire was distributed via the social media network (where 850 questionnaires were distributed) to mobile groups, and responses to 800 questionnaires were obtained via email.

Keywords: the effect, parasites, human health

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INTRODUCTION:

Parasitology ⁽¹⁾ (in English: Parasitology) is the science that deals with the study of parasites and their relationship with the host body. A biological organization, the scope of parasitologists is not determined by biology or community ecology, but by their purpose in life. This means that it is a combination of other disciplines, and draws on techniques from fields such as biology, biochemistry, bioscience, genetics, evolution, and ecology. The field of parasitism is broad, encompassing relationships between organisms where one benefits at the expense of another. Traditionally the discipline focuses on eukaryotes, with the study of bacteria and viruses complementary but distinct. Nonetheless, parasites vary in size and complexity from single-celled protozoa to enormous plants like those in the genus *Rafflesia*. Lifecycles range from obligate intracellular to extensive expatriation. Examples of parasites include high-profile medical and zoonotic pathogens such as *Plasmodium* veterinary pathogens of wild and captive animals and many of the agents that cause neglected tropical diseases, stretching to parasites that infect plants and other parasites (e.g. ⁽²⁾, ⁽³⁾, ⁽⁴⁾, ⁽⁵⁾, ⁽⁶⁾, ⁽⁷⁾). The breadth of parasitology has been matched by the variety of ways in which parasites are studied, drawing upon biological, chemical, molecular, epidemiological, and other expertise. Humans host nearly 300 species of helminths, and more than 70 species of parasites, some derived from our primate ancestors and some acquired from animals we have raised or come into contact with during our relatively short history on Earth," noted parasitologist Cox. ⁽⁸⁾ Medical parasitology is one of the largest fields of parasitology, as it deals with parasites that infect humans, the diseases they cause, the clinical pictures and the response that humans generate against them, and it is also concerned with the various methods of diagnosing, treating, preventing, and controlling them. A parasite is an organism that lives on or inside another organism called a host. These organisms include *Plasmodium*: It is a genus of parasitic protozoa ⁽⁹⁾⁽¹⁰⁾⁽¹¹⁾ that causes malaria. The four species that infect humans are *Plasmodium vivax*, *Plasmodium falciparum*, *Plasmodium ovale*, and *Plasmodium malariae*. *Leishmania donovani* is a single-celled organism that causes leishmaniasis. *Amoeba* and *Giardia* cause intestinal infections (dysentery and diarrhea). Multicellular organisms and intestinal worms, such as *Schistosoma*, *V. Bancroft*, hookworm, and tapeworm. External parasites, such as ticks, lice, and mites. Medical parasitology can also include drug development, epidemiological studies, and the study of zoonotic diseases. Opportunistic infections occur more frequently and are more severe in individuals

with weakened immune systems. Among the intestinal protozoa, *Cryptosporidium* spp., *Giardia intestinalis*, microsporidia *Enterocytozoon bienewisi* and *Encephalitozoon intestinalis* are prevalent in people with congenital or acquired immunodeficiency, including patients with AIDS ⁽¹²⁾. These protozoal parasites can cause prolonged, recurrent, and severe diarrhea, leading to weight loss and cachexia, and infection can even be life-threatening. Microsporidia, like *Cryptosporidium* spp. and *Giardia intestinalis*, have been qualified by the National Institutes of Health (USA) and the Center for Disease Control and Prevention (CDC) as category B biological agents: as factors that could cause waterborne epidemics. Additionally, giardiasis and cryptosporidiosis belong to a group of neglected diseases. A recent study has assessed the risk of opportunistic infections caused by parasites among patients in Poland (M. Bednarska, I. Jankowska, K. Piwczyńska, B. Wolska-Kuśnierz, A. Paweł, M. Wielopolska, A. Bajer – Warsaw University, Warsaw). Among groups of patients with various immune statuses and recurrent and/or chronic diarrhea, intestinal protozoan infections were detected in 22/385 (5.7%) persons. Patients with compromised immune systems were infected by *C. parvum* and *C. hominis*, *C. meleagridis*, *C. felis*, *Cy. cayetanensis*, *G. intestinalis*, *E. bienewisi* and *E. intestinalis*, while *G. intestinalis* and *Cy. cayetanensis* occurred in immunocompetent persons. The results of this study show that an important factor for the occurrence of intestinal infections is immune status: 86% of infected individuals (19/22) had immune deficiencies. The patients receiving immunosuppressive drugs before or after transplantation of organs demonstrate a higher risk of microsporidia infection while cryptosporidiosis develops most often in people with severe immunodeficiency. The recent study demonstrates the first case in Poland of *Enterocytozoon bienewisi* infection in a liver transplant patient ⁽¹³⁾. Clinical observations confirm that in immunocompromised patients, the intestinal opportunistic parasites play a major role in causing chronic diarrhea.

2-MATERIAL AND METHODS:

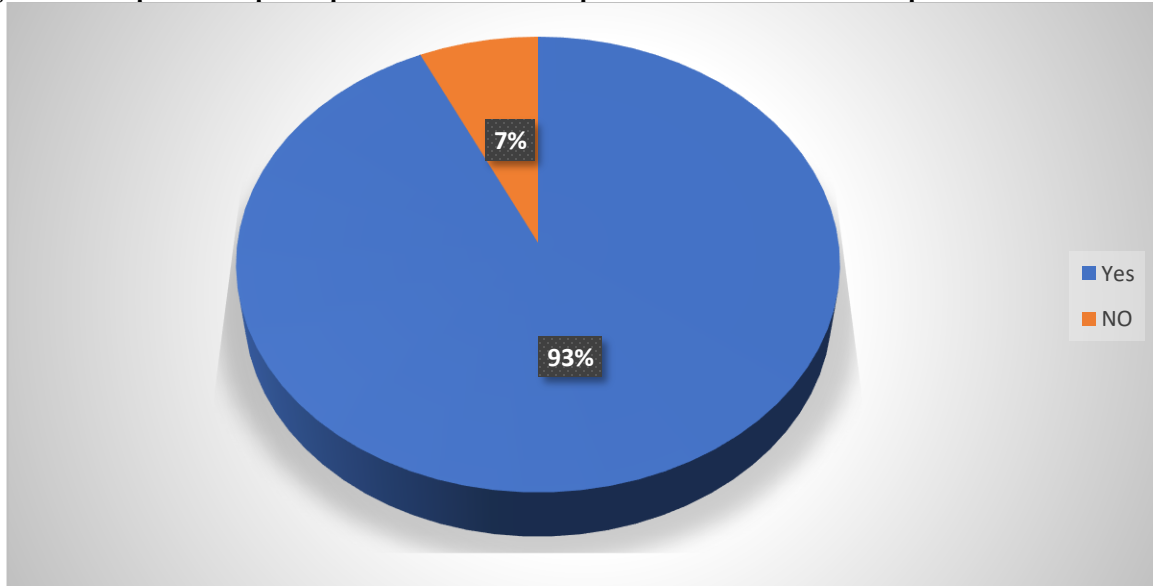
This study started in (the holy city of Mecca in Saudi Arabia), began writing the research and then recording the questionnaire in May 2023, and the study ended with data collection in September 2023. The researcher used the descriptive analytical approach that uses a quantitative or qualitative description of the social phenomenon (The effect of parasites on human health), this kind of study is characterized by analysis, reason, objectivity, and reality, as it is concerned with individuals and societies, as it studies the variables and their effects on the health of the individual, society,

and consumer, the spread of diseases and their relationship to demographic variables such as age, gender, nationality, and marital status. Status, occupation ⁽¹⁴⁾, And use the Excel 2010 Office suite histogram to arrange the results using: Frequency tables Percentages ⁽¹⁵⁾. A questionnaire is a remarkable and helpful tool for collecting a huge amount of data, however, researchers were not able to personally interview participants on the online survey, due to social distancing regulations at the time to prevent infection between participants and researchers and vice versa (not coronavirus participation completely disappearing from society). He only answered the questionnaire electronically, because the questionnaire consisted of thirteen questions, twelve questions closed and one open question. The online approach has also been used to generate valid samples in similar studies in Saudi Arabia and elsewhere ⁽¹⁶⁾

3- RESULTS:

When we moved to agreeing to participate in the questionnaire by the participants (residents of the city of Mecca), we found that the approval rate was 98.8%, and those who disagreed were 1.2%. As for the ages of the participants, it was as follows: from 16 years to 25 years, the percentage was 7.4%, from 26 to 35 years old, 14.8%, from 36 to 45 years old, 31.3%, and from 46 years to 55 years old, it was 46.6%. While the gender percentage of the participants was 72.4% of males, 27.6% of females. Their nationality was 95.5% Saudis and 4.5% others. Their occupations were as follows: student 3.75%, careerist 3.75%, government employee 65.3%, freelancer 13.3%, and private sector employee 13.9%. Amal about their educational status was as follows: 0% holders of a primary certificate, 1% of intermediate certificates, 11.4% of secondary schools, 69.1% of university degrees, 13.7% of master's degrees, 4.8% of those holding a doctorate degree. As for the research questionnaire questions, they were as follows: The first question is: Do you

have skin problems such as rashes, eczema and ulcers? The answer was yes, 21.4%, and no, 78.6%. The second question: Are there chronic digestive disorders such as chronic diarrhea, chronic constipation, gas, bloating, nausea, and stomach ulcers? Yes 39.2%, and no 60.8%. As for the third question, it was about: Do you have anal itching, especially during the night, for more than two weeks? Yes 7.6%, and no 92.4%. The fourth question: Do you suffer from constant fatigue (malabsorption of vitamins, minerals, fats, and carbohydrates) that makes your body weak? Yes, 16.8%, and no, 83.2%. The fifth question: Do you suffer from a sudden change in increased food appetite? The answers were yes, 34.3%, and no, 65.7%. The sixth question: Do you suffer from a sudden change in increased food appetite? Yes, 28.3%, and no, 71.7%. The seventh question: Do you eat foodstuffs such as berries, ginger, papaya, coconut oil, and pomegranates? Yes 66.5% and no 33.5%. The eighth question: Do you eat foodstuffs, especially vegetables (fiber)? Yes 89.1%, and no 10.9%. The ninth question: Do you eat processed or canned foods? Yes 68%, no 32%. As for the tenth question, it was about: Do you share your personal items, such as towels, with others? Yes, 12.2%, and no, 87.8%. The eleventh question: Are parasites harmful? The percentage of those who agree with yes is 93% and no is 7%. The twelfth question: Is drinking contaminated water and eating unclean foods or undercooked meat specifically one of the most common sources of parasite spread? Yes, 93.1%, and no 6.9%. The last question: What are the necessary steps to prevent parasites? (Please choose one of the following points. 1- Hand hygiene 2- Not sharing your personal tools with others 3- Staying away from canned or processed foods 4- Testing your stool periodically 5- Including fiber in your diet 6- All of the above The answers were as follows: all of the above 84.5%, hand hygiene 7.5%, not sharing personal tools with others 9%, periodic stool testing 3%, avoiding canned or processed foods 1%, including fiber in your diet 1%. (figure No.1)

Figure No.1: Opinions of participants in the research questionnaire on the harm of parasites to human health**4-DISCUSSION:**

By answering the research questionnaire by the participants, we find that many of them answered about the danger of parasites and their significant impact on human life, at a rate of 93%.

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