The Effect of Parasites on Human

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Abstracts

The current study aims to know the types of parasites that affect humans, what is the method of transmission of parasitic infections to humans, what are the symptoms associated with parasitic infections in humans, and what are the methods of preventing them. A questionnaire was conducted via the Google Drive program, and distributed via the social media network in the cities of Dammam and Al-Khobar to men and women from 25 to 55 years old (800 questionnaires were distributed), and responses from 790 (people) were obtained via email. It concluded that parasite it is very harmful to humans, according to the opinions of participants and contributions.

Keywords: the, effect, parasites, human.

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 expatriatism. 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 bieneusi 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. Pawełas, 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. bieneusi 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 bieneusi infection in a liver transplant patient (13).

Material and Methods:

This study started in (the cities of Dammam and Al-Khobar in Saudi Arabia), began writing the research and then recording the questionnaire in January 2024, and the study ended with data

collection in July 2024. The researcher used the descriptive analytical approach that uses a quantitative or qualitative description of the social phenomenon (the effect of parasites on human), the independent variable (the percentage of parasites that kill humans annually) and the dependent variable (the percentage of parasites that cause an impact 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, the only answered the questionnaire electronically, because the questionnaire consisted of thirteen questions, twelve questions closed and one open question.

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%. (Table .No.1)(Table.No.2)(figure No.1)

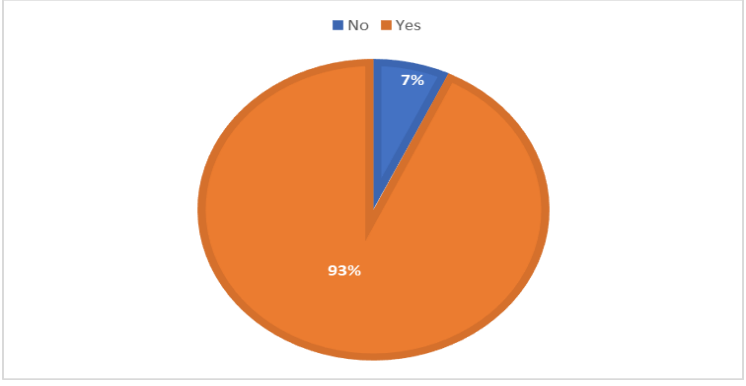

Figure No.1: Participants' opinions: The impact of parasites on human

Table.No.1:percentage of males and females

Males	Females
72.4%	27.6%

Table.No.2: percentage of saudi and non-saudi

Saudi	Non-saudi
95.5%	4.5%

4. Conclusion:

Suffering from skin problems such as rashes, eczema, and ulcers (21.4%), and chronic digestive disorders such as chronic diarrhea, chronic constipation, gas, bloating, nausea, and stomach ulcers? Yes, 39.2%, and from itching in the anus, especially during the night for more than two weeks, 7.6%, and from constant fatigue (malabsorption of vitamins, minerals, fats, and carbohydrates), which makes the body weak, by 16.8. A sudden change in appetite for food increased by 34.3%, eating foodstuffs such as berries, ginger, papaya, coconut oil, and pomegranates 66.5% and eating foodstuffs, especially vegetables (fiber), 89.1%. Eating processed or canned foods 68%, sharing personal items such as towels with others? Yes, 12.2%. Are parasites harmful? It is 93%. Drinking contaminated water and eating unclean foods or undercooked meat in particular are the most common sources of parasite spread, 93.1%. if found that Washing vegetables and cooking food well protects against parasites.

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WORKS CITED

The Unified Dictionary of Malahat Alam, Unified Dictionary Series (in Arabic, English, and French), Tunis: Transactions Coordination Office, 1993, p. 264, OCLC:929544775, ID:Q114972534

Kikuchi, T., Cotton, J. A., Dalzell, J. J., Hasegawa, K., Kanzaki, N., McVeigh, P., Takanashi, T., Tsai, I. J., Assefa, S. A., Cock, P. J., Otto, T. D., Hunt, M., Reid, A. J., Sanchez-Flores, A., Tsuchihara, K., Yokoi, T., Larsson, M. C., Miwa, J., Maule, A. G., Sahashi, N., Jones, J. T. and Berriman, M. (2011). Genomic insights into the origin of parasitism in the emerging plant pathogen Bursaphelenchus xylophilus. PLoS Pathogens 7, e1002219.

Hotez, P. J., Alvarado, M., Basanez, M. G., Bolliger, I., Bourne, R., Boussinesq, M., Brooker, S. J., Brown, A. S., Buckle, G., Budke, C. M., Carabin, H., Coffeng, L. E., Fevre, E. M., Furst, T., Halasa, Y. A., Jasrasaria, R., Johns, N. E., Keiser, J., King, C. H., Lozano, R., Murdoch, M. E., O'Hanlon, S., Pion, S. D., Pullan, R. L., Ramaiah, K. D., Roberts, T., Shepard, D. S., Smith, J. L., Stolk, W. A., Undurraga, E. A., Utzinger, J., Wang, M., Murray, C. J. and Naghavi, M. (2014). The global burden of disease study 2010: interpretation and implications for the neglected tropical diseases. PLoS Neglected Tropical Diseases 8, e2865.

Blake, D. P., Clark, E. L., Macdonald, S. E., Thenmozhi, V., Kundu, K., Garg, R., Jatau, I. D., Ayoade, S., Kawahara, F., Moftah, A., Reid, A. J., Adebambo, A. O., Alvarez Zapata, R., Srinivasa Rao, A. S., Thangaraj, K., Banerjee, P. S., DhinakarRaj, G., Raman, M. and Tomley, F. M. (2015). Population, genetic, and antigenic diversity of the apicomplexan Eimeria tenella and their relevance to vaccine development. Proceedings of the National Academy of Sciences of the United States of America 112, E5343–E5350. 5- Hemingway, J. (2015). Malaria: fifteen years of interventions. Nature 526, 198–199.

Holland, C. V. (2015). Knowledge gaps in the epidemiology of Toxocara: the enigma remains. Parasitology 143, 00–00. Hosein, S., Blake, D. P. and Solano-Gallego, L. (2016). Insights on adaptive and innate immunity in canine leishmaniosis. Parasitology 1–21.Published online 20 April 2016. doi: 10.1017/S003118201600055X.

Meekums, H., Hawash, M. B., Sparks, A. M., Oviedo, Y., Sandoval, C., Chico, M. E., Stothard, J. R., Cooper, P. J., Nejsum, P. and Betson, M. (2015). A genetic analysis of Trichuris trichiura and Trichuris suis from Ecuador. Parasit Vectors 8, 168.

Min, B., Allen-Scott, L. K. and Buntain, B. (2013). Transdisciplinary research for complex One Health issues: a scoping review of key concepts. Preventive Veterinary Medicine 112, 222–229.

Sandlund, L., Nilsen, F., Male, R., Grotmol, S., Kongshaug, H. and Dalvin, S. (2015). Molecular characterisation of the salmon louse, Lepeophtheirus salmonis salmonis (Kroyer, 1837), ecdysone receptor with emphasis on functional studies of female reproduction. International Journal for Parasitology 45, 175–185

Cox F.E.G. 2002. "History of human parasitology" Archived January 26, 2020 on the Wayback Machine website.

Wiersch SC, Maier WA, Kampen H (May 2005). "Plasmodium (Haemamoeba) cathemerium gene sequences for phylogenetic analysis of malaria parasites". Parasitol. Res. C. 96 p. 2: 90–4. DOI:10.1007/s00436-005-1324-8. PMID:15812672.

Day, K.P. (2003). Lyons, E.J Hume, J.C. "Human migration, mosquitoes and the evolution of Plasmodium falciparum". Trends Parasitol. C. 19 p. 3: 9–144. DOI:10.1016/s1471-4922(03)00008-4. PMID:12643998.

Collins WE, Sullivan JS, Nace D, Williams T, Williams A, Barnwell JW (February 2008). "Observations on the sporozoite transmission of Plasmodium vivax to monkeys". J. Parasitol. C. 94 p. 1: 287–8. DOI:10.1645/GE-1283.1. PMID:18372652. Archived from the original on 10/12/2019.

Pavie J., Menotti J., Porcher R., Donay J.L., Gallien

S., Sarfati C., Derouin F., Molina J.M. 2012. Prevalence of opportunistic intestinal parasitic infections among HIV-infected patients with low CD4 cells counts in France in the combination antiretroviral therapy era. International Journal of Infectious Disease 16: e677-679. doi:10.1016/j.ijid. 2012.05.1022

Bednarska M., Bajer A., Welc-Faleciak R.,Czubkowski P., Teisseyre M., Graczyk T.K., Jankowska I. 2013. The first case of Enterocytozoon bieneusi infection in Poland. Annals of Agricultural and Environmental Medicine 20: 287-288.

Alserahy, Hassan Awad, et al (2008), The thinking and scientific research, Scientific Publishing Center, King Abdul-Aziz University in Jeddah, the first edition

Al Zoghbi, Muhammad and AlTalvah, Abas (2000), Statistical system understanding and analysis of statistical data, first edition, Jordon- Amman.