Medical Science Journal for Advance Research

Vol. 5, No. 3, August 2024
e-ISSN: 2774-4892

A study to Indicate the Infection Prevalence with the *Giardia lamblia* and *Entameoba histolytica* parasites in Al Najaf Governorate for the year 2022

Noor I. Abdul-Zahra[1], and Zahraa K. Taiban[2]

, Medical Laboratory Techniques Department[1], Health Community Techniques[2], Kufa Technical Institute, Al-Furat Al-Awsat Technical University, Iraq.

***E-Mail**: kin.nor3@atu.edu.iq, zahraa.saad@atu.edu.iq*

ABSTRACT

***Background**: study of parasitic infection is considered one of the challenges in maintainable progress. **Aim:** It is a statement of the prevalence of parasite infection in Najaf Governorate for the year 2022 for some age groups. **Methods:** Data for the study are collected from the Digestive System Hospital in Al-Najaf Governorate, and they are analyzed, showing the percentages of infections with both parasites, and showing the environment that encourages infection and its causes. **Results:** There were 622 specimens were collected from gastrointestinal patients who suffer from similar symptoms to some extent, which the parasitic infections were E.histolytica, and G.lamblia, found to be 620 (93.65%) with E.histolytica infection and 42 (6.34%) with G.lamblia infection, and the results showed that the highest rate of total infection in the age group from 15-45 years. And the least in age group 10-14 years. According to sex the highest infection were in females as total infections, and the results showed that the highest rate of G. lamblia infection in the age group from 15-45 years. And the least percentage in age more 45 years. And the highest percentage of E. histolytica infection in the age group from 15-45 years. And the least in age group 10-14 years.*

***Conclusion**: We conclude from this study that parasite infection especially G. lamblia and E. histolytica include all ages, sexes. but the most vulnerable age groups are in terms of bodily building and defensive immunity of the body.*

***Key words:** Parasite, E.histolytica, G.lamblia.*

Article Information

Received: June 29, 2024; Revised: July 30, 2024; Online: August, 2024

INTRODUCTION

Giardia lamblia is a flagellated protozoan which inhabits the digestive tract of vertebrate hosts, such as domestic and wild animals and humans [1,2]. It has a universal distribution, and infects over 200 million people yearly, a state known as giardiasis. It has been considered a serious public health topic, most expressly among immunocompromised adults and children. The effect of the disease is larger in developing countries, where it is frequently associated with unwarranted socioeconomic situations that affect mainly children and/or immunocompromised adults [3,4], which typically get its most severe type of disease. *G. lamblia* spread may happen through interpersonal communication with infected persons, later cysts are eliminated in an infectious stage [5,6]. Ingesting of contaminated water from wells and watercourses was found to be a danger factor for giardiasis, especially in immunocompromised patients [7].

https://doi.org/10.46966/msjar.v5i3.215

The parasite *Entamoeba histolytica* is the causal agent of human amoebiasis. This disease is mainly a problem in the emerging world, where it leads to 50 million clinical cases and 100,000 deaths per year [8]. One of the most mystifying clinical features of *E. histolytica* infection is that 90% of persons don't suffer from any symptoms, while the residual 10% develop colitis, diarrhea, dysentery, and (in a few cases) extraintestinal amoebic lesions, such as liver abscess. The factors that defend the host against aggressive diseases and that activate the invasive process in humans are still not fully understood. However, a link between undernourishment and E. histolytica dysentery has been recognized in infected children in Bangladesh [9 -11]. Also, genetic restructuring in the parasite [12], and the host gender could be a factor in the consequence of the infection [13-15].

Methods

Data for the study are collected from the Digestive System Hospital in Al-Najaf Governorate, and they are analyzed, showing the percentages of infections with both parasites, and showing the environment that encourages infection and its causes.

Ethical Approval

The specimens of this study took the patient's approval for adult patients, precious and the consent of the irrigation for young people in age as the law and directives of the human rights organizations with adequate information in an ethical manner.

Results and discussion

There were 622 specimens were collected from gastrointestinal patients who suffer from similar symptoms to some extent, which the parasitic infections were *E.histolytica,* and *G.lamblia,* found to be 620 (93.65%) with *E. histolytica* infection and 42 (6.34%) with *G. lamblia* infection. All these results will explained in figures (1,2) and tables (1,2 and 3). Several studies on the occurrence of duodenal parasites have been done universally and have shown differences in the occurrence of infections contingent on geographical areas and zones, healthy environment, and hygienic habits of people living there [16,17], this may be caused by the difference percentage in Table (1).

Tables (1and2) shows the distribution of infection on age groups and by gender, as specimens were collected from people infected with the parasite from different age groups, and the results showed that the peak rate of total infection in the age group from 15-45 years, additionally, the country areas, which could be because of the problem of contamination of food and drinking water by feces of rodents, dogs, cats and sheep that act as reservoirs for these parasites and water impurity is a great significant in this respect because the addition of Cl to tap water is not accessible in most of the regions and infect people using polluted water supplies, together with appropriate environmental issues such as humidity and temperature that simplifies the spreading and accomplishment of the life cycle of these parasites [18,19]. And the least 10-14 years. According to sex, the highest infection was in females as total infections, table (3) shows the distribution of infection in age groups and by sex, as specimens were collected from people infected with the *E.histolytica* and *G.lamblia* parasites from different age groups, and the results showed that the highest rate of *G.lamblia* infection in the age group from 15-45 years. And the least percentage in aged more 45 years. And the highest percentage of *E.histolytica* infection in the age group from

15-45 years. And the least 10-14 years. Also because of the usage of human feces as soil enrichers fertilizers which increases the ability to spread infection, and cultivation practices, most of whom are of this age group (females& males) were also supposed [20]. It is also possible to attribute the smut flies and pests also are vital mechanical vectors of parasite cysts [21].

Table (1) The data of infection with *E.histolytica* and *G.lamblia* in Al - Najaf province in 2022.

Age (years)	*E.histolytica*		*G.lamblia*		Total infection		Total specimens
	Male	Female	Male	Female	Male	Female	
1 – 4	29	47	6	2	35	49	84
5 – 9	21	31	6	1	27	32	59
10 – 14	19	27	2	3	21	30	51
15 – 45	152	228	15	5	167	233	400
>45	39	27	2	0	41	27	68
Total	260	360	31	11	291	371	662
Total	620		42		662		

Table (2) The percentages of infection with *E.histolytica* and *G.lamblia* in Al-Najaf province in 20022

Infection age	*E.histolytica*	*G.lamblia*	Total infection (100%)
1 – 4 years	76 (12.25%)	8 (19.04%)	84 (12.68%)
5 - 9 years	52 (8.38%)	7 (16.66%)	59 (8.91%)
10 -14 years	46 (7.41%)	5 (11.09%)	51 (7.7%)
15 - 45 years	380 (61.29%)	20 (47.61%)	400 (60.4%)
>45 years	66 (10.64%)	2 (4.76%)	68 (10.27%)
Total	620 (93.65%)	42 (6.34%)	662 (100%)

Table (3) The data of infection with *E.histolytica* in Al-Najaf province in 2022

Age (years)	*E.histolytica*		Total Specimens
	Male	Female	
1 – 4	29 (38.15%)	47 (61.85%)	76
5 – 9	21 (40.38%)	31 (59.61%)	52
10 – 14	19 (41.30%)	27 (58.695%)	46
15 – 45	152 (40%)	228 (60%)	380
>45	39 (59.09%)	27 (40.09%)	66
Total	260 (41.935%)	360(58.065%)	620
Total	620		

Table (4) The data of infection with *G.lamblia* in Al-Najaf province in 2022.

Age (years)	*G.lamblia*		Total specimens
	Male	Female	
1 – 4	6 (75%)	2 (25%)	8
5 – 9	6 (85.71%)	7	
10 – 14	2 (40%)	3 (60 %)	5
15 – 45	15 (75%)	5 (25%)	20
>45	2 (100%)	0 (0%)	2
Total	31 (73.8%)	11 (26.2%)	42
Total	42		

Table (5) The data of total infection with *E.histolytica* and *G.lamblia* in Al-Najaf province in 2022.

Age (years)	Total infection		Total specimens
	Male	Female	
1 – 4	35 (41.7 %)	49 (58.3%)	84
5 – 9	27 (45.8%)	32 (54.2%)	59
10 – 14	21 (41.2%)	30 (58.8%)	51
15 – 45	167 (41.75%)	233 (58.25%)	400
>45	41 (60.3%)	27 (39.7%)	68
Total	291 (43.95%)	371 (56.04%)	662

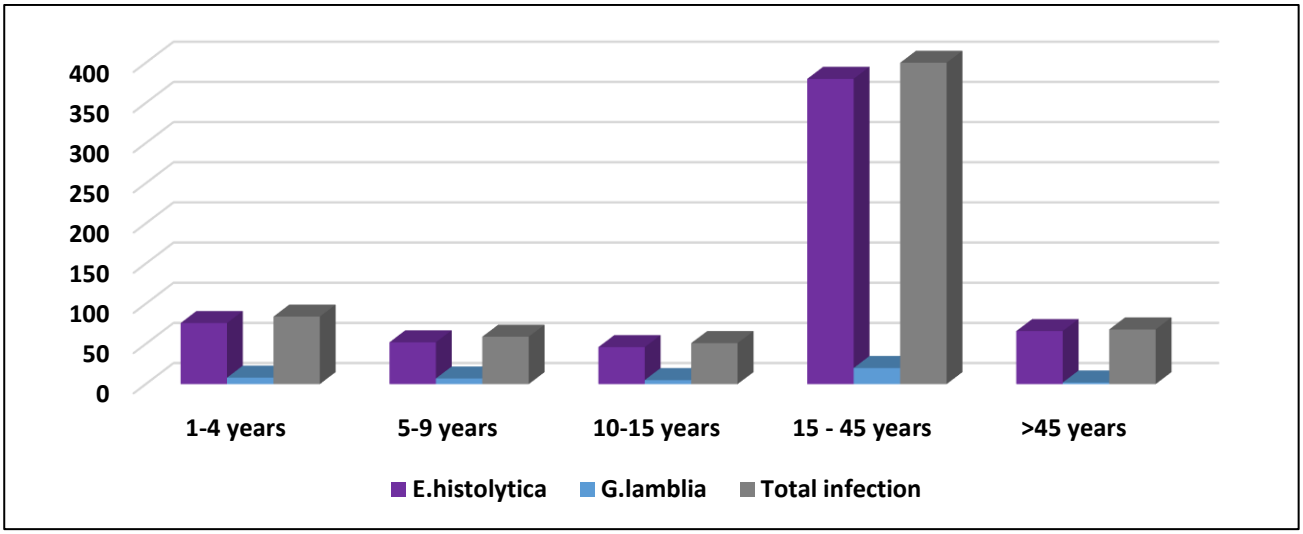

Figure (1):The data of total infection with *E.histolytica* and *G.lamblia* in in Al -Najaf province in 2022.

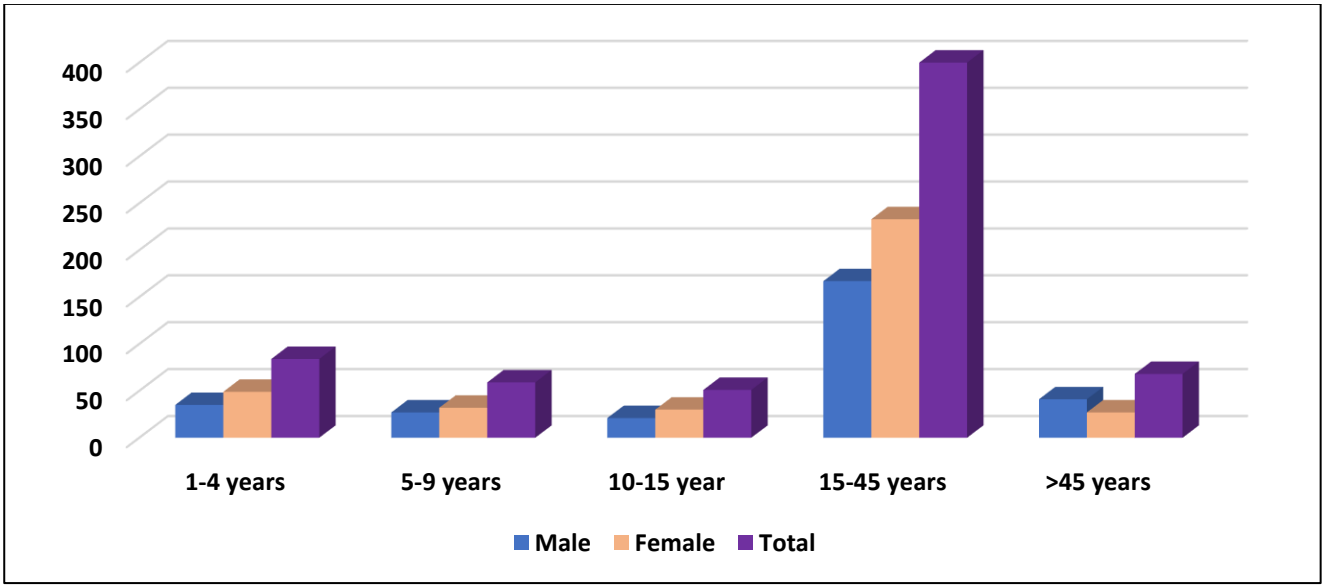

Figure (2): The data of total infection of male and female with *E.histolytica* and *G.lamblia* in in Al -Najaf province in 2022.

Conclusion

The conclusion from this study that parasite infection especially *G. lamblia* and *E. histolytica* may infect all ages, sexes. but the most vulnerable age groups are in terms of bodily building and defensive immunity of the body.

References

1.Noor, R., Javid, A., Hussain, A., Bukhari, S.M., Hussain, I., Suleman, S. And Ali, W., 2021. Prevalence of parasites in selected captive bird species. Brazilian Journal of Biology = Revista Brasileira de Biologia, vol. 84, pp. e254251. PMid:34852138.

2. Sadaf, T., Javid, A., Hussain, A., Bukhari, S.M., Hussain, S.M., Ain, Q., Ashraf, S., Suleman, S., Saleem, M., Azam, S.M., Ahmad, U. And Ali, W., 2021. Studies on parasitic prevalence in pet birds from Punjab, Pakistan. Brazilian Journal of Biology = Revista Brasileira de Biologia, vol. 83, pp. e246229. PMid:34468515.

3.Ryan, U., Hijjawi, N., Feng, Y. And Xiao, L., 2019. Giardia: an under-reported foodborne parasite. International Journal for Parasitology, vol. 49, no. 1, pp. 1-11. http://dx.doi.org/10.1016/j. ijpara.2018.07.003. PMid:30391227.

4. Jeske, S., Bianchi, T.F., Leon, Í.F. And Villela, M.M., 2020. Neoplastic patients' knowledge about intestinal parasitoses in southern Brazil. Brazilian Journal of Biology = Revista Brasileira de Biologia, vol. 80, no. 2, pp. 386-392. http://dx.doi.org/10.1590/1519-6984.211560. PMid:31411251.

5.Monteiro, A.C.S., Soares, D.A., Diniz, S.C.P.O.R., Cavalcante, U.M.B., Silva, A.B., Vianna, R.P.T., Freitas, F.I.S., Souza, T.C. And Lima, C.M.B.L., 2018. Intestinal parasitism and related risk factors for primary school students in João Pessoa, northeast Brazil. Bioscience Journal, vol. 34, no. 4, pp. 1062-1072. http:// dx.doi.org/10.14393/BJ-v34n1a2018-39899.

6.Vaz Nery, S., Clarke, N.E., Richardson, A., Traub, R., Mccarthy, J.S., Gray, D.J., Vallely, A.J., Williams, G.M., Andrews, R.M., Campbell, S.J. And Clements, A.C.A., 2019. Risk factors for infection with soil-transmitted helminths during an integrated community level water, sanitation, and hygiene and deworming intervention in Timor-Leste. International Journal for Parasitology, vol. 49, no. 5, pp. 389-396. http://dx.doi. org/10.1016/j.ijpara.2018.12.006. PMid:30802450.

7. Gedle, D., Kumera, G., Eshete, T., Ketema, K., Adugna, H. And Feyera, F., 2017. Intestinal parasitic infections and its association with undernutrition and CD4 T cell levels among HIV/AIDS patients on HAART in Butajira, Ethiopia. Journal of Health, Population and Nutrition, vol. 36, no. 1, pp. 15. http:// dx.doi.org/10.1186/s41043-017-0092-2. PMid:28506307.

8. Stanley SL, Jr. (2003) Amoebiasis. Lancet 361: 1025–1034.

9. Haque R, Mondal D, Shu J, Roy S, Kabir M, et al. (2007) Correlation of interferon-gamma production by peripheral blood mononuclear cells with childhood malnutrition and susceptibility to amebiasis. Am J Trop Med Hyg 76: 340–344.

10. Mondal D, Petri WA, Jr., Sack RB, Kirkpatrick BD, Haque R (2006) Entamoeba histolytica-associated diarrheal illness is negatively associated with the growth of preschool children: evidence from a prospective study. Trans R Soc Trop Med Hyg 100: 1032–1038.

11. Tarleton JL, Haque R, Mondal D, Shu J, Farr BM, et al. (2006) Cognitive effects of diarrhea, malnutrition, and Entamoeba histolytica infection on school age children in Dhaka, Bangladesh. Am J Trop Med Hyg 74: 475–481.

12. Ali IK, Solaymani-Mohammadi S, Akhter J, Roy S, Gorrini C, et al. (2008) Tissue Invasion by Entamoeba histolytica: Evidence of Genetic Selection and/or DNA Reorganization Events in Organ Tropism. PLoS Negl Trop Dis 2: e219.

13. Acuna-Soto R, Maguire JH, Wirth DF (2000) Gender distribution in asymptomatic and invasive amebiasis. Am J Gastroenterol 95: 1277–1283.

14. Blessmann J, Le Van A, Tannich E (2006) Epidemiology and treatment of amebiasis in Hue, Vietnam. Arch Med Res 37: 270–272.

15. Hamano S, Becker S, Asgharpour A, Ocasio YP, Stroup SE, et al. (2008) Gender and genetic control of resistance to intestinal amebiasis in inbred mice. Genes Immun 9: 452–461.

16.Trissl, D.; Martinez-Palomo A.; Arquello C.; de la Torre M.; de la hoz R. (1977). Surface Properties related to Con CanavilinA-induced agglutination:a comparative study of several Entamoeba strains. J. EXP. Med. 145 : 652 .

17.Barker, D.C.; Swales, L.S. (1972). Charactistics of ribosomes during differentiation from trophozoite to cyst in axenic Entamoeba Sp. Cell Differ. 1:297.

18.Gleason,N.N.,Horwitz,M.S.,Newton,L.H., et al .(1970). A stool survey for enteric organisms in aspen ,colarado.Am.J.Trop. Med. Hyg. , 19:480-484.

19.Hassan,A.H.,Abu-Zeid,MoslemU.Khan,Mohamed S. Omer et al.(1989). Relationship of intestinal parasites in urban communities in abha to socioenvironmental factors. Saudi Med.J. Vol. 10, No.6:477-479.

20.Banerjee,R.N.;Sahani,A.L.;NagA.K.;Ganapathy,G.R.;Bardhan, J.A.(1976).Longitudinal study of intestinal amoebiasis.J. Assoc. Physicians, India. 24:83.

21.Abioye, A.A.; Oqligunba E.O. (1972) parametric evaluation of the prevalence of Entamoeba histolytica infections in ibadan. Trop. Geogr, med. 24 : 370 .

