Kufa Journal for Nursing Sciences
Open Access Full Text Article

Publisher
University of Kufa, Faculty of Nursing

Received: 24 November, 2025
Accepted: 18 March, 2026
Published: 24 March, 2026
Vol. 16(1), 2026: 55 – 64

https://doi.org/10.36321/kjns.vi20261.22410

ORIGINAL RESEARCH

Monitoring the Cases of Diarrhea in Adults: Comparative Study

Evan Hussein Mahdi Altalqani

Department of Basic of Science, Faculty of Nursing, University of Kufa, AL-Najaf, Iraq.

ABSTRACT

Background: Diarrhea is one of the most prevalent disorders, and it causes mortality due to a lack of bodily fluids, which causes severe dehydration (Kolsin et al., 2018). Viruses, bacteria, fungi and parasites infections are the major causes of diarrhea.

Objectives: This study aims to identify the infectious agents responsible for persistent diarrhea among adults A total of [265 for male , 324 for female] aged 25–60 years in hospitals across Al-Najaf.

Methodology: Microbial data were collected during September and October of 2023 to determine the prevalence of bacterial, viral, fungal, and parasitic infections associated with diarrheal cases.

Results: The findings indicate that Vibrio cholera represented the predominant bacterial infection in September, while E. coli and E. histolytica appeared more frequently among males. Limited cases of fungal and viral infections were detected, with no reported Salmonella infections. In contrast, October showed a reduction in bacterial infections and an increase in certain parasitic and fungal cases, alongside the emergence of Nile virus infections that were absent in September. These patterns highlight a noticeable seasonal variation in microbial diarrheal infections within the region.

Conclusion: Acquired bacterial pathogens, particularly Vibrio cholera and E. coli were listed as the causes of diarrhea among adults in Al-Najaf governorate during September 2023. During this period a strong statistical association ($p < 0.0001$) was found between female gender and cholera infection.

CORRESPONDING AUTHOR: Evan H. M. Altalqani, Department of Basic of Science, Faculty of Nursing, University of Kufa, AL-Najaf, Iraq.
Email: evanh.altalqani@uokufa.edu.iq

Keywords: Monitoring The Diarrhea, Monitoring The Diarrhea in Najaf Hospitals.

INTRODUCTION

Diarrhea is one of the most prevalent disorders, and it causes mortality due to a lack of bodily fluids, which causes severe dehydration (Kolsin et al., 2018). Viruses, bacteria, fungi and parasites infections are the major causes of diarrhea.

Microbial diarrheal diseases in adults remain a significant global health challenge, causing substantial morbidity and economic loss due to decreased productivity and healthcare costs. In 2024, the World Health Organization (WHO) emphasized that diarrhea is a leading cause of death globally, with a high proportion of cases linked to contaminated

How to Cite: Altalqani, E. H. M. (2026). Monitoring the cases of diarrhea in adults: Comparative study. *Kufa Journal for Nursing Sciences, 16*(1), 55-64. https://doi.org/10.36321/kjns.vi20261.22410

food and water, as well as poor sanitation. Recent data from December 2024 highlights that while global mortality has dropped by 60% since 1990, the burden remains high among the elderly, especially in low-income regions. (WHO., 2022, Dr. Seifu Gizaw, et al 2026 & GBD., 2024)

There are many infectious, dietary/drug, gastrointestinal, extra-intestinal, and surgical causes. Understanding the physiology and pathophysiology of nutrient digestion and intestinal absorption can guide the diagnostic approach (Freedman SB., et al 2015).

Microbial causes in adults are broadly categorized into:

Bacterial Pathogens: Common triggers include Salmonella, Campylobacter, and Shigella, often originating from undercooked poultry or eggs. Escherichia coli (E. coli) and Clostridioides difficile the latter frequently associated with antibiotic use are also major concerns.

Viral Agents: Noro virus is the leading cause of acute viral gastroenteritis and large-scale outbreaks due to its high transmissibility. Other contributors include rotavirus and enteric adenoviruses.

Parasitic Infections: Organisms such as Giardia lamblia, Cryptosporidium, and Entamoeba histolytica are common in areas with inadequate water treatment, leading to persistent or watery diarrhea. (Dr. Seifu Gizaw, et al 2026)

Current clinical focus in 2024–2025 remains on the prevention of dehydration, which can lead to severe complications like sepsis or organ failure if not managed with oral rehydration salts (ORS) or intravenous fluids. (WHO., 2022).

Diarrhea may be described as increased stool fluidity or increased stool frequency that causes urgency or abdominal discomfort. Diarrhea is defined as stool volume of more than 200g per day over 24–72 hours (Faruquzzaman., 2011). Acute diarrhea persists for less than 2 weeks.

Hospital-acquired diarrhea may be considered a significant hospitalization risk that occurs in 2–32% of admitted patients in general medicine wards (Bhuiyan MU., et al.2014) (Allegranzi B., et al2011). Noninfectious causes of diarrhea, including medications and underlying illness, should be considered by clinicians in most cases of nosocomial diarrhea (Stein A, Voigt W., 2010) (Polage CR., et al 2012).

Acute diarrhea: infectious diarrhea represents about 80% of acute diarrhea cases, while the remaining cases of acute diarrhea are due to medications or other causes (Feher C, Mensa J.,2016). Food-borne and water-borne infectious diarrhea are primarily due to Salmonellae, coli, and Shigella.... etc.(Banyai K., et al 2018) (Reed D, Kemmerly SA.,2009). Food poisoning diarrhea is most commonly caused by pre microorganism (Kelly CR, et al., 2016) or caused by toxins in food due to contamination with microorganisms. Antibiotic-associated diarrhea occurs in about 20% of hospitalized patients using broad-spectrum antibiotic (Chikere CB., et al 2008) (Young VB., 2012).

Immune suppressed patients are also susceptible to nosocomial viral infections (Otter JA., et al 2009).

Radiotherapy and chemotherapy-related diarrhea: abdominal or whole-body radiation causes watery bowel movement, chemotherapy using some drugs, e.g., azacitidine, cytarabine, daunorubicin, may cause mild to moderate diarrhea. Immune checkpoint inhibitors cause diarrhea in up to 40% of patients .Classify of diarrhea according to the degree of dehydration

*No dehydration (loss of <3% of body weight);

*Mild degree of dehydration, loss of 3–5% of whole-body weight manifested by dry oral mucosa & thirst;

*Moderate degree of dehydration, loss of >5–9% of body weight manifested by increased thirst sensation with dry oral mucosa and sunken eyes associated with decreased urine output and hypotension with prolonged capillary refilling and dry skin;

*Severe dehydration, i.e., loss of ≥9% of body whole weight with moderate dehydration with hypovolemic shock (Schnadower D., et al 2002).

Anticipatory guidance on prudent food and beverages selection and preparation, observance of personal hygiene, pretravel vaccination with appropriate enteric vaccines if indicated, and judicious use of antimicrobial and antimotility agents can reduce the incidence and severity of diarrhea (Ashkenazi et al., 2016).

AIMS OF THE STUDY

This study focuses on evaluating the infectious causes of diarrhea among adults admitted to hospitals in Al-najaf during the months of September and October 2023, aiming to highlight the predominant pathogens and seasonal variations.

METHODOLOGY

This descriptive analytical study was conducted across tertiary hospitals in Al-najaf province. A total of [265 for male, 324 for female] adult patients (25–60 years) presenting with acute diarrhea were enrolled between September 1 and October 31, 2023. Inclusion criteria targeted patients with a frequency of ≥3 loose stools per day.

Fresh stool specimens were collected in sterile containers and processed within two hours. Microbiological analysis included: (1) Standard culture techniques on selective media for enteric bacteria; (Blood agar, Macconkey agar, SSagar and EMB agar) & biochemical test *(2) Microscopic examination using saline and Lugol's iodine for parasites; and (3) specific test, e.g., Latex agglutination for viral and PDA agar for fungal pathogens.

All laboratory findings were compiled to determine distribution patterns and comparative differences between the two months.

RESULTS

Results on microbial diarrhea infections were collected from the Najaf Hospitals for the months of September and October 2023. When sorting the Results of September, it explained the detection that cholera infection recorded the highest cases of diarrhea (168) for females (23) for males, (58) for females, (49) for males recorded cases of E. coli infection, and only (14) for males it recorded cases of Klebsiella pneumonia. While no case of salmonella infection was recorded. in parasites cases of diarrhea were recorded in males (64) compared to females (57) of the E. Historica parasite, whearse only two cases of Giardia lamblia were recorded in males, but not cases were recorded in females.

Also, Cases of fungal infections were recorded in males (7 cases) and (5) in females. The Corona virus were recorded (6) cases of diarrhea among females and (3) only among males, whearse not cases of infection the Nile virus recorded among males or females.

During the month of October 2023, a few infection cases were recorded with diarrhea, as the highest cases of diarrhea were recorded with E. coli (25) for males and for females, the Monila) Morchella (infection were recorded (35) for females and (38) for males. E. Histolytica (15) cases were recorded for males, (10) for females while (12) cases were recorded for males and (8) for females with the Nile virus.

DISCUSSION:

The overall comparison of September and October 2023 reveals clear variation in the distribution of infectious agents responsible for diarrhea in adults within Al-Najaf. September recorded higher bacterial infections, particularly cholera, whereas October showed a decline in these infections but a noticeable rise in parasitic and fungal cases. The appearance of Nile virus infections exclusively in October, alongside limited coronavirus cases, suggests potential seasonal or environmental influences on microbial activity.

Differences observed between this study and previously published regional research highlight the impact of local conditions, population behavior, sanitation levels, and climatic fluctuations on infection

rates. For instance, earlier studies reported higher rates of E. coli, Salmonella, and Giardia compared to the very low Giardia cases identified in this study period. Variations in Corona related gastrointestinal symptoms also emphasize the role of asymptomatic infections and evolving viral patterns.

(AN Al-khafaji., 2023) explained that the predominant rate of bacterial infection E. Coli & Salmonella & Shigella during the year 2020, and this is contrary to the results get to us during the months of September and October 2023.(SW Al-Shaibani.,2022) explained that parasite infections, especially E. Histolytica in Najaf Governorate has very close percentages, and these results are inconsistent with the results we obtained during the months of September and October 2023, the cases of infection in males were higher than females.

As for the Giardia infection during the months of September and October 2023, very minor injuries that exceed two or four cases, while (HH Jawad., et al 2016) showed that the Giardia infection in Al-Najaf Al-Ashraf Governorate that the number of injuries in males reaches 45%, while females reach 31%. For 2022.

Corona infections in Najaf Governorate during April - August 2022 showed that the infections in males reached 59%, and in females 15%. This is contrary to our results, where the injuries appeared in (6) in males and (3) in women during the month of September, while no injury was asked for males and only (2) for females during the month of October It can be said that one of the reasons for the lack of injuries is asymptomatic injuries. It was proved that the number of asymptomatic male patients reached 59% and 15% in females (ZK Gihad., 2023). These findings underscore the importance of continuous surveillance and public-health preparedness in managing diarrheal diseases, particularly in regions experiencing notable seasonal shifts.

CONCLUSIONS:

The findings show that acquired bacterial pathogens, particularly Vibrio cholera and E. coli were listed as the causes of diarrhea among adults in Al-Najaf governorate during September 2023. During this period a strong statistical association ($p < 0.0001$) was found between female gender and cholera infection.

Seasonal Transition:

Between September and October, a clear shift in microbial etiology occurred. They noted that in October, bacterial and parasitic (E. histolytica) infection decreased but West Nile Virus had become "very prevalent," while there was a 6-fold increase in fungal (Monilia) cases. This evidences that the distribution of diarrheal pathogens in the province is highly seasonal.

REFERENCES:

Ashkenazi S, Schwartz E, O'Ryan M.Travelers' diarrhea in children: What have we learnt? *Pediatr Infect Dis J* 2016; 35(6): 698- 700.

Chikere CB, Omoni VT, Chikere BO. Distribution of potential nosocomial pathogens in a hospital environment. *African Journal of Biotechnology*. 2008;7(20) doi: 10.4314/ajb.v7i20.59367.

Allegranzi B, Bagheri Nejad S, Combescure C, Graafmans W, et al. Burden of endemic health-care-associated infection in developing countries: systematic review and meta-analysis. *Lancet*. 2011 Jan 15;377(9761):228–41. doi: 10.1016/S0140-6736(10)61458-4.

Banyai K, Estes MK, Martella V, Parashar UD. Viral Gastroenteritis. *Lancet*. 2018;392(10142):175–186. doi: 10.1016/S0140-6736(18)31128-0

Bhuiyan MU, Luby SP, Zaman RU, Rahman MW, et al. Incidence of and risk factors for hospital-acquired diarrhea in three tertiary care public hospitals in Bangladesh. *Am J Trop Med Hyg*. 2014 Jul;91(1):165–172. doi: 10.4269/ajtmh.13-0484.

Faruquzzaman Positive associations of nosocomial infections in surgical ward with etiological clinical factors. *Bratisl Lek Listy*. 2011;112(5):273–7.

Feher C, Mensa J. A Comparison of Current Guidelines of Five International Societies on Clostridium difficile Infection Management. *Infect Dis Ther*. 2016;5(3):207–230. doi: 10.1007/s40121-016-0122-1

Freedman SB, Williamson Urquhart S, Farion KJ, et al. Multicenter trial of a combination probiotics for children with gastroenteritis. *N Engl J Med*. 2018;379(21):2015–2026. doi:10.1056/NEJMoa1802597.

Gihad, Z. K. (2023, December). Study the proportions of age, ABO typing and gastroenteritis in COVID-19 infections in Al Najaf governorate. *In AIP Conference Proceedings* (Vol. 2977, No. 1). AIP Publishing.

Hussein, Hayfaa Jaber, Shurooq Wesam Al-Shaibani, and Noor Hassan Abdulrudha. "Association of Covid-19 with blood type A in relation to blood sugar, urea, and blood test (D-dimer and ferritin) in patients from Al-Najaf." *Journal of Medicine and Life* 15.2 (2022): 180.

Jawad, Hadeel Hady, and Ghaidaa Abass Jasim. "Molecular study of Cryptosporidium spp. and Giardia lamblia which cause diarrhea in camels (Camillus dromedaries) in Al-Diwaniyah and Al-Najaf provinces/Iraq." *J Vet Med Sci* 15 (2016): 70-75.

Kelly CR, Khoruts A, Staley C, Sadowsky MJ, et al. Effect of Fecal Microbiota Transplantation on Recurrence in Multiply Recurrent Clostridium difficile Infection: A Randomized Trial. *Ann Intern Med*. 2016 Nov 1;165(9):609–616. doi: 10.7326/M16-0271.

LaRocque R, Harris JB. Travelers' diarrhea: Microbiology, epidemiology, and prevention. Available at: https://www.uptodate.com/contents/travelers-diarrhea-microbiology-epidemiology-andprevention. (Accessed on: October 30, 2018).

Leggat PA, Goldsmid JM. Travellers' diarrhoea: Health advice for travellers. *Travel Med Infect Dis* 2004; 2(1): 17-22

Leung AK, Robson WL, Davies HD. Traveler's diarrhea. *Adv Ther* 2006; 23(4): 519-27. [http://dx.doi.org/10.1007/BF02850040]. [PMID: 17050494]

Otter JA, Havill NL, Adams NM, Cooper T, et al. Environmental sampling for Clostridium difficile: swabs or sponges? *Am J Infect Control*. 2009 Aug;37(6):517–8. doi: 10.1016/j.ajic.2009.01.005.

Polage CR, Solnick JV, Cohen SH. Nosocomial Diarrhea: Evaluation and Treatment of Causes Other Than Clostridium Difficile. *Clin Infect Dis*. 2012;55(7):982–989. doi: 10.1093/cid/cis551.

Reed D, Kemmerly SA. Infection Control and Prevention: A Review of Hospital-Acquired Infections and the Economic Implications. *Ochsner J*. 2009;9(1):27–31.

Schnadower D, Tarr PI, Casper TC, Gorelick MH, et al. Lactobacillus rhamnosus GG versus Placebo for Acute Gastroenteritis in Children. *N Engl J Med*. 2018 Nov 22;379(21):2002–2014. doi: 10.1056/NEJMoa1802598.

WHO,[https://www.who.int](https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease).

Dr. Seifu Gizaw Fayisa, Mr. Abdi Negash,Mr. Abate Abdisa Eticha , DOI: https://doi.org/10.21203/rs.3.rs-8704393/v1. Posted Date: February 3rd, 2026

the Global Burden of Disease (GBD), Published December 18, 2024, [https://www.healthdata.org](https://www.healthdata.org/news-events/newsroom/news-releases/diarrheal-diseases-remain-leading-killer-children-under-5-adults).

Steffen R. Epidemiology of travellers' diarrhea. *J Travel Med* 2017; 24: S2-5.

Stein A, Voigt W, Jordan K. Chemotherapy-Induced Diarrhea: Pathophysiology, Frequency And Guideline-Based Management. *Ther Adv Med Oncol*. 2010;2(1):51–63. doi: 10.1177/1758834009355164

Young VB. The Intestinal Microbiota in Health and Disease. *Curr Opin Gastroenterol*. 2012;28(1):1932. doi: 10.1097/MOG.0b013e32834d61e9.

TABLES & Figure:

Table (1): Bacterial infection diarrhea in adults in September of Najaf city

Bacterial infection	September	
	Male 25 -60	Female 25 -60
Klebsiella pneumonia	14	23
E.coli	49	58
Salmonella	0	0
Vibrio Cholera	104	168

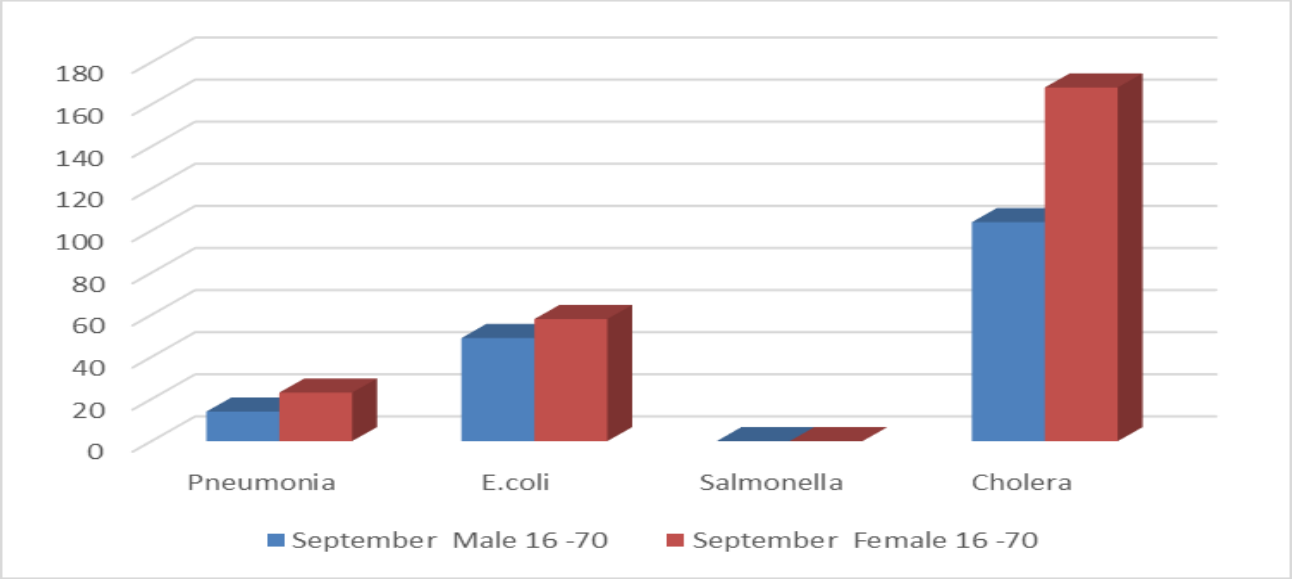

Figure (1): bacterial infection diarrhea in September 2023

Table (2): parasitical infection diarrhea in adults in September of Najaf city

Parasite infection	September	
	Male 25-60	Female 25-60
E.histolytica	64	57
Giardia lambila	2	0

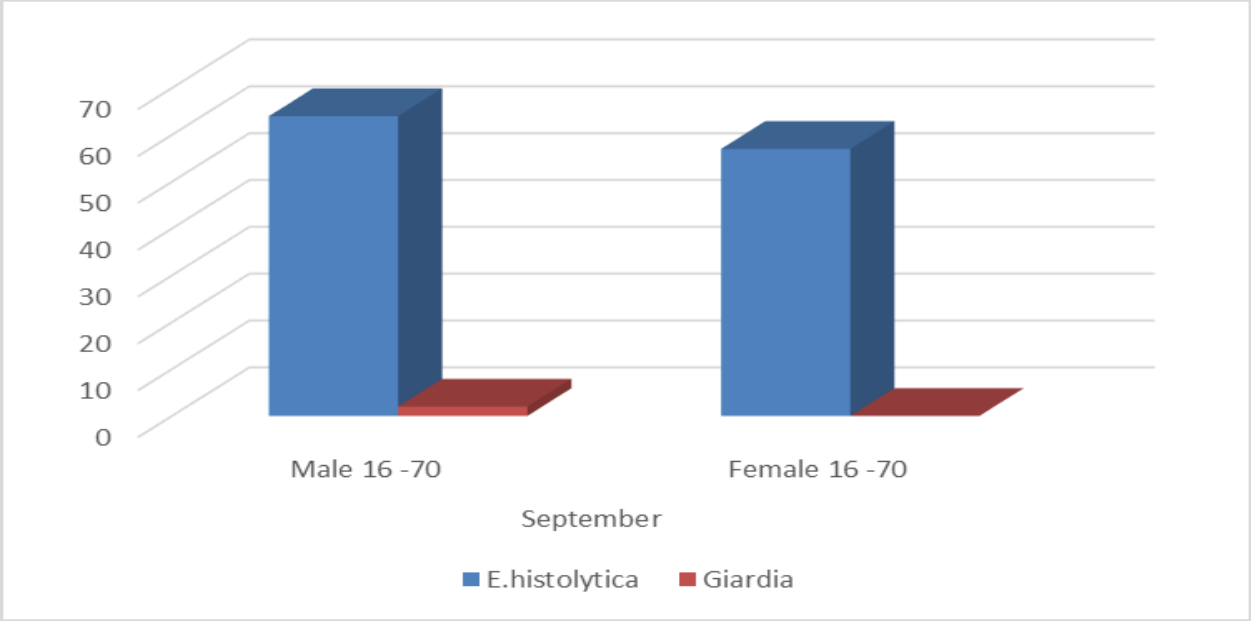

Figure (2): parasitical infection diarrhea in September of Najaf city in 2023

Table (3): Fungal infection diarrhea in adults in September of Najaf city

Fungi infection	September	
	Male 16 -70	Female 16 -70
Monila (Morchella)	7	5

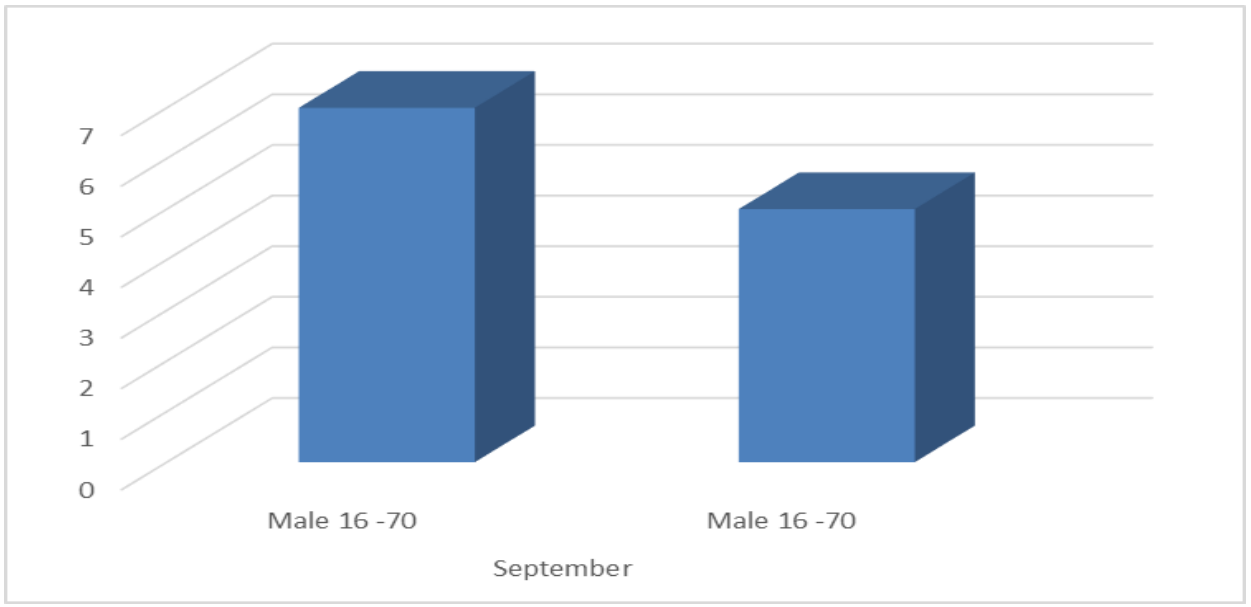

Figure (3): Time of start taking FA

Table (4): Viruses infection diarrhea in adults in September of Najaf city

Viruses infection	September	
	Male 16 -70	Female 16 -70
Corona	3	6
Nil	0	0

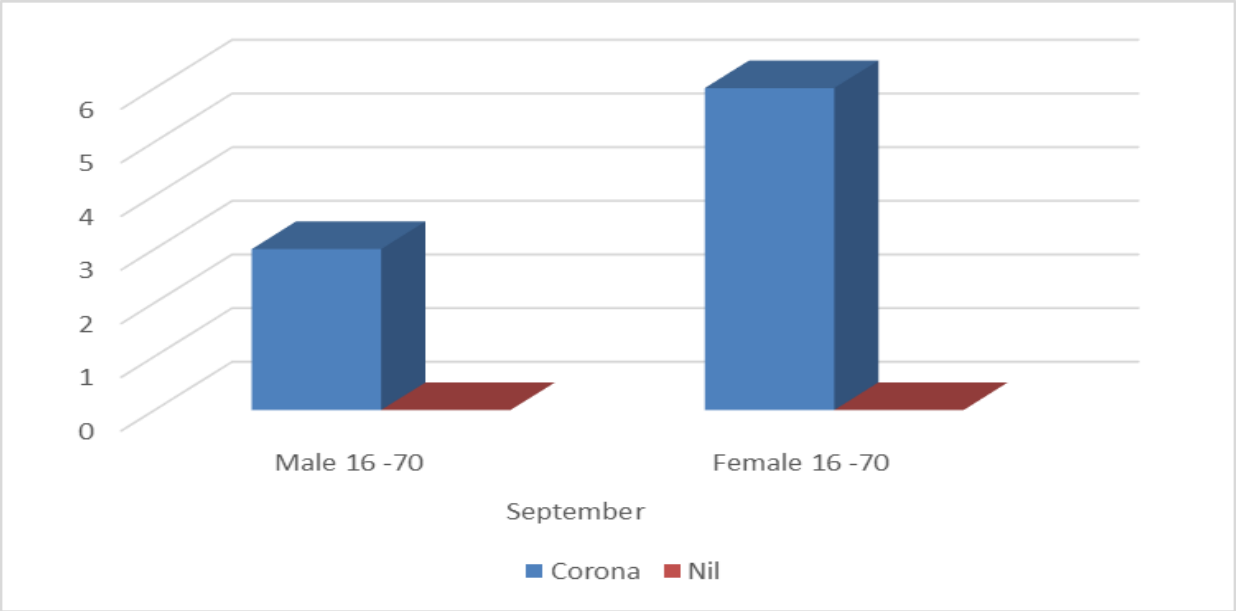

Figure (4): corona virus infection diarrhea in September of Najaf city in 2023

Table (5): Bacterial infection diarrhea in adults in October of Najaf city

Bacteria infection	October	
	Male 25-60	Male 25-60
Klebsiella pneumonia	1	2
E.coli	25	22
Salmonella	0	0
Vibrio Cholera	4	4

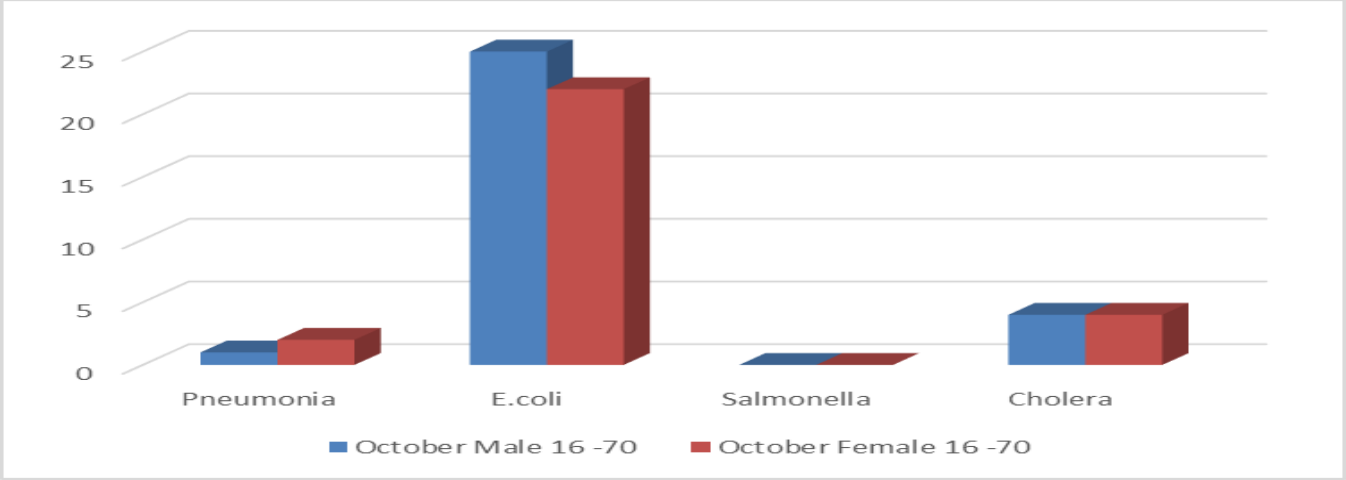

Figure (5): bacterial infection diarrhea in October 2023

Table (6): parasitical infection diarrhea in October of Najaf city

Parasite infection	October	
	Male 25-60	Female 25-60
E.histolytica	38	35
Giardia lamblia	2	2

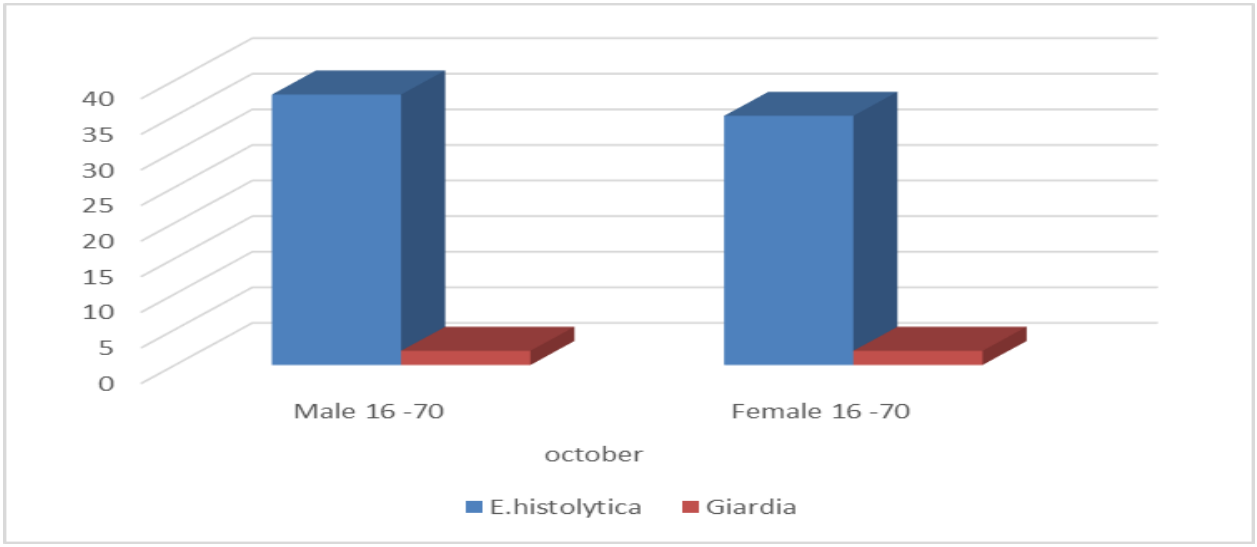

Figure (6): parasitical infection diarrhea in October of Najaf city in 2023

Table (7): Fungal infection diarrhea in adults in October of Najaf city

Fungi infection	October	
	Male 25-60	Male25-60
Monila (Morchella)	15	10

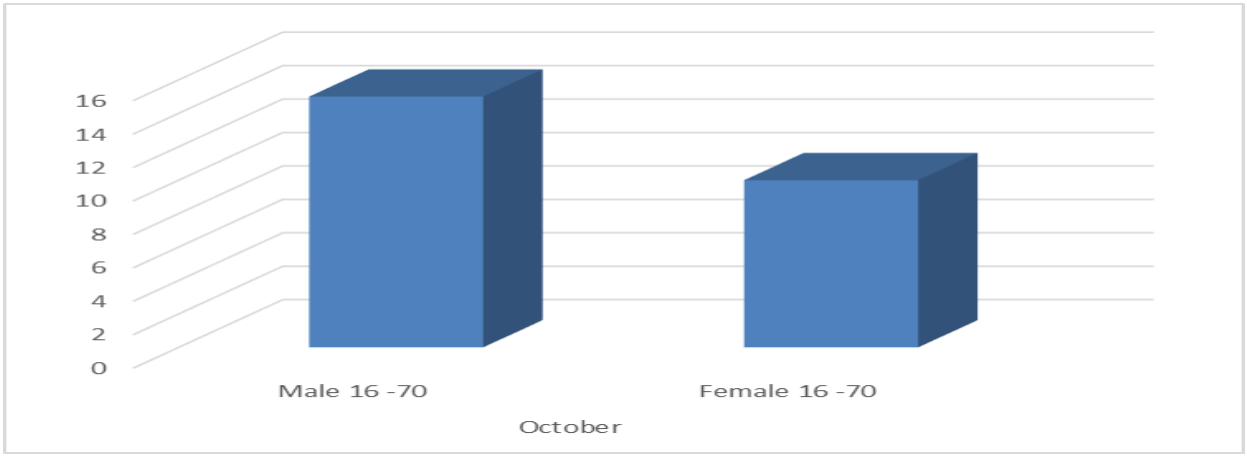

Figure (7): Fungal infection diarrhea in October of Najaf city in 2023

Table (8): Viruses infection diarrhea in adults in October of Najaf city

Viruses infection	October	
	Male 25-60	Female 25-60
Corona	0	2
Nil	12	8

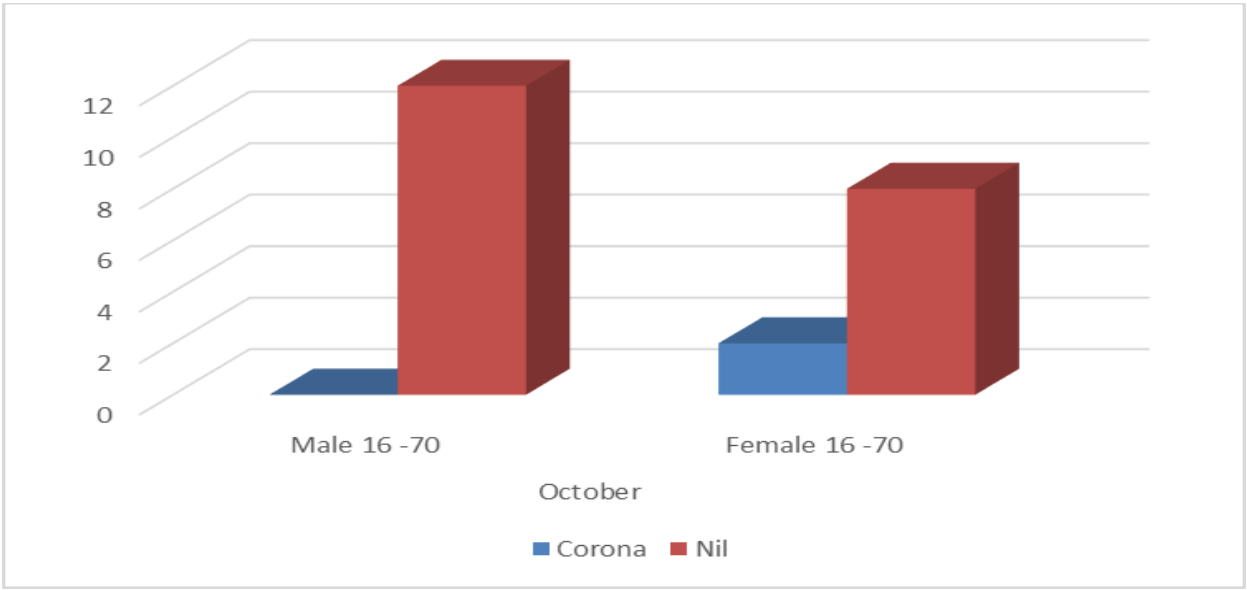

Figure (8): corona virus infection diarrhea in October of Najaf city in 2023