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RISK FACTORS ASSOCIATED WITH MULTIDRUG-RESISTANT *ESCHERICHIA COLI* O157:H7 ISOLATED FROM STOOL SAMPLES OF PATIENTS PRESENTING WITH GASTROENTERITIS

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ABSTRACT

Enterohaemorrhagic *Escherichia coli* (EHEC) O157:H7 is a significant aetiological agent of diarrhoeal diseases, causing illnesses ranging from mild diarrhoea to severe conditions such as haemorrhagic colitis and **haemolytic** uremic syndrome (HUS), which has not been widely documented in Nigeria. This study investigated the prevalence and antibiotic susceptibility patterns of *Escherichia coli* and E. *coli* O157:H7, isolated from stool samples of patients attending the Ahmadu Bello University Medical Center in Zaria, Nigeria. A total of 100 stool samples were collected from consenting patients and analyzed using standard microbiological techniques. Identification of isolates was based on cultural, microscopic, and biochemical characteristics. Antibiotic susceptibility testing was performed using the Kirby-Bauer disc diffusion method. Out of the 100 samples, 25% were positive for *E. coli.* Of these, three were confirmed as *E. coli* O157:H7, resulting in a prevalence rate of 3% for this strain. Socio-demographic analysis showed a higher infection among patients aged 10–25 years. Although, there was no statistically significant association between the prevalence of the infection and the risk factors assessed in the study (p >0.05), there was increased risk of the infection in patients who kept pets (26.8%;19/71), exposed to livestock and their wastes (26.7%:8/30) and eating of raw vegetables (26.8%;19/71). Antibiotic susceptibility results revealed a high level of resistance to Amoxicillin-Clavulanic acid (95%). These findings emphasize the urgent need for ongoing surveillance of *E. coli* infections and their resistance profiles to guide effective treatment and public health strategies in the region.

Keywords: Multi-drug, *Escherichia coli*, **Gastroenteritis**, Risk factor, Resistant

INTRODUCTION

Diarrhoeal diseases remain a major global public health concern, representing one of the leading causes of morbidity and mortality, particularly in children under five years of age (Ugboko *et al*., 2020). Following the neonatal period, diarrhoea ranks only behind pneumonia as the most common cause of death in early childhood (Manetu *et al*., 2021). Globally, diarrhoeal illnesses are associated with an estimated 1.3 million deaths annually, with the overwhelming majority occurring in resource-limited settings like sub-Saharan Africa and Southeast Asia (Ugboko *et al*., 2020). The burden of disease is further concentrated in marginalized and underserved communities within these regions, where access to clean water, sanitation, and healthcare services remains limited (Elemuwa *et al*., 2023).

Bacterial aetiologies represent the most prevalent causes of diarrhoeal disease worldwide. Common bacterial pathogens include *Clostridium botulinum* (botulism), *Campylobacter jejuni* (*Campylobacter* gastroenteritis), *Vibrio cholerae* (cholera), various strains of *Escherichia coli*, *Salmonella* spp. (salmonellosis), *Shigella* spp. (shigellosis), and *Staphylococcus aureus* (staphylococcal food poisoning). Among these, *Escherichia coli* stands out due to its wide prevalence and diverse clinical implications. *Escherichia coli* is a facultative anaerobic, gram-negative rod commonly residing in the lower gastrointestinal tracts of warm-blooded animals, where most strains exist as harmless commensals (David *et al*., 2020). However, certain strains are pathogenic and can be broadly classified based on their site of infection. Intestinal pathogenic *E. coli* (IPEC) infects the gastrointestinal tract, while extra-intestinal pathogenic *E. coli* (ExPEC) causes infections in other parts of the body (Pokharel *et al*., 2023).

The IPEC group encompasses several clinically significant strains, each characterized by unique virulence mechanisms. These include Enterotoxigenic *E. coli* (ETEC), Enteroaggregative *E. coli* (EAEC), Enteropathogenic *E. coli* (EPEC), Diffusely Adherent *E. coli* (DAEC), and Verocytotoxigenic *E. coli* (VTEC) (Mopelola *et al*., 2020). A particularly virulent subset of VTEC is Enterohaemorrhagic *E. coli* O157:H7 (EHEC), a sorbitol non-fermenting strain capable of causing a range of diseases—from mild diarrhoea to haemorrhagic colitis and haemolytic uremic syndrome (HUS), the latter being a leading cause of acute renal failure in children under five years old (Manetu *et al*., 2021). Clinical manifestations of EHEC O157:H7 infections include haemolytic anaemia, thrombocytopenia, and kidney damage. Notably, HUS develops in approximately 8% of cases, with the highest risk observed in young children and the elderly (Chigor, 2014).

In Nigeria, the public health impact of *E. coli* O157:H7 remains insufficiently documented, and it is not yet recognized as a major contributor to diarrhoeal disease burden. The bacterium is commonly associated with cattle, poultry, and therefore poses a potential threat of widespread exposure within the population (Ngbede *et al*., 2006). Given the widespread and often unregulated use of antibiotics in many Nigerian communities, concerns about antibacterial resistance are growing. The study is therefore designed to determine antibiotic susceptibility patterns of *E. coli* O157:H7 isolated from patients presenting with gastroenteritis attending Ahmadu Bello University Medical Centre and evaluate risk of exposure to this pathogen.

MATERIALS AND METHODS

Study Area

The study was carried out in Ahmadu Bello University Medical Centre Zaria, Kaduna State, located on latitude 11° 15’N to 11°3’N of the equator and longitude 7° 30’E to 7° 45’E of Greenwich meridian (Tumba *et al*., 2020). ABUMC is a healthcare facility that caters for over 60,000 people made up of students, workers and the nearby village inhabitants (Umar *et al*., 2021).

Ethical Approval and Informed Consent

Ethical approval for the study was obtained from the Ethical Committee of Ahmadu Bello University Medical Centre and Informed consent was secured from all participants, and for those under 18 years of age, consent was also obtained from their parents or caregivers.

Inclusion and Exclusion Criteria

All patients presenting with diarrhoea at the health facility who gave their consent were included and patients who had no symptoms of gastroenteritis and those who did not consent to participate in the study were excluded.

Questionnaire Administration

Prior to sample collection, a structured questionnaire was administered to obtain sociodemographics of the study population, risk factors associated with the infection and clinical information of the patients

Collection of Stool Samples
Stool samples were collected in sterile wide screw-capped containers from 100 consenting patients with diarrhoea at Ahmadu Bello University Medical Center using sterile containers. The samples were then transported to the Bacteriology Laboratory in the Department of Microbiology, Ahmadu Bello University, Zaria, for further analysis.

Enrichment of Stool Samples and Inoculation
The faecal samples were first enriched in alkaline peptone water. Following pre-enrichment, a loopful of the sample was aseptically inoculated onto a Eosin Methylene Blue (EMB) agar plates using the streaking method with a sterilized wire loop. The inoculated plates were incubated at 37 °C for 24 hours. Colonies exhibiting a characteristic green metallic sheen on EMB agar were subcultured onto sterile nutrient agar slants and incubated at 37 °C for an additional 24 hours for preservation (Jc *et al*., 2016).

Confirmatory Cultural and Biochemical Tests
Suspected *Escherichia coli* was identified and characterized using Gram staining (Cheesbrough, 2010). Growth characteristics on Eosin Methylene Blue agar, and the outcomes of biochemical tests such as sugar fermentation using triple sugar ion, indole, methyl red (IMR), Voges-Proskauer (VP), motility, and citrate utilization tests (Dunah *et al*., 2022).

Antimicrobial Susceptibility Test
Antibiotic susceptibility testing was carried out in accordance with the Clinical and Laboratory Standards Institute (CLSI) guidelines, using the Kirby-Bauer disk diffusion method on Mueller-Hinton agar. The procedure was adapted with slight modifications from the method described by Hudzicki. In vitro susceptibility testing was performed on all confirmed isolates using Gram-negative antibiotic-impregnated multidisks (ABTEK), targeting six antibiotics from different classes. The antibiotics tested included cefoxitin (30 µg), cefixime (5 µg), gentamicin (10 µg), ciprofloxacin (5 µg), azithromycin (15 µg), and amoxicillin-clavulanic acid (30 µg) (Ajulo *et al*., 2019).

Data Analyses
Data collected from this study were analysed using SPSS version 20 software. Test for association was carried out using Chi Square (χ^2) and Odds Ratio (OR) at 95% confidence interval. *P*-values < 0.05 were considered significant. Results are presented in tables and charts as appropriate.

RESULTS

The cultural, microscopic, and biochemical characteristics of *Escherichia coli* isolates from stool samples of patients attending Ahmadu Bello University Medical Center, Zaria, are presented in Table 1. The overall prevalence of *E. coli* among the stool samples was 25.0%, while 75.0% of the samples showed no infection (Figure 1). The incidence of *E. coli* O157:H7 was determined to be 3.0% (Figure 2).

The socio-demographic distribution of *E. coli* infections is shown in Table 2. Based on age groups, the highest prevalence (26.7%) was observed among patients aged 10–25 years, followed by 20.0% among those aged 26–40 years. Although this difference was not statistically significant (P = 0.505), a higher risk of infection (OR = 1.455) was recorded among the older age group (26–40 years). Conversely, *E. coli* O157:H7 was more prevalent among older patients (4.0%) compared to younger patients (2.7%), though this difference was also not statistically significant (P = 0.735). Interestingly, the risk of *E. coli* O157:H7 infection was higher among the younger age group (OR = 1.521).

Table 1: Cultural, Microscopic and Biochemical Characteristics of *Escherichia coli* Isolates from Stool Samples of Patients at ABUMC, Zaria

Cultural Morphology	Microscopic Appearance	CU	I	MR	VP	M	TSI	Inference
Small, round, raised colonies with green metallic sheen on EMB	Gram negative bacilli	-	+	+	-	+	A/A+G	*E. coli*
Small, round, raised colonies colourless colonies on CT-SMAC	Gram negative bacilli	-	+	+	-	+	A/A+G	*E. coli* O157:H7

Keys: n = Number examined; MR = Methyl red; VP = Voges Proskauer; K=Alkaline; A = Acid; M = Motility; TSI = Triple Sugar Iron; H_2S = Hydrogen sulphide; G = Gas production; CU = Citrate utilization; I = Indole, CT-SMAC = Cefixime Tellurite Sorbitol MacConkey agar

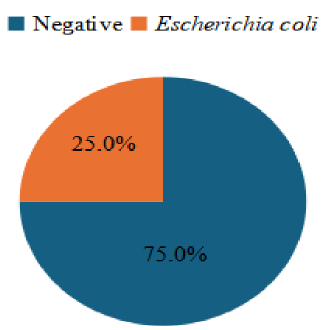

Figure 1: Overall Incidence of *Escherichia coli* from Stool Samples of Patients at ABUMC, Zaria

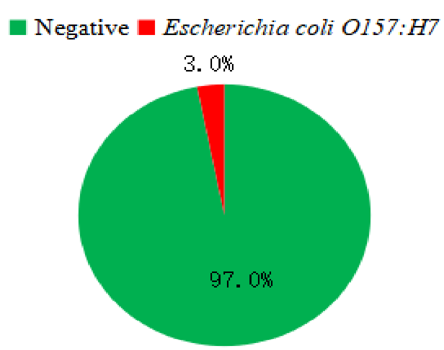

Figure 2: Overall Occurrences of *Escherichia coli* O157:H7 in Stool Samples of Patients at ABUMC, Zaria.

Male patients exhibited a higher prevalence of *Escherichia coli* infection (28.6%) compared to females (21.7%); however, this difference was not statistically significant (P = 0.419). Interestingly, females were found to have a higher associated risk of infection (OR = 1.455). In contrast, all recorded cases of *E. coli* O157:H7 infection occurred among female patients (5.9%), with none observed in males. Despite this trend, the difference was not statistically significant (P = 0.085), as shown in Table 2.

Patients with only primary education exhibited the highest prevalence of *E. coli* infection (28.6%), followed by those with secondary education (27.3%). Those with tertiary education had the lowest infection rate (23.4%). However, the differences in infection rates based on educational level were not statistically significant (P = 0.887). Regarding *E. coli* O157:H7, the highest occurrence was among those with primary education (7.1%), followed by those with tertiary education, while no cases were recorded among patients with secondary education. Again, this distribution was not statistically significant (P = 0.761), as presented in Table 2.

Unemployed patients had the highest prevalence of *E. coli* infection (28.2%), followed by civil servants. Notably, no infections were recorded among farmers. Although this variation was not statistically significant (P = 0.168), all cases of *E. coli* O157:H7 were reported among unemployed individuals. This trend, too, lacked statistical significance when compared with its absence among civil servants and farmers (P = 0.761), as shown in Table 2.

Table 3 outlines the clinical symptoms associated with *E. coli* infection. Patients reporting frequent diarrhea (within a 24-hour period) had a slightly higher infection rate (25.5%) compared to those who did not report this symptom (24.5%). This difference was not statistically significant (P = 0.908), and a lower risk of infection (OR = 0.948) was observed among those experiencing frequent diarrhoea.

Patients whose stool samples contained mucus had the highest prevalence of *E. coli* infection (33.3%), followed by those with normal stool consistency (23.9%). Infection rates were 22.2% among patients with blood-stained stool and lowest (16.7%) among those with undigested food particles in their stool. Despite these variations, the differences were not statistically significant (P = 0.697). Similarly, *E. coli* O157:H7 was most prevalent among patients with mucus-stained stool (8.3%), followed by those with blood-stained stool (5.6%), while no infections were found in patients with normal stool or undigested food particles. This pattern was also not statistically significant (P = 0.208), as shown in Table 3.

A higher occurrence of *E. coli* infection was recorded among patients presenting with fever (30.0%) compared to those without, although the difference was not statistically significant (P = 0.564), and a lower risk (OR = 0.721) was associated with the symptom. Notably, no cases of *E. coli* O157:H7 were found among febrile patients (P = 0.379), as indicated in Table 3.

Vomiting was associated with a higher prevalence of *E. coli* infection (29.6%) compared to patients without the symptom (23.3%), though this difference was not statistically significant (P = 0.516; OR = 0.721). However, all recorded cases of *E. coli* O157:H7 (11.1%) were found exclusively among patients who experienced vomiting, and this association was statistically significant (P = 0.004).

Lower rates of both *E. coli* and *E. coli* O157:H7 infections were observed among patients with abdominal pain, but these findings were not statistically significant (Table 3).

Table 2: Socio-Demographic Distributions of *Escherichia coli* Infections among the Patients

Socio-demographic factor	N	*E. coli* No. positive (%)	P	OR (95% CI)	E. coli O157:H7 Positive (%)	P	OR (95% CI)
Age (years)							
10-25	75	20(26.7)	0.505	0.688	2(2.7)	0.735	1.521
26-41	25	5(20.0)		1.455	1(4.0)		0.658
Gender							
Female	51	11(21.6)	0.419	1.455	3(5.9)	0.085	NA
Male	49	14(28.6)		0.688	0(0.0)		
Level of Education							
Primary	14	4(28.6)	0.887	NA	1(7.1)	0.470	NA
Secondary	22	6(27.3)			0(0.0)		
Tertiary	64	15(23.4)			2(3.1)		
Occupation							
Civil servant	7	1(14.3)	0.168	NA	0(0.0)	0.761	NA
Farmer	8	0(0.0)			0(0.0)		
Unemployed	85	24(28.2)			3(3.5)		

Key: n = number examined, NA = Not applicable

Table 3: Symptoms of *Escherichia coli* Infections among Patients at ABUMC, Zaria

Risk factor	N	*E. coli* Positive (%)	P	OR (95% CI)	*E. coli* O157:H7	P	OR (95% CI)
Frequency of diarrhoea within 24 h							
No	49	12(24.5)	0.908	1.055	0(0.0)	0.085	NA
Yes	51	13(25.5)		0.948	3(5.9)		
Stool constituents							
Blood	18	4(22.2)	0.697	NA	1(5.6)	0.208	NA
Mucus	24	8(33.3)			2(8.3)		
Undigested food	12	2(16.7)			0(0.0)		
Normal	46	11(23.9)			0(0.0)		
Fever							
No	80	19(23.8)	0.564	1.376	3(3.8)	0.379	NA
Yes	20	6(30.0)		0.727	0(0.0)		
Vomiting							
No	73	17(23.3)	0.516	1.387	0(0.0)	0.004	NA
Yes	27	8(29.6)		0.721	3(11.1)		
Abdominal pain							
No	83	22(26.5)	0.442	0.594	3(3.6)	0.426	NA
Yes	17	3(17.6)		1.683	0(0.0)		

Key: n = number examined; NA = Not applicable

Tables 4a and 4b present the potential risk factors associated with *Escherichia coli* infections among the study participants. A statistically significant association was observed between a previous history of diarrhea and infection with *E. coli* O157:H7 ($\chi^2 = 7.1$, $P = 0.039$). Higher rates of *E. coli* infection were recorded among patients who reported consuming raw vegetables (26.8%), keeping animal pets at home (28.9%), and being exposed to livestock or livestock waste (26.7%); however, these associations were not statistically significant ($P > 0.05$). Increased risk of infection was also noted among patients with recent travel history and those who owned pets.

Interestingly, a higher prevalence of *E. coli* was reported among patients who claimed to wash their vegetables before consumption ($P = 0.105$), suggesting possible contamination despite this precaution. Furthermore, patients who consumed rainwater and stream water exhibited the highest occurrences of both *E. coli* and *E. coli* O157:H7 infections, though these findings were not statistically significant ($P > 0.05$).

Table 5 outlines the antibiotic susceptibility patterns of *E. coli* isolates (n = 17) recovered from stool samples. The isolates showed the highest susceptibility to Azithromycin (64.7%), followed by Gentamicin (41.2%) and Cefixime (41.2%). High levels of resistance were observed against Amoxicillin-Clavulanate (94.1%), Cefoxitin (58.8%), and Ciprofloxacin (58.8%). while the antibiotic susceptibility profiles of *E. coli* O157:H7 isolates (n = 3), demonstrated complete resistance (100%) against all tested antibiotics, including Cefoxitin, Amoxicillin-Clavulanate, Ciprofloxacin, Gentamicin, Azithromycin, and Cefixime.

Table 4a: Risk Factors of *Escherichia coli* Infections among Patients at ABUMC, Zaria

Risk factor	n	*E. coli* Positive (%)	P	OR (95% CI)	*E. coli* O157:H7 Positive (%)	P	OR (95% CI)
Recent travel history							
No	48	12(25.0)	1.000	1.000	2(4.2)	0.511	0.451
Yes	52	13(25.0)		1.000	1(1.9)		2.217
Consumption of raw vegetables							
No	29	6(20.7)	0.525	1.401	0(0.0)	0.261	NA
Yes	71	19(26.8)		0.714	3(4.2)		
Washing of vegetables							
No	19	2(10.5)	0.105	3.371	1(5.3)	0.521	0.456
Yes	81	23(28.4)		0.297	2(2.5)		2.194
Presence of pet at home							
No	55	12(21.8)	0.417	1.456	2(3.6)	0.680	0.602
Yes	45	13(28.9)		0.687	1(2.2)		1.660

Key: n = Number examined, NA = Not applicable

Table 4b: Risk Factors of *Escherichia coli* Infections among the Patients (Cont'd)

Risk factor	n	*E. coli* Positive (%)	P	OR (95% CI)	*E. coli* O157:H7 Positive (%)	P	OR (95% CI)
Exposure to livestock and their wastes							
No	70	17(24.3)	0.801	1.134	1(1.4)	0.159	4.929
Yes	30	8(26.7)		0.882	2(6.7)		0.203
Frequency of hand washing							
Many time a day	60	14(23.3)	0.528	NA	2(3.3)	0.685	NA
Once a day	15	6(40.0)			0(0.0)		
Few times a week	15	3(20.0)			1(6.7)		
Rarely	10	2(20.0)			0(0.0)		
Use of hand sanitizer							
No	63	16(25.4)	0.905	0.944	3(4.8)	0.178	NA
Yes	37	9(24.3)		1.059	0(0.0)		
Source of drinking water							
Borehole	23	5(21.7)	0.892	NA	0(0.0)	0.174	NA
Rainwater	9	3(33.3)			0(0.0)		
Sachet/bottled	8	2(25.0)			1(12.5)		
Stream	6	2(33.3)			1(16.7)		
Tap	45	12(26.7)			1(2.2)		
Well	9	1(11.1)			0(0.0)		

Key: n = Number examined, NA = Not applicable

DISCUSSION

The study yielded significant findings on the prevalence of *E. coli* and its resistance patterns to commonly used antibiotics. The results provide valuable insights into the prevalence of *E. coli* O157:H7 in the study population and the growing issue of antibiotic resistance, particularly among pathogenic strains of *Escherichia coli* with 25.0% of the samples testing positive for *E. coli*. The 25% prevalence of *E. coli* observed in stool samples of patients having gastroenteritis in ABUMC, Zaria agrees with the findings of Elemuwa and Colleagues who reported a prevalence of 25.48% and disagrees with the findings of Iqbal and coworkers who reported a prevalence of 66.7% the significance maybe due to the number of sample size used. This study implicated *E. coli* as a prominent causative agent of gastrointestinal diseases in Zaria (Elemuwa *et al*., 2023; Iqbal *et al*., 2021).

Table 5: Antibiotic Susceptibility Patterns of *Escherichia coli* O157:H7 and *Escherichia coli* Isolated from Stool Samples of Patients from ABUMC, Zaria

Antibiotic (Disc Potency)	No.	(%) Resistant
	E. coli O157:H7 n (3)	*E. coli* n (17)
Cefoxitin (30 µg)	3(100)	10(58.8)
Augmentin (30µg)	3(100)	16(94.1)
Ciprofloxacin (5µg)	3(100)	10(58.8)
Gentamicin (10µg)	3(100)	5(29.4)
Azithromycin (15µg)	3(100)	0(0.0)
Cefixime (5µg)	3(100)	4(23.5)

Detection of *E. coli* O157:H7 using Cefixime Tellurite-Sorbitol MacConkey Agar, a pathogenic strain known to cause severe gastroenteritis and hemolytic uremic syndrome. The use of Cefixime Tellurite-Sorbitol MacConkey (CT-SMAC) agar successfully identified 3 positive isolates of *E. coli* O157:H7, representing a prevalence rate of 3.0% among the *E. coli* isolates. This low prevalence is concerning, given the severity of infections caused by *E. coli* O157:H7. The 3.0% prevalence of *E. coli* O157:H7 in this study agrees with the findings reported by Elemuwa and coworkers (Elemuwa *et al*., 2023) but disagrees with the study carried out in Ahmadu Bello University Teaching Hospital (ABUTH) Shika, Zaria where the prevalence of *E coli* O157:H7 was 36.67% (Iqbal *et al*., 2021). The difference in prevalence could be attributed to variations in sample size, geographical location, or patient's demographics.

The detection of *E. coli* O157:H7 is significant because this strain is associated with serious health complications, including bloody diarrhoea and kidney failure. The identification of this strain in 3% of the isolates underscores the need for regular screening and appropriate treatment measures to prevent outbreaks of *E. coli* O157:H7 infections, particularly in vulnerable populations.

The antibiotic susceptibility testing for *E. coli* O157:H7 strain revealed significant resistance patterns, raising concerns about the efficacy of commonly used antibiotics in treating *E. coli* infections. showing full resistance to six antibiotics: Cefoxitin, Amoxicillin-Clavulanic acid, Ciprofloxacin, Gentamicin, Azithromycin, and Cefixime.

For the *E. coli* isolates, resistance against Amoxicillin-Clavulanic acid is worrisome as it is commonly used to treat a wide range of bacterial infections. The observed resistance agrees with global trends, as reported by Iqbal *et al*. (2021), where resistance to Amoxicillin-Clavulanic acid is increasing among *E. coli* isolates, likely due to the overuse of antibiotics.

While Ciprofloxacin has historically been effective against *E. coli*, the increasing resistance observed in this study suggests that it may no longer be a reliable first-line treatment. This pattern of resistance is consistent with studies like those of Iqbal *et al*. (2021) and Elemuwa *et al*. (2023) which documented rising resistance to fluoroquinolones among *E. coli* isolates.

Gentamicin is still effective against some *E. coli* strains, although resistance is emerging. These results are comparable to findings by Iqbal *et al*. (2021), who reported similar susceptibility patterns in *E. coli* isolates from clinical settings.

Azithromycin showed the highest rate of susceptibility, suggesting that it could still be an option for treating *E. coli* infections in this setting. Previous studies have also reported high efficacy of Azithromycin against enteric pathogens, including *E. coli* (Aljihani *et al*., 2020; Guga *et al*., 2023; Jaligam *et al*., 2024).

The overall results indicate a high level of antibiotic resistance among the *E. coli* isolates, particularly to commonly used antibiotics such as Amoxicillin-Clavulanic acid and Ciprofloxacin. These findings are consistent with global trends of increasing antibiotic resistance, particularly among Enterobacteriaceae, including *E. coli*, raising concerns about the overuse and misuse of antibiotics, which may be driving resistance in clinical isolates. This underscores the importance of regularly updating treatment protocols and exploring alternative antibiotics to combat resistant strains of *E. coli*.

The high level of resistance observed in this study has significant clinical implications. Treating *E. coli* infections, particularly in cases involving resistant strains like O157:H7, may become increasingly difficult. This necessitates a reevaluation of current treatment strategies and the need for antimicrobial stewardship programs to prevent the further spread of resistance.

The pattern of resistance observed suggests that some of the *E. coli* isolates may be multidrug-resistant (MDR), non-susceptible to at least one agent in three or more antimicrobial categories. These strains are associated with higher morbidity, longer hospital stays, and increased healthcare costs.

CONCLUSION

This study isolated *Escherichia coli* and *Escherichia coli* O157:H7 from stools of patients attending ABU Medical Center, Zaria with prevalence of 25% and 3% respectively. There was an increased risk of the infection in patients who kept pets in their homes (26.8%;19/71), exposed to livestock and their wastes (26.7%:8/30) and those who consumed raw vegetables (26.8%;19/71). Antibiotic susceptibility results revealed a high level of resistance to Amoxicillin-Clavulanic acid (95%) and susceptibility to Azithromycin (55%). This highlights the potential public health risks posed by this pathogenic strain of *E. coli* and emphasizes the urgent need for ongoing surveillance of *E. coli* infections and their resistance profiles to guide clinicians on the effective treatment and other public health strategies in the region

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