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Evaluation of community pharmacists' clinical practice in the management of urinary tract infections in Iraq

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Abstract

Background: Urinary tract infection (UTI) is one of the most common infections encountered in community pharmacies. Pharmacists often serve as the first point of contact for women presenting with UTI symptoms, making their knowledge and practice critical for ensuring appropriate management and preventing antimicrobial resistance.

Objective: To assess the knowledge, attitudes, and practice of community pharmacists in Iraq regarding the management of uncomplicated UTI.

Methods: A cross-sectional survey was conducted among pharmacists across Iraq using an online structured questionnaire. The survey collected data on demographics, knowledge, red-flag identification, antibiotic selection, practice behaviours, and attitudes. A total of 81 pharmacists participated.

Results: Most respondents were female (59.3%), and the majority were younger than 25 years (59.3%). Nitrofurantoin was correctly selected as first-line therapy by 50.6% of pharmacists, while ciprofloxacin was the most commonly dispensed antibiotic in practice (56.8%). Knowledge of red-flag symptoms varied, with flank pain (59.3%) and persistent vomiting (37%) being most recognized. Most pharmacists routinely asked about pregnancy (86.4%), prior UTI history (91.4%), and antibiotic allergy (98.8%). A total of 81.5% supported implementing a standardized UTI management guideline for pharmacists.

Conclusion: Pharmacists in Iraq demonstrate acceptable knowledge regarding UTI management; however, gaps in antibiotic selection and red-flag recognition remain. Educational programs and national practice protocols are recommended.

Keywords: UTI, community pharmacy, pharmacist practice, Iraq, nitrofurantoin, antimicrobial stewardship

Introduction

Urinary tract infection (UTI) is one of the most common bacterial infections affecting women worldwide and represents a major driver of antibiotic use in community settings. Community pharmacists often encounter patients seeking advice and empirical treatment for urinary symptoms, making their knowledge and clinical judgement essential for ensuring proper care and preventing complications. International guidelines recommend nitrofurantoin as the first-line therapy for uncomplicated UTI; however, inappropriate antibiotic use, including fluoroquinolone overprescription, remains a global concern.

In Iraq, community pharmacists play a frontline role in primary care, yet little is known about their clinical decision-making regarding UTI management. This study aims to evaluate the knowledge, attitudes, and practice patterns of Iraqi pharmacists in the management of uncomplicated UTI.

Methods

Study design

A descriptive cross-sectional study was conducted among community and hospital pharmacists in Iraq.

Participants

Pharmacists of any gender, age, and years of experience were eligible.

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Data collection

A structured online questionnaire was distributed using Google Forms. The questionnaire included four domains: demographics, knowledge, practice, and attitudes.

Sample size

A total of 81 complete responses were collected.

Statistical analysis

Data were analyzed using descriptive statistics (frequencies and percentages). Chi-square testing can be added upon request for Scopus submission.

Results

A total of 81 pharmacists participated in the study. Most were female (59.3%) and younger than 25 years (59.3%). Regarding experience, 39.5% had less than one year, and 44.4% had 1-3 years of experience. The majority worked in community pharmacies (80.2%).

Knowledge

The most recognized UTI symptom was dysuria (85.2%). Flank pain (33.3%), fever (27.2%), urinary frequency (22.2%), and malodorous urine (19.8%) were less frequently selected. For red-flags, severe flank pain was selected by 59.

Antibiotic Knowledge

Nitrofurantoin was correctly identified as first-line therapy by 50.6% of pharmacists. However, ciprofloxacin was the most commonly dispensed antibiotic (56.8%). Additionally, 91.4% correctly stated that cranberry cannot be used as monotherapy.

Practice

Most pharmacists routinely asked about pregnancy status (86.4%), prior UTI history (91.4%), and antibiotic allergy (98.8%).

In a case scenario with isolated lower abdominal pain, 66.7% asked further questions, 25.9% requested urinalysis, and only 1.2% dispensed treatment directly.

Attitudes

A total of 81.5% supported implementing a standardized UTI management guideline for pharmacists. Nearly half (45.7%) stated they need additional training.

Table 1: Demographic Characteristics of the Participating Pharmacists (n = 81)

Variable	Category	n	%
Gender	Male	33	40.7
	Female	48	59.3
Age group	< 25 years	48	59.3
	25-29 years	27	33.3
	30-34 years	3	3.7
	≥ 40 years	2	2.5
Years of experience	< 1 year	32	39.5
	1-3 years	36	44.4
	4-6 years	5	6.2
	≥ 7 years	4	4.9
Work setting	Community pharmacy	65	80.2
	Hospital pharmacy	6	7.4
	Other	10	12.4

Note: Percentages are rounded to one decimal place.

Discussion

This study assessed the knowledge and practice of pharmacists in Iraq regarding the management of uncomplicated UTI. Findings indicate acceptable general knowledge; however, there are significant gaps in first-line antibiotic selection, as more than half of pharmacists still dispense ciprofloxacin despite international recommendations favoring nitrofurantoin.

Red-flag recognition varied, suggesting the need for improved training in triage and referral. The high rate of correct counselling and routine questioning about pregnancy and allergy is encouraging and demonstrates good professional practice.

The strong interest in additional training and support for implementing a national protocol highlights an opportunity for improving UTI management in community pharmacy practice in Iraq.

Table 2: Knowledge of UTI among Pharmacists

Knowledge Item	Response	n	%
Most recognized symptom	Dysuria (burning urine)	69	85.2
	Flank pain	27	33.3
	Fever	22	27.2
	Urinary frequency	18	22.2
	Malodorous urine	16	19.8
	Hematuria	12	14.8
Identifying red-flag symptoms	Severe flank pain	48	59.3
	Persistent vomiting	30	37.0
	Recurrent infections	27	33.3
	Fever ≥ 38 °C	25	30.9
First-line antibiotic (knowledge)	Nitrofurantoin	41	50.6
	Ciprofloxacin	14	17.3
	Amoxicillin	7	8.6
	Ceftriaxone	4	4.9
	Cranberry (incorrect)	15	18.5
Duration of nitrofurantoin	5 days	46	56.8
	7 days	27	33.3
	2-3 days	8	9.9
Cranberry as monotherapy	Correct (No)	74	91.4
	Incorrect (Yes)	7	8.6

Table 3: Pharmacists' Practice in Managing UTI

Practice Behavior	Response	n	%
Asking about pregnancy	Always	70	86.4
	Often	7	8.6
	Sometimes	3	3.7
	Never	1	1.2
Asking about previous UTI	Yes	74	91.4
Asking about antibiotic allergy	Yes	80	98.8
Most commonly dispensed antibiotic	Ciprofloxacin	46	56.8
	Nitrofurantoin	24	29.6
	TMP-SMX	5	6.2
	Fosfomycin	3	3.7
	Herbal/Cranberry	3	3.7
Scenario: lower abdominal pain	Ask more questions	54	66.7
	Request urinalysis	21	25.9
	Refer to physician	5	6.2
	Dispense treatment	1	1.2
Providing counseling	Always	72	88.9
	Sometimes	7	8.6
	Never	2	2.5

Table 4: Attitudes toward UTI Management

Attitude Statement	Response	n	%
Ability of pharmacists to diagnose UTI	Yes	42	51.9
	To some extent	37	45.7
	No	2	2.5
Need for additional training	Yes	37	45.7
	Maybe	34	42.0
	No	10	12.3
Support for national UTI protocol	Yes	66	81.5
	No	14	17.3
	Not sure	1	1.2

Conclusion

Pharmacists in Iraq demonstrate good engagement in managing uncomplicated UTI; however, notable gaps remain in antibiotic selection and red-flag evaluation. Developing national pharmacy protocols and providing targeted training programs are strongly recommended to support appropriate UTI management and reduce antimicrobial resistance.

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Conflict of Interest

Not available

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References

- Gupta K, Hooton TM, Naber KG, Wullt B, Colgan R, Miller LG, *et al.* International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women. *Clinical Infectious Diseases*. 2011.
- National Institute for Health and Care Excellence (NICE). Urinary tract infection (lower): antimicrobial prescribing. London: NICE; 2018.
- Flores-Mireles AL, Walker JN, Caparon M, Hultgren SJ. Urinary tract infections: epidemiology, mechanisms

of infection and treatment options. *Nature Reviews Microbiology*. 2015.

- Ventola CL. The antibiotic resistance crisis: part 1: causes and threats. *Pharmacy and Therapeutics*. 2015.
- Hooton TM. Uncomplicated urinary tract infection. *The New England Journal of Medicine*. 2012.
- World Health Organization (WHO). Antimicrobial Stewardship Toolkit. Geneva: WHO; 2022.
- Al-Quteimat OM. Role of the pharmacist in infection management. *Journal of Pharmacy Practice*. 2020.
- Wagenlehner FME, Bichler KH, Sperling H, Naber KG. Urinary tract infections and bacterial prostatitis: overview and management. *European Urology*. 2018.

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