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Pharmacy Practice

Assessment of Knowledge, Attitude and Practice of Patients Diagnosed with Urinary Tract Infection

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Abstract	Original Research Article

The most common type of infection in the urinary system is a urinary tract infection (UTI). Urinary tract infections, or UTIs, happen when pathogens grow in ways that aren't normal in the urinary tract. UTIs are one of the most common bacterial diseases. Urinary tract infections (UTIs) are one of the most common types of infections that women get at different times in their lives. 50–60% of women will get a UTI at some point during their period. Hygiene is the collection of practices associated with the maintenance of health and healthy living. It includes activities and conditions that aid in maintaining health and preventing the transmission of disease, as well as actions that are related to the preservation of health. This study was undertaken to assess the knowledge, attitude, and practice toward in women with urinary tract infection. The KAP study in UTI patient help to identify the risk factor and contributing factor of UTI in relation to their day-to-day activity and personal hygiene. Thus, helped to provide and recommend better lifestyle and practice to avoid UTI. Optimizing the treatment that an unnecessary prescribing or intake of antibiotics is avoided.
Keywords: UTI, Personal hygiene, Symptoms, Prescribing pattern, and KAP.

INTRODUCTION

Urinary tract infections (UTI) in women are one among the most common infections occurring different stages of life. Urinary tract infection is known to cause short-term morbidity in terms of fever, dysuria, and lower abdominal pain (LAP) and may result in permanent scarring of the kidney. It is found that women will experience at least one UTI in their lifetime, in that 10–60% of all women are having asymptomatic UTI. UTIs are one among the most frequent clinical bacterial infections in women, accounting for nearly 25% of all infections. Around 50–60% of women will experience a UTI in their period of time. Escherichia coli was the most prevalent bacterial uropathogen. Frequent sexual intercourse, diaphragm use, the use of a spermicide, not voiding after intercourse and a history of recurrent infection are risk factors for UTIs in women. Other risk factors for UTIs in the community setting are a previous history of UTI, sexual activity within the past 48 h, pregnancy, neurogenic bladder dysfunction, and diabetes mellitus. The urinary tract infection risk increases with age. Most commonly women over 60 years old.

Personal hygiene is common, and important which most of them neglect, and Urinary tract infection (UTI) is caused by microbes including bacteria, fungi, and viruses, Bacteria are the most familiar reason for UTIs. UTIs occur more commonly in women than men. In a study they found that in India maximum people are from rural populations and are of low socioeconomic status, malnutrition, poor hygiene, with lack of education and awareness of UTIs are associated with UTIs in rural settings, they tend to neglect symptoms and ultimately face complications.

This study was undertaken to assess the knowledge, attitude, and practice toward urinary tract infections in women with UTI. The KAP study on UTI patients helped to identify the risk factor and contributing factors of UTIs about their day-to-day activity and personal hygiene. Thus, help to provide or recommend a better lifestyle and practice to avoid UTIs. Optimizing the treatment that an unnecessary prescribing or intake of antibiotics could be avoided.

This study aimed to assess the knowledge, Attitude and Practice towards urinary tract infection in women with UTI and prescribing pattern of drugs used for the treatment of UTI.

MATERIALS AND METHODS
Study Site: The study is carried on the Department of Urology, ESIC PGIMSR, Rajajinagar, Bengaluru.

Study Design: This is an observational Study.

Study Duration: 6 months

Study Criteria: A total of 64 subjects fulfilling the inclusion and exclusion criteria were

Inclusion Criteria:
1. Patients aged 18 years and above.
2. Patients attending OP or admitted to IP of the urology department of ESI PGIMSR, Rajajinagar, Bengaluru

Exclusion Criteria:
1. Catheter-associated patient.
2. Patients taking any immunosuppressant drugs.
3. Patients with other infections.

Ethical Approval: The study was approved accordance with the guidelines issued by ICMR the Institutional Ethics Committee has issued ETHICAL CLEARANCE to carry on the work.

Data collectors: Self-administered questionnaire and patient profile form was used, distributed and collected by the investigators from the patients or bystanders.

Data collection tool:
1. **Patient profile form:** medical form which contain patient demographics & medication details.
2. **Self-designed Questionnaire for assessing Knowledge, Attitude, and Practice in UTI patients:** is used in this study to assess their KAP towards UTI.

Sampling Technique: A non-probability sampling technique i.e., a convenience sampling method.

Study Procedure:
The study will commence after obtaining approval from Institutional Ethical Committee. Subjects for the study will be identified by the investigator by conducting a hospital visit based on the inclusion and exclusion criteria. The purpose of the study will be explained to the participants and their consent will be obtained. Relevant data will be recorded on the data collection form. The data so obtained will be entered into a Microsoft excel sheet and appropriate analysis will be performed to evaluate drug use measures.

Statistical Analysis:
Statistical analysis was performed using the Chi-Square Test to find the association between Knowledge, Attitude, and practice toward UTI. The data collected for this study were analyzed statistically by computing proportion for all qualitative data and mean, standard deviation, median, and interquartile range for quantitative data. The results were also presented in the form of frequency format and diagrammatic representation whenever necessary. For inferential statistics, the relationship between Knowledge, Attitude, and practice toward UTI the results was considered statistically significant whenever P is less than 0.05.

RESULTS & DISCUSSION
This study included a total of 60 patients drawn from the In-patient Department of Urology in ESIC MC & PGIMSR, Rajajinagar, Bengaluru. The study was conducted for a time period of 3 months from July 2022 to September 2022, during which a total of 60 patients diagnosed with UTI were included as per inclusion criteria and obtaining consent.

AGE DISTRIBUTION OF SUBJECTS:
Out of 60 subjects, 15 (25%) subjects were from the age group of 38-47 years, followed by 8(13%) in the age group of 18-27,11(18%) in 28-37, 9(15%) in 48-57,10(17%) in 58-67 and the least (7%) with only 4 subjects were from 68-77 years.

Table 1: Age distribution of subjects

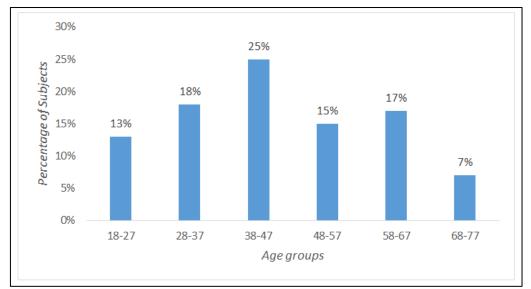| Age group	No. of subjects	Percentage (%)
18-27	8	13
28-37	11	18
38-47	15	25
48-57	9	15
58-67	10	17
68-77	4	7

Figure 3: Age distribution of subjects

DISTRIBUTION OF COMORBIDITIES IN UTI PATIENTS:

Out of 60 UTI patients included, 35% (n=21) of the patient were found to have Diabetic Mellitus, followed by hypertension (n=11,18.33%) Acute Febrile Illness (n= 10,16.67), cystitis (n= 8,13.33%), Anaemia (n=7, 11.67%), Acute kidney injury(n= 7,11.67%), Hypothyroidism and Acute gastroenteritis (n=6, 10%), Pneumonia (n=5,8.33%), pyelonephritis (n=4,6.67%), Septicemia and Asthma (n= 3,5%), COPD, Nephrotic syndrome and Rheumatoid Arthritis(RA) (n=2, 8.33%), Urosepsis, vaginitis, pelvic inflammatory disease, Hypocalcemia, Septic Shock and IHD (n= 1,1.67%).

Table 2: Comorbidities distribution of subjects

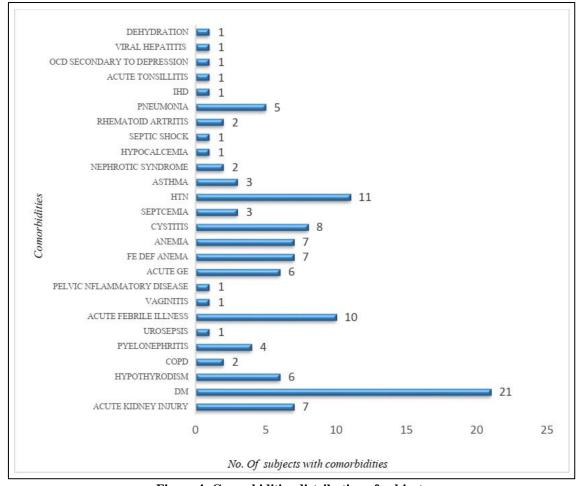| SI. No	Comorbidities	No. of patients with comorbidities	Percentage (%)
1	Acute Kidney Injury	7	11.67
2	DM	21	35.00
3	Hypothyroidism	6	10.00
4	COPD	2	3.33
5	Pyelonephritis	4	6.67
6	Urosepsis	1	1.67
7	Acute Febrile Illness	10	16.67
8	Vaginitis	1	1.67
9	Pelvic Inflammatory Disease	1	1.67
10	Acute Gastroenteritis	6	10.00
11	Iron deficiency anemia	7	11.67
12	Anemia	7	11.67
13	Cystitis	8	13.33
14	Septicemia	3	5.00
15	Hypertension	11	18.33
16	Asthma	3	5.00
17	Nephrotic Syndrome	2	3.33
18	Hypocalcemia	1	1.67
19	Septic Shock	1	1.67
20	Rheumatoid arthritis	2	3.33
21	Pneumonia	5	8.33
22	Ischemic Heart Disease	1	1.67
23	Acute Tonsillitis	1	1.67
24	Obstructive Compulsive Disorder Secondary to Depression	1	1.67
25	Viral Hepatitis	1	1.67
26	Dehydration	1	1.67

Figure 4: Comorbidities distribution of subjects

DISTRIBUTION OF RISK FACTORS AMONG SUBJECTS:

Out of 60 patients, risk factor for majority of patients 51 (85%) patient was found to be holding Urine for Long, followed by Dehydration (n= 49,81.67%), Menopause (n=33 , 50%), Diabetics Mellitus (DM) (n=26, 43.33%), Sex (n= 19,31.67), Hypertension(HTN) (n= 15,25%), Hypothyroidism (n=8, 13.33%), Chronic obstructive pulmonary disease (COPD)(n= 5,8.33%), Recurrent UTI (n= 4,6.67%), Constipation, Kidney stone, and Asthma (n=1 , 1.67%).

Table 3: Risk factors distribution of subjects

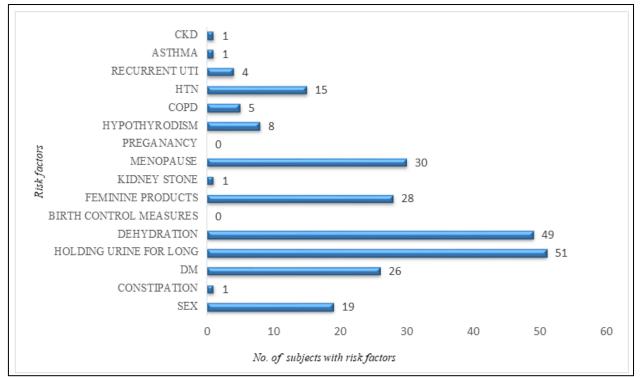| Sl. NO	Risk factors	No. of subjects with risk factors	Percentage (%)
1	Sex	19	31.67
2	Constipation	1	1.67
3	Diabetics Mellitus	26	43.33
4	Holding Urine for Long	51	85.00
5	Dehydration	49	81.67
6	Birth Control Measures	0	0.00
7	Feminine Products	27	45
8	Kidney Stone	1	1.67
9	Menopause	33	55.00
10	Pregnancy	0	0.00
11	Hypothyroidism	8	13.33
12	Chronic obstructive pulmonary disease	5	8.33
13	Hypertension	15	25.00
14	Recurrent UTI	4	6.67
15	Asthma	1	1.67
16	Chronic kidney disease	1	1.67

Figure 5: Risk factors distribution of subjects

DISTRIBUTION OF SYMPTOMS AMONG SUBJECTS:

Out of 60 UTI Patients, Burning Micturition was the more prevalent symptom seen in majority 47 (78.33%) of patients followed by fever (n=45, 75%), lower abdomen pain (n=44, 73.33%), Urge to Urinate (n=28, 46.67%), and Blood In Urine (n=1, 1.67%) was found to be the least.

Table 4: Distribution of symptoms among subjects

Sl. No	Symptoms	No. of subjects with symptoms	Percentage (%)
1	Fatigue	36	60.00
2	Fever	45	75.00
3	Lower Abdomen Pain	44	73.33
4	Bladder Pain	10	16.67
5	Burning Micturition	47	78.33
6	Sense Of Incomplete Bladder Emptying	22	36.67
7	Urge To Urinate	28	46.67
8	Blood In Urine	1	1.67
9	Dark Urine	6	10.00
10	Foul-Smelling Urine	7	11.67
11	Sweating	2	3.33
12	Mild Pedal Edema	2	3.33
13	Loose Stool	8	13.33
14	Giddiness	5	8.33
15	Vomiting	21	35.00
16	Dryness Of Mouth	1	1.67
17	Headache	3	5.00
18	Back Pain	8	13.33
19	Dysuria	10	16.67

Figure 6: Distribution of symptoms among subjects

DISTRIBUTION OF MEDICATION ADMINISTERED FOR UTI

Out of 482 medications administered during the study period, it was identified that 142(29.46) drugs are used for treatment of UTI while the majority (n=340, 70.54 %) were used as concomitant medicines.

Table 5: Distribution of medications administered for UTI

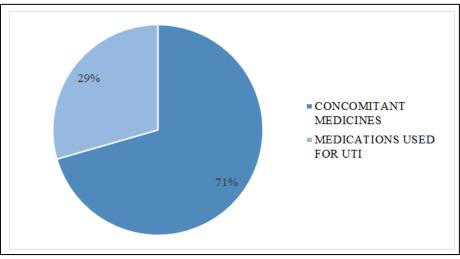| Drugs	No. of Medicines	Percentage (%)
Concomitant Medicines	340	70.54
Medications Used For UTI	142	29.46
Total	482	100.00

Figure 7: Distribution of medications administered for UTI

DISTRIBUTION OF MEDICINES FOR UTI BASED ON THE ROUTE OF ADMINISTRATION:
Out of 142 UTI medications administered, the majority of them were 82(57.75%) by the parenteral route, and 60 (42.25%) by the oral route.

Table 6: Distribution of medications used for UTI based on the route of administration

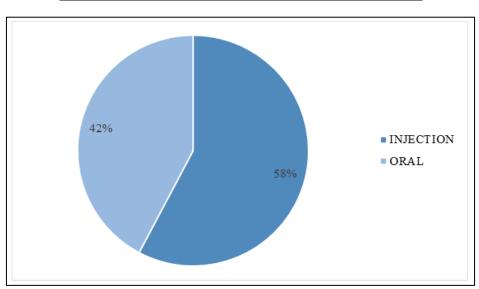| Route of administration	No. of medicines	Percentage (%)
Parenteral	82	57.75
Oral	60	42.25
Total	142	100.00

Figure 8: Distribution of medications used for UTI based on the route of administration

DISTRIBUTION OF MEDICATION BASED ON THE NO. OF MEDICATIONS ADMINISTERED:
Out of 142 medications, ceftriaxone (n=46,32%) was found to be drug used highest followed by Nitrofurantoin (n=16,11), piptaz (n=15,11%) Doxycycline(n=13,9), Azithromycin (n=4,3) meropenem, Lasix, augmentin (n=3,2%) Ciprofloxacin(n=2,1%) and linezolid, amikacin, levofloxacin, septra, (1%) were found to be the lowest.

Table 7: Distribution of medications based on the no. of medications administered

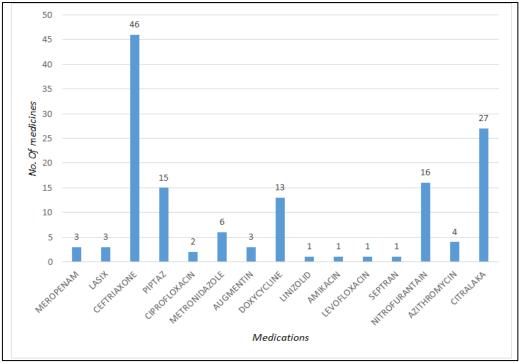| Medications	No. of Medicines Administered	Percentage (%)
Meropenem	3	2
Lasix	3	2
Ceftriaxone	46	32
Piptaz	15	11
Ciprofloxacin	2	1
Metronidazole	6	4
Augmentin	3	2
Doxycycline	13	9
Linezolid	1	1
Amikacin	1	1
Levofloxacin	1	1
Septra	1	1
Nitrofurantoin	16	11
Azithromycin	4	3
Citralka	27	19

Figure 9: Distribution of medications based on the no. of medications administered

DISTRIBUTION OF RESPONSES RECEIVED FOR KAP QUESTIONNAIRE

Subjects were administered a KAP questionnaire, to assess the knowledge, attitude and practice. The questionnaire consisted of 17questions which were developed as a practical health status instrument with 3 domains Knowledge, Attitude, and Practice. Knowledge was assessed using 5 questions, attitude using 6 questions and practice using 6 questions.

Assessment of knowledge about UTI in selected population

The knowledge of the patients is indicative of their understanding about the disease and greatly influences their approach to disease condition and its management.

K1: Do you know what UTI is?
Out of 60 patients, 56 (93.33%) patients responded that they knew what UTI is, and 4(6.67%) patients responded that they don't know what UTI is.

K2: What is the most common cause of UTIs?
63% (n=37) patients out of 60, responded that bacteria have the major cause of UTIs, while 28% (n= 17) responded hygiene, and 3% (n=2) responded fungi and protozoa as the major cause of UTIs.
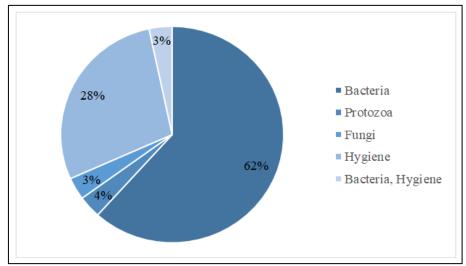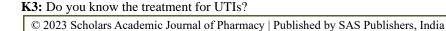

Figure 10: Distribution of responses for K2

K3: Do you know the treatment for UTIs?

Majority of patients, 41(68.33%) responded that they know the treatment for UTI and 19(31.67%) responded that they don't know the treatment.

K4: Do you think UTIs are serious

Among 60 patients, 48 (80.00%) patients think that UTIs are serious and 12 (20.00%) patients think that UTI's are not that much serious.

K5: Do you know what dysuria, haematuria, and proteinuria are?

Out of total 60 patients, 13(21.67%) patients responded that they knew and most of the patients 47(78.33%) responded that they do not know dysuria, haematuria, proteinuria

Table 8: Responses to the knowledge questionnaire

Questions	No. of Patients responded Correctly	Percentage (%)	No. of Patients responded Incorrectly	Percentage (%)
K1	56	93.33	4	6.67
K3	41	68.33	19	31.67
K4	48	80.00	12	20.00
K5	13	21.67	47	78.33

Assessment of attitude about UTI in selected population:

The attitude of Patients towards UTI greatly influences in the management of disease.

A1: Do you think that drinking plenty of water helps in reducing the cause of UTI?

Among 60 patients, the majority (n=58, 96.67%) of patients agreed that drinking plenty of water helps in reducing the cause of UTI and while 2(3.33%) patients disagreed.

A2: Do you think using antibiotics helps in the management of UTI?

Out of 60 patients, 39(65%) agreed that using antibiotics helps in the management of UTI, and 21(35%) patients disagreed.

A3: Do you think Vitamin C and antioxidant-rich food may prevent UTI?

12 (20 %) patients out of 60 agreed that Vitamin C and antioxidant-rich food may prevent UTI while majority of them 48(80 %) disagreed.

A4: Do you think being unhygienic causes UTI?

Out of 60 responses, majority 48(80.00%) agreed that being unhygienic causes UTI and 12(20.00%) patients disagreed that being unhygienic causes UTI.

A5: Do you think only bacteria cause UTI

Out of 60 responses, 26 (43.33%) patients responded that only bacteria cause UTI, and 34(56.67%) disagreed.

A6: Whether regular health check-up is helpful in case of UTI?

Out of 60 responses, 14 (23.33%) patients agreed that regular health check-up is helpful in case of UTI, while majority 46(76.67%) of patients disagreed.

Table 9: Responses to the attitude questionnaire

Questions	Agreed	Percentage (%)	Disagreed	Percentage (%)
A1	58	96.67	2	3.33
A2	39	65.00	21	35.00
A3	12	20.00	48	80.00
A4	48	80.00	12	20.00
A5	26	43.33	34	56.67
A6	14	23.33	46	76.67

Assessment of practice about UTI in selected population:

Knowledge of correct practices and their implementation is crucial for better prevention and help to improve QOL. This will assess the patient's personal hygiene practice.

P1: In 24 hours, how many times do you use the toilet?

Out of 60 responses, 80% (n= 48) of patients responded that in 24 hours they use the toilet 1-4 times, while 20% (n= 12) responded that they use the toilet 4-8times in a day.

Table 10: Distribution of answers to the practice questions in the questionnaire

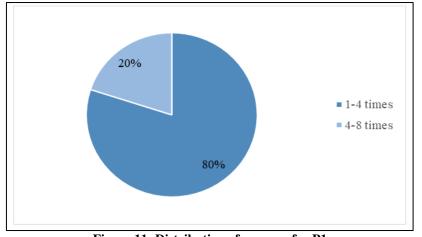| Questions	No. of patients given the correct answer	Percentage (%)	No. of patients given an incorrect answer	Percentage (%)
P2	32	53.33	28	46.67
P3	50	83.33	10	16.67
P5	27	45.00	33	55.00

Figure 11: Distribution of answers for P1

P2: Do you wash your underwear separately from other clothes?
Out of 60 responses, 32 (53.33%) patients wash their underwear separately from other clothes, and 28 (46.67%) patients do not wash it separately.
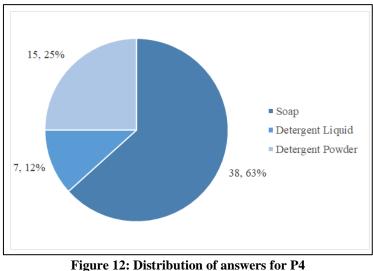**P3:** Do you wash the inner part of labia majora?
Out of 60 patients,5 0 (83.33%) patients wash the inner part of the labia majora, and 10 (16.67%) patients do not wash the inner part of the labia majora.

P4: Do you wash your innerwear with
Water only, soap, detergent liquid, and detergent powder.
Out of 60 patients, n=38,63% of patients wash their innerwear with soap, n=7,12% with detergent liquid, and n=15,25%with detergent powder.

Figure 12: Distribution of answers for P4
P5: Do you wear panty liner/pads

Out of 60 responses, 27(45.00%) patients responded that they wear panty liner/pads while 33(55.00%) patients responded that they do not wear panty liner/pads.

The study revealed that Out of 60 subjects, 49 (81.67%) subjects were having poor knowledge and 11(18.33%) were having good knowledge. 37 (61.67%) subjects were having a negative attitude, followed by 23 (38.33%) were having a positive attitude towards UTI. 40 (66.67%) have poor practice and 20 (33.33%) were having good practice.

Table 11: Comparison of KAP in subjects

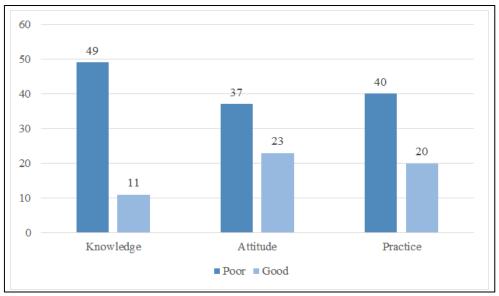|	Knowledge	Attitude	Practice
Poor	49	37	40
Good	11	23	20

Figure 13: Comparison of KAP in subjects

Test for independency:
- Knowledge-Attitude: The chi-square statistic is 5.9097. The p-value is .015058. The result is significant at p < .05.
- Knowledge-Practice: The chi-square statistic is 3.523. The p-value is .060522. The result is not significant at p < .05.
- Attitude-Practice: The chi-square statistic is 0.3262. The p-value is .567914. The result is not significant at p < .05.

FUTURE DRECTON
This study may be conducted across multiple centers for longer durations for better outcomes.

CONCLUSION
Urinary tract infection, or UTI, is an infection in any part of the urinary system. UTIs are common infections that happen when bacteria, often from the skin or rectum, enter the urethra and infect the urinary tract. The infections can affect several parts of the urinary tract, but the most common type of infection encountered is cystitis (infection of the bladder). The study concluded that women with UTIs have poor knowledge, attitude, and practice. Due to a lack of education and awareness, they tend to neglect symptoms and ultimately faces complication. Knowledge enhancement programs may change their attitude towards practicing hygiene, which would help prevent UTIs and improve their quality of life. This can help in reducing the excessive use of antibiotics to treat UTIs, which may contribute to possible antibiotic resistance in the future. Setting up awareness programs would help in educating women regarding the cause or risk factors associated with the development of UTIs and how they can be effectively prevented. Educating women about UTIs would lead to them having a better attitude towards its prevention and ultimately practicing appropriate hygiene.

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