



Risk factors, microbiological etiology, and clinical manifestations of UTIs in patients presenting to urology clinics in major hospitals in Sana'a City, Yemen

Ansam Mansoor M Al-barq¹ and Hassan Abdulwahab Al-Shamahy^{1,2*}

¹Medical Microbiology and Clinical Immunology Department, Faculty of Medicine and Health Sciences, Sana'a University,

²Basic Sciences, Faculty of Dentistry, Sana'a University, Republic of Yemen.

*Corresponding author: E-mail: h.shmahe15@su.edu.ye

ABSTRACT

Background and aims: Urinary tract infections (UTIs) remain largely under-researched despite their common occurrence in clinical practice. This study focuses on outpatient urology clinic visits in Sana'a City, aiming to assess the prevalence of clinical symptoms, bacterial characteristics, and risk factors associated with both bacterial and fungal UTIs.

Methods: In a 12-month cross-sectional study involving 1532 patients suspected of having a urinary tract infection (UTI), 433 culture-positive samples were identified. Urine samples were collected along with clinical and demographic data through a standard questionnaire. Laboratory procedures were employed to isolate, cultivate, and identify potential bacterial pathogens, while also examining risk factors associated with UTIs.

Results: The majority of patients were aged 21–30 years (25.6%), and the most common symptoms were urine turbidity (85.1%), urinary urgency (78.0%), fever (64.7%), and dysuria (52.3%), while hematuria, kidney pain, and nausea/vomiting were less frequent. *Escherichia coli* (41.3%), *Pseudomonas aeruginosa* (18.5%), *Klebsiella pneumoniae* (9.1%), *S.aureus* (9.7%), *Proteus mirabilis* (1.7%), *Acintobacter lowfii* (0.46%), and *Citrobacter freundii* (1.2%) were the Gram-negative isolates. *Staphylococcus haemolyticus* (1.7%), *Staphylococcus saprophyticus* (5.8%), and *Enterococcus faecalis* (5.5%) were the Gram-positive isolates. Additionally, 5.3% of the isolates were of the *Candida* species. There were significant risk factors for contracting UTI, including diabetic mellitus (OR = 4.9), renal disorders (OR = 2.8), autoimmune diseases (OR = 3.3), khat chewing (OR = 1.7), catheterization (OR = 3.6), stones (OR = 2.9), immunosuppressive medications (OR = 2.8), hypertension (OR = 6.5), previous urinary tract infection (OR = 7.8), active sexual intercourse (OR = 5.2), familial urinary tract infection (OR = 3.8), depression and psychosis (OR = 4.1), and obesity (OR = 2.5), all of which had significant 2 and p-values.

Conclusions: The most common isolates of UTI was *Escherichia coli*. The results show the most common symptoms of UTI are urine turbidity, urinary urgency, fever and dysuria. There were significant risk factors for UTIs, including all known risk factors for UTIs except kidney transplants.

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INTRODUCTION

One of the primary causes of infectious disorders that necessitate hospitalisation and the prescription of antibiotics is still urinary tract infections (UTIs). The variability of symptoms presents a challenge for early diagnosis, leading to inappropriate antibiotic prescription and delayed diagnosis. UTIs are infections that impact a section of the urinary tract. It is called pyelonephritis because it affects the upper urinary system, while the lower UTI is called cystitis. Frequent urination, discomfort when urinating, and the feeling that you must urinate even when your bladder is empty are all symptoms of lower urinary tract infections. Signs of a kidney infection include fever, flank discomfort, and occasionally blood in the urine. In both young and old, the symptoms are vague or nonspecific [1]. 10% of people are predicted to get a UTI at some point in their lives, making it one of the most common infectious diseases overall. Second only to upper respiratory tract infections, UTIs are the most prevalent infection in humans. Young, healthy women can only be identified by their symptoms. It might be challenging to diagnose someone with hazy symptoms since pathogens can survive without causing sickness [2]. Urine cultures may be advantageous in complex cases or when treatment is unsuccessful.

An upper or lower UTI infection may cause disastrous consequences and manifest as clinical signs or no symptoms at all if treatment is not obtained. Although there are several species that can cause UTIs, including viruses and fungi, bacteria are responsible for more than 95% of cases. Urinary tract infections (UTIs) are largely caused by bacteria, and *Escherichia coli* is the most common cause, accounting for over 80% of cases. Early identification and timely diagnosis of UTIs are essential to shorten the duration of the disease and prevent infection from spreading to the upper urinary tract, which might lead to renal failure [3]. Recurrent UTIs in particular can lead to long-term damage such as renal parenchymal scarring, decreased renal function, hypertension, and chronic kidney disease. Treatment failure and an increase in antibiotic resistance are caused by improper dosage and drug selection. Additionally, regular antibiotic usage or urinary tract abnormalities are risk factors for the emergence of resistance. Globally and in Yemen specifically, resistance to antibiotics used in empirical therapy is continuously increasing, despite geographical differences [4–11].

Risk factors include female anatomy, family history, diabetes, obesity, and sexual activity [12]. Although UTIs are not included in the category of STIs (sexually transmitted infections), sexual activity is a risk factor [13]. Although blood-borne bacterial infections can also cause pyelonephritis, bladder infections are the most common cause [14]. This study examines the prevalence of bacterial UTI risk factors, bacterial features, and clinical

symptoms among outpatients who visit urology clinics at major hospitals in Sana'a City.

MATERIALS AND METHODS

STUDY DESIGN AND AREA

The study included 1532 samples from individuals suspected of having a UTI, which were analysed in a 12-month cross-sectional study in the main hospitals in Sana'a city.

DATA COLLECTION AND CLINICAL INVESTIGATIONS

Clinical and demographic information was gathered using a pre-made questionnaire.

ETHICAL APPROVAL

The written consent in all cases was obtained. Approval was obtained from the participants prior to including them in the study. Ethical approval was obtained from the Medical Research and Ethics Committee of the Faculty of Medicine and Health Sciences, Sana'a University, with reference number (2755) on 01/12/2024.

INCLUSION CRITERIA

Outpatients with suspected UTIs who had not taken antibiotics in the previous two months were included in the trial with their written permission.

SAMPLE COLLECTION

Identification and cultivation were carried out at the National Center of Public Laboratories (NCPHL), Sana'a City, Microbiology Department. 1532 outpatients with suspected UTIs who had not taken antibiotics in the previous two months were sent to the NCPHL for urine culture, and urine samples were taken from them.

ISOLATION AND IDENTIFICATION OF BACTERIA

Within 20 minutes of being collected, urine samples were analysed and cultivated. After being inoculated on blood agar plus MacConkey agar, all samples were incubated for 24 hours at 37°C and for 48 hours in instances that tested negative. If a single organism was cultivated at a concentration of 10⁵ CFU/ml or if a single organism was grown at a concentration of 10⁴ CFU/ml and five leukocytes per high-power field were seen on urine microscopy, the sample was deemed positive for urinary tract infection. The biochemical properties of the isolates and standard culture were used to identify the bacterium. Standard biochemical techniques were used to iden-

tify gram-negative bacteria. The appropriate laboratory tests—catalase, coagulase, CAMP test (for *Streptococcus agalactiae*), and esculin agar (for enterococci)—were used to identify gram-positive bacteria.

STATISTICAL ANALYSIS

The chi-square test was used to compare proportions and percentages representing discrete variables.

RESULTS

Table 1 shows the distribution of patients by age and sex in urology outpatient clinics in the main hospitals in Sana'a City. The table included 1,532 patients clinically diagnosed with urinary tract infections (UTIs), with a median age of 37 years (range 1.0–88 years), with a mean \pm standard deviation of 38.3 ± 17.7 years. The majority of patients were aged 21–30 years (25.6%), followed by those aged 31–40 years (18.9%), 41–50 years (20.2%), and other less common age groups (9.7%–14%). By gender, 628 (41%) were female, while 904 (59%) were male.

The distribution of pathogens' significant and non-significant growth in urine tract infection samples is displayed in Table 2. 1099 UTI samples (71.7%) had non-significant growth of bacteria, whereas 433 UTI patients (28.3%) had substantial growth. The age and sex distribution of urinary tract infection patients is displayed in Table 3. Those aged ≥ 61 years had the highest percentage of patients with a significant positive bacterial growth (46.7%), followed by those aged 51–60 years (39.9%), 41–50 years (36.2%), and ≤ 20 years (15.9%). Thirty-one percent of female patients and twenty-six percent of male patients had a significant positive bacterial growth.

The most common signs and symptoms of urinary tract infections in those with significant positive bacterial growth vs those with non-significant or zero positive bacterial growth are displayed in Table 4. Turbid urine was the most prevalent symptom among patients with substantial positive bacterial growth (group 1), but it was only 14.9% among those with non-significant or nil positive bacterial growth (group 2). In addition, 284 patients (65.6%) in group 1 had fever compared to 35.3% in group 2, and 346 patients (79.9%) in group 1 had urinary urgency compared to 22.02% in group 2. 75.3% of patients in group 1 experienced dysuria compared to 17.7% in group 2, 14.1% experienced haematuria compared to 2.5% in group 2, 25.4% experienced kidney discomfort compared to 33.5% in group 2, and nausea and vomiting were less common in both groups (14.6% versus 18.5%). Group 1 patients experienced a higher prevalence of suprapubic pain (76.2%) compared to a lower rate (11.5%) in group 2, while group 1 patients experienced a higher prevalence of flank pain (71.4%) compared to a lower prevalence (3.5%) in group 2. Group 1

patients experienced a higher prevalence of lower back pain (69.3%), which was marginally different from the rate (45.6%) in group 2, and 14.5% of group 1 patients experienced clear pus in their urine compared to 1.2% in group 2.

The most prevalent uropathogens found in urine samples from individuals suffering from UTIs are listed in Table 5. *Escherichia coli* (41.3%), *Pseudomonas aeruginosa* (18.5%), *Klebsiella pneumoniae* (9.1%), *S. aureus* (9.7%), *Proteus mirabilis* (1.7%), *Acinetobacter lwoffii* (0.46%), and *Citrobacter freundii* (1.2%) were the Gram-negative isolates. *Staphylococcus haemolyticus* (1.7%), *Staphylococcus saprophyticus* (5.8%), and *Enterococcus faecalis* (5.5%) were the Gram-positive isolates. Additionally, 5.3% of the isolates were of the *Candida* species. Table 6 shows the odds ratio of UTIs associated with urinary pathogens. Diabetes mellitus was a common risk factor for UTIs in our patients (64.2%), with an associated odds ratio of 4.9 times, CI 2.7–8.6. This result was highly statistically significant, with $\chi^2 = 37.1$ and a $p < 0.0001$. Pregnancy was a risk factor for UTIs in our patients (63%), with an associated odds ratio of 4.6 times, CI 2.4–8.4, and a significant $p < 0.0001$. Common risk factors also included renal disorders (OR = 2.8), autoimmune diseases (OR = 3.3), khat chewing (OR = 1.7), catheterisation (OR = 3.6), stones (OR = 2.9), immunosuppressive medications (OR = 2.8), hypertension (OR = 6.5), previous urinary tract infection (OR = 7.8), active sexual intercourse (OR = 5.2), familial urinary tract infection (OR = 3.8), depression and psychosis (OR = 4.1), and obesity (OR = 2.5), all of which had significant χ^2 and p-values. Furthermore, there was no statistically significant association with kidney transplantation.

DISCUSSION

In the current study, table 2 shows the distribution of significant and insignificant growth of pathogens in UTI samples. 1,099 samples (71.7%) showed insignificant growth of bacteria, while 433 patients (28.3%) showed significant growth. The majority of patients in the current study were classified as non-UTI cases despite clinical suspicion of infection. This is due to the poor performance of current diagnostic tools, which leads to the exclusion of a large proportion of patients with UTI [15, 16]. Therefore, diagnostic tools must improve the accuracy of diagnosis, leading to more appropriate prescribing of empirical antibiotics, reducing unnecessary testing, and minimising or preventing complications [5, 17]. Several diagnostic assessment systems and algorithms combining genitourinary symptoms and urinalysis have been proposed but have not yet achieved general acceptance [18–20]. The broad range of UTI symptoms and severity, from acute cystitis with dysuria without systemic symptoms to severe sepsis necessitating urgent care, is probably the cause of this low acceptability [21]. As a result, the majority



of studies define UTIs strictly, requiring a positive urine culture to be diagnosed. Urine culture is not the best test, nevertheless, as evidenced by the high incidence of asymptomatic bacteriuria in older women and negative urine cultures in high-risk, symptomatic individuals [22]. Infections of the urinary tract are common in both children and adults, although they are more common in women. In contrast to previous studies that revealed that over 75% of UTI cases were female, the current study found that 41% of cases were female and 59% of cases were male [23–25]. Women are more susceptible to UTIs than males due to their shorter urethras and closer proximity to the anus [26]. Following menopause, a woman's vaginal flora becomes less protective, and her oestrogen levels decrease, increasing her risk of UTIs [26]. Vaginal atrophy, which can sometimes occur after menopause, is also associated with recurrent UTIs [27]. Unlike other cohorts that record a majority of women, ours has a little male predominance, which is unusual [28]. However, a similar male prevalence of 59.9% in UTIs has been reported in certain major epidemiological surveys [29]. Additionally, the majority of our patients (about 44%) were between the ages of 21 and 40. This contrasts with previous data that show the prevalence of bacterial UTIs increases with age and peaks in age groups above 60 [26]. Infection is usually caused by Gram-negative bacteria, which make up the bulk of germs that inhabit the lower urinary tract. The infection may move from the bladder to the kidneys, depending on the characteristics of the bacteria. It is commonly known that infections can occur when an agent enters the circulation through the urinary system during sepsis, rather than when they are transmitted by the haematogenous route. Vesicoureteral reflux, voiding dysfunctions, neurogenic bladder, urine incontinence, constipation, bladder neck blockage, and catheter usage are among the factors that predispose people to UTIs [23]. Another factor is genetic and family propensity [24].

In the current study, the most common signs and symptoms of urinary tract infections in those with significant positive bacterial growth vs those with non-significant or zero positive bacterial growth are displayed in Table 4. Turbid urine was the most prevalent symptom among patients with substantial positive bacterial growth (group 1), but it was only 14.9% among those with non-significant or nil positive bacterial growth (group 2); 284 patients (65.6%) in group 1 had fever compared to 35.3% in group 2, and 346 patients (79.9%) in group 1 had urinary urgency compared to 22.02% in group 2; and 75.3% of patients in group 1 experienced dysuria, suprapubic pain (76.2%), and flank pain (71.4%). But less frequently occurring symptoms included haematuria, kidney pain, and nausea/vomiting (29.5%, 25.5%, and 14.5%, respectively). Our findings are in line with other reports [1, 4] that have noted that in both the very young and the elderly, the symptoms are ambiguous or non-

specific.

In the present study, flank discomfort (71.4%), suprapubic pain (76.2%), and dysuria (75.3%) were reported by participants in group 1. Our study's presentation of classic UTI symptoms is highly correlated with a UTI diagnosis, which is consistent with prior research [30, 31]. According to the UTISA (UTI Symptoms Assessment questionnaire) score for UTIs, dysuria is the symptom with the highest chance of a UTI diagnosis in our research. This finding is consistent with earlier publications [20, 30, 32]. According to our data, urinary retention is a known risk factor for UTIs, even if the symptom has been present for fewer than fourteen days. Previous studies disagree on the association of increased urinary frequency and urinary incontinence with having a UTI, but our findings confirm that this association is present [30, 32]. These results show that even in research where UTI symptoms are not required for detecting a UTI, they are nevertheless significantly related to the diagnosis and should be taken into consideration when setting diagnostic criteria, even though they shouldn't surprise any physician treating these patients. Furthermore, our findings highlight how crucial it is to obtain a complete medical history in order to determine the source of a suspected illness [33].

The results of the current study illustrate that among the heterogeneous causative bacteria for UTI, *Enterobacteriaceae* are the dominant pathogens, followed by Gram-positive cocci. In detail, the most common Gram-negative isolates were *Escherichia coli* (41.3%), followed by *Klebsiella pneumoniae* (9.1%) and *Pseudomonas aeruginosa* (18.5%). The Gram-positive isolates were *S. aureus* (9.7%), *Staphylococcus haemolyticus* (1.7%), *Staphylococcus saprophyticus* (5.8%), and *Enterococcus faecalis* (5.5%). These results are consistent with reports published in Yemen previously and from other countries around the world [3, 4, 25, 34]. In addition, the current findings are similar to other surveys published in Europe and North America, which suggested that *E. coli* is the predominant bacterial pathogen causing UTIs [3]. However, the results of the current study differ from those of Rebman and Greene and the reviews by Gaynes and Edwards, where *Klebsiella* was the most common bacteria (8/16, 50%), followed by *Enterococcus* (7/16, 44%). Although *E. coli* is known to be the most common cause of UTIs [10], these findings may indicate variation in bacterial counts across locations and suggest that the environment plays a role in determining bacterial counts in each area, including hospitals [23].

This study evaluated a wide range of potential risk factors for the development of a bacterial UTI. According to the results, which were consistent with other studies [9, 10, 35], 64.2% of patients with UTI who also had diabetes mellitus have an independent relationship between DM and UTI (OR = 4.9, $p < 0.0001$). Catheterisation and UT stones, which were both linked to an elevated

incidence of UTI in the current study, are the most important risk factors for the development of bacterial UTI [6]. As other studies have verified, renal stones and catheterisation are important risk factors for the development of bacterial UTIs, and these results are in line with the previously published study [1, 9]. This association can be explained by the fact that germs are more likely to proliferate around the catheter or inside the bladder lumen if the catheter is longer. Furthermore, a long catheterisation period is a substantial risk factor for getting a UTI, as shown by a large number of other research [1, 9]. Furthermore, the two most important factors that lead to CAUTIs—incorrectly delaying the removal of a catheter when it is no longer required and unnecessary urinary catheter installation—have been the primary focus of quality improvement areas [2]. Regrettably, 38% of attending physicians are unaware that their patients are catheterised [36]. Moreover, in 20% to 50% of cases, there is no convincing evidence to warrant catheter insertion [1, 36]. The current study found a strong correlation between UTI and pregnancy (OR=4.6 times, $p < 0.0001$). This study supports the notion that urinary tract infections, including the asymptomatic presence of bacteria in the urine, are more troublesome during pregnancy due to the increased risk of kidney infections [26]. Reflux is a disorder in which urine flows back up the ureters and toward the kidneys, and high progesterone levels during pregnancy increase the risk of decreased bladder and ureteric muscle tone [26]. A kidney infection is 25–40% likely to occur if pregnant women have bacteriuria, even if there is no increased risk of silent bacteriuria [26]. Consequently, even in the absence of symptoms, therapy is recommended if urine testing indicates infection-related symptoms [37]. Cephalexin and nitrofurantoin are commonly utilised since they are generally thought to be safe to take during pregnancy [37]. A kidney infection during pregnancy might result in preterm delivery or pre-eclampsia, a disease of high blood pressure and renal failure during pregnancy that can lead to seizures [26]. Urinary tract infections can occur frequently in pregnant women [38]. It is unclear how best to treat these recurring infections in expectant mothers [38].

CONCLUSION

The results indicate that fever, dysuria, cloudy urine, and urgent urination are the most common symptoms of UTI, and classic UTI symptoms were also present, albeit at lower rates. *Escherichia coli* was the most frequently isolated UTI. Pregnancy, urinary stones, indwelling urinary catheters, and diabetes were among the major risk factors for UTI, and associations were found with all known risk factors for UTI. In addition, the current study revealed several characteristics independently associated with UTIs, which may help clinicians identify patients at risk. Although this knowledge alone could improve the

quality of patient care, the clinical utility of these risk factors has yet to be established. It may take more time to determine the usefulness of this approach in preventing UTIs.

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A DISPUTE OF INTEREST

Regarding this project, there is no conflict of interest.

AUTHOR'S CONTRIBUTIONS

First author **Ansam Mansoor M Al-barq** did the field-work for this study as part of a PhD in the department of Medical Microbiology, Faculty of Medicine and Health Sciences, Sana'a university. **Prof Hassan A Al-Shamahy** assisted with data analysis, drafting and reviewing the manuscript, and giving final clearance to the study.

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RESULTS

Table 1. The age and sex distribution of patients (n=1532) who received a clinical diagnosis of a UTI in urology outpatient clinics in Sana'a City's main hospitals.

Characters	Frequency	%
Sex		
Male	904	59
Females	628	41
Total	1532	100
Age group / Years		
≤20	214	14
21-30	392	25.6
31-40	289	18.9
41-50	309	20.2
51-60	148	9.7
≥61	180	11.7
Total	1532	100
Mean / SD	38.3 ± 17.7 years	
Median/ range	37 (1.0 - 88) years	
Mode	45 years	

Table 2. Distribution of clinically diagnosed urinary tract patients according to bacterial growth rate in urine samples

Growth rate	Frequency	%
Significant growth ($\geq x10^5$ /ml)	433	28.3
Nil or Non- significant growth ($< x10^5$ /ml)	1099	71.7
Total	1532	100

Table 3. The distribution of patients by age and gender who had UTIs with a substantial positive bacterial growth (n=433).

Age group in years	Frequency	%
≤ 20 n=214	34	15.9
21-30 n=392	67	17.1
31-40 n=289	77	26.6
41-50 n=309	112	36.2
51-60 n=148	59	39.9
≥ 61 n=180	84	46.7
Sex		
Males n=904	235	26
Females n=628	198	31.5
Total n=1532	433	28.3



Table 4. The most typical symptoms and indicators of urinary tract infections in individuals with substantial positive bacterial growth as opposed to those with non-significant or zero positive bacterial growth.

Symptoms	significant positive bacterial growth n=433 (group 1)		nil or non- significant positive bacterial growth=1099, (group 2)	
	No.	%	No.	%
Turbid urine	368	84.8	164	14.9
Feel unwell	323	74.6	863	78.5
chills	307	70.9	904	82.3
Urinary urgency (Feel full bladder)	346	79.9	242	22.02
Fever	284	65.6	388	35.3
Dysuria	326	75.3	195	17.7
Hematuria	61	14.1	28	2.5
kidney pain	110	25.4	368	33.5
Nausea/ vomiting	63	14.6	203	18.5
Suprapubic pain	330	76.2	126	11.5
flank pain	309	71.4	38	3.5
Lower back pain	300	69.3	501	45.6
Clear pus in the urine	63	14.5	13	1.2
Total	433	28.3	1099	71.7

Table 5. Bacterial pathogens isolated from urine samples of patients with urinary tract infections (433)

Name of pathogens	Frequency	%
<i>Escherichia coli</i>	179	41.3
<i>Klebsiella pneumoniae</i>	39	9.1
<i>Pseudomonas aeruginosa</i>	80	18.5
<i>S.aureus</i>	42	9.7
<i>Candida sp</i>	23	5.3
<i>Enterococcus faecalis</i>	24	5.5
<i>Staphylococci saprophyticus</i>	25	5.8
<i>Proteus mirabilis</i>	7	1.7
<i>Staphylococci hemolyticus</i>	7	1.7
<i>Acintobacter lowfii</i>	2	0.46
<i>Citrobacter freundii</i>	5	1.2
Mono-growth of pathogens	422/433	97.5
Mixed-growth of pathogens	11/433	2.5
Total isolates	433/433	100

Table 6. Factors associated with urinary tract infections among urinary tract infection patients who attended urology clinics in the main hospitals in Sana'a city n=1532

Risk factors	UTI n=433		Nil UTI n=1099		OR	CI		χ^2	p
	No.	%	No.	%		Lower	Upper		
Kidney disorders n= 23	12	52.2	11	47.8	2.8	1.2	6.4	6.5	0.01
Diabetic mellitus n= 56	36	64.2	20		4.9	2.7	8.6	37.1	<0.0001
Autoimmune diseases n=16	9	56.3	7	43.8	3.3	1.2	8.9	6.2	0.01
Pregnancy n.=46	29	63	17	36.9	4.6	2.4	8.4	28.2	<0.0001
Qat chewing n= 653	229	35.1	424	64.9	1.7	1.4	2.3	25.9	<0.0001
Presence of catheters n=24	14	58.3	10	41.7	3.6	1.6	8.2	10.8	<0.0001
Presence of stones n=55	34	61.8	21	38.2	2.9	1.7	4.8	19.3	<0.0001
Immunosuppressive drugs n=17	9	52.9	8	47	2.8	1.1	7.5	5.1	0.02
Hypertention n=57	40	70.2	17	29.8	6.5	3.6	11.5	51	<0.0001
Previous UTI n=328	210	64	118	36	7.8	5.9	10.7	263	<0.0001
Highly active sexual intercourse n=327	188	57.5	139	42.5	5.2	4.1	6.8	175	<0.0001
Family UTI n=79	46	58.2	33	58.2	3.8	2.4	6.1	36.8	<0.0001
Depression and psychosis n=155	89	57.4	66	42.6	4.1	2.8	5.6	72.2	<0.0001
Kidney transplant n=11	5	45.4	6	54.5	2.1	0.6	7	1.6	0.2
Obesity n=122	59	48.4	63	51.6	2.5	1.7	3.6	24.9	<0.0001

OR Odds ratio = > 1 (there is a risk), CI Confidence intervals, χ^2 Chi-square = > 3.9 (significant) and PV Probability value = < 0.05 (significant).