



FACTORS ASSOCIATED WITH URINARY TRACT INFECTION AMONG STUDENTS AGED 20-25 YEARS AT BUGEMA UNIVERSITY HEALTH CENTRE III, LUWEERO DISTRICT

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ABSTRACT: *Introduction: Urinary tract infection is one of the most common infections among people and the most common disease of the urinary tract in women of all ages. At Bugema University Health Centre III, UTIs are a common reason for students seeking medical attention. Therefore, this study aimed to assess and investigate the factors associated with urinary tract infection among students aged 20-25 years at Bugema University Health Centre III, Luweero District. Methodology: A cross-sectional study design was employed, utilizing quantitative data collection. A questionnaire was administered to 36 students selected via simple random sampling. Data were manually entered and analyzed using Microsoft Excel 2016, and presented using descriptive statistics in the form of tables and figures. Results: The study revealed significant behavioral and environmental factors. Key individual factors included: infrequent genital cleaning (52.8% reported once-daily cleaning), inadequate water intake (44.4% consumed less than 4 glasses per day), and delaying urination after an urge (63.9%). Regarding recent sexual activity, 36.1% reported intercourse within the past week. Environmental factors at the school included: predominant use of seater toilets (75%), lack of student orientation on toilet use (72.2%), perceived poor washroom cleanliness (44.4%), and inadequate access to drinking water facilities (66.7%). Conclusion: The study concluded that poor personal hygienic practices, inadequate water intake, and insufficient school water facilities were significantly associated with UTIs in this student population. It is recommended that students adopt improved hygienic practices and increase their water consumption. Furthermore, the university should provide more clean water sources and improve washroom maintenance and student orientation.*

KEYWORDS: UTI, Factors, Students, Hygiene, University Environment.



INTRODUCTION

Urinary tract infections (UTIs) are inflammatory disorders of the urinary tract caused by abnormal growth of pathogens (Mancuso et al., 2023). Urinary tract infections can be community-acquired or nosocomial (De Souza et al., 2019). A urinary tract infection (UTI) is characterized by the presence of more than 100,000 microscopic cells in 1 mL of urine and is accompanied by clinical symptoms of cystitis, pyelonephritis, and asymptomatic signs (Almukhtar, 2018). UTIs occur at different ages and among both sexes, but their incidence in females is higher than that of males, considering the female urethra, which is approximate to their occurrence in the anus and hormonal activity (Abdulwahhab & Atiyea, 2021). Young women appear to be particularly susceptible, and understanding the factors associated with UTIs among university students aged 20-25 years is crucial for promoting preventive measures and improving student health (Jelly et al., 2022).

Globally, about 150 million people suffer from UTIs each year, resulting in greater than 6 billion dollars in direct health care (Zeng et al., 2022). In United states of America (USA) about 11million cases of UTIs are recorded yearly and are the most common outpatient infections, with exception of a spike in young women aged 14-24 years old, the prevalence of UTIs increase with age, the prevalence in women over 65 years of age is approximately 20% compared with 11% in overall population, between 50% and 60% of adult women will have at least one UTI in their life (Flores-Mireles et al., 2019).

In Africa, the general prevalence is not well established; however, UTIs are a health burden, whereby in countries like Algeria, the prevalence of UTIs among admitted patients for more than 48hours is 4.5% (Lawson et al., 2021). In Nigeria, the prevalence of community-acquired UTIs and nosocomial-acquired infections is 12.3% and 9.3% respectively (Lawson et al., 2021).

In East Africa, more especially in Tanzania, the prevalence of UTIs observed is 63.47% and it is significantly higher in females aged 18-29 years (58.54%) and those whose marital status was single (Mangai et al., 2019). In Kenya, 88.3% females tested UTI positive compared to men 11.6%, and this is common in those with multiple sexual partners (Wanja et al., 2021). Nanyiti (2024) explored urinary tract infections (UTIs) among university students. They discovered that activities like having sex, douching, and using spermicides frequently could increase the chances of getting UTIs.

In Uganda, the prevalence of urinary tract infections was 13.3% (Odoki et al., 2019). In Bushenyi district, the prevalence of urinary tract infections was 32.2%, and the most common pathogens are the *Escherichia coli* (41.9%), followed by *Staphylococcus aureus* (31.4%) (Odoki et al., 2019). However, we know very little about UTIs among university students in Uganda. By filling in this gap, we can learn more about how common UTIs are among students and what puts them at risk. This could help us create better ways to keep students healthy and improve their medical care.

In Bugema University Health Centre III, Luweero District, urinary tract infections (UTIs) pose a significant health concern among students aged 20-25 years. The report from the health center shows records of students being received daily seeking for UTIs related treatments yet no real research has been conducted in the facility to identify these specific factors (Hospital Administration Report, 2023). It is against this background that the researcher aims to



investigate the factors associated with urinary tract infection among students aged 20-25 years at Bugema University Health Centre III, Luweero District.

METHODOLOGY

The study was conducted at Bugema University Health Centre III, located in the Luweero District. The study focused specifically on Bugema University students aged 20-25 years who presented at or were registered on admission with the health centre at that time. This age bracket was likely selected due to high sexual activity and specific hygiene practices common in this demographic.

A total of thirty-six (36) respondents were enrolled in the study, and a simple random sampling method was used to select participants. This implies that every student within the target age group who sought services at the health centre had an equal chance of being selected, which helped to minimize selection bias and increase the representativeness of the sample.

Data analysis

Data from the questionnaires were tallied using pen and paper and analyzed using a computer package called Microsoft Excel, then presented in tables and figures in frequencies and percentages.

Ethical approval

Permission to conduct this study was sought from the Research Directorate of the School of Health Sciences, Department of Nursing and Midwifery at Bugema University. Participation in the study was entirely voluntary, and informed consent was obtained from all respondents. All information provided was handled with the utmost confidentiality. Participants had the freedom to decline participation or withdraw from the study at any point during the research period. Respondents were assured that any data collected from them was treated with strict confidentiality and was used solely for the purpose of achieving the objectives outlined in this study.

RESULTS

Demographic data

Of the 36 respondents surveyed on behavioural and environmental factors associated with urinary tract infections (UTIs) among students aged 20-25, the sample was characterized by a majority (50%) between 25 and 27 years of age, with only 13.9% aged 18-21. Most students (38.9%) were in their third year of study, while the smallest group (27.8%) was in their first year. Regarding marital status, 44.4% were married, and 22.3% were cohabiting.

Behavioural factors associated with urinary tract infection among students aged 20-25 years

Sexual activity emerged as a significant behavioral factor. Concerning the last engagement in sexual intercourse, over a third (36.1%) had engaged in sex within the past week, while 25%



and 30.6% had done so within the past month or more than a month prior, respectively. A small minority (8.3%) reported never having had sexual intercourse. Furthermore, nearly half of the respondents (47.2%) reported having had 3 to 5 sexual partners, while 16.7% reported having no partner.

Table 1: last engagement in sexual intercourse

Variable	Frequency (f)	Percentage (%)
One-week back	13	36.1
One-month back	9	25
More than one-month back	11	30.6
Never	3	8.3
Total	36	100

Hygienic practices after urination and defecation were also examined. More than half (58.3%) of the respondents reported that they do not wipe their genitals to dryness after urinating. An overwhelming majority (94.4%) reported wiping from back to front after visiting the toilet, a practice associated with increased UTI risk. In terms of daily genital cleaning, 52.8% clean their genitals only once a day, and only 11.1% do so three times a day. The most common material used for cleaning was water with detergents (44.4%), followed by clean water with ordinary soap (38.9%); the least common practice was using only clean water (16.7%).

Figure 2: Bar graph showing the number of times respondents clean their genitals in a day

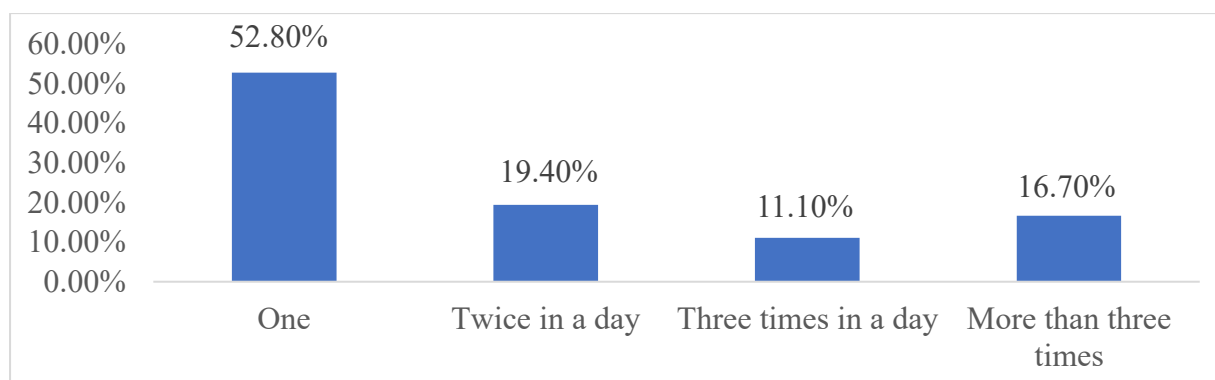


Table 3: What was used while cleaning the genital area

Variable	Frequency (f)	Percentage (%)
Clean water with ordinary soap	14	38.9
Only clean water	6	16.7
Water with detergents	16	44.4
Total	36	100

Hydration levels were also investigated. Nearly half of the respondents (44.4%) reported drinking less than four glasses of water per day, while only 16.7% drank more than seven glasses. A majority of students (63.9%) also reported that they do not urinate immediately after feeling the urge to do so.

**Table 4: Number of cups/glasses of water taken in a day**

Variable	Frequency (f)	Percentage (%)
Less than 4 glasses	16	44.4
4-6 glasses	14	38.9
More than 7 glasses	6	16.7
Total	36	100

School Environment Factors

The school environment presented several potential risk factors. The majority of respondents (75%) reported using seat toilets at school, while 25% used squat toilets. A significant majority (72.2%) stated that the school does not orient new students on how to use the toilets properly.

Perceptions of washroom cleanliness were predominantly negative. Nearly half (44.4%) rated the cleanliness as poor, and 30.6% rated it as fair. Only 11.1% and 13.9% described it as excellent or good, respectively. Furthermore, 52.8% felt the washrooms were not adequate for all students.

Table 5: Kind of washrooms at school

Variable	Frequency (f)	Percentage (%)
Seater toilets	27	75
Squatter toilets	9	25
Total	36	100

Table 6: The cleanliness of the washrooms

Variable	Frequency (f)	Percentage (%)
Excellent	4	11.1
Good	5	13.9
Fair	11	30.6
Poor	16	44.4
Total	36	100

Access to water was another concern; 66.7% of respondents stated that the school did not have adequate facilities for every student to access drinking water. Finally, a large majority (75%) reported that teachers do not allow students to leave class to use the washroom.

DISCUSSION OF RESULTS

Demographic Characteristics

According to the study findings, a half 18(50%) of the respondents were between 25 and 27 years of age. This showed that they were in their sexually active age. This would therefore lead them to engage in multiple sexual intercourse, risking them to contract urinary tract infections. This finding is in line with findings by Odoki et al. (2019) in Uganda about the Prevalence of bacterial urinary tract infections and associated factors among patients attending hospitals in



Bushenyi district, who reported that the prevalence of UTIs was highest in the age group of 20-29 years (32.6%) compared to 1.2% in adolescents.

The study results showed that 16(44.4%) of the respondents were married. This indicated that being married would predispose one to UTIs because of probable differences in hygienic practices among couples. Similarly, Odoki et al. (2019) in Bushenyi, about the Prevalence of bacterial urinary tract infections and associated factors among patients attending hospitals in Bushenyi district, found that married status was associated with urinary tract infections.

Behavioural factors associated with urinary tract infection among students aged 20-25 years

The study findings showed that most of the respondents, 13(36.1%), reported that they last had sexual intercourse a week back. This showed frequent involvement in sexual intercourse. This was because of being married and having boyfriends. These findings are in line with the findings of Ch et al. (2020) in Cameroon about the prevalence and associated risk factors of urinary tract infection in pregnancy at the Douala General Hospital, who reported that the factors associated with this prevalence were multiple weekly sexual intercourse.

The study findings showed that more than half of the respondents, 19(52.8%), mentioned that they clean their genitals once a day. This indicated inadequate hygienic practices. This could be due to being occupied in class with lessons throughout the day. This finding is similar to the findings by Taye et al. (2018) about Bacterial profile, antibiotic susceptibility pattern and associated factors among pregnant women with Urinary Tract Infections in Goba and Sinana Woredas, Bale Zone, Southeast Ethiopia, who revealed that women who had poor hygiene practices had higher odds of contracting urinary tract infections than their counterparts who practised good hygiene practices.

In addition, findings revealed that most of the respondents, 16(44.4%), mentioned that they take less than four (4) glasses of water in a day. This indicated inadequate water intake. This could probably be because of inadequate clean drinking water at school. This finding is in line with findings by Fathy et al. (2019) about self-care practices regarding the prevention of Urinary Tract Infections among Secondary Nursing Students, who reported that inadequate water intake was a strong predictor of urinary tract infections.

The study findings showed that the majority of the respondents, 23(63.9%), mentioned that they do not urinate immediately after having an urge to urinate. This showed poor urine elimination practices. This could probably be because of being in classes, which hindered them from going for a short call immediately. This finding agrees with the findings by Yıldırım (2017) on behaviours of students who have repeated urinary tract infections, who reported that 70.4% held urine too long, and this was significantly associated with the prevalence of UTIs among these students.

School environment factors associated with urinary tract infection among students aged 20-25 years

According to the study findings, the majority of the respondents, 27(75%), mentioned that they use seated toilets at school. This showed that having seated-type toilets contributed to UTIs since the person sits directly where another person has sat, thus increasing the chances of contracting the infections in case one individual with UTIs uses the same toilet. This finding



was in agreement with the findings by Kalio (2023) about Knowledge, attitudes and practices on menstrual hygiene management by school-going girls in Mulundi sub-location, Kitui county, Kenya, who reported that students who used some type of toilets in schools, such as seaters, were at high risk of contracting UTIs.

The study findings showed that the majority of the respondents, 26(72.2%), mentioned that the school does not orient new students on how to use toilets. This showed that students who were from rural areas and other places, who had different washrooms from those found in school, experienced difficulties in using them, thus being at risk of contracting UTIs. This finding was similar to Kalio (2023) on Knowledge, attitudes and practices on menstrual hygiene management by school-going girls in Mulundi sub-location, Kitui county, Kenya, who revealed that students who did not know how to use some type of toilets in schools, such as seaters, were at high risk of contracting UTIs and this was due to lack of training by the school.

On the other hand, study findings discovered that most of the respondents, 16(44.4%), mentioned that the cleanliness of the washrooms was poor. This showed that poor hygiene in school washrooms contributed to the prevalence of UTIs, and this was because of allowing a conducive environment for these microorganisms. This finding was in line with findings by Sapkota et al. (2020) done in Nepal about the Prevalence of urinary tract infection among school-going adolescent females, who found that schools with poorly maintained facilities had higher rates of UTIs among students, as these contributed to poor hygienic practices among students.

Furthermore, the study findings showed that more than half of the respondents, 21(58.3%), mentioned that classes were crowded. This indicated inadequate aeration in classrooms, thus contributing to high temperatures that favoured the growth of bacteria. This could be due to the large number of students compared to the available infrastructure. This finding was in line with findings by Dang et al. (2020) in Vietnam about microbiological contamination of indoor air in university classrooms (Case study: University of Science-Vietnam National University, Ho Chi Minh city), who reported that students who had urinary tract infections reported that they had poor ventilation and their classrooms were crowded.

The study findings revealed that the majority of the respondents, 24(66.7%), mentioned that the school did not have adequate facilities for every student to access drinking water. This showed that there was inadequate hydration by students, which would help wash out their bladders. This finding is in line with findings by Ali Al Youssef et al. (2020) in Saudi Arabia about Asymptomatic Urinary Tract Infections among Female University Students, who reported that students in colleges and universities with inadequate sources of water for students to take had a high prevalence of urinary tract infections compared to their counterparts.

The study findings showed that the majority of the respondents, 27(75%), mentioned that not all teachers allow students to move out of class in case one wanted to go to the washroom. This showed that there was too much holding of urine by students, thus increasing the risk of UTIS due to inadequate washout of the urethra. This finding was in line with findings by Shoham et al. (2021) about School toileting environment, bullying, and lower urinary tract symptoms in a population of adolescent and young adult girls: preventing lower urinary tract symptoms consortium analysis of the Avon longitudinal study of parents and children, which reported that school policies limiting bathroom access correlated with higher rates of urinary tract issues.



CONCLUSION

This study finding showed that the behavioural factors associated with urinary tract infection among students aged 20-25 years were poor hygienic practices, inadequate uptake of drinking water and the school environment factors were poor orientation of students on use of washrooms, inadequate sources of drinking water and crowded classes.

RECOMMENDATION

1. To students

- a. **Adopt Proper Hygienic Techniques:** Always wipe from front to back after urination and defecation to prevent transferring bacteria from the anal region to the urethra. Ensure the genital area is patted dry after washing or urination to avoid creating a moist environment that encourages bacterial growth. Use mild, unscented soap and water for cleaning the genital area. Avoid harsh detergents, antiseptics, or douches, which can irritate the urethra and disrupt natural protective flora.
- b. **Improve Hydration and Voiding Habits:** Aim to drink at least 6-8 glasses of water daily to consistently flush bacteria from the urinary tract. Respond to the urge to urinate immediately and ensure the bladder is fully emptied. Avoid "holding it in," especially after sexual intercourse.
- c. **Practice Safer Sexual Health: Urinate After Intercourse:** Make it a habit to urinate shortly after sexual activity to expel any bacteria that may have entered the urethra. While not mentioned in the results, consistent and correct use of condoms can reduce the risk of introducing bacteria.

2. For the University Management (Improving Environmental & Institutional Factors)

- a. **Improve Sanitation Infrastructure and Cleanliness:** Enhance Cleaning Regimens: Immediately address the poor cleanliness ratings (44.4% said 'poor') by increasing the frequency of cleaning, providing adequate soap, water, and paper towels/hand dryers in all washrooms. Ensure Adequate Facilities: Conduct an audit to ensure the number of washrooms is sufficient (52.8% reported inadequacy) for the student population to avoid overcrowding and long waits.
- b. **Launch Orientation and Awareness Programs:** Integrate mandatory health hygiene modules into freshman orientation, specifically teaching proper toilet use, handwashing, and UTI prevention.
- c. **Post Educational Materials:** Display clear, illustrated posters in washrooms demonstrating proper wiping techniques (front-to-back) and handwashing steps.

3. For Nurses and Healthcare Providers (Enhancing Education & Clinical Practice)

- a. **Conduct Targeted Health Education Campaigns:** Organise workshops and seminars on Reproductive and Urinary Health Education, specifically addressing the risky



behaviours identified: wiping habits, cleansing methods, hydration, and post-coital hygiene.

- b. Develop and distribute easy-to-understand informational leaflets and infographics in student clinics, hostels, and high-traffic areas.
- c. Implement Proactive Screening and Counselling: Incorporate risk assessment questions into routine health visits for female students (e.g., "Do you wipe front to back?" "How much water do you drink daily?"). Provide individualized counselling to students with recurrent UTIs, focusing on their specific behavioural factors as revealed by this study.
- d. Advocate for Institutional Change: Serve as a Liaison by presenting these findings and recommendations to university management to advocate for improved sanitation facilities, water access, and student-friendly policies. Work with the university to develop a formal student health policy that guarantees restroom access and mandates health education.

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ABBREVIATIONS

UTI Urinary tract infection

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