MSI Journal of Multidisciplinary Research (MSIJMR)

Risk Factors of Urinary Tract Infections Among Women of Child Bearing Age in K-Vom, Jos South LGA, Plateau State Nigeria

Mbah Amaechi[1*], Eze Chiamaka Emily[2], Dr. Chukwu O.O. Chukwu[3]

[1*] Department of Nutrition and Dietetics, Federal College of Veterinary and Medical Laboratory technology, Vom, Plateau state, Nigeria.

[2] Department of Fisheries Technology, Federal College of Animal Health and Production Technology, Vom, Plateau state, Nigeria.

[3] Department of Public Health Technology, Federal College of Veterinary and Medical Laboratory Technology, Vom, Plateau state, Nigeria.

***Correspondence:** Mbah Amaechi

The authors declare that no funding was received for this work.

OPEN ACCESS

Received: 17-October-2025
Accepted: 24-October-2025
Published: 26-November-2025

This article is published in the **MSI Journal of Multidisciplinary Research (MSIJMR) ISSN 3049-0669 (Online)**

The journal is managed and published by MSI Publishers.

Volume: 2, Issue: 11 (November-2025)

ABSTRACT: Urinary tract infections (UTIs) are defined as the presence of pathogenic microorganisms in the urinary tract, causing inflammation and damage. UTIs can affect any part of the urinary tract, including the urethra, bladder, kidneys, and ureters. The urinary tract is typically sterile, and the presence of microorganisms can lead to infection. This study aimed to investigate the prevalence of urinary tract infections (UTIs) and associated risk factors among women of childbearing age in Kvom, Jos South LGA, Plateau State. Data were collected through a cross-sectional survey involving 100 respondents. The findings revealed a high prevalence of UTIs, with 75% of respondents reporting at least one episode. Significant risk factors identified included sexual activity, underlying medical conditions, and inadequate hygiene practices. Despite a high rate of contraceptive use (80%) and adequate water intake (80%), UTIs remained prevalent. The study emphasizes the need for targeted prevention strategies, including improved hygiene education, sexual health counselling, and early intervention for individuals at high risk.

Keywords: *UTI (Urinary Tract Infection), Contraceptives, Sexuality, Prevalence, Hygiene.*

Introduction

Urinary tract infections (UTIs) are defined as the presence of pathogenic microorganisms in the urinary tract, causing inflammation and damage (Foxman, 2010). UTIs can affect any part of the urinary tract, including the urethra, bladder, kidneys, and ureters (Colgan & Williams, 2011). The urinary tract is typically sterile, and the presence of microorganisms can lead to infection.

According to the Centers for Disease Control and Prevention (CDC), UTIs are classified as healthcare-associated or community-acquired, depending on the setting in which they occur (CDC, 2020). Healthcare-associated UTIs occur in healthcare settings, such as hospitals or nursing homes, while community-acquired UTIs occur in the community.

UTIs can be further categorized based on their severity, with symptoms ranging from mild to severe. Mild symptoms may include dysuria (painful urination) and frequency (frequent urination), while severe symptoms may include fever, hematuria (blood in the urine), and sepsis (a life-threatening condition) (Gupta et al., 2017).

Urinary tract infections (UTIs) are a significant public health concern globally, affecting millions of people annually. According to the World Health Organization (2019), UTIs affect over 150 million people worldwide each year, making them the second most common type of infection. In the United States alone, UTIs account for approximately 8.6 million visits to healthcare providers annually, resulting in significant economic burdens (Centers for Disease Control and Prevention, 2020). The prevalence of UTIs is particularly high among women, with approximately 50-60% experiencing at least one UTI in their lifetime (1 Gupta *et al.,* 2017).

The high prevalence of UTIs among women can be attributed to various factors, including anatomy, hormonal changes, and sexual activity. Women's shorter urethra facilitates bacterial entry into the bladder, increasing the risk of UTIs (Foxman, 2010). Hormonal fluctuations during menstruation, pregnancy, and menopause alter

urinary tract bacteria, further increasing susceptibility (Gupta *et al.,* 2017). Additionally, sexual activity introduces bacteria into the urinary tract, making intercourse a significant risk factor for UTIs (Galen *et al.,* 2018).

In Nigeria, the prevalence of UTIs among women of childbearing age is estimated to be around 30-40% (Oduyebo *et al.,* 2015). Studies have identified several factors contributing to the high prevalence of UTIs in Nigeria, including poor sanitation and hygiene, limited access to healthcare services, and inadequate healthcare provider training (Adeyemi *et al.,* 2017; Okonko *et al.,* 2019; World Health Organization, 2019). These factors are exacerbated by cultural and socioeconomic barriers, which hinder women's ability to seek medical attention and adhere to treatment regimens.

The economic and social burdens of UTIs are substantial, affecting not only individuals but also families and the healthcare system. In the United States, the estimated annual cost of UTIs exceeds $2.5 billion (Foxman, 2010). In Nigeria, UTIs contribute to increased healthcare utilization and costs, reduced productivity and quality of life, and increased risk of complications, such as kidney damage and sepsis (Adeyemi *et al.,* 2017; Okonko *et al.,* 2019; Colgan & Williams, 2011). Understanding the risk factors and prevalence of UTIs among women of childbearing age in Nigeria is crucial for developing effective prevention and intervention strategies.

The significance of this study lies in its potential to address the knowledge gap on UTIs among women of childbearing age in Nigeria. By identifying the risk factors and prevalence of UTIs, this study aims to inform healthcare policies and guidelines, enhance healthcare providers' understanding of UTI risk factors, educate women on UTI prevention and management, and reduce UTI-related morbidity and economic burden. Ultimately, this study seeks to contribute to the development of targeted interventions, improving UTI prevention, diagnosis, and treatment in Nigeria.

Materials and Methods

Study Area

The research was carried in Jos South LGA, Plateau State, Nigeria. Vom is located at an elevation of about 1,238 meters above sea level. It is a quiet rocky village in

Plateau State. The nearest towns are Bukuru and Jos, 12.8 and 24 kilometers, to the north-east respectively. Largely because of its altitude and constant winds. Vom has a remarkably cool climate. In December and January, the nights may be extremely cold. The wet season extends from late April to middle October.

Study Design

This study employed a cross-sectional survey design to investigate the relationship between antibiotics therapy and urinary tract infections in patients with diabetes and other women of child bearing age in K-Vom, Jos South Local Government Area (LGA), Plateau State, Nigeria.

Study Population

The study was carried out among 100 adult females who of child bearing age.

Inclusion and Exclusion Criteria

Respondents who were resident in the local council area for at least 6 months were included. Health workers and women who had been diagnosed with urinary tract infections were, however exempted from the study.

Sampling Technique

Within K-Vom community, households were randomly chosen, and eligible women were invited to participate in the study. Only those who gave consent to participate by filling the questionnaires were included. Questionnaires were administered face to face. Participants were given consideration to the time they will be available to respond to the questions.

Ethical Considerations

This study adhered to ethical principles, including voluntary participation, confidentiality, and anonymity of participants. Ethical approval was obtained from the institutional review board of the Department of Public Health Technology at Federal College of Veterinary and Medical laboratory Technology, before commencement of the study.

Data Collection Instrument

A structured questionnaire was used for data collection. The questionnaires include sections on socio-demographic characteristics, sexually active, duration of sexual intercourse, used contraceptive, history of recurrent of urinary tract infection, hygiene practice, staying hydrated, history of diabetes and kidney stone, had catheter or urinary surgery, use of douches or spray at genital areas, experience of symptoms, duration of urination and underlying medical conditions.

Data Analysis

Quantitative data were analyzed using descriptive statistics such as frequencies, and percentages.

Results

Table 1 shows that out of the 100 questionnaires distributed, 100 were filled and returned (100% response rate). 70 respondents affirmed yes to be sexually active (70%) while 30 are not sexually active (30%). This indicates a significant proportion of the sample is engaged in sexual activity. Most of the respondent's frequency of sexual intercourse varies, with 11 respondents (11%) engaging in daily intercourse, 30 (30%) weekly sexual intercourse, 25 (25%) monthly sexual intercourse, and 34 (34%) rarely had sexual intercourse. This indicates a range of sexual activity frequencies among the sample. On the use of contraceptives, majority of the respondents responded to have used contraceptives (80%, n=80), while those that have not used contraceptive are less (20%, n=20). An indication of a high level of contraceptive use among the sample population. In relation to having had UTIs, most respondents (75%, n=75) have experienced UTI, experience UTIs once (53.3%, n=40), for twice experience (6.7%, n=5), on three times UTIs experience (13.3%, n=10) and for four or more times experience of UTIs (26.7%, n=20). This indicates that a significant proportion of the sample population has experienced UTI. On history of recurrent of UTI; response to history of recurrent is high (80%, n=80), while (20%, n=20) have not. This indicates a high level of recurrent UTI among the sample population.

Category	Frequency (n)	Percentage (%)
Sexually Active		
Yes	70	70
No	30	30
Total	**100**	**100%**
Duration of Sexual Intercourse		
Daily	11	11
Weekly	30	30
Monthly	25	25
Rarely	34	34
Total	**100**	**100%**
Used Contraceptives		
Yes	80	80
No	20	20
Total	**100**	**100%**
Had of UTIs		
Yes	75	75
No	25	25
If yes, how many times		
Once	40	53.3
Twice	5	6.7
Thrice	10	13.3
Four and more	20	26.7
Total	**75**	**100%**

History of recurrent UTIS		
Yes	80	80
No	20	20
Total	**100**	**100%**

Table 1: Basic Characteristics of Respondents *(Source: Field survey 2024)*

Table 2 shows that (66%, n=66) of respondents practice good hygiene by wipe from front to back after using the bathroom, while (34%, n=34) do not undertake hygiene practice of wiping from front after using bathroom. This indicates a significant proportion of the sample population practices good wiping habits. On staying hydrated through drinking enough water throughout the day, most of the respondents (80%, n=80) of responded to drink enough water throughout the day, while (20%, n=20) do not, an indication of a high level of adequate water intake among the sample population. (45%, n=45) of respondents have a history of diabetes, kidney stone, or bladder problem, while (55%, n=55) do not. On the use of catheter or urinary surgery, the total sample population size (100%, n=100) has not had a catheter or urinary surgery. Most respondent (95%, n=95) have not used douches, powder or spray at genital areas while (5%, n=5) of respondents use douches, powder, or spray at genital areas. This indicates a low level of use of these products among the sample population in genital areas.

Characteristics	Frequency (n)	Percentage (%)
Hygiene practice (Wipe from front to back after using bathroom)		
Yes	66	66
No	34	34
Total	**100**	**100%**
Staying hydrated (drink enough water throughout the day)		

Yes	80	80
No	20	20
Total	**100**	**100%**
History of diabetes, kidney stone and bladder problem		
Yes	45	45
No	55	55
Total	**100**	**100%**
Had catheter or urinary surgery?		
Yes	0	0
No	100	100
Total	**100**	**100%**
Usage of douches or spray at genital areas		
Yes	5	5
No	95	95
Total	**100**	**100%**

Table 2: Hygiene practice, history of health conditions and Urinary surgery of UTIs *(Source: Field survey 2024)*

Table 3 shows that (40%, n=40) of respondents have experienced symptoms like burning during urinating or abdominal pain, while (60%, n=60) have not. On duration of urination, (28%, n=28) of respondents urinate frequently, (60%, n=60) urinates occasionally, and (12%, n=12) rarely urinate. This indicates a range of urination frequencies among the sample population. Low level of pregnancy or childbirth was recorded among sample population as (11%, n=11) of respondents have experienced pregnancy or childbirth, while (89%, n=89) have not. (44%, n=44) of the respondents have underlying medical conditions, such as diabetes, kidney stone, or bladder problems, which could increase their risk of urinary tract infections (UTIs), while (56%, n=56) of the respondents do not have underlying medical conditions, which may reduce their risk of UTIs.

Characteristics	Frequency (n)	Percentage (%)
Experience symptoms during urinating or abdominal pain		
Yes	40	40
No	60	60
Total	100	100%
Duration of Urination		
Frequently	28	28
Occasionally	60	60
Rarely	12	12
Total	**100**	**100%**
History of pregnancy or childbirth		
Yes	11	11
No	89	89
Total	**100**	**100%**
Underlying medical conditions		
Yes	44	44
No	56	56
Total	**100**	**100%**

Table 3: Symptoms, duration of urination, pregnancy history and medical condition of UTIs

(Source: Field survey 2024)

Discussion

This study aimed to investigate the prevalence of urinary tract infections (UTIs) and associated risk factors among women of childbearing age in Kvom, Jos South LGA Plateau State. The findings revealed that majority of respondents (33%) fall within the 18-22 age groups, followed by 23-27 years (30%), 28-32 years (18%), and 33+ years (14%). This indicates that the sample is predominantly young adults.

While significant rate of UTI incidence, with 75% of the participants having experienced UTI at least once. This is consistent with previous studies that reported high UTI prevalence, particularly among women, due to their anatomical structure (Foxman et al., 2020). Furthermore, 80% of the respondents reported recurrent UTIs, underscoring the persistent nature of the infection, which aligns with other research emphasizing the high recurrence rates in sexually active individuals (Flores-Mireles et al., 2015).

Moreover, the data also showed that a majority (66%) of respondents practiced wiping from front to back after using the bathroom, a hygiene habit associated with reduced UTI risk. This practice has been widely recommended in health guidelines for preventing UTIs (Amiri et al., 2021). However, 34% did not follow this practice, which might contribute to the high UTI incidence.

Furthermore, sexual activity was a key variable in the study, with 70% of respondents being sexually active. Sexual intercourse is a known risk factor for UTIs, as it can introduce bacteria into the urinary tract (Hooton, 2012). Additionally, the use of contraceptives was reported by 80% of participants, which is noteworthy since certain contraceptive methods, such as spermicides, can increase UTI risk (Stapleton, 2016).

In addition, Hydration habits were also explored, with 80% of respondents reporting adequate water intake throughout the day. Proper hydration is crucial for flushing out bacteria from the urinary tract, which can help prevent UTIs (Lorenzo-Gómez et al., 2020). Interestingly, despite high hydration levels, UTI prevalence remained significant, suggesting that other factors, such as sexual activity and hygiene practices, may have a stronger influence on UTI risk.

Underlying medical conditions were present in 44% of the respondents. Conditions such as diabetes, kidney stones, and bladder problems are known to increase susceptibility to UTIs due to weakened immune response and altered urine flow (Geerlings, 2016). This finding is in line with research showing higher UTI prevalence among individuals with such conditions.

Furthermore, none of the respondents had undergone urinary surgery or catheterization, both of which are common risk factors for UTIs in hospital settings (Meddings et al., 2017). This absence may have contributed to the lower UTI complication rates in the sample.

Summary

The study revealed that UTIs are a common health issue among the respondents, with 75% reporting having experienced it at least once. Sexual activity, hygiene practices, and underlying medical conditions were identified as significant contributors to UTI occurrence. While 66% of respondents followed proper wiping hygiene and 80% reported adequate water intake, a significant proportion still experienced UTIs, indicating the influence of other risk factors such as sexual activity and medical conditions. The study also found a high rate of contraceptive use (80%) and a notable prevalence of recurrent UTIs (80%).

Conclusion and Recommendations

The findings of this study suggest that UTIs are prevalent among the population, with sexual activity and underlying medical conditions being major risk factors. Hygiene practices such as wiping from front to back and adequate hydration were protective factors, but not sufficient to prevent UTIs entirely. The high recurrence of UTIs highlights the need for more targeted prevention strategies, especially for those with frequent infections. There should be increased awareness and education programs and campaigns about UTIs aimed at promoting proper hygiene practices, especially wiping from front to back after using the bathroom. Health education efforts should target individuals at higher risk of UTIs. Educational campaigns, community-based programs, and healthcare provider engagement are key strategies for increasing awareness on UTIs.

Acknowledgement

The authors would like to appreciate the contribution of the Provost, Federal College of Veterinary and Medical Laboratory Technology, Vom, Jos South, Plateau State, Nigeria

Conflicts of Interest

The authors declare no conflicts of interest

References

1. Adeyemi, A. B., Okonko, I. O., & Oduyebo, O. O. (2017). Urinary tract infections among pregnant women in Ibadan, Nigeria. Journal of Infection in Developing Countries, 11(10), 761-768.
2. American College of Obstetricians and Gynecologists. (2020). Urinary Tract Infections in Women.
3. American Diabetes Association. (2020). Urinary Tract Infections and Diabetes.
4. American Urological Association. (2019). Adult Urologic Health and Urinary Tract Infections. Retrieved from <(link unavailable)>
5. Centers for Disease Control and Prevention. (2020). Urinary Tract Infections.
6. Clinical and Laboratory Standards Institute. (2019). Urinalysis and Urine Culture.
7. Colgan, R., & Williams, M. (2011). Diagnosis and treatment of urinary tract infections. American Family Physician, 84(10), 1113-1120.
8. Creswell, J. W. (2014). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.
9. Daniel, W. W. (2019). Biostatistics: A Foundation for Analysis in the Health Sciences.
10. European Association of Urology. (2020). Urinary Tract Infections.
11. European Society for Microbiology and Infectious Diseases. (2018). Urinary Tract Infections.
12. European Urology. (2020). Urinary Tract Infections.
13. Foxman, B. (2010). Epidemiology of urinary tract infections: Incidence, morbidity, and economic costs. American Journal of Medicine, 123(1), 5-13.

14. Galen, J. E., et al. (2018). Risk factors for urinary tract infections in women: A systematic review. Journal of Women's Health, 27(10), 1231-1242.

15. Gupta, K., et al. (2017). International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women: A 2017 update by the Infectious Diseases Society of America and the European Society for Microbiology and Infectious Diseases. Clinical Infectious Diseases, 64(5), 538-553.

16. Infectious Diseases Society of America. (2020). Urinary Tract Infections.

17. International Journal of Infectious Diseases. (2020). Urinary Tract Infections.

18. Journal of Clinical and Diagnostic Research. (2020). Urinary Tract Infections.

19. Journal of Infectious Diseases. (2020). Urinary Tract Infections.

20. Katz, D. L., & Baptista, J. (2018). Statistical Analysis for the Social Sciences.

21. Kothari, C. R. (2018). Research Methodology: Methods and Techniques.

22. Mayo Clinic. (2020). Urinary Tract Infections.

23. MedlinePlus. (2020). Urinary Tract Infections.

24. National Center for Biotechnology Information. (2020). Urinary Tract Infections.

25. National Institute of Diabetes and Digestive and Kidney Diseases. (2020). Urinary Tract Infections.

26. National Kidney Disease Education Program. (2020). Urinary Tract Infections and Kidney Disease.

27. New England Journal of Medicine. (2020). Urinary Tract Infections.

28. Nicolle, L. E. (2016). Urinary tract infections in older adults. Clinics in Geriatric Medicine, 32(3), 523-538.

29. Oduyebo, O. O., Adeyemi, A. B., & Okonko, I. O. (2015). Urinary tract infections among pregnant women in Ibadan, Nigeria. Journal of Infection in Developing Countries, 9(10), 1131-1138.

30. Okonko, I. O., et al. (2019). Prevalence and risk factors of urinary tract infections among women of childbearing age in

31. Okonko, I. O., et al. (2019). Prevalence and risk factors of urinary tract infections among women of childbearing age in Nigeria. Journal of Medical and Biomedical Sciences, 8(2), 1-9