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A Study On Behavioral And Lifestyle Factors Of Antenatal Women Affected By Urinary Tract Infections

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Abstract

Background: Urinary tract infection (UTI) is one of the most common medical complications during pregnancy, particularly in developing countries. Behavioral and lifestyle factors play a significant role in its occurrence and recurrence. This study aimed to assess the behavioral and lifestyle factors associated with UTI among antenatal women. **Methods:** A hospital-based cross-sectional study was conducted among 60 antenatal women diagnosed with UTI in the Department of Obstetrics and Gynaecology, Guntur, Andhra Pradesh, India. Data were collected using a pre-tested structured questionnaire through face-to-face interviews. UTI was confirmed by urine microscopy and/or culture. Descriptive statistics and inferential tests (Chi-square and t-test) were performed using SPSS version 25.0. **Results:** The mean age of the participants was 26.2 ± 4.8 years. Poor or fair perineal hygiene was observed in 78.3% of women. Daily fluid intake was less than 2.0 L in 78.4% of participants. Back-to-front wiping was practiced by 46.7%, and frequent sexual activity was reported by 40%. Recurrent UTI was present in 25% of cases. Poor perineal hygiene was associated with higher UTI severity ($\chi^2 = 8.92$, $p = 0.11$), and frequent sexual activity showed a higher proportion of recurrent UTI (37.5%, $p = 0.14$). **Conclusion:** Poor perineal hygiene, inadequate fluid intake, back-to-front wiping, and frequent sexual activity are highly prevalent among antenatal women with UTI. Targeted health education on modifiable behavioral factors can play a vital role in prevention. Larger analytical studies are recommended.

Keywords: Urinary tract infection, Pregnancy, Antenatal women, Perineal hygiene, Behavioral factors, Fluid intake

Introduction

Urinary tract infections (UTIs) are among the most common bacterial infections in pregnancy and a significant contributor to maternal and neonatal morbidity. Globally, UTIs complicate 2–10% of pregnancies, with higher prevalence in low- and middle-income countries. Physiological changes during pregnancy, such as ureteral dilatation, urinary stasis, and reduced bladder tone, predispose women to UTI, which may present as asymptomatic bacteriuria, cystitis, or pyelonephritis. Untreated UTIs are associated with serious complications including pyelonephritis, preterm labor, low birth weight, intrauterine growth restriction, and increased risk of maternal sepsis. In India, the pooled prevalence of asymptomatic bacteriuria among pregnant women is approximately 13.5%, while symptomatic UTI ranges from 8% to 15%. These infections contribute substantially to maternal morbidity and adverse perinatal outcomes such as prematurity and low birth weight. In Andhra Pradesh, hospital-based studies have reported a notable burden of UTI among antenatal women, with significant associations with preterm labor, pregnancy-induced hypertension, and neonatal complications. The burden is further amplified by modifiable behavioral and socio-economic factors such as poor perineal hygiene, inadequate fluid intake, back-to-front wiping, limited sanitation facilities, and poor health-seeking behavior. Despite the high prevalence

and potential complications, there is limited regional data focusing specifically on behavioral and lifestyle determinants of UTI among antenatal women in Andhra Pradesh. This study was therefore undertaken to assess the behavioral and lifestyle factors associated with urinary tract infections among antenatal women in Guntur, Andhra Pradesh.

Methodology

Research design: A hospital-based cross-sectional descriptive study was conducted in the selected area of Guntur, Andhra Pradesh.

Sample Size: 60 antenatal women diagnosed with UTI.

Sampling Technique: Convenience sampling.

Inclusion Criteria: Pregnant women of any trimester with clinically and laboratory-confirmed UTI who gave informed consent.

Exclusion Criteria: Women with known chronic kidney disease, diabetes mellitus, or other immunocompromised conditions; critically ill patients; and those unwilling to participate.

Data Collection Tool: A pre-designed, pre-tested structured questionnaire was used. It included sections on socio-demographic details, behavioral & lifestyle factors, and clinical characteristics. Data were collected through face-to-face interviews in the local language (Telugu) after ensuring privacy.

Ethical Considerations: Ethical approval was obtained from the Institutional Ethics Committee. Written informed consent was taken from all participants. Confidentiality was maintained.

Statistical Analysis: Data were analyzed using SPSS version 25.0. Descriptive statistics (frequencies, percentages, mean ± SD) and inferential statistics (Chi-square test and independent t-test) were applied. A p-value < 0.05 was considered statistically significant.

Result Analysis

A total of 60 antenatal women with confirmed UTI participated in the study.

Table 1: Socio-Demographic Characteristics of Antenatal Women with UTI (N=60)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18–24	22	36.7
	25–29	25	41.7
	30–34	13	21.7
Gestational Age (weeks)	12–20	18	30.0
	21–28	24	40.0
	29–39	18	30.0
Parity	Primigravida	24	40.0
	Parity 1	18	30.0
	Parity ≥2	18	30.0
Education	Illiterate	2	3.3
	Primary	17	28.3
	Secondary	20	33.3
	Graduate & above	21	35.0
Socioeconomic Status	Low	26	43.3
	Middle	26	43.3
	High	8	13.3

The majority of participants belonged to the 25–29 years age group (41.7%). Forty percent were primigravida. Most women had secondary education or above (68.3%). Low and middle socioeconomic status each accounted for 43.3% of the study population (Table 1).

Table 2: Behavioral and Lifestyle Factors among Antenatal Women with UTI (N=60)

Variable	Category	Frequency (n)	Percentage (%)
Perineal Hygiene	Poor	24	40.0
	Fair	23	38.3
	Good	13	21.7
Daily Fluid Intake	<1.5 L	19	31.7
	1.5–2.0 L	28	46.7
	>2.0 L	13	21.7
Sexual Activity Frequency	None	7	11.7
	Occasional	29	48.3
	Frequent	24	40.0
Type of Toilet	Indian (Squatting)	41	68.3
	Western	19	31.7
Handwashing before Toilet Use	Yes	39	65.0
	No	21	35.0
Perineal Wiping Direction	Front to Back	32	53.3
	Back to Front	28	46.7

Poor perineal hygiene was reported by 40% and fair hygiene by 38.3% of women. Only 21.7% had good hygiene practices. Daily fluid intake was inadequate (<2.0 L) in 78.4% of participants. Frequent sexual activity during pregnancy was reported by 40% of women. Indian (squatting) toilet was used by 68.3%, and 46.7% practiced back-to-front perineal wiping (Table 2).

Table 3: Clinical Characteristics of UTI (N=60)

Variable	Category	Frequency (n)	Percentage (%)
Recurrent UTI	Yes	15	25.0
	No	45	75.0
UTI Severity	Mild	26	43.3
	Moderate	24	40.0
	Severe	10	16.7
Antibiotic Use (past 1 month)	Yes	23	38.3
	No	37	61.7

Recurrent UTI was observed in 25% of cases. UTI severity was mild in 43.3%, moderate in 40%, and severe in 16.7%. Antibiotic use in the past one month was reported by 38.3% of women (Table 3).

Table 4: Association between Perineal Hygiene and UTI Severity (N=60)

Hygiene Practices	Mild n (%)	Moderate n (%)	Severe n (%)	χ^2	p-value
Poor	8 (33.3)	12 (50.0)	4 (16.7)	8.92	0.11
Fair	10 (43.5)	9 (39.1)	4 (17.4)		
Good	8 (61.5)	3 (23.1)	2 (15.4)		

Table 5: Association between Sexual Activity Frequency and Recurrent UTI (N=60)

Sexual Activity	Recurrent UTI Yes n (%)	Recurrent UTI No n (%)	χ^2	p-value
None	2 (28.6)	5 (71.4)	5.78	0.14
Occasional	4 (13.8)	25 (86.2)		
Frequent	9 (37.5)	15 (62.5)		

Table 6: Fluid Intake and Recurrent UTI (Mean Comparison)

Recurrent UTI	Mean Fluid Intake (L/day)	SD	t-value	p-value
Yes (n=15)	1.86	0.52	0.23	0.82
No (n=45)	1.89	0.48		
Overall	**1.88**	**0.49**		

There was a suggestive association between poor perineal hygiene and higher UTI severity, though it did not reach statistical significance (p = 0.11) (Table 4). Frequent sexual activity was associated with a higher prevalence of recurrent UTI (37.5%) compared to occasional activity (13.8%), with p = 0.14 (Table 5). No statistically significant difference was found in mean daily fluid intake between women with and without recurrent UTI (1.86 ± 0.52 L vs 1.89 ± 0.48 L, p = 0.82) (Table 6).

Discussion

The present study highlights the significant role of modifiable behavioral and lifestyle factors in UTI among antenatal women. Poor or fair perineal hygiene was observed in nearly 78% of participants, which is consistent with findings from studies conducted in India and other developing countries. Inadequate perineal hygiene facilitates bacterial ascent from the perianal region into the urethra, a well-established mechanism in UTI pathogenesis.

More than three-fourths of the women had daily fluid intake below the recommended 2–3 liters. Low fluid intake leads to concentrated urine and reduced voiding frequency, allowing bacterial proliferation. This finding aligns with previous research that identified inadequate hydration as an important risk factor for UTI in pregnancy.

Back-to-front wiping was practiced by 46.7% of women in this study. This incorrect technique is known to transfer fecal bacteria to the urethral area. Similarly, frequent sexual activity during pregnancy showed a higher rate of recurrent UTI (37.5%), supporting the established association between sexual intercourse and UTI due to mechanical introduction of bacteria.

qThe prevalence of recurrent UTI (25%) in the present study is comparable to other Indian studies. The suggestive association between poor hygiene, sexual activity, and adverse UTI outcomes underscores the need for targeted behavioral interventions.

Strengths and Limitations The study provides focused data on behavioral aspects using direct interviews. However, the small sample size (n=60) and convenience sampling limit the generalizability of results and statistical power. Self-reported data on fluid intake and sexual activity may have social desirability bias.

Recommendations Antenatal care programs should include specific health education sessions on proper perineal hygiene, front-to-back wiping technique, adequate fluid intake (at least 2.5–3 L/day), and safe sexual practices. Regular screening and early management of UTI in high-risk women are also essential to prevent maternal and fetal complications such as preterm labor and low birth weight.

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