



KNOWLEDGE ABOUT URINARY TRACT INFECTIONS AMONG UNDERGRADUATES OF KAATSU INTERNATIONAL UNIVERSITY (KIU), SRI LANKA

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INTRODUCTION

Urinary Tract Infections (UTIs) are among the most prevalent bacterial infections, affecting 150 million individuals worldwide each year (Stamm & Norrby, 2001). Urinary Tract Infections (UTIs) are applied to any infection in the urinary tract and are one of the most common bacterial infections, affecting almost half of all women in the world throughout their lives at least once. One-third of women have been reported to be infected by at least one occurrence of UTIs by the age of 24 years. These infections can affect people of any age, from infancy to geriatrics. (Al-badr & Al-shaikh, 2013) Although a range of bacteria causes UTIs, most infections in all populations are caused by gram-negative, facultative anaerobic, Uropathogenic *E. coli* (UPEC). Other aetiologies of UTIs which affect the kidneys (pyelonephritis) are *Staphylococcus*, *Klebsiella*, *Enterobacter*, *Proteus*, and *Enterococcus*. Poor and incorrect habits in daily routine life, poor hygiene, and inappropriate sexual activities can all be risk factors for urinary tract infection. (Franz & Horl, 1999)

METHODOLOGY

A descriptive cross-sectional study was conducted at KIU, Battaramulla in 2021 among a group of undergraduates following study programs in biomedical science, psychology, nursing, and management. The samples were selected by non-probability sampling method, according to the study programs. The sample size was calculated using the following equation; $n = n/1+n*e2$ (Yamane, 1967). A total of 302 undergraduates were recruited into the sample. The inclusion criteria were the undergraduate students of the KIU who correctly fill the form and the exclusion criteria were the improper completion of the form. The self-administered questionnaire consisted of socio-demographic data and knowledge-based questions about urinary tract infections. Five common symptoms of Urinary Tract Infections were used to assess the knowledge. They were burning sensation when urinating, frequent urge to urinate, lower abdominal pain, increased times of urination, and blood in the urine. The questionnaire was distributed among KIU undergraduates. As for the data processing and analysis statistical package for the social sciences (SPSS) version 26 was used for all. The association between knowledge and Urinary Tract Infections was estimated by the frequencies and Pearson chi-square values.

RESULTS AND DISCUSSION

The online questionnaire was distributed among KIU undergraduates, and 306 responses were received. Only 302 responses were included in the study sample because four of the responses were filled in improperly. The study sample includes responses from undergraduates throughout the country. The study program was mainly divided into five groups: biomedical science, psychology, nursing and management. Most respondents (44.4%) were biomedical science undergraduates, while management (26.8%), nursing (19.2%), and psychology (8.9%) were also included [Table 1]. The mean age of the participants was 23 ± 2 years. Female respondents (194) are more than male respondents (108). In terms of residence, the Western Province had the highest percentage of respondents, followed by the Southern Province.



According to the findings of a survey conducted by Liliek Pratiwi, there was a difference in identifying signs and symptoms of urinary tract infections with and without knowledge of urinary tract infections (Pratiwi, 2017). Following those results, to observe the knowledge of the symptoms of urinary tract infections of undergraduates, multiple response questions were included in the current questionnaire. There were 284 responses for identifying burning sensation as a symptom of urinary tract infections, 238 responses for lower abdominal pain, 231 responses for having a frequent urge to urinate, and 217 responses for increased urination times. And 201 responses to the symptom of blood in urine [Table 2].

Table 1

Response rate

Degree Program	Response Rate
Biomedical Science	134
Management	83
Nursing	58
Psychology	27

Table 2

Knowledge about Urinary Tract Infections Symptoms

		Biomedical Sciences	Management	Nursing	Psychology	Total	%
Knowledge of symptoms of UTIs	Burning sensation when urinating	132/134	69/83	56/58	27/27	284	94.7
	Lower abdominal pain	112/134	60/83	47/58	19/27	238	79.3
	Frequent urge to urinate	108/134	54/83	47/58	22/27	231	77.0
	Increased times of urinating	97/134	54/83	46/58	20/27	217	72.3
	Blood in urine	88/134	55/83	37/58	21/27	201	67.2

As a result, a higher percentage of respondents chose the burning feeling when urinating, the frequent urge to urinate, and lower abdomen pain. Increased urination times and blood in the



urine are also common symptoms of severe urinary tract infections. But undergraduates are less aware of these symptoms, and knowledge has to be improved on these symptoms.

Knowledge of the causative organism, complications, transmission, association with renal failure, and association with pregnancy with urinary tract infections were all examined. A high percentage of the undergraduates from all the departments selected bacteria as the causative organism. Undergraduates' knowledge about the most susceptible gender in the occurrence of urinary tract infections was also observed. A higher number of undergraduates in biomedical science and nursing study streams have indicated that the most susceptible gender is female. But a considerable percentage of undergraduates in the psychology and Management departments have selected the answer as both genders [Table 3].

Table 3

Responses for Knowledge based Questions and Pearson Chi Square Test Results

		Biomedical Science (%)	Psychology (%)	Nursing (%)	Management (%)	p- value
Based on your knowledge, UTIs occur due to,	Bacteria	94.0	70.4	87.9	74.1	0.000
	Virus	0.7	14.8	0.0	14.8	
	Fungi	3.7	11.1	12.1	9.9	
	Other	1.3	3.7	0.0	1.2	
Based on your opinion UTIs are more common in,	No idea	3.0	11.1	1.7	17.3	0.000
	Men	4.5	3.7	6.9	11.1	
	Women	81.3	48.1	82.8	34.6	
	Both	10.4	37.0	8.6	37.0	
Do you think UTIs infections have serious complications or difficult to cure?	No idea	12.7	37.0	10.3	53.1	0.000
	No	33.6	25.9	32.8	21.0	
	Yes	53.7	37.0	56.9	25.9	
According to your opinion, do you think this disease can be transmitted from one person to another?	No	77.6	74.1	56.9	79.0	0.024
	Yes	22.4	25.9	43.1	21.0	



According to your knowledge, do you know UTIs leads to kidney failure?	No	12.7	22.2	15.5	34.6	0.02
	Yes	87.3	77.8	84.5	65.4	
Do you think, UTIs affect pregnancy?	No	23.9	48.1	17.2	42.0	0.01
	Yes	76.1	51.9	82.8	58.0	
According to your opinion, are you satisfy about your knowledge of UTIs?	No	59.0	66.7	43.1	76.5	0.02
	Yes	41.0	33.3	56.9	23.5	

To some extent, undergraduates' knowledge of transmission methods is satisfactory, as many are aware of these methods. Management and psychology undergraduates lack knowledge of relevant variables influencing kidney failure and pregnancy. A significant number of management and psychology undergraduates believe that urinary tract infections do not affect kidney failure or pregnancy.

Pearson Chi-square tests were done between the variables of causative organism, most susceptible gender, awareness of complications, the transmission of urinary tract infections, influence of kidney failure and pregnancy from urinary tract infections, and self-satisfaction on knowledge of urinary tract infections with a degree program. A significant association (<0.005) was found between the degree program and the above variable. It is clear from these findings that there is an association between knowledge of urinary tract infections and the degree program.

CONCLUSIONS/RECOMMENDATIONS

In a conclusion, the study program influenced the variables of knowledge on causative organisms, most susceptible gender, knowledge on having serious complications, the transmittance of urinary tract infections, influence on kidney failure from urinary tract infections, influence on pregnancy from urinary tract infections, and satisfaction of the knowledge on urinary tract infections. The undergraduates who follow biomedical science and nursing streams are more familiar with urinary tract infections than the undergraduates who follow psychology and management. The knowledge and experience gained in the study program can influence the above results. As a result, providing more infectious disease education will increase the level of knowledge on urinary tract infections among



undergraduates with nonmedical backgrounds. Awareness campaigns and health education sessions have to be conducted often to improve the knowledge of urinary tract infections among KIU undergraduates. Furthermore, a feedback session is necessary to evaluate the effect of the campaigns.

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REFERENCES

- Al-Badr, A., & Al-Shaikh, G. (2013). Recurrent Urinary Tract Infections Management in Women: A Review. *Sultan Qaboos University Medical Journal*, 13(3), 359.
- Franz, M., & Hörl, W. (1999). Common errors in diagnosis and management of urinary tract infection. I: pathophysiology and diagnostic techniques. *Nephrology dialysis transplantation*, 14(11), 2746-2753.
- Pratiwi, I. (2017). The Effect of Educational Health with a Leaflet Media on Mother Knowledge about Signs and Symptoms Urinary Tract Infections on 2017. *International Conference on Disaster Management & Infection Control*, 1(1), 105.
- Stamm, W. E., & Norrby, S. R. (2001). Urinary Tract Infections: Disease Panorama and Challenges. *The Journal of Infectious Diseases*, 183(Supplement_1), S1-S4
- Yamane, T. (1967). *Statistics: An Introductory Analysis*, 2nd Edition, New York: Harper and Row