Assessment of Nursing Students’ Knowledge toward Preventive Measures of Urinary Tract Infections in Mosul Teaching Hospitals

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Abstract

Background and Objectives: UTI is a common bacterial infection known to affect the different parts of the urinary tract and the occurrence is found in both males and females. It’s the most common site of nosocomial infection, accounting for greater than (40%) of the total number reported by hospital and affecting about (600,000) patients each year. The objective of this study is to assess the knowledge of regarded preventive measures among nursing college students and to determine the association between their knowledge and selected demographical data.

Materials and Method: A cross-sectional study was conducted among (120) students enrolled in the nursing college at Mosul university during the period of 25th January, 2019 to 25th of May, 2019. A self-administered structured questionnaire which consists of (16) items was obtain to assess the knowledge regarding preventive measures of UTI and other demographic details. The SPSS (version 18) was used for the data analysis. The demographic characteristics of the study samples were reported by using descriptive statistics (frequencies, percentages, and mean). The mean of scores were compared by one-way ANOVA were done to find the association between variables.

Results: The results of the present study showed that (40.8%) of respondents were belonged to the age group (20-22) years old, more than half of them (55%) were females, and the majority of them (86.7%) were single.

Conclusions: The study concluded that the general level of the knowledge among the participants was overall (52.5%) of the (120) participants had moderate level of knowledge, while (36.7%) of them had poor knowledge regarding preventive measures of urinary tract infection.

Recommendations: Based on the results of the study, the researchers recommended the necessary to preparation of educational programs for students of the university of Mosul to develop their knowledge and knowledge about the seriousness of UTI diseases, as well as the establishment of units for counseling and health guidance.

Keywords: Knowledge, preventive measures, urinary tract infection, nursing college students.

Introduction

Urinary tract infections (UTIs) are characterized by colonization, invasion and multiplication of microorganisms in the urinary system¹(²). UTI is an infection of the urinary system that may involve the lower urinary tract or both the lower and upper urinary tract³. UTIs are considered as the most frequent
bacterial infections worldwide(4)(5). UTI is a common bacterial infection known to affect the different parts of the urinary tract and the occurrence is found in both males and females. Urinary tract infections (UTIs) are caused by pathogenic microorganisms in urinary tract (the normal urinary tract is sterile above the urethra). UTIs are generally classified as infections involving the upper or lower urinary tract and further classified as uncomplicated or complicated depending on other patient related conditions(6-8). The urinary tract is the most common site of nosocomial infection, accounting for greater than 40% of the total number reported by hospital and affecting about 600,000 patients each year(9-10). Manifestations of (UTI) account for more than 7 million health care visits and 1 million hospital admission annually in United States and The incidence of UTI is second only that of upper respiratory infection in primary care(11-13). In this study, we aimed to to assess the students’ knowledge of regarded preventive measures of UTIs, and to determine the association between socio-demographical data and their knowledge regarding prevention of UTI.

**Methodology**

Quantitative research, a “cross-sectional” study was carried out to achieve the objectives of study among the nursing college students. The present study was conducted in Mosul University at the College of Nursing. Aaccidental sample of (120) students (males and females) from the nursing college students, were included in the study. To assess students’ knowledge the researchers construct questionnaire format which consisted of (16) questions: The researchers interviewed all students, and each student was given a time period between (10-15) minutes to answer the questions. In order to a chive the study aim and objectives, the structured knowledge questionnaire toward the preventive measures of UTIs were given and filled questionnaires were obtained from the subjects, which is composed of two parts:- Part One: Demographic Characteristics Sheet that include information related to the students’ demographical characteristics sheet which include (age, gender, marital status). While Part Two is a questionnaire concerned with data to assess the their knowledge which was consists of list of (16) items. Each item has three option yes, no, and uncertain. The researchers were used three points to measure each items of the knowledge sheet. (3) for the right answer (yes), (2) for uncertain answer, and (1) for the wrong answer (no). The general level of students’ knowledge were divided into three levels according to the mean of score; poor level of knowledge were (less than 2), moderate level of knowledge ranges from (2 - 2.5), and good level of knowledge ranges from (more than 2.5 - 3). The SPSS (version 18) was used for the data analysis. The demographic characteristics of the study samples were reported by using descriptive statistics (frequencies, percentages, and mean). The mean of scores were compared by one sample independent t-test, and one-way ANOVA. The content validity of the knowledge test tool was established in consultation with a panel of (10) experts in different specializations. All of them agreed that the questionnaires were clear, relevant, and adequate. Minor changes were employed based on their recommendations and suggestions. Data were collected through direct interviews of the samples, by using a constructed questionnaire to the period from 25st January, 2019 to 25th of May, 2019.

**Results**

According to table (1), out of (120) participants (40.8%) of respondents their age were range from (20-22) years old. In relation to gender, more than half of them (55%) were females. Regarding to the marital status that (86.7%) of the samples were single. Table (2) presented that the overall (52.5%) of the (120) participants had moderate knowledge, while (10.8%) of them had poor knowledge regarding preventive measures of UTIs. Table (4) indicated that there are no significant differences between students’ knowledge in regard to their age and marital status respectively.

<table>
<thead>
<tr>
<th>Level of knowledge</th>
<th>Mean of score</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>&gt;2</td>
<td>44</td>
<td>36.70%</td>
</tr>
<tr>
<td>Moderate</td>
<td>2 - 2.5</td>
<td>63</td>
<td>52.50%</td>
</tr>
<tr>
<td>Good</td>
<td>More than 2.5 – 3</td>
<td>13</td>
<td>10.80%</td>
</tr>
</tbody>
</table>
Table (2): Distribution of the samples according to their knowledge regarding preventive measures of UTIs.

<table>
<thead>
<tr>
<th>No.</th>
<th>Preventive measures items</th>
<th>Mean of Score</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bathing in the swimming pool increase UTI.</td>
<td>1.97</td>
<td>0.90249</td>
</tr>
<tr>
<td>2</td>
<td>Bathing by shower reduce the incidence of UTI.</td>
<td>1.98</td>
<td>0.90733</td>
</tr>
<tr>
<td>3</td>
<td>Cleaning the perineum from front to back after defecation reduce UTI.</td>
<td>2.58</td>
<td>0.78412</td>
</tr>
<tr>
<td>4</td>
<td>Use deodorant as a preventive measure to prevent UTI.</td>
<td>1.95</td>
<td>0.8638</td>
</tr>
<tr>
<td>5</td>
<td>Urination 4-5 times reduces UTI.</td>
<td>2.38</td>
<td>0.87143</td>
</tr>
<tr>
<td>6</td>
<td>Drinking liquids other than water decreases UTI.</td>
<td>1.9</td>
<td>0.83006</td>
</tr>
<tr>
<td>7</td>
<td>Use berry juice as a preventive measure to lessen the injury of UTI.</td>
<td>1.65</td>
<td>0.87591</td>
</tr>
<tr>
<td>8</td>
<td>Vitamin C reduce the risk of UTI.</td>
<td>1.98</td>
<td>0.90733</td>
</tr>
<tr>
<td>9</td>
<td>Avoid tight underwear lessens injury of UTI.</td>
<td>2.35</td>
<td>0.87731</td>
</tr>
<tr>
<td>10</td>
<td>Cotton underwear diminishes UTI.</td>
<td>2.36</td>
<td>0.85929</td>
</tr>
<tr>
<td>11</td>
<td>Emptying the bladder completely by repeating urination.</td>
<td>2.52</td>
<td>0.72137</td>
</tr>
<tr>
<td>12</td>
<td>Urinate immediately when felling bladder full.</td>
<td>2.45</td>
<td>0.75426</td>
</tr>
<tr>
<td>13</td>
<td>Pee before going to bed.</td>
<td>2.35</td>
<td>0.82656</td>
</tr>
<tr>
<td>14</td>
<td>Reduce the intake of hot, spicy foods.</td>
<td>1.88</td>
<td>0.63753</td>
</tr>
<tr>
<td>15</td>
<td>Emptying the bladder completely by repeating standing upright in the bathroom.</td>
<td>1.7</td>
<td>0.72876</td>
</tr>
<tr>
<td>16</td>
<td>Drinking enough water regularly daily reduce the incidence of infection.</td>
<td>2.51</td>
<td>0.67343</td>
</tr>
</tbody>
</table>

Table (3): Association between student’ knowledge with selected demographic variable.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sum of Square</th>
<th>DF</th>
<th>Mean Square</th>
<th>F cal.</th>
<th>F tab.</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Group</td>
<td>0.256</td>
<td>2</td>
<td>0.128</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Group</td>
<td>8.679</td>
<td>117</td>
<td>0.074</td>
<td>1.723</td>
<td>3.07</td>
<td>0.183</td>
</tr>
<tr>
<td>Total</td>
<td>8.935</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Group</td>
<td>0.051</td>
<td>2</td>
<td>0.025</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Group</td>
<td>8.884</td>
<td>117</td>
<td>0.076</td>
<td>0.333</td>
<td>3.07</td>
<td>0.718</td>
</tr>
<tr>
<td>Total</td>
<td>8.935</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table (4): Differences in students’ Knowledge regarding gender.

<table>
<thead>
<tr>
<th>Gender</th>
<th>No.</th>
<th>Mean</th>
<th>SD</th>
<th>T cal.</th>
<th>T tab.</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>54</td>
<td>2.1551</td>
<td>0.27891</td>
<td>-0.211</td>
<td>1.98</td>
<td>0.907</td>
</tr>
<tr>
<td>Female</td>
<td>66</td>
<td>2.1657</td>
<td>0.27199</td>
<td>-0.21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DF = (118), α = (0.05)

Discussion

There is no doubt the urinary tract infection it is consider the common problem which are affected in male and female(14,15). We as a health care provider we must be educated the community to how deal with that disorder to preventing complication. In general, about 50% of clinical training should take place in the nursing school curriculum.(16) In recent study objectives the researchers assess the effectiveness of knowledge and examined it they focus on engagement and motivation as necessary factors for knowledge gain and learning transfer, relation
between learning outcomes and behavior.\(^{(17)}\) According
to study findings the participants distributed depending
on demographic characteristics of respondents their age, In relation to samples gender and regarding to the
marital status. All these variables putting to election to
know what are the factors which are influencing into
their knowledge. In table (1) we divided the level of
knowledge in three categories good, moderate and poor,
the, majority of participants had moderate knowledge
toward preventive urinary tract infection because a good
relationship for sample with their friends. Peer support
and good relationships with peers are considered as
factors contributing to a positive learning attitude \(^{(18,19)}\).

The students in the present study were also willing
to learn, which will support academic self-efficacy in
their learning environment. Since healthcare professions
are based on both theoretical knowledge and practice,
candidates of healthcare professionals have to receive
education in the clinical environment integrated with
theoretical courses. It is important for students to
actively participate in healthcare services. When we
discuss the table (2) the analyses revile in details the
method of preventive urinary infection, however the
researcher show the variations between it, some of
them was poor and another was moderate. The studies
demonstrated that time management training programs
generally increased students time management skills and
the copying time pressure \(^{(20)}\). The curriculum for the
undergraduate nursing students education is appropriate
to the age, social, culture and environment of students
\(^{(21)}\). In table (3 and 4) the researchers thought the marital
status and gender of sample play the important role
to enhancing the background of the precaution and
preventive of infection. There are several important
areas of UTI management that are beyond the scope of
our study. The management of UTI in pregnancy is
not covered here in great detail, as this is an area that
is typically managed during prenatal care. Other areas
beyond the scope of this document include long-term
prophylaxis of UTI as well as acute or chronic prostatitis
and UTI in pediatric patients. Many articles demonstrate
the a highly percentage of urinary infection was in
female while there is no significant between male and
female knowledge \(^{(22)}\). This study was concluded that
(40.8%) of respondents their age was between (20 - 22)
years old, most of them (66%) were females, and (86.7%)
of the samples were single. More than half (52.5%)
of the (120) participants had moderate knowledge,
while (36.7%) of them had poor knowledge regarding
preventive measures of UTI. There are no significant
differences between students’ knowledge regarding
their age and marital status respectively. There is no
significant differences in students’ knowledge scores in
regard to gender. Based on the results of the study, the
researchers recommended the necessary to preparation
of educational programs for students of the University of
Mosul to develop their knowledge about the seriousness
of UTI diseases, as well as the establishment of units for
counseling and health guidance.

**Conflicts of Interest:** None declared.

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**Ethical Clearance:** Taken from Review Board of
Ethical Research Committee, Mosul City for granting us
the ethical approval for the study.

**Acknowledgment:** The authors wish to thank and
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us the ethical approval for the study. Finally, the study
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**References**

1. Almukhtar SH. Urinary Tract Infection Among
Women Aged (18-40) Years Old in Kirkuk City,

2. Rajaratnam A, Baby NM, Kuruvilla TS, Machado
S. Diagnosis of asymptomatic bacteriuria and
associated risk factors among pregnant women in
Mangalore, Karnataka, India. Journal of clinical and
diagnostic research: JCDR. 2014 Sep;8(9):OC23.

3. Bennett JE, Dolin R, Blaser MJ. Mandell, douglas,
and bennett’s principles and practice of infectious
diseases: 2-volume set. Elsevier Health Sciences;

Rossi A, Cricelli C, Schito GC, Nicoletti G, Caputi
AP. Antibiotic prescribing for acute and recurrent
cystitis in primary care: a 4 year descriptive study.
Journal of Antimicrobial Chemotherapy. 2006 Mar
1;57(3):551-6.

5. Litwin MS, Saigal CS, Yano EM, Avila C,
Geschwind SA, Hanley JM, Joyce GF, Madison
R, Pace J, Polich SM, Wang M. Urologic diseases
in America Project: analytical method and
principal findings. The Journal of urology. 2005


