"A study to Assess the Knowledge and Practices regarding Prevention of Urinary Tract Infection (UTI) among the students of Arya Nursing College, Changsari Kamrup (R) Assam".

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Abstract
Urinary Tract Infection (UTI) is one of the major problems in developing countries. Urinary tract infection is unique infection that can happen in any way along the urinary tract. This disease is generally relating to personal hygiene and also female are very prone to this disease. There are many myths, apprehension, misbelieves among the general population including the medical and paramedical students due to lack of knowledge and information. Moreover, there are many wrong practices that are followed to prevent the Urinary Tract Infection. A descriptive study was undertaken with the objective to assess the Knowledge and Practices regarding Prevention of Urinary Tract Infection (UTI) among the students of Arya Nursing College, Changsari, Kamrup (R), Assam". 52 participants were selected by using Non-Probability Convenience Sampling Technique. A self-administered structured questionnaire and practices checklist was developed for the purpose of the data collection. Collected data were analyzed by using descriptive and inferential statistics. The study findings revealed that the mean for knowledge score was 13.94 and for practices score was 17.25 The study concludes that majority i.e. 84.6%participants have moderate knowledge and 76.9% of the participants have average practices regarding prevention of Urinary Tract Infection (UTI). The study had several implications in various field of nursing.
Key Word: *Assess, Knowledge, Practices, Prevention, Urinary Tract Infection.*

I. Introduction

Urinary tract infection (UTI) is defined as the presence of microbial pathogens in urinary tract. The infection of the bladder and urethra are referred to as the infection of the lower urinary tract whereas the kidney and ureter infection is an indication of upper urinary tract infection. UTI can be classified as uncomplicated or complicated based on the factor that triggers the infection or primary or recurrent depending on the nature of occurrence. UTI can be asymptomatic or symptomatic, characterized by a wide spectrum of symptoms ranging from mild burning micturition to bacterial sepsis, or even death Although UTI affects both genders, women of the reproductive age group (15-45 years) are the most vulnerable, due to their anatomy and reproductive physiology. Women are particularly at risk of developing because of their short urethra, and certain behavioral factors which include delay in micturition, sexual activity and the use of contraceptives which promote colonization of the peri-urethral area with coliform bacteria. Escherichia coli is usually the most prevalent organism responsible for UTI and accounts for 80-85% of the total isolates; with staphylococcus saprophyticus being the cause in 5%-10%. Other bacterial causes of UTI include Klebsiella, Proteus, Pseudomonas, Enterococcus. Virus and parasite are not usually considered as urinary pathogens but however, virus plays a major role in the pathogenesis of hemorrhagic cystitis.

Need of the study: Urinary Tract Infection is a very common disease. There are myths, apprehension misbelieves among the general population and also medical and paramedical students. Moreover, there are many wrong practices that are followed to prevent Urinary Tract Infection. These malpractices need to be change because sometimes it rather increases the chance of infection even in normal healthy individual. It is estimated that 150 million UTI occurs yearly on a global basis, resulting in more than 6 billion dollars health care

expenditure. The prevalence of urinary tract infection globally shows 1 in 5 women develops UTI in their lifetime. The prevalence of urinary tract infection in India is higher among adolescent girls. 8% of girls are getting urinary tract infection during their adolescent period. From the review of many studies and the experience of the investigators, it is found that the incidence of urinary tract infection is high in women and are mainly due to lack of knowledge ,ignorance, false believes and poor practices regarding UTI. Proper preventive measures will help to reduce the incidence of UTI. Thus , the present study is planned to assess the knowledge and practices, regarding prevention of UTI.

Research Problem: "A study to assess the Knowledge and Practices regarding Prevention of Urinary Tract Infection (UTI) among the students of Arya Nursing College, Changsari Kamrup (R) Assam".

Objectives:
1. To assess the knowledge regarding prevention of urinary tract infection among the students of Arya Nursing College.
2. To assess the practices regarding prevention of urinary tract infection among the students of Arya Nursing College.
3. To find out the association between knowledge regarding prevention of urinary tract infection among the students of Arya Nursing College with selected demographic variables.
4. To find out the association between practices regarding prevention of urinary tract infection among the students of Arya Nursing College with selected demographic variables.

II. Materials and Methods

Research Approach: Quantitative research approach was adopted for the study.
Research Design : Non experimental descriptive research design was applied.
Study setting: Arya Nursing College, Changsari, Kamrup,(R),Assam.
Target population : 2nd year BSc Nursing students of Arya Nursing College, Changsari, Assam.
Sample Size: The sample size is 52.
Inclusive criteria:
1. Female students of B.Sc.(N)2nd year of Arya nursing college.
2. Students who are willing to participate in the study.
Exclusive criteria :
1. Male students of BSc Nursing 2nd year students of Arya Nursing College.
2. Students who are absent on the day of data collection.
Sampling Technique: Sample were selected using non- probability convenience sampling technique.

Variables :

Research Variables: Knowledge and Practices regarding prevention of Urinary Tract Infection.
Demographic variables: The demographic variables chosen for the study were age, religion, previous knowledge regarding prevention of urinary tract infection, previous episode of UTI, sources of information , place of residence , type of toilet used, type of family.
Tools for data collection: Self-administered structured questionnaires and practice checklist.
Description of the tools:
Section A- Demographic performa consist of eight variables for obtaining information are age, religion, previous knowledge regarding prevention of urinary tract infection, previous episode of UTI, sources of information , place of residence , type of toilet used, type of family.

Section B: This section consists of 24 structured knowledge questionnaires regarding prevention of urinary tract infection to assess the knowledge of the participants. Each question has four options with one correct answer, for each question the correct answer carries score 1and wrong answer carries score 0. The knowledge score are calculated by Mean+_SD, and are categorized as inadequate, moderate and adequate level of knowledge.

Section C: The practices checklist consists of 16 positive statement and 5 negative statements.
Data collection procedure : The investigators obtained a formal permission from the Principal of Arya nursing college, Changsari, Assam and the class Coordinator of 2nd year BSc Nursing.. The data collection process was done through online. Detailed explanation was given about the purpose of the study, data collection and also study benefits. For the selection of the participants as the sample for the study non-convenience sampling technique was used. Formal written consent were obtained from the participants for participating in the research

study. Data collection was done on 03.08.2021 and time given per participants was approximately 15 to 20 minutes.

Data analysis and interpretation : Analysis and interpretation of this study is based on the objectives and hypothesis of the study. Collected data were analysed using descriptive and inferential statistics like frequency table, percentage, mean, standard deviation and chi- square. The level of significance was set at 0.05 to interpret the findings.

III. Result

Section I: Descriptive analysis of demographic characteristics.

Majority 67.3% of participants belongs to the age group of 18-20 years, 61.7% of the participants belongs to Hindu religion, majority 76.9% have previous knowledge regarding prevention of urinary tract infection, 96.2% participants does not have any previous episode of UTI. Majority 57.7% of participants have got the information regarding prevention of urinary tract infection from mass media. Majority 57.7% of the participants are from rural community. Majority 36.5% of the participants used Indian toilet at their home and 80.7% of the participants belongs from nuclear family.

N=52
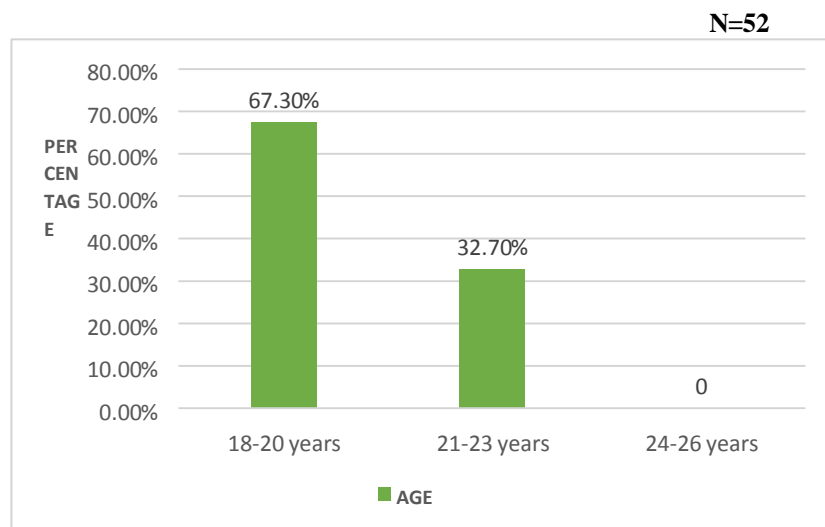
Fig 1.1: Bar diagram showing percentage distribution of participants according to their age (in years)

N=52
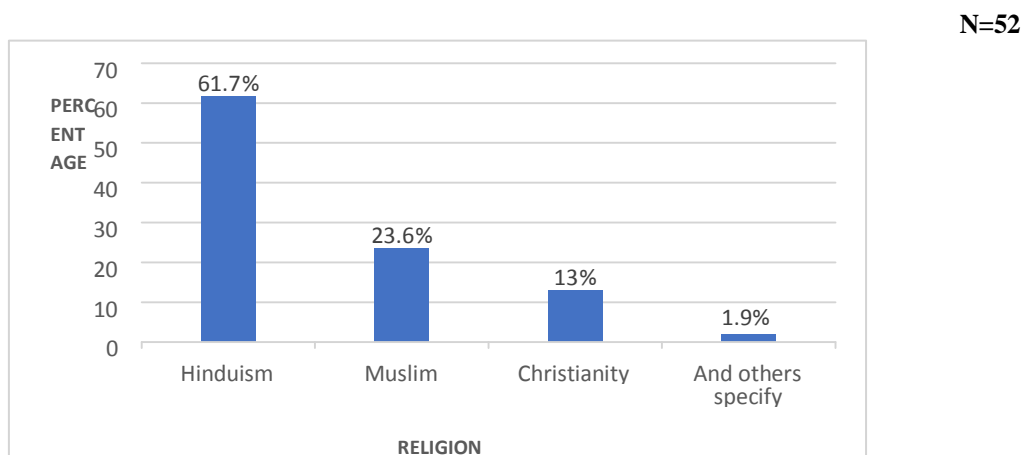
Fig1.2: Bar diagram showing percentage distribution of the participants according to religion.
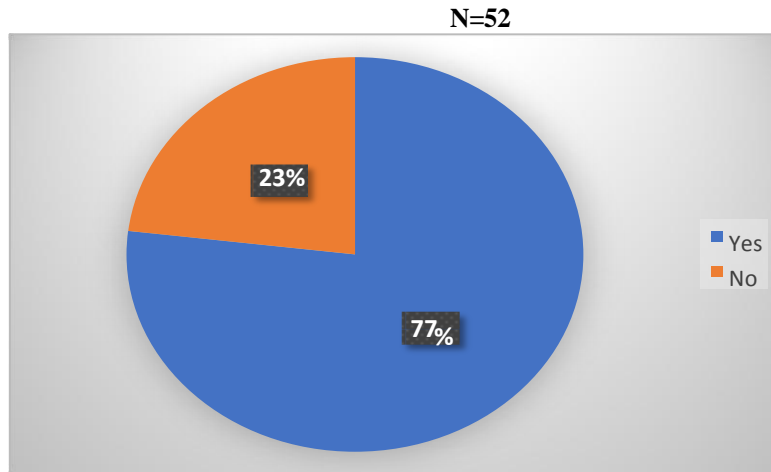
N=52

Fig 1.3: Pie diagram showing percentage distribution of the participants according to their previous knowledge regarding prevention of urinary tract infection.
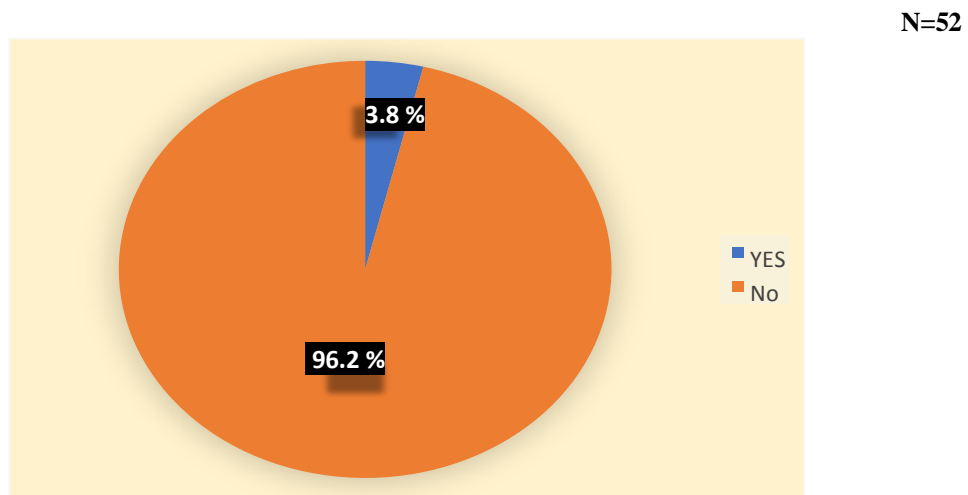
N=52

Fig1.4: Pie diagram showing percentage distribution of participants according to previous episode of UTI.
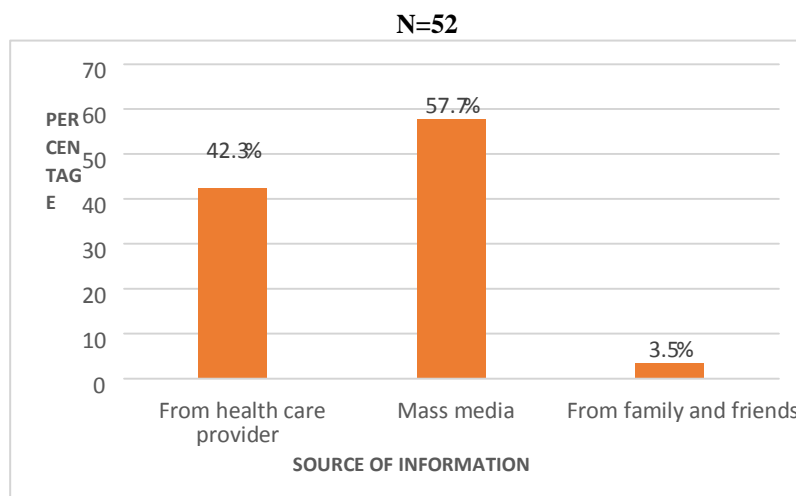
N=52

Fig 1.5: Bar diagram showing percentage distribution of the participants according to source of information.
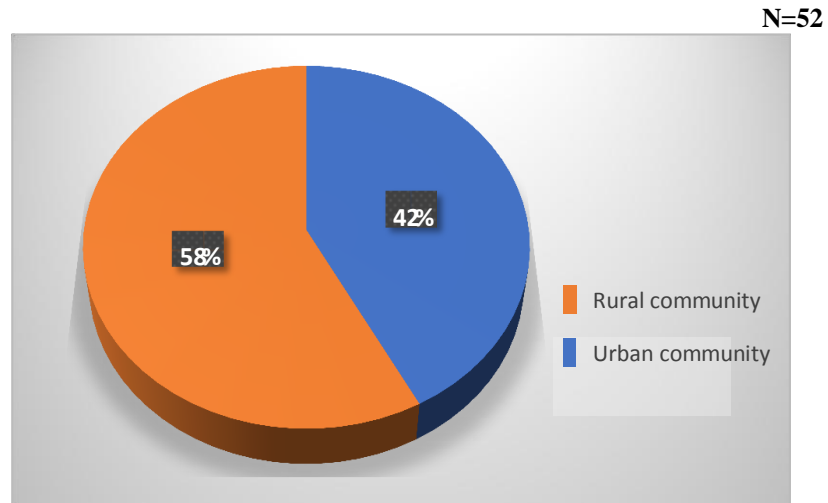
N=52

Fig 1.6: Pie diagram showing percentage distribution of participants according to place of residence.

N=52
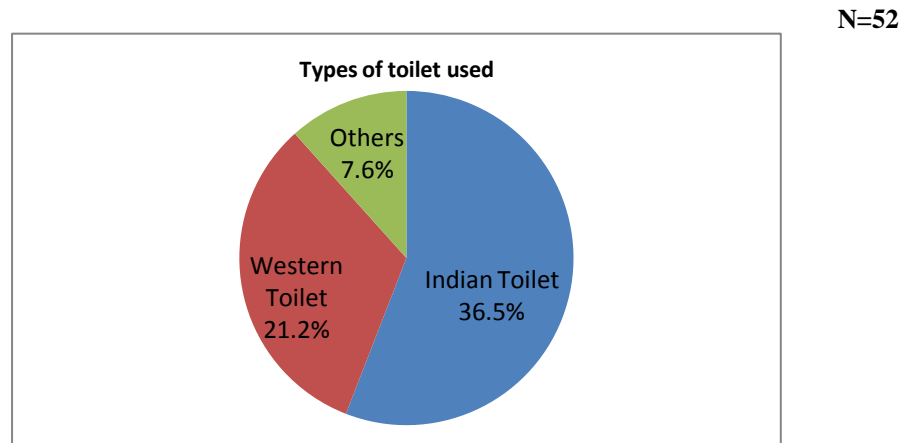
Fig1.7: Pie diagram showing percentage of participants distribution according to type of toilet used.

N=52
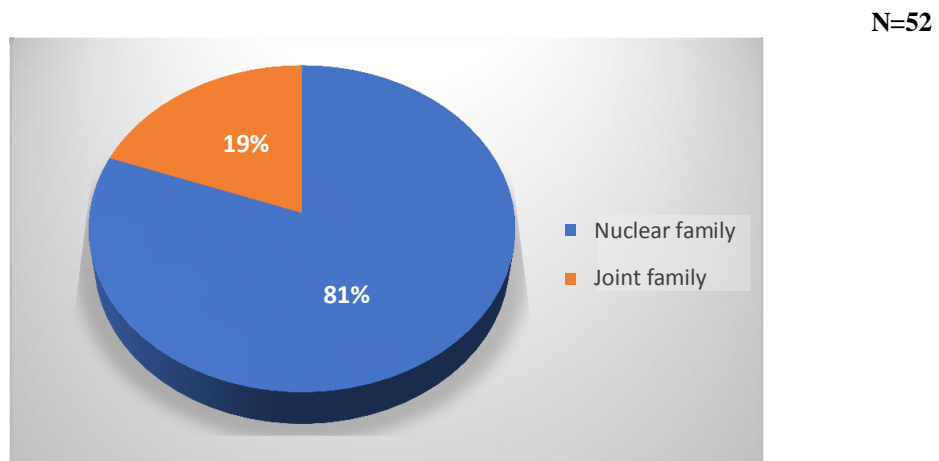
Fig1.8: Pie diagram showing frequency and percentage distribution of participants according to type of family.

Section II: Descriptive analysis of knowledge score regarding Prevention of Urinary Tract Infection.
This section presents data regarding level of knowledge on prevention of urinary tract infection of the participants. The maximum, minimum knowledge scores obtained by the participants, mean and SD. The knowledge score were calculated by mean +_ SD formula as followed;

Level of knowledge	Sore Range
Inadequate knowledge	<(Mean- SD)
Moderate knowledge	(Mean -SD)-(Mean+SD)
Adequate knowledge	>(Mean+SD)

N=52

KNOWLEDGE LEVEL	FREQUENCY	PERCENTAGE (%)
Adequate (17-24)	4	7.79%
Moderate (12-16)	44	84.6%
Inadequate (1-11)	4	7.69%
TOTAL	52	100%

Table 1: Frequency and percentage distribution of knowledge level of the participants.

Data presented in the table 1 shows that 7.79% of the participants have adequate knowledge, 84.6% participants have moderate knowledge and 7.69% participants have inadequate knowledge.

Knowledge	Mean	Standard deviation	Minimum	Maximum
	13.94	1.76	10	19

Table 2: Knowledge of participants in terms of Mean, SD, minimum and maximum score.

This shows that the mean, SD, minimum and maximum score of knowledge are 13.94, 1.76, 10 and 19 respectively.

Section III: Descriptive analysis of practices regarding prevention of Urinary Tract Infection.
This section present data regarding level of practices on prevention of Urinary Tract Infection (UTI) of the participants. The maximum, minimum practices scores obtained by the participants, mean and SD. The practices checklist consists of 21 items.

N=25

PRACTICES VALUE	FREQUENCY	PERCENTAGE
Good (20 -21)	3	5.7%
Average (16 – 19)	40	76.9%
Poor (1 -15)	9	17.3%
Total	52	100%

Table 3. Frequency and Percentage distribution of practices and score regarding Prevention of urinary tract infection.

The above data present in the table 3 shown that 5.7% of the participants had good practices, 76.9% of the participants had average, and 17.3% of the participants had poor practices.

Practices Level	Mean	SD	Minimum score	Maximum score
	17.25	1.64	14	21

Table 5: Practices of participants in terms of mean, SD, minimum and maximum score .

This table 5 shows that the mean, SD, minimum and maximum score of practices are 17.25, 1.64, 14 and 21 respectively.

Section IV: Association between knowledge regarding prevention of urinary tract infection with selected demographic characteristics.

N=52

Demographic Variables	Knowledge level			Total	Calculated Value (x^2)	Tabulated value (x^2)	Degree of freedom (df)	Remark
	Inadequate	Moderate	Adequate					
1.Age a. 18 – 20 years b. 21 – 23 years c. 24 – 26 years	2 1 0	25 20 0	3 1 0	30 22 0	0.386	9.49	4	**NS**
2. Religion a. Hinduism b. Muslim c. Christianity d. Other.	2 1 1 0	31 7 5 1	1 1 2 0	34 9 8 1	8.76	12.59	6	**NS**
3.Knowledge a. Yes. b. No	4 0	33 11	4 0	41 11	121.75	5.99	2	**S**
4. Previous episode of UTI a. Yes b. No	4 0	1 43	4 0	1 51	144.89	5.99	2	**S**
5.Sources of information From health care provider. Mass media. From friends and family.	1 3 0	20 25 0	1 2 0	22 30 0	0.77	9.49	4	**NS**
6. Place of residency. Urban. Rural.	1 3	13 31	2 2	16 36	0.78	5.99	**2**	**NS**
7. Type of toilet used Indian. Western. Other	3 0 1	29 10 5	3 1 0	35 11 6	157.03	9.49	4	**S**
8. Type of family. a. Nuclear. b. Joint.	4 0	38 6	4 0	46 6	66.86	5.99	2	**S**

S= Significant.
NS = Non-significant
Table 6: Association between knowledge regarding prevention of urinary tract infection with selected demographic characteristics.

The above table 6 reveals that there is significant association between knowledge regarding prevention of UTI and demographic characteristics knowledge with chi square value (x^2) 121.75 at df =2, previous episodes of UTI with chi square value (x^2) 144.89, at df =2 ,type of toilet used with chi square value (x^2), ,157.03 at df =4,and type of family with chi square value (x^2)66.86 at df =2 with tabulated value 5.99, 5.99, 9.49, 5.99 respectively which are found to be more than tabulated value at 0.05 level of significant. Hence the research hypothesis (H_1) could be accepted for these demographic variables.

The findings of the study reveals that there is no significant association between knowledge regarding prevention of UTI and demographic characteristics of Age with chi square value (x^2) 0.386, at df=4, religion with chi square value (x^2) 8.76 at df=6, source of information with chi square value (x^2) 0.77 at df=4, and place

of residency with chi square value(x^2)0.78 at df=2, with tabulated value 9.49, 12.59, 9.49, 5.99 respectively which is found less than tabulated value at 0.05 level of significant. Hence the research hypothesis (H_1) could not be accepted for those variables.

Section V: Association between Practices regarding prevention of Urinary Tract Infection (UTI) with selected demographic variables.

N=52

Demographic Variables	Practices Level			Total	Calculated Value (X^2)	Tabulated value (X^2)	Degree of freedom (df)	Remarks
	Good	Average	Poor					
1.Age								
a. 18 – 20 years	1	25	4	30	0.29	5.99	2	NS
b. 21 – 23 years	0	17	4	22				
c. 24 – 26 years	1	0	0	0				
2. Religion								
a. Hinduism	1	32	5	38				
b. Muslim	1	243	1	4	63.59	12.59	6	S
c. Christianity	0		3	7				
d. Other	0		0	3				
3.Knowledge								
a. Yes.	2	33	5	40	214.66	5.99	2	S
b. No	0	7	5	12				
4.Previous episodes of UTI								
a. Yes	0	0	0	0	1264.10	5.99	2	S
b. No	2	42	8	52				
5. Sources of information								
a. From health care provider.	0	20	5	25				
b. Mass media.	2	22	3	27	833.07	9.49	4	S
c. .From friends and family.	0	0	0	0				
5. Place of residency								
a. Urban.	0	16	4	20				S
b. Rural.	2	26	4	32	832.38	5.99	2	
7. Type of toilet used								
a. Indian.	0	29	6	35				
b. Western.	1	10	2	13	788.05	9.49	4	S
c. Other	1	3	0	4				
8. Type of family.								
a. Nuclear.	1	36	8	45	2.62	5.99	2	NS
b. Joint.	1	6	0	7				

S = Significant.

NS = Non-Significant.

Table 7: Association between practices regarding prevention of urinary tract infection with selected demographic characteristics.

The above table 7 reveals that there is significant association between practices regarding prevention of UTI and demographic characteristics Religion with chi square value (x^2) 63.59 at df=6, previous knowledge regarding prevention of UTI with chi square value (x^2) 214.66 at df=2, previous episodes of UTI with chi square value (x^2) 1264.10 at df=2, sources of information with chi square value (x^2) 833.07 at df=4, place of residency with chi square value (x^2) 832.38 at df=2, type of toilet used with chi square value (x^2) 788.05 at df=4 with tabulated value = 12.59, 5.99, 5.99, 9.49, 5.99, 9.49 which is found more than tabulated value at 0.05 level of significant. Hence the research hypothesis (H_1) could be accepted for these demographic variables.

The findings of the study reveals that there is no significant association between practices regarding prevention of UTI and demographic characteristics Age with chi square value(x^2) 0.29 at df=2, type of family

with chi square value(x^2) 2.62 at df=2 with tabulated value 5.99, 5.99 which is less than tabulated value at 0.05 level of significant. Hence the research hypothesis (H_1) could not be accepted for these demographic variables.

IV. Discussion
1.Findings related to demographic characteristics of the participants.
The finding of the present study shows that out of 52 participants, majority 67.3% of the participants belong to the age group of 18-20 years. In religion 61.5% belongs to Hinduism, 23.6% belong to Muslim,13% belong to Christian and 1.9% belongs to others. 40 participants (76.9%) have previous knowledge regarding prevention of Urinary Tract Infection and 12 participants (23.1%) have no knowledge. In previous episode of UTI 2 participants (3.8%) have been exposed previously whereas 50 participants (96.2%) have not been exposed. In sources of information 32 participants (42.3%) have got the information from health care provider, 30 participants (57.5%) from mass media and none of them got the information from friends and family. In place of residence 19 participants (42.3%) are from urban community and 33 participants (57.7%) are from rural community. Among 52 participants 37 of them (36.5%) are using Indian toilet, 11 participants (21.2%) are using western toilet and 4 of them (7.6%) have used other. And in type of family 42 participants (80.7%) are from nuclear family and 10 participants (19.3%) are from joint family.

The findings of the present study are similar to study done by Pascal A, Mathaw A.M. (2019) on knowledge regarding prevention of urinary tract infection among adolescent girls under 60 samples, the study revealed that majority of adolescent girls 57.6% were of age group 16 years, 29.3%participants are belonged to age group 15years. 10% of participants belonged to age group 17. (2.6%) are belonged to age group 18. In religion 55% belonged to Christian, 36.6% belonged to Hindu, 6.6% belongs to Muslim, 1.6% belonged to any other. In place of residence 73.3% were from urban community, 26.6% from rural community,

2.Findings related to knowledge score of the participants.
In the present study the knowledge score of the participants shows 4(7.69%) have adequate knowledge, 44(84.61%) participants have moderate knowledge and 4(7.69%) have inadequate knowledge regarding prevention of Urinary Tract Infection. The mean and standard deviation of the knowledge score is 13.94 and 1.76 respectively. The findings of the present study are similar to the study done by Kaur S (2016) on knowledge regarding prevalence and risk factors of urinary tract infection among the nursing students, the knowledge score of the participants showed that 4(7.4%) of participants have adequate knowledge, 45(83.3%) participants have moderate knowledge, and 5(9.3%) participants have inadequate knowledge.

3.Finding related to practices score of the participants.
In the present study the practices score shows that 3(5.7%) of participants have good practices, 40(76.9%) of participants have average practices and 9(17.3%) have poor practices regarding prevention of Urinary Tract Infection. The mean and standard deviation of practices are 17.25 and 1.646 respectively. The findings of the present study is similar to the study done by Raj A, James J (2020) on knowledge and self-reported practices regarding prevention of urinary tract infection among adolescent girls, the practice score of the participants shows that (42%) of participants have good practices, (58%) of participants have average practices and none of the participants have inadequate knowledge   **.**

4. Findings related to association between knowledge regarding prevention of urinary tract infection (UTI) with selected demographic variables.
The findings shows that there is no significant association between knowledge regarding prevention of Urinary tract infection with selected demographic variables age, religion, source of information, place of residency. There is significant relationship between knowledge and demographic variables such as knowledge, previous episode of UTI, type of toilet used, type of family The findings of the present study are similar to the study done by Jena R, Mamdal U, (2020) on Knowledge and practice of staff nursing on prevention of UTI among patients, here the findings showed that there was statistically no significant association between knowledge regarding with demographic variables namely educational status. There was significant relationship between knowledge and demographic variables such as age, gender, marital status, area of work, years of experience and history of UTI.

5.Findings related to association between practices regarding prevention of urinary tract infection (UTI) with selected demographic variables.
The findings in the present study show that there is statistically no significant association between practices regarding prevention of Urinary tract infection with selected demographic variables namely age, type of family. There is significant relationship between practices and demographic variables such as religion, knowledge previous episodes of UTI, source of information, place of residency and type of toilet used. The

findings of the present study is similar to the study done by Jena R, Mamdal U (2020) on Knowledge and practice of staff nursing on prevention of UTI among patients, here the findings showed that there was statistically no significant association between practice with demographic variables namely gender. There is significant relationship between practice and demographic variables such as age, marital status, educational status, area of work, years of experience and history of UTI.

V. Conclusion

From the findings of the present study, it was concluded that majority of the participants i.e. 44(84%) had moderate level of knowledge and 40(76.9%) of the participants had average level of practices regarding prevention of Urinary Tract Infection (UTI). The study have implications in various field of nursing. Student nurses will be able to take care of themselves to prevent from UTI, information regarding prevention of urinary tract infection can be utilized by the students in providing care and education to their clients suffering from UTI. The present study also serve as a basis for the health professionals and students to conduct further studies on different aspects of UTI with different variables on large sample in different settings.

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