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Effectiveness of Planned Teaching Program on Knowledge Regarding Prevention of Urinary Tract Infection among the Females

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Abstract: ***Background: According to World Health Organization, Urinary Tract Infections is the one of the leading cause of morbidity among females. Women are 10 to 30 times prone to develop UTI as compared to men. UTI is curable and preventable, however if left untreated it can cause serious complications such as bacteraemia and pyelonephritis. Methodology: One group pre-test post-test pre experimental study was done in a selected urban community area on 90 subjects selected by non probability consecutive sampling technique. The data collection tool assessed demographic variables and a structured self administered knowledge questionnaire was used to assess the knowledge regarding prevention of urinary tract infection among females. Descriptive and inferential statistics were used to analyze the study findings. Results: The study findings revealed that the subjects had mean posttest level of knowledge score of 16.56 ± 4.578 regarding prevention of urinary tract infection. In pretest knowledge scores, 86.7% subjects were having inadequate knowledge regarding prevention of urinary tract infection while 13.3% were having moderately adequate knowledge and none of the subjects has adequate knowldege. Whereas in posttest knowledge scores, 44.4% subjects were having inadequate knowledge, 48.9% were having moderately adequate knowledge and 6.7% of the subjects were having adequate knowldege regarding prevention of urinary tract infection. There was a statistically significant association between participants' educational status, marital status and previous history of UTI with knowledge regarding prevention of urinary tract infection. Conclusion: Every females need to be aware regarding causes, signs and symptoms and prevention of urinary tract infection. The health care personnel should emphasize on providing information regarding prevention and management of UTI to every females.***

Keywords: Knowledge, effectiveness, planned teaching program, prevention of Urinary tract infection (UTI), females, selected urban community area

1. Introduction

Urinary tract infection is a common infection affecting all age group of people. Every year 6-7 millions of girls visit physician due to Urinary tract infection[8]. According to World Health Organization, Urinary tract infection is one of the leading causes of morbidity. Generally, women are 10 to 30 times prone to develop UTI as compared to men. UTI is preventable and treatable if it is diagnosed early. But if it is delayed in detection or left untreated, it can cause many serious complications such as pyelonephritis, urosepsis[3]. Many studies have found that lack of knowledge regarding Urinary tract infection is one of the most important causes contributing to Urinary tract infection among females. The health care personnel play a vital role in reducing the incidence rate of Urinary tract infection by educating the adolescent girls regarding prevention and management of Urinary tract infection. Adequate knowledge regarding prevention of urinary tract infection play a pivotal role in adopting favorable attitude and preventive practices related to urinary tract infection[7].

Urinary tract infection (UTI) most commonly occurs in adolescent age group [19]. The prevalence of urinary tract infection globally shows 1 in 5 women develop in their lifetime. The prevalence of urinary tract infection in India is higher among adolescent girls. The overall prevalence of urinary tract infection was 33.54% of which 66.78% were females and 33.22% were from males[11]. Personal experience of the researcher and studies have revealed that the lack of knowledge related to hygienic practices are the most common cause of urinary tract infection among adolescent girls. Also, the incidence of urinary tract infection is mainly due to ignorance of reproductive health, false beliefs, misconceptions and poor practices regarding UTI[1]. Proper preventive measures can reduce the incidence of UTI. Therefore, the present study is planned to assess the knowledge and to educate the adolescent girls regarding prevention of UTI.

2. Materials and Methods

A quantitative approach with pre experimental design was used to a study to assess the effectiveness of planned teaching program on knowledge regarding prevention of urinary tract infection among females of a selected urban community area, Guwahati, Metro. The sample size calculated based on the study conducted by Arundathi,S. et. al, in the year 2014. According to this study, knowledge regarding prevention of UTI among females was 6.7%. By assuming 5% precision 95% confidence level, 90 females were included in the present study. The samples were selected by using non probability consecutive sampling technique. The females who were in the age group of 20 -50 years, could read and write Assamese and English were included for the study. The females who were not willing to participate, mentally ill and on treatment and not available during data collection time were not included for the study. The dependent variable was the level of knowledge regarding prevention of urinary tract infection among females and the independent variable was the planned teaching program regarding prevention of urinary tract infection among females.

Data Collection Method

After getting approval of respective authorities of Director of Health & Family Welfare and permission from the concerned authority, the data was collected from 4th March 2024 to 30th March 2024 from 90 female's age group of 20-50 years in Satgaon, Guwahati, Metro. The samples were selected by using non-probability consecutive sampling technique. The purpose of the study was explained to the participants and informed consent was taken from them. The investigator selected 90 females who fulfilled inclusion criteria.

On the first day, pre-test level of knowledge regarding prevention of urinary tract infection among females assessed by administering structured self-administered knowledge questionnaire followed which the planned teaching program was given for 60 minutes on day 2. In 6 days of interval, again structured self administered knowledge questionnaire was administered to assess the post-test level of knowledge on the 7th day. The entire process of data collection took 10-15 minutes for each sample.

Instruments:

The instrument used for data collection was to assess the knowledge regarding prevention of urinary tract infection questionnaire developed by the investigator. The instrument consisted of structured self administered knowledge questionnaire to assess the effectiveness of planned teaching program on knowledge regarding prevention of urinary tract infection among females. The questionnaire consisted of 30 items, in which the correct answer was given the score of '1' and '0' for wrong answer. The total score was interpreted as inadequate knowledge (<50%), moderately adequate knowledge (50-75%) and adequate knowledge (>75%).

The reliability of the structured self administered knowledge questionnaire was assessed by using test-retest reliability method. The reliability by coefficient of correlation for structured self administered knowledge questionnaire for Assamese was r=0.86, for English was r=0.82. Therefore, the tool was considered as reliable and was used in the main study.

Content validity for knowledge questionnaire along with the objectives, blue print and the criteria checklist was submitted to five nursing experts in the field of obstetrics and gynaecology. Content validity index for structured self-administered questionnaire for the assessment of knowledge was found 0.80. A language expert translated the tool into the Assamese language without any changes of the tool.

3. Data Analysis and Results

The data was collected from 90 participants who fulfilled the inclusion criteria by using non-probability consecutive sampling technique. Structured self-administered knowledge questionnaire was administered to the participants by the researcher to collect data and for the assessment of effectiveness of planned teaching program on knowledge regarding prevention of urinary tract infection among females.

Table 1: Distribution of females based on demographic variables (n=90)

Variables	Frequency (n)	Percentage (%)
Age (Years)		
20-30	37	41.1
31-40	39	43.3
41-50	14	15.6
Religion		
Hindu	41	45.5
Muslim	43	47.8
Christian	5	5.6
Others	1	1.1
Educational status		
Illiterate	9	10
Primary education	30	33.3
Secondary education	35	38.9
Graduate and above	16	17.8
Occupation		
Housewife	55	61.1
Working Woman	35	38.9
Type of family		
Nuclear family	69	76.7
Joint family	21	23.3
Marital status		
Single	27	30
Married	58	64.4
Widow	5	5.6
Previous information		
Yes	23	25.7
No	67	74.3
If Yes Specify		
Family/Friends	21	23.3
Health Care Personnel	21	23.3
Newspaper/TV/Internet	11	12.2
Others	37	41.2
Previous History of UTI		
Yes	18	20
No	72	80

Table 1. Shows the frequency and percentage distribution of demographic variables of the females. With respect to age, 39 (43.3%) of the females were in the age group of 31-40 years. 41 (45.6%) females were from Hindu religion and 35 (38.9%) of the females had secondary education. 55 (61.1%) of the females were housewife. 69 (76.7%) females were from nuclear family. 58 (64.4%) females were married. 23 (25.6%) of the females had previous information regarding UTI in which 21(23.3%) of the females received the information from family or friends, 21(23.3%) of the females received the information from health care personnel, 11(12.2%) of the females received the information from newspaper or television or internet and 37(41.1%) were from other sources. 72(80.0%) of the females did not have previous history of UTI whereas 18(20%) had previous history of UTI.

Table 2: Comparison of pre-test and post-test level of knowledge on prevention of urinary tract infection among females (n=90)

Sl no	Level of knowledge	Pre-test		Post-test	
		Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
1	Inadequate Knowledge	78	86.7	40	44.4
2	Moderately Adequate Knowledge	12	13.3	44	48.9
3	Adequate Knowledge	0	0	6	6.7

Table 2. shows that the frequency and distribution of pre-test and post-test of knowledge regarding prevention of urinary tract infection among female. Among 90 females, in pre-test 78(86.7%) of the females had inadequate knowledge, 12(13.3%) had moderately adequate knowledge; none of the females had adequate knowledge regarding urinary tract infection. In post-test, 40(44.4%) of the females had inadequate knowledge, 44(48.9%) of them had moderately adequate knowledge and 6(6.7%) females had adequate knowledge regarding prevention of urinary tract infection.

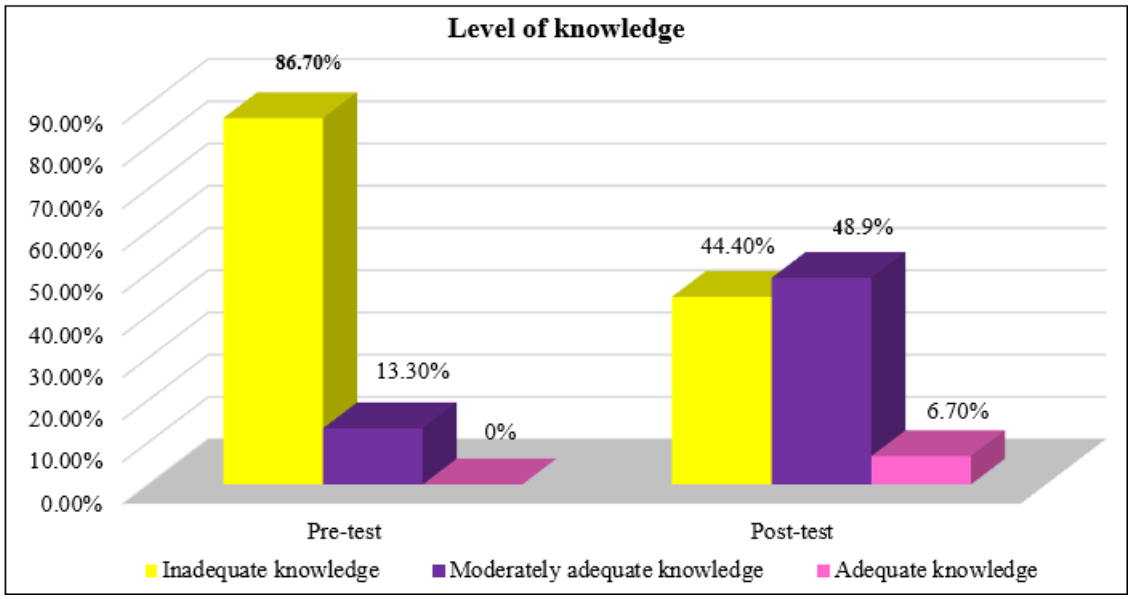

Figure 1: Percentage distribution on pre-test and post-test level of knowledge regarding prevention of Urinary Tract Infection among females

Table 3: Paired 't' test of level of knowledge regarding prevention of urinary tract infection among females between pre-test and post-test intervention (n= 90)

S No.	Level of knowledge	Mean ± SD	t-value	df	p value
1	Pre test	9.93± 4.67	17.79	89	<0.0001
2	Post test	16.46± 4.54			

Significant at *p<0.05*

Table 3. shows that the t-test showing comparison between pre-test and post-test. The Mean ± SD of pre-test knowledge score of females was 9.93± 4.67 and the Mean ± SD of post-test knowledge score of females was 16.46± 4.54. The calculated 't' value was 17.79 which was more than the tabulated value 1.66 (df 89) at p=<0.001. Hence, the research hypothesis was accepted and null hypothesis was rejected. This shows that planned teaching program was effective in improving the knowledge regarding urinary tract infection among females.

Table 4: Association between pre-test level of knowledge regarding prevention of urinary tract infection among females with their selected demographic variables (n=90)

Demographic variable	Inadequate knowledge (n=78)		Moderately adequate knowledge (n=12)		Chi square test	df	P value
	n	%	n	%			
Age							
20-30 Years	33	89.2	4	10.8	1.38	2	0.50^{NS}
31-40 Years	32	82	7	18			
41-50 Years	13	92.9	1	7.1			
Religion							
Hindu	37	90.2	4	9.8	2.41	3	0.49^{NS}
Christian	5	100	0	0			
Muslim	35	81.3	8	18.7			
Others	1	100	0	0			
Educational status							
Illiterate	4	66.7	2	33.3	5.87	3	**0.03***

Primary education	18	60	12	40			
Secondary education	28	80	7	20			
Graduate and above	14	87.5	2	12.5			
Occupation							
Housewife	37	67.3	18	32.7	1.65	1	0.54 NS
Working woman	18	51.4	17	48.6			
Type of family							
Nuclear	60	87	9	13	0.22	1	0.88 NS
Joint	18	85.7	3	14.3			
Marital status							
Single	18	66.7	9	33.3	5.32	1	**0.02***
Married	42	72.4	16	27.6			
Widow	3	60	2	40			
Previous information							
Yes	18	100	0	0	1.98	2	0.37 NS
No	65	90.3	7	9.7			
If yes, specify							
Family/ Friends	18	85.7	3	14.3	0.98	3	0.80 NS
Health Care Personnel	17	81	4	19			
Newspaper/TV/Internet	10	91	1	9			
Others	33	89.2	4	10.8			
Previous history of UTI							
Yes	13	72.2	5	27.8	4.06	1	**0.04***
No	65	90.3	7	9.7			

*p<0.05
NS-Not significant at 0.05 level of significance

Table 5 reveals that there was a statistically significant association of pre-test level of knowledge regarding prevention of urinary tract infection with the demographic variables such as education, marital status and previous history of urinary tract infection.

4. Discussion

A pre- experimental design (one group pretest posttest design) study was conducted with 90 participants selected by non-probability consecutive sampling technique. A structured self administered knowledge questionnaire was used to assess the effectiveness of planned teaching program on knowledge regarding urinary tract infection among females. The data was analyzed using descriptive and inferential statistics.

Demographic and clinical variables of the pregnant women

The demographic data of the samples in this study included age, religion, educational status, occupation, type of family, marital status, previous information of UTI and previous history of urinary tract infection. Analysis of these variables revealed that in this study, the age of the subjects ranged from 20-50years. Majority of the respondents were in the age group of 31-40years and the mean age of the female was 27±4.27 years. 47.8% belonged to Muslim religion, 38.9% of the participants had secondary education, 61.1% of the participants were housewives, 76.7% respondents were from nuclear family, 64.4% of the participants were married and 20% of the respondents have previous history of urinary tract infection. This current study also stated that 25.7% of the participants having previous information regarding urinary tract infection among that 23.3% of the participants received from family/friends, 23.3% from health care personnel, 12.2% from newspaper/TV/internet and 41.2% from other sources.

First objective of the study was to assess the knowledge regarding prevention of urinary tract infection among females

The study findings revealed that out of 90 females in pre-test 78(86.7%) of females had inadequate knowledge, 12(13.3%) had moderately adequate knowledge and none of them had adequate knowledge. In post-test, 40(44.4%) of females had inadequate knowledge, 44(48.9%) of them had moderately adequate knowledge and 6(6.7%) females had adequate knowledge.

This present study finding was supported by one study was conducted in the year 2024 has found that in pre-test knowledge scores (50%) students were having below knowledge level regarding prevention and management of urinary tract infection while (47.5%) were having average knowledge, Whereas in post-test knowledge (2.5%) students were having average knowledge regarding prevention and management of urinary tract infection, (97.5%) were having good knowledge[8].

This present study finding was contradicted by one study was conducted by in the year 2023 has found that most of them 32(80%) had moderately adequate knowledge, 5(12.5%) had adequate knowledge and 3(7.5%) had inadequate knowledge[18]. It was revealed that there was no significant association between the level of Knowledge on urinary tract infection and selected demographic variables.

Second objective of the study was to assess the effectiveness of planned teaching program on knowledge regarding prevention of urinary tract infection among females

In the present study, the mean ± SD of pre-test knowledge score of female was 9.93 ± 4.67 and the mean ± SD of post test knowledge score was 16.46 ± 4.54. The mean difference was 6.53, the calculated‘t’ value was 19.79 which was more than the tabulated value 1.66 (df 89) at p=<0.001. Hence, the

research hypothesis was accepted and null hypothesis was rejected. This showed that planned teaching program was effective in improving the knowledge regarding prevention of urinary tract infection.

This present study finding was supported by A study conducted in the year 2014 shows that subjects in the experimental group who had undergone structured teaching program statistically significant improvement in knowledge on urinary tract infection ($t = 4.973, p<0.005$), indicating that the structured teaching program was effective in improving the knowledge of adolescent girls. Another study done by in the year 2023 shows that there was a significant difference between the mean pre-test (11.90) and post-test(21.54) knowledge scores, it denotes that increase knowledge after intervention. The study concluded that the structured teaching program was effective[19].

Third Objective of the study was to determine the association between pre-test level of knowledge regarding prevention of urinary tract infection among females with their selected demographic variables

In the present study, there was a significant association of pre-test level of knowledge regarding prevention of urinary tract infection among females with their selected demographic variables such as education (p value=0.03), marital status (p value=0.02) and previous history of urinary tract infection (p value=0.04).

This present study finding was supported by one study was conducted in a tertiary care teaching hospital, Dhanmondi, Dhaka in the year 2021 that prevalence of UTI among study population was found to be 41.20%. A strong association of statistical significance was observed among marital status (p values <0.05), the level of education of the study population (p value <0.05) and the urine culture reports among UTI patients (p value 0.001)[23]. This present study finding was contradicted by another study was conducted in the year 2018 has found that pre-test level of knowledge of adolescent girls and place of residence whereas, practice and educational status of parents was significantly associated. There was no significant association between the level of knowledge on urinary tract infection and selected demographic variables[10].

5. Limitations

- The study was limited to the females residing in Bordangbori, Satgaon, Guwahati.
- The sample size was limited to 90 samples.
- The study sample was limited to the 20-50years of females.

6. Nursing Implications

The findings of the study showed that majority of the respondents had inadequate knowledge regarding prevention of urinary tract infection before implementing planned teaching program. The health care providers should emphasis more on education, counseling and awareness programs on different aspects and indicators urinary tract infection among females.

Nursing practice:

Nurses play a vital role in providing primary care for urinary tract infection and also in giving health education regarding prevention and management of urinary tract infection. The nursing personnel should emphasize on formulation and implementation of primary preventive practices of urinary tract infection. The nurse motivates the adolescent girls to utilize the health care services to improve reproductive health and to promote health behaviors or practices.

Nursing education:

Education is one of the major aspects of prevention of urinary tract infection. The focus should be to prepare the nursing students to develop the skills in identifying the symptoms and signs of urinary tract infection among adolescent girls. Nurses have to upgrade their knowledge regarding prevention of urinary tract infection by participating and listening to the various program conducted in various settings. The nursing students should be encouraged to conduct mass educational campaigns in the community as well as in every college regarding prevention of urinary tract infection. Information materials such as booklets, handouts, pamphlets and leaflets can be distributed among the adolescent girls to create awareness about prevention of urinary tract infection.

Nursing administrations:

Nursing Administration should take the leadership to conduct awareness programs on UTI to provide education to the adolescent girls such as workshop and community based programs to outreach the community. Audio Visual aids regarding prevention of urinary tract infection can be displayed in the clinical settings. In-service education and continuing education program can be conducted for the nurses on this specialization with urinary tract infection to enhance their knowledge. The nurse administration should provide necessary facilities to equip the nurses to focus on preventive, promotive and curative aspect of care regarding prevention of urinary tract infection.

7. Conclusion

The main conclusion drawn from the present study was that most of the females had inadequate level of knowledge regarding prevention of urinary tract infection. After planned teaching program, it was found that they had significantly improved in level of knowledge regarding prevention of urinary tract infection among females. Addressing misconceptions or false practices, emphasizing accurate risk factors, signs and symptoms, adopting appropriate preventive practices and promoting appropriate management strategies are essential for reducing the incidence of UTIs in the community. Developing community based campaigns and targeted educational interventions could significantly improve awareness about UTIs, ultimately leading to improved healthcare outcomes.

Conflict of Interest:

The authors have no conflicts of interest regarding this investigation.

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