**Research Article**

# A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge among Adolescent Girls Regarding Urinary Tract Infection in Selected Community Area of Sursingdhar, Tehri Garhwal, Uttarakhand

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## Abstract

**Aim:** This study aims to assess the effectiveness of structured teaching program on knowledge among adolescent girls regarding urinary tract infection (UTI) in selected community of New Tehri, Uttarakhand. **Methods:** A pre-experimental research study with one group pre- and post-test pre-experimental design was used for this study. The sample consisted of 50 adolescent girls in selected community of Sursingdhar, New Tehri. They were selected by consecutive sampling technique. The data collected through questionnaire method. **Results:** The data were analyzed by descriptive and inferential statistics. Assessment of pre-test knowledge regarding UTI shows that 44% of the respondents had good knowledge while 38% of respondents had average knowledge whereas 10% and 8% reported excellent and poor knowledge, respectively, about UTI. Assessment of post-test knowledge shows that 78% of respondents had excellent knowledge, whereas 22% had good knowledge and 0% had poor and fair knowledge regarding UTI. The mean pre-test knowledge score was 15.36 and mean percentage of pre-test was 30.72%.with standard deviation of 3.7837. The mean of post-test knowledge score was 21.88 and mean percentage of post-test was 43.76% with standard deviation of 2.191. The paired $t$-test value was used to find out effectiveness that is 20.72. The result shows that a significant difference between the mean pre-test and post-test ($P < 0.05$) structured teaching program was effective in improving the knowledge regarding UTI among adolescents girls. There is no association between sociodemographic variables with pre-test knowledge level score at 0.05 level of significance. **Conclusion:** The study highlights that students were able to gain knowledge about the UTI.

**Key words:** Adolescent, structured teaching programme, urinary tract infection

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## Introduction

Urinary tract infections (UTIs) are common infections that can affect the bladder, the kidneys, and the tubes connected to them. Anyone can get them, but they are particularly common in women. Some women experience them regularly (called recurrent UTIs). UTIs can be painful and uncomfortable, but usually pass within a few days and can be easily treated with antibiotics.[1]

A UTI can result in several clinical syndromes, including acute and chronic pyelonephritis (infection of the kidney and renal pelvis), cystitis (infection of the bladder),

urethritis (infection of the urethra), epididymitis (infection of the epididymis), and prostatitis (infection of the prostate gland). Infection may spread to surrounding tissues (e.g., perinephric abscess) or to the bloodstream. A UTI is defined by a combination of clinical features and the presence of bacteria in the urine. Asymptomatic bacteriuria is the occurrence of bacteria in the urine without causing symptoms. When symptoms occur as a result of bacteria this is referred to as symptomatic bacteriuria. The incidence of UTI is highest in young women.[2]

The most common UTIs occur mainly in women and affect the bladder and urethra. and Infection of the bladder called cystitis and infection of the urethra called urethritis. This type of UTI is usually caused by *Escherichia coli* (E. coli), a type of bacteria commonly found in the gastrointestinal tract. However, sometimes other bacteria are responsible. All women are at risk of cystitis because of their anatomy – specifically, the short distance from the urethra to the anus and the urethral opening to the bladder. This type of UTI can occur when GI bacteria spread from the anus to the urethra.[3]

The symptoms of a UTI can include A burning feeling when you pee, A frequent or intense urge to pee, even though little comes out when you do Cloudy, dark, bloody, or strange-smelling pee, feeling tired or shaky, fever or chills (a sign that the infection may have reached your kidneys), pain or pressure in your back or lower abdomen.[4]

Complications of UTI arises from untreated and poorly managed cases of UTI are at high risk of evolving into potentially life-threating inflammatory conditions (pelvic inflammatory disease) of kidney (such as pyelonephritis) ultimately leading to permanent destruction and scarring of renal system .The infection from urinary tract may as well spread to the bloodstream leading to generalized sepsis and seeding to distant vital organs like brain.[5]

UTIs are the most frequent bacterial infection in women. They occur most frequently between the ages of 16 and 35 years, with 10% of women getting an infection yearly and 60% having an infection at some point in their lives recurrences are common, with nearly half of people getting a second infection within a year.[6] UTIs occur four times more frequently in females than males so it is important to treat UTI.[7]

**Objective**

The objectives of the study were as follows:
1. To assess the pre-test level of knowledge regarding UTI among adolescent girls
2. To assess the post-test level of knowledge regarding UTI among adolescent girls
3. To evaluate the effectiveness of structured teaching program among adolescent girls regarding UTI
4. To find out association between pre-test knowledge score of adolescent girls regarding UTI and selected demographic variables.

**Hypothesis**

1. H1: There will be significant difference between pre-test and post-test knowledge among adolescent girls
2. H2: There will be significant association between levels of knowledge regarding UTI among adolescence girls with their selected demographic variables.

## Methods

Quantitative research approach, pre-experimental research approach with one group pre- and post-test experimental design was used for this study that focuses on obtain information regarding knowledge and practice related to UTI. The sample consisted 50 adolescent girls in selected community of Sursingdhar, New Tehri. They were selected by consecutive sampling technique. The tool developed for the study was questionnaire method.

**Statistics**

The data are analyzed by descriptive statistics and inferential statistic. The Chi-square test is used for statistical analysis.

## Results

**Distribution of respondents according to sociodemographic variables**

Table 1 represents the frequency and percentage distribution of adolescent girls regarding knowledge of UTI according to their age group shows that 31 (62%) girls belongs to age group of 17–18 years and 12 (24%) girls belongs to age group of 15–16 years, 7 (14%) belongs to age group of 13–14 years. The frequency and percentage distribution of adolescent girls regarding knowledge of UTI according to their religion that majority of the girls 46 (92%) were Hindu. The frequency and percentage distribution of adolescent girls regarding knowledge of UTI according to their class that majority of the girls 30 (60%) were on 12th standard. According to their Father's education shows that 1 (2%) is illiterate, 6 (12%) have primary education, 15 (30%) have secondary education, 28 (56%) are graduated and above. According to their Mother's education shows that 1 (2%) are illiterate, 11 (22%) have primary education, 20 (40%) have secondary education, 18 (36%) are graduated and above. According to family, 2 (4%) had monthly income <5000, 7 (14%) had monthly income above 5000–10000, 8 (16%) had monthly income 10000–15000, and 33 (66%) had monthly income more than 15000. Majority of the girls 42 (84%) do not have previous self-experience of UTI. Majority of the girls 33 (66%) do not have previous information about UTI. Major source of information about UTI 21 (42%) are friends and relatives.

**Distribution of respondents according to pre-test score**

Pre-test overall knowledge on UTI, mean score is 15.36 with mean percentage 30.72% with standard deviation of 3.78375 before administration of straight-through processing.

**Table 1:** Frequency, percentage, and distribution of sociodemographic variables (*n*=50)

| Sociodemographic variables | Frequency (%) |
| --- | --- |
| Age in years | |
| 13–14 | 7 (14) |
| 15–16 | 12 (24) |
| 17–18 | 31 (62) |
| Religion | |
| Hindu | 46 (92) |
| Muslim | 3 (6) |
| Sikh | 0 (0) |
| Christian | 1 (2) |
| Class | |
| 9th | 5 (10) |
| 10th | 6 (12) |
| 11th | 9 (18) |
| 12th | 30 (60) |
| Father's education | |
| Illiterate | 1 (2) |
| Primary | 6 (12) |
| Secondary | 15 (30) |
| Graduate and above | 28 (56) |
| Mother's education | |
| Illiterate | 1 (2) |
| Primary | 11 (22) |
| Secondary | 20 (40) |
| Graduate and above | 18 (36) |
| Family income | |
| <5000 | 2 (4) |
| 5000–10,000 | 7 (14) |
| 10,000–15,000 | 8 (16) |
| >15,000 | 33 (66) |
| Previous self-experience | |
| Yes | 8 (16) |
| No | 42 (84) |
| Previous information | |
| Yes | 17 (34) |
| No | 33 (66) |
| Source of information | |
| Friends/relatives | 21 (42) |
| Mass media | 13 (26) |
| Health worker | 6 (12) |
| No information | 10 (20) |

**Distribution of respondents according to post-test score**

Distribution of adolescent girls according to post-test level of knowledge regarding UTI, in post-test number of adolescent girls who have poor knowledge is 0%, girls who have fair knowledge are 0%, girls who have good knowledge are 11 (22%), and girls who have excellent knowledge are 39 (78%).

**Comparison of pre-test and post-test level of knowledge score regarding UTI**

Table 2 shows the comparison of overall knowledge of adolescence girls on UTI, the mean pre-test score is 15.36 with standard deviation 3.783, and mean post-test score is 21.88 with standard deviation 2.191. The mean difference between pre-test and post-test is 6.52. The respondents paired *t*-test calculated value is 20.72 which were more than tabulated value. It was found to be significant at $P < 0.005$ level. It was analyzed using SPSS 20.

**Association of knowledge regarding UTI with selected demographic variable among adolescents' girls**

Table 3 depicted that age, religion, class, father's education, mother's education, family income, previous self-experience of UTI, previous information of UTI, source of information, and with computed Chi-square, respectively, shows no association with pre-test knowledge level score at 0.05 level of significance. Hence, the H2 hypothesis has been rejected.

# Discussion

**The final result of study was discussed below**

Association of knowledge regarding UTI with selected demographic variables among adolescent girls of 13–18 years depicted that age, religion, class, father's education, mother's education, family income, previous self-experience of UTI, previous information of UTI, source of information, and with computed Chi-square, respectively, shows no association with pre-test knowledge level score at 0.05 level of significance. Hence, the H2 hypothesis has been rejected.

The finding of the present study shows that assessment of pre-test knowledge regarding UTI shows that 44% of the respondents had good knowledge, while 38% of respondents had average knowledge, whereas 10–8% reported excellent and poor knowledge, respectively, about UTI. Assessment of post-test knowledge shows that 78% of respondents had excellent knowledge, whereas 22% had good knowledge and 0% had poor and fair knowledge regarding UTI. The mean pre-test knowledge score was 15.36 and mean percentage of pre-test was 30.72% with standard deviation of 3.7837. The mean of post-test knowledge score was 21.88 and mean percentage of post-test was 43.76% with standard deviation of 2.191. The paired *t*-test value was used to find out effectiveness that is 20.72. The result shows a significant difference between the mean pre-test and post-test ($P < 0.05$) structured teaching program was effective in improving the knowledge regarding UTI among adolescents girls. There is no association between

**Table 2:** Comparison of pre- and post-test knowledge score of respondents (*n*=50)

| | Mean±SD | | Mean difference | *t* | *P* |
|---|---|---|---|---|---|
| | **Pre-test** | **Post-test** | | | |
| Knowledge score | 15.36±3.783 | 21.88±2.191 | 6.52 | 20.72 | 0.0001 |

SD: Standard deviation

**Table 3:** Association of knowledge regarding urinary tract infection and its prevention with selected demographic variables among respondents (*n*=50)

| Demographic variables | Knowledge | | | | $\chi^2$ | df | *P* |
|---|---|---|---|---|---|---|---|
| | **Poor** | **Average** | **Good** | **Excellent** | | | |
| Age in years | | | | | | | |
| 13–14 | 1 | 4 | 2 | 0 | | 6 | 0.709 (NS) |
| 15–16 | 1 | 5 | 4 | 2 | 3.76 | | |
| 17–18 | 2 | 10 | 16 | 3 | 0 | | |
| Religion | | | | | | | |
| Hindu | 4 | 16 | 21 | 5 | | 9 | 0.402 (NS) |
| Muslim | 0 | 2 | 1 | 0 | 9.38 | | |
| Sikh | 0 | 0 | 0 | 0 | 5 | | |
| Christian | 0 | 0 | 0 | 1 | | | |
| Class | | | | | | | |
| 9th | 0 | 3 | 2 | 0 | | 9 | 0.635 (NS) |
| 10th | 1 | 3 | 2 | 0 | 7.01 | | |
| 11th | 1 | 5 | 2 | 1 | 8 | | |
| 12th | 2 | 8 | 15 | 5 | | | |
| Father's education | | | | | | | |
| Illiterate | 0 | 1 | 0 | 0 | | 9 | 0.761 (NS) |
| Primary | 0 | 4 | 2 | 0 | 5.77 | | |
| Secondary | 1 | 5 | 8 | 1 | 9 | | |
| Graduate and above | 3 | 9 | 12 | 4 | | | |
| Mother's education | | | | | | | |
| Illiterate | 0 | 0 | 0 | 1 | | 9 | 0.089 (NS) |
| Primary | 0 | 6 | 5 | 0 | 15.0 | | |
| Secondary | 3 | 7 | 7 | 3 | 5 | | |
| Graduate and above | 1 | 6 | 10 | 1 | | | |
| Family income | | | | | | | |
| <5000 | 0 | 1 | 1 | 0 | | 9 | 0.449 (NS) |
| 5000–10,000 | 1 | 4 | 2 | 0 | | | |
| 10,000–15,000 | 1 | 2 | 5 | 0 | 8.89 | | |
| >15,000 | 2 | 12 | 14 | 5 | 9 | | |
| Previous self-experience | | | | | | | |
| Yes | 0 | 6 | 1 | 1 | 6.4 | 3 | 0.093 (NS) |
| No | 4 | 13 | 21 | 4 | | | |
| Previous information | | | | | | | |
| Yes | 2 | 11 | 14 | 6 | 3.79 | 3 | 0.284 (NS) |
| No | 2 | 7 | 8 | 0 | 3 | | |
| Source of information | | | | | | | |
| Friends/relatives | 0 | 9 | 8 | 4 | | 9 | 0.242 (NS) |
| Mass media | 3 | 3 | 6 | 1 | | | |
| Health worker | 0 | 2 | 4 | 0 | 11.5 | | |
| No information | 1 | 5 | 4 | 0 | 1 | | |

NS: Not significant

socio demographic variables with pre-test knowledge level score at 0.05 level of significance.

This result was supported a study was done by Saji *et al*. (2018) on effectiveness of structured teaching programme on UTI among adolescents girls. The total sample size was 60 students of the age group 13–19 years were selected for the study. Data were collected by structured knowledge questionnaire regarding UTI. In the result, pre-test score about 25% of sample had good knowledge, 71.6% had average knowledge, and 3.3 had poor knowledge. In post-test, 85% had good knowledge and 15% had average knowledge. There is no significant association between knowledge regarding UTI and demographic variable.[8]

A study was done by Heydari *et al*., 2016 on urinary tract infection preventive behaviors among adolescents girls. The total sample size was 168 high school female. They were selected using cluster and simple sampling method the effect of education was examined using a valid questionnaire. The intervention consisted of 6 h training class. Before the intervention in control group and intervention group had difference in total score but after the intervention the mean score in all area was significantly increased considering the positive impact of education on health behavior of adolescent the use of this method is useful to change their behavior in preventing UTI.[4]

## Conclusion

UTI is more common in women. The prevalence of asymptomatic bacteriuria has been estimated to range from 2% to 10% in various studies globally. The study highlights that students were able to gain knowledge about the UTI.

## Acknowledgment

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