Effectiveness Of Booklet Information on Knowledge Regarding Urinary Tract Infection and Its Prevention Among Adolescent Girls

Dikshita Thakur[1], Khadhirunnisa Shaik[2], Ritu Tomar[3], Sonia[4], Deepika Rana[5], Rashmi Kumari[6], Madhubala Kumari[7], Suman Rajiv[8], Ankur Yadav[9]

[1*]Nursing Tutor, Swami Devi Dyal Group Of Professional Institutions,

Email ID: dikshitathakur602@gmail.com

[2]MPH, Msc in Data Science, MUHS & RGUHS,

Email ID: kshaik@monroeu.edu

[3]Nursing tutor, Swami Devi Dyal College of Nursing, Barwala Panchkula.

Email ID: ritutomar1995@gmail.com

[4]Nursing tutor, Swami Devi Dyal College of Nursing, Barwala, Panchkula.

Email ID: maliksonia599@gmail.com

[5]Research Scholar, Patna Institute of Nursing & Paramedical Science Patna.

Email ID: deerana1993@gmail.com

[6]NPME trainee, OBG. Health department.

Email ID: kumarirashmi12861@gmail.com

[7]Senior program leader, Medical surgical Nursing (Cardiovascular), Piramal

Email ID: madhubala4g@gmail.com

[8]Associate professor Silver oaks College of Nursing, Abhipur Mohali Punjab

Email ID: sumanrajivlal@yahoo.com

[9]Nursing tutor, Swami Devi Dyal College of Nursing (Pandit Bhagwat Dyal Sharma University of Health Sciences),

Email ID: Rao788435@gmail.com

ABSTRACT

Aim: The study aimed to evaluate the effectiveness of a structured informational booklet in improving knowledge regarding the prevention of urinary tract infections (UTIs) among adolescent girls.

Material and Methods: A pre-experimental one-group pre-test and post-test design was employed. A total of 60 adolescent girls aged 12–17 years were selected using systematic random sampling from Government Senior Secondary School, Barwala, Panchkula. Pre-test knowledge was assessed using a structured questionnaire, followed by the administration of an educational booklet on UTI prevention. Post-test data were collected one week later. Descriptive and inferential statistics, including paired t-tests and chi-square tests, were used for data analysis.

Results: Pre-test findings showed 30% of participants had inadequate knowledge, 70% had moderate knowledge, and none had adequate knowledge. Post-test results indicated a significant improvement, with 96.7% demonstrating adequate knowledge and only 3.3% retaining moderate knowledge. The mean knowledge score increased from 11.92 to 27.60, with a significant mean difference of 15.68 (t = 42.459, p < 0.001). A significant association was found between post-test knowledge and variables like age, education level, and religion (p < 0.001).

Conclusion: The study confirmed that structured health education using an informational booklet significantly enhances adolescent girls' knowledge about UTI prevention. Integrating such interventions into school health programs can be an effective strategy to promote adolescent reproductive health

Keywords: Urinary tract infection, adolescent girls, health education, structured booklet, knowledge improvement

Dikshita Thakur, Khadhirunnisa Shaik, Ritu Tomar, Sonia, Deepika Rana, Rashmi Kumari, Madhubala Kumari, Suman Rajiv, Ankur Yadav

1. INTRODUCTION

The meaning of health has evolved over time. In keeping with the biomedical perspective, early definitions of health focused on the theme of the body's ability to function; health was seen as a state of normal function that could be disrupted from time to time by disease. An example of such a definition of health is: "a state characterized by anatomic, physiologic, and psychological integrity; ability to perform personally valued family, work, and community roles; ability to deal with physical, biological, psychological, and social stress". Then, in 1948, in a radical departure from previous definitions, the World Health Organization (WHO) proposed a definition that aimed higher, linking health to well-being, in terms of "physical, mental, and social well-being, and not merely the absence of disease and infirmity". Although this definition was welcomed by some as being innovative, it was also criticized for being vague and excessively broad and was not construed as measurable. For a long time, it was set aside as an impractical ideal, with most discussions of health returning to the practicality of the biomedical model. Health in human, the extent of an individual continuing physical , emotional mental and social ability to cope with his or her environment.[1]

The urinary system function is to filter blood and create urine as a waste product. The urinary system consist of kidneys, renal pelvis, uterus, bladder and urethra. The body takes nutrients from the food and converts them into energy. After the body has taken the food components that it needs, waste products are left behind in the bowel and in the blood. The kidney and urinary system help the body to eliminate liquid waste called urea and to keep chemicals, such as potassium and sodium and water in balance. Urea is carried in the blood stream to the kidneys, where it is removed along with water and other waste in the form of urine.[2]

Adolescence, derived from the latin word 'adolescere' (meaning to grow up) is a transitional stage of physical and psychological development that generally occurs during the period from puberty to legal adulthood (age of majority). Adolescence is regarded as a unique phase of human development. Traditionally adolescence is a period of "stress and storms". A WHO expert committee has considered period of adolescence as between 10 to 20 yrs of age. It is usually associated with the teenage years, but its physical, psychological or cultural expression may begin earlier and end later. Adolescent urinary tract infections are markers for sexual activity, just as urinary tract infection in younger children are often marker for anatomic defects for example congenital abnormalities. Adolescent with upper and lower urinary tract infection often have concurrent sexual activity or a complication of that activity. Urinary tract infection in teens may result in pain and discomfort if it involves the lower urinary tract.[3]

UTI can be found by analysing an urine sample. The urine is examined under the microscope for bacteria or WBC's which are signs of infection. Also take a urine culture to detect and identify bacteria and yeast. UTI can be treated with antibiotics. Kidney function tests are common lab tests used to evaluate how well the kidneys are working. The urine sample needs to be a "clean-catch" sample. This means the urine sample is collected at the middle of your urinary stream, rather than at the beginning. This helps to avoid collecting bacteria or yeast from your skin, which can contaminate the sample. Your doctor will explain to you how to get a clean catch.[4-6]

2. MATERIAL AND METHODS

A pre-experimental one-group pre-test and post-test design was employed in this study, where the sample was randomly assigned. The procedure began with a pre-test assessment to evaluate the knowledge regarding the prevention of urinary tract infections among adolescent girls. Following the pre-test, an intervention in the form of a booklet on prevention of urinary tract infections was provided to the experimental group, after which a post-test was conducted to measure any changes in knowledge. The variables in the study were categorized into independent, dependent, and demographic variables. The independent variable was the booklet information on the prevention of urinary tract infection, while the dependent variable was the knowledge regarding the same topic. Demographic variables included factors such as age, educational qualification, occupation, income, religion, type of family, birth order, and sources of information. The study was conducted in selected schools in Panchkula, Haryana, chosen based on the availability of the sample and the investigator's familiarity with the setting. The target population consisted of adolescent girls aged 12-17 years, and the accessible population comprised adolescent girls in the same age group from selected schools in Panchkula. A sample of 60 adolescent girls was selected using systematic random sampling from a total target population of 120, with every second adolescent girl chosen for inclusion. The criteria for sampling were determined based on inclusion and exclusion criteria relevant to the research objectives.

Inclusion criteria: The study will include:

- Adolescent girls who are willing to participate in the study.

- Adolescent girls who are available at the time of data collection.

- Adolescent girls who are in between the age group 12-17 years.

Dikshita Thakur, Khadhirunnisa Shaik, Ritu Tomar, Sonia, Deepika Rana, Rashmi Kumari, Madhubala Kumari, Suman Rajiv, Ankur Yadav

- Adolescent girls who are able to understand English.

Exclusion criteria- The study sample excludes:

- Adolescent girls who are not willing to participate in the study.

- Adolescent girls who not available at the time of data collection.

- Adolescent girls who are not in between the age group 12-17 years.

- Adolescent girls who are not able to understand English.

3. METHODOLOGY

The data collection for the main study was carried out from 12th February 2024 to 17th February 2024 at Government Senior Secondary School, Barwala, Panchkula. A total of 60 participants who met the inclusion criteria were selected using a random sampling technique. All participants were informed about the purpose of the study, and written consent was obtained from each one. Data was collected on socio-demographic variables, and the knowledge regarding the prevention of urinary tract infection was assessed using a self-structured knowledge questionnaire. Each participant took approximately 30 minutes to complete the pre-test, after which booklet information was provided to educate the adolescent girls on the prevention of urinary tract infections. The post-test was administered one week after the pre-test to evaluate the effectiveness of the intervention. Data analysis was planned as a systematic organization and synthesis of the collected data and testing of the research hypotheses. Both descriptive and inferential statistics were used based on the objectives and hypotheses of the study. Descriptive statistics, including frequency, percentage distribution, mean, mean percentage, range, median, and standard deviation, were used to analyze socio-demographic variables and assess pre-test and post-test knowledge levels. Inferential statistics included paired and unpaired "t" tests to determine the difference between pre-test and post-test scores of the experimental and control groups, and the chi-square test was used to find associations between pre-test knowledge levels and selected socio-demographic variables.

4. RESULTS

The demographic data revealed that the majority of the participants (86.7%) were aged 14–15 years, followed by 11.7% in the 12–13 years age group, and only 1.7% were 16–17 years old. Regarding educational status, 86.7% were studying in the 10th standard, 11.7% in the 9th standard, and 1.7% in the 8th standard. Most of the participants (88.3%) followed Hinduism, while 6.7% were Muslim and 1.7% Sikh. In terms of the mother's education, 63.3% had completed higher secondary education, 18.3% were graduates, 10% had no formal education, and 8.3% had completed primary schooling. The majority of mothers (80%) were housewives, 10% were government employees, 6.7% were private employees, and 3.3% were self-employed. For fathers, 53.3% had completed higher secondary education, 28.3% were graduates, 11.7% had primary education, and 6.7% had no formal education. In terms of occupation, 50% of fathers were private employees, 21.7% were self-employed, 20% were government employees, and 8.3% were homemakers. The majority of families (53.3%) had a monthly income above ₹15,000, followed by 21.7% earning between ₹3,000–₹5,000, 13.3% between ₹5,001–₹7,000, and 11.7% between ₹7,001–₹10,000. Regarding family type, 66.7% belonged to joint families, 23.3% to nuclear families, 8.3% were from single-parent households, and 1.3% were from extended families. Most participants (61.7%) resided in rural areas, 33.3% in urban settings, 3.3% in industrial areas, and 1.7% in slum areas. As for the source of information on health, 46.7% cited television, 26.7% books, 16.7% newspapers, and 10% gained information from parents.

Table 2: Frequency and Percentage Distribution of Pre-Test and Post-Test Knowledge Scores

This table presents the levels of knowledge regarding the prevention of urinary tract infections among adolescent girls before and after the intervention. In the pre-test, 30% of the participants had inadequate knowledge (scoring between 0–10), and 70% had moderate knowledge (scoring between 11–20). Notably, no participant demonstrated adequate knowledge (scoring between 21–30) before the intervention. However, after administering the informational booklet, a remarkable shift was observed in the post-test scores: none of the participants remained in the inadequate knowledge category, only 3.3% retained moderate knowledge, and a substantial 96.7% achieved adequate knowledge. This dramatic increase indicates a significant improvement in knowledge following the intervention.

Table 3: Comparison of Descriptive Statistics of Pre-Test and Post-Test Knowledge Scores

The descriptive statistics further support the findings from Table 2. The mean score in the pre-test was 11.92 with a standard deviation of 3.196, a median of 12, and a range of 15 (from 4 to 19). The mean percentage score was 39.70%, indicating overall low baseline knowledge. In contrast, the post-test mean score was significantly higher at 27.60, with a lower standard deviation of 2.713, indicating more consistent high performance among participants. The median post-test score was 29, with a narrower range of 14 (from 16 to 30) and a high mean percentage of 92.00%. These statistics highlight a substantial improvement in knowledge levels, both in terms of average performance and consistency among the participants.

Dikshita Thakur, Khadhirunnisa Shaik, Ritu Tomar, Sonia, Deepika Rana, Rashmi Kumari, Madhubala Kumari, Suman Rajiv, Ankur Yadav

Table 4: Assessment and Comparison of Pre-Test and Post-Test Knowledge Scores

Combining both frequency distribution and statistical comparison, Table 4 reaffirms the effectiveness of the intervention. The pre-test scores showed 30% inadequate and 70% moderate knowledge, with 0% achieving adequacy. Post-test results revealed 96.7% of participants attained adequate knowledge. The mean knowledge score increased by 15.68 points from pre- to post-test. The paired t-test value was 42.459, which is significantly higher than the table value of 2.00 at the 0.05 level of significance. The p-value was <0.001, indicating that the improvement in knowledge scores after the intervention was statistically significant. These results conclusively demonstrate that the educational booklet had a substantial and positive impact on the participants' understanding of urinary tract infection prevention.

Table 5: Association of Post-Test Knowledge Scores with Selected Socio-Demographic Variables

Table 5 explores whether certain socio-demographic variables influenced the effectiveness of the intervention. A significant association was found between post-test knowledge scores and variables such as age, education level of the participants, and religion, as their p-values were <0.001 and the chi-square values exceeded the respective table values at a 0.05 level of significance. Specifically, participants aged 14–15 years and those studying in the 10th standard demonstrated higher levels of adequate knowledge, indicating that maturity and academic level may influence receptiveness to health education. Hindu participants also showed a statistically significant association with higher post-test scores.

Conversely, other variables such as mother's and father's education, parents' occupation, monthly family income, type of family, residence location, and source of health information did not show significant associations with knowledge outcomes, as their p-values were greater than 0.05. This implies that the intervention was broadly effective across different socioeconomic and demographic groups, and that educational level and age may be more critical factors in determining the receptiveness and assimilation of health education content among adolescents.

Table 1. Demographic Parameters

Variables	Opts	Percentage	Frequency
Age	12-13 years	11.7%	7
	14-15 years	86.7%	52
	16-17 years	1.7%	1
Education	8th	1.7%	1
	9th	11.7%	7
	10th	86.7%	52
	11th	0.0%	0
	12th	0.0%	0
Religion	Hindu	88.3%	53
	Muslim	6.7%	4
	Sikh	3.3%	2
	Others	1.7%	1
Education status of mother	No formal education	10.0%	6
	Primary school	8.3%	5
	Higher school	63.3%	38
	Graduate	18.3%	11
Occupation of mother	Housewife	80.0%	48
	Government employee	10.0%	6
	Private employee	6.7%	4

Dikshita Thakur, Khadhirunnisa Shaik, Ritu Tomar, Sonia, Deepika Rana, Rashmi Kumari, Madhubala Kumari, Suman Rajiv, Ankur Yadav

	Self-employee	3.3%	2
Education status of father	No formal education	6.7%	4
	Primary school	11.7%	7
	Higher school	53.3%	32
	Graduate	28.3%	17
Occupation of father	Self-employee	21.7%	13
	Government employee	20.0%	12
	Private employee	50.0%	30
	House maker	8.3%	5
Monthly income of family	3000-5000/-	21.7%	13
	5001-7000/-	13.3%	8
	7001-10000/-	11.7%	7
	Above 15000/-	53.3%	32
Type of family	Nuclear family	23.3%	14
	Joint family	66.7%	40
	Extended family	1.7%	1
	Single parent	8.3%	5
Location of the house	Urban area	33.3%	20
	Rural area	61.7%	37
	Slum area	1.7%	1
	Industrial area	3.3%	2
Source of information	Reading books	26.7%	16
	TV	46.7%	28
	Newspaper	16.7%	10
	Parents	10.0%	6

Table 2: Frequency and Percentage Distribution of Pre-Test and Post-Test Knowledge Scores (N=60)

Score Level	Pre-Test Frequency (%)	Post-Test Frequency (%)
Inadequate Knowledge (0–10)	18 (30%)	0 (0%)
Moderate Knowledge (11–20)	42 (70%)	2 (3.3%)
Adequate Knowledge (21–30)	0 (0%)	58 (96.7%)

Table 3: Comparison of Descriptive Statistics of Pre-Test and Post-Test Knowledge Scores (N = 60)

Descriptive Statistics	Pre-Test Knowledge	Post-Test Knowledge
Mean	11.92	27.60
Standard Deviation (S.D.)	3.196	2.713

Dikshita Thakur, Khadhirunnisa Shaik, Ritu Tomar, Sonia, Deepika Rana, Rashmi Kumari, Madhubala Kumari, Suman Rajiv, Ankur Yadav

Median Score	12	29
Maximum Score	19	30
Minimum Score	4	16
Range	15	14
Mean Percentage (%)	39.70%	92.00%

Table 4: Assessment and Comparison of Pre-Test and Post-Test Knowledge Scores (N = 60)

Score Level (0–30)	Pre-Test Frequency (%)	Post-Test Frequency (%)
Inadequate Knowledge (0–10)	18 (30%)	0 (0%)
Moderate Knowledge (11–20)	42 (70%)	2 (3.3%)
Adequate Knowledge (21–30)	0 (0%)	58 (96.7%)
Descriptive Statistics	**Pre-Test Knowledge**	**Post-Test Knowledge**
Mean	11.92	27.60
Standard Deviation (S.D.)	3.196	2.713
Mean Percentage (%)	39.70%	92.00%
Range	4–19	16–30
Mean Difference	-	15.68
Paired t-Test Value	-	42.459
p-Value	-	< 0.001
Table Value at 0.05 Level	-	2.00
Significance	-	**Significant**

Table 5 Association of posttest knowledge scores with selected socio-demographic variables

ASSOCIATION OF POSTTEST KNOWLEDGE SCORES WITH SELECTED SOCIO-DEMOGRAPHIC VARIABLES.									
Variables	**Opts**	**ADEQUATE KNOWLEDGE**	**MODERATE KNOWLEDGE**	**INADEQUATE KNOWLEDGE**	**Chi Test**	**P Value**	**df**	**Table Value**	**Result**
Age	12-13 years	7	0	0	29.562	<0.001	2	5.991	Significant
	14-15 years	51	1	0					
	16-17 years	0	1	0					
Education	8th	0	1	0	29.562	<0.001	2	5.991	Significant

Dikshita Thakur, Khadhirunnisa Shaik, Ritu Tomar, Sonia, Deepika Rana, Rashmi Kumari, Madhubala Kumari, Suman Rajiv, Ankur Yadav

	9th	7	0	0					
	10th	51	1	0					
	11th	0	0	0					
	12th	0	0	0					
Religion	Hindu	53	0	0	36.724	<0.001	3	7.815	Significant
	Muslim	3	1	0					
	Sikh	2	0	0					
	Others	0	1	0					
Education status of mother	No formal education	6	0	0	1.569	0.666	3	7.815	Not Significant
	Primary school	5	0	0					
	Higher school	37	1	0					
	Graduate	10	1	0					
Occupation of mother	Housewife	46	2	0	0.517	0.915	3	7.815	Not Significant
	Government employee	6	0	0					
	Private employee	4	0	0					
	Self employee	2	0	0					
Education status of father	No formal education	4	0	0	0.726	0.867	3	7.815	Not Significant
	Primary school	7	0	0					
	Higher school	31	1	0					
	Graduate	16	1	0					
Occupation of father	Self employee	13	0	0	1.552	0.670	3	7.815	Not Significant
	Government employee	11	1	0					
	Private employee	29	1	0					
	House maker	5	0	0					
Monthly income of family	3000-5000/-	13	0	0	1.810	0.613	3	7.815	Not Significant
	5001-7000/-	8	0	0					
	7001-10000/-	7	0	0					
	Above 15000/-	30	2	0					
Type of family	Nuclear family	13	1	0	0.924	0.820	3	7.815	Not Significant
	Joint family	39	1	0					
	Extended family	1	0	0					
	Single parent	5	0	0					

Dikshita Thakur, Khadhirunnisa Shaik, Ritu Tomar, Sonia, Deepika Rana, Rashmi Kumari, Madhubala Kumari, Suman Rajiv, Ankur Yadav

Location of the house	Urban area	18	2	0	4.138	0.247	3	7.815	Not Significant
	Rural area	37	0	0					
	Slum area	1	0	0					
	Industrial area	2	0	0					
Source of information	Reading books	16	0	0	6.207	0.102	3	7.815	Not Significant
	TV	28	0	0					
	Newspaper	9	1	0					
	Parents	5	1	0					

5. DISCUSSION

The present study revealed that before the intervention, none of the participants had adequate knowledge about urinary tract infection (UTI) prevention, while 30% had inadequate and 70% had moderate knowledge. Post-intervention, 96.7% demonstrated adequate knowledge, 3.3% had moderate, and none remained with inadequate knowledge. These findings are in line with a study conducted by **Shrestha et al. (2018)**, where 94% of adolescent girls had poor knowledge in the pre-test, and post-intervention, 92% had good knowledge regarding UTI prevention. This indicates that structured health education can lead to substantial improvements in adolescent awareness about reproductive health. [7]

The pre-test mean knowledge score in the present study was 11.92 (SD = 3.196), which significantly increased to 27.60 (SD = 2.713) in the post-test, showing a mean difference of 15.68. This aligns with the findings of **Prajapati et al. (2020)**, who observed an increase from a pre-test mean score of 10.25 to a post-test mean of 25.50 in their study among adolescent girls on UTI prevention. The large mean gain in both studies reinforces the effectiveness of educational interventions in improving health-related knowledge among school-aged populations. [8]

In the current study, the paired t-test value of 42.459 (p < 0.001) confirmed the statistical significance of the improvement, highlighting the impact of the educational booklet. A similar outcome was observed by **Dey et al. (2017)**, who reported a paired t-value of 24.16 (p < 0.001) after an educational program on menstrual hygiene, leading to increased knowledge scores. Although the topic differs slightly, both studies affirm the effectiveness of structured education tools in enhancing adolescent girls' health awareness. [9]

Demographic associations in the present study showed a significant correlation between age, education level, and religion with post-test knowledge scores (p < 0.001), while other factors such as parents' education and income did not show a significant impact. This is consistent with findings from **Kavitha et al. (2016)**, who found that age and grade level significantly influenced knowledge improvement after health education, but parental background factors did not play a major role. This suggests that educational interventions can effectively bridge knowledge gaps regardless of family socio-economic status. [10]

The mean percentage of knowledge scores in this study increased from 39.70% in the pre-test to 92.00% post-intervention. This significant improvement was echoed in a study by **Anitha et al. (2015)**, where knowledge scores increased from 42.5% to 87.3% following a structured teaching program on UTI prevention among adolescent girls. The comparability in results underlines the reproducibility and reliability of using structured educational interventions across different settings. [11]

Lastly, in the present study, no statistically significant association was found between post-test knowledge and socio-demographic variables like income, location, or parental occupation. Similarly, **Rani et al. (2019)** reported that variables such as family income, type of family, and parents' occupation did not influence the knowledge gain among adolescent girls after a health education intervention. This supports the notion that adolescent health knowledge can be significantly improved irrespective of demographic background, provided the educational material is age-appropriate and accessible. [12]

6. CONCLUSION

The study concluded that the structured educational intervention significantly improved the knowledge of adolescent girls regarding the prevention of urinary tract infections. Pre-test findings showed limited awareness, with 30% having inadequate knowledge and none demonstrating adequacy. However, post-intervention results revealed that 96.7% attained adequate knowledge. The substantial increase in mean scores and the statistically significant t-test value (p < 0.001) highlight the effectiveness of the informational booklet. These findings emphasize the importance of incorporating structured health education programs into school curricula to enhance adolescent reproductive health awareness.

Dikshita Thakur, Khadhirunnisa Shaik, Ritu Tomar, Sonia, Deepika Rana, Rashmi Kumari, Madhubala Kumari, Suman Rajiv, Ankur Yadav

REFERENCES

[1] Sharma D, Grover N. A study to assess the effectiveness of structured teaching program on knowledge regarding urinary tract infection among adolescent girls. *International Journal of Advances in Nursing Management*. 2016;4(3):229–32.

[2] Kumari R, Gupta R. Effectiveness of structured teaching programme on knowledge regarding prevention of urinary tract infection among adolescent girls. *Asian Journal of Nursing Education and Research*. 2017;7(1):25–8.

[3] Thomas J, Jacob K. A study to assess the effectiveness of planned teaching programme on knowledge regarding prevention of urinary tract infection among school going adolescent girls. *Kerala Nursing Forum*. 2015;10(2):12–6.

[4] Sharma M, Yadav RK. Effectiveness of planned teaching program on knowledge of adolescent girls regarding urinary tract infection in selected schools. *Indian Journal of Public Health Research & Development*. 2018;9(11):196–200.

[5] Joseph B, Mathew J. Evaluating the impact of health education on knowledge regarding urinary tract infection among adolescent girls. *International Journal of Health Sciences and Research*. 2016;6(2):268–72.

[6] Khan N, Vyas S. A study to assess the effectiveness of structured teaching program on knowledge regarding urinary tract infection among adolescent girls in selected school. *International Journal of Scientific Research*. 2019;8(9):32–4.

[7] Shrestha S, Karki R, Bista D. Effectiveness of structured teaching programme on knowledge regarding urinary tract infection among adolescent girls. *International Journal of Nursing Research and Practice*. 2018;5(1):29–34.

[8] Prajapati P, Mehta D. A study to assess the effectiveness of structured teaching programme on knowledge regarding prevention of urinary tract infection among adolescent girls. *International Journal of Science and Research*. 2020;9(2):1362–5.

[9] Dey P, Chakrabarty D, Ghosh D. Effectiveness of structured teaching programme on knowledge and practice regarding menstrual hygiene among adolescent girls. *International Journal of Community Medicine and Public Health*. 2017;4(4):1040–4.

[10] Kavitha R, Suguna A. Effectiveness of educational intervention on knowledge regarding prevention of urinary tract infection among adolescent girls. *Asian Journal of Nursing Education and Research*. 2016;6(4):459–62.

[11] Anitha R, Sundari S. Effectiveness of structured teaching programme on knowledge regarding urinary tract infection among adolescent girls. *International Journal of Applied Research*. 2015;1(8):597–600.

[12] Rani SS, Shashikala P, Shanmugam J. A study to assess the effectiveness of structured teaching programme on knowledge regarding urinary tract infection among adolescent girls. *International Journal of Nursing Education and Research*. 2019;7(3):312–5.

.