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Effectiveness of Educational Intervention on Knowledge and Attitude Regarding Urinary Tract Infection among Adolescent Girls at Selected Schools, Puducherry

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ABSTRACT

The increasing prevalence of urinary tract infection (UTI) continues to be a serious challenge for many developing countries. During adolescence stage period, lack of adequate knowledge and practice related to maintenances of health leads to various genitourinary infections. Among adolescent girls, most often urinary tract infection is related to nascent sexual activity and more commonly in voiding or elimination syndromes. **Material and Methods:** The research approach and design selected for this study was Quantitative approach with quasi experimental research design with control. The study was conducted at selected schools in Puducherry. The study population includes all the adolescent girls who are studying in selected schools at Puducherry. The samples selected for this study consisted of Adolescent girls studying in 8thstd to 12thstd in selected Government girl's higher secondary schools at Puducherry and who fulfilled inclusion criteria and were available during data collection. Sample size was 300. (150 are experimental group and 150 in control group) The self-structured questionnaire was used which contains section A and section B. Section A includes demographic variables and knowledge. Section B includes rating scale to assess the attitude. **Result:** The result of this study revealed that there is an improvement in the level of knowledge from the pre-test mean score of knowledge 34.45± 6.005 to 89.52 ± 67 in the post test. The improvement score was 55.07 (55.1). The calculated paired 't' test value of t= 81.5 88 was found to be statistically highly significant at p<0.001 level in the experimental group. The mean attitude score was also improved from 34.45± 65 in the pre-test to 89.52 ±6.57 in the post test in the experimental as like knowledge. The mean improvement score was 55.07(55.1%). The calculated paired 't' test value was also found to be significant at p< 0.001 level. Whereas in the control group the mean improvement score was 0.08(0.1%) only and also the calculated paired't' test was not found to be statistically significant. Further, knowledge and attitude was correlated and it is found to be positive correlation in the pre-test. Whereas correlation between knowledge and attitude in the post test for experimental and control group showed there was no statistically significant difference. **Conclusion:** The results of the study concluded that the knowledge and attitude of adolescent girls could be improved by providing educational intervention.

1. INTRODUCTION

World health Organization (WHO) 2016: Identifies adolescence as a stage in human growth and development that occurs between childhood and adulthood between the age group of 10 to 19 yrs. Adolescence is also a period between childhood and manhood and womanhood. Urinary tract infection is a very serious condition in all age groups. It represents one of the dangerous transitions in the lifetime and is characterized by a tremendous pace in growth and change that is second to stage of infancy[1].

Urinary tract infection (UTI) is one of the common diseases affecting all age groups from birth to death. Acute uncomplicated UTI is more predominant among adolescent girls and is the fourth main reason for outpatient visit also among this age group. It is predicted that 150 million UTIs occur every year on a worldwide nearly more than six billion dollars are spent on direct health care[2].

Approximately 40 to 50% of women experiences UTI at least once in their lifetime, and also the results shows that there is 40% chance for recurrence of UTI [3]. Several studies have found that common factors like poor urination habits, unhygienic clothing, poor menstrual protection and diet can cause GUTI (Genitourinary tract infection) more often, but still, it is not very clear[4].

Lower urinary tract infections and its recurrence that is 50%are more common among adolescent girls than boys in the same age group, the reappearance rate is 50% greater in girls, because of shorter urethra and anatomical closeness of the urethra to rectum. Lack of adequate knowledge regarding menstrual hygiene may prejudice to urinary tract infection. Silent urinary tract infection may occur among school girls due to inadequate intake of water and irregular passage of urine[4].

Urinary tract infection is common disease affecting all age groups, from birth to old age and it is one of the major culprits to cause unpleasant consequences to all age group especially females who are at risk of acquiring UTI. Hence, education regarding prevention of UTI gains more important in the present scenario in order to understand their health status and manage themselves properly[5&6].

The more common cause for the infection is E. coli which is commonly found in unclean toilets. Normally present in the cell lining of the urinary tract contains 80-85% of E. coli[8]. Acute uncomplicated urinary tract infection is more prevalent among adolescent girls and prolong recurrent urinary tract infection can also lead to kidney failure, septicaemia bacterial endocarditis, and infertility[9].

Management of UTI in women depends on a number of factors that causes UTI. Bacteriuria is more common in women and its occurrences rate increases with advancing age. Antibiotic therapy is an important part of the therapeutic strategy for UTI, although control of predisposing factors as far as possible and prophylaxis are also necessary in order to achieve complete resolution of infection[10].

Therefore, the present study was conducted to determine the existing level of knowledge and attitude on urinary tract infections among adolescent girls, to evaluate the effectiveness of educational intervention on level of knowledge and attitude regarding urinary tract infection. to correlate the knowledge and attitude regarding UTI in experimental and control group and to associate the post-test level of knowledge and attitude regarding UTI with selected demographic variable.

2. MATERIALS AND METHODS

2.1. Study Design

The quantitative research approach adopted for this study and the quasi-experimental research design was used in this study with control group. Non probability convenient Sampling technique was selected for this study. The population includes all the adolescent girls who were studying in the selected schools Puducherry.

2.2. Study Participants

The samples selected for this study consisted of Adolescent girls studying between 8thstd to 12thstd in the selected Government girl's higher secondary schools, Puducherry who fulfilled the inclusion criteria and were available during the period of data collection**.** Sample size of this study was 300 (150 in experimental group and 150 in control group). Semi structured

questionnaire with 25 questions regarding UTI was used to assess the knowledge on UTI and five point Likert rating scale with 10 statements was used to assess the attitude.

2.3. Data Collection

The ethical approval was obtained from the concern IEC. Permission was obtained from the concerned authorities and written informed consent was obtained from all the participants prior to the data collection. The researcher explained to the subjects about the purposes of the study and also assured that confidentiality will be maintained.

The collected data was analysed by using descriptive statistics. Frequency and percentage were used for demographic and clinical variables. It was also used for assessing the level of knowledge and attitude of UTI in control group and experimental group. Inferential statistics like Mean, standard Deviation and Paired T-test were used to compare the level of knowledge and attitude before and after the intervention. Karl Pearson was used to correlate knowledge and attitude in experimental and control group. Chi-square analysis was used to assess the association between selected demographic variables and the post-test level of knowledge and attitude in the experimental and control group.

RESULTS AND DISCSSION

The analysis is a process of organizing and synthesizing the data in such a way that the research questions can be answered and the hypotheses are tested and the data was collected from 300 (Experimental Group – 150, Control Group – 150) adolescent girls to assess the effectiveness of educational intervention on knowledge and attitude regarding urinary tract infection among adolescent girls in selected schools, Puducherry. The data was organized, tabulated and analysed according to the objectives. Data analysis begins with description that applies to the study in which the data are numerically described with some concepts. Descriptive statistics allows the researcher to organize the data and to examine the quantum of information and inferential statistics is used to determine the relationship.

Description of the demographic variables of adolescent girls.

The experimental group, most of them 133(88.67%) were in the age group of 14 – 16 years, 123(82%) were Hindus, 113(75.33%) were residing in urban area, 75(50%) were studying 9th

and 11thstd respectively, 105(70%) of parents were coolie, 73(48.67%) had income of below Rs.5000, 116(77.33%) belong to nuclear family, 86(57.33%) had 4 members in the family, 135(90%) had not known already about UTI and 136(90.67%) had no source of information. Whereas in the control group, 123(82%) were in the age group of 14 – 16 years, 125(83.33%) were Hindus, 99(66%) were living in urban area, 75(50%) were studying 9th and 11thstd respectively, 87(58%) of parents were coolie, 67(44.67%) had income of below Rs.5000, 119(79.33%) belonged to nuclear family, 71(47.33%) had 4 members in the family, 135(90%) had not known already about UTI and 136(90.67%) had no source of information.

Description of level of knowledge

In the pre-test, there was only inadequate 76(50.67%) and moderately adequate knowledge 74(49.33%) for most of the adolescent girls regarding urinary tract infection. Whereas in the post test, after the administration of Educational intervention, most of them 145(96.67%) had adequate knowledge and only 5(3.33%) had moderately adequate knowledge regarding urinary tract infection.

But in the control group, There was no much difference in the level of knowledge between pre and post test scores like in the pre-test, 79(52.67%) had inadequate knowledge and 71(47.33%) had moderately adequate knowledge regarding urinary tract infection. Whereas in the post test, all most the same no of samples had inadequate knowledge 77(51.33%) and moderately adequate knowledge 73(48.67%) regarding urinary tract infection respectively and it was also found that there was no samples had adequate knowledge and it is represented in table No -1.

Inadequacy of knowledge in urinary tract infection might be due to social stigma behind these issues because people living in culturally rich country like India are still having lot of taboos and orthodox practices which restricts them to speak publically some of with their peer group. We the health professionals need to educate them the necessity of addressing these issues.

Table No. 1: Distribution of pre-test and post-test level of knowledge

N = 150

Level of knowledge	Experimental group				Control group			
	Pre test		Post test		Pre test		Post test	
	No	%	No	%	No	%	No	%
Inadequate	76	50.67	**0**	**0**	**79**	**52.67**	**77**	**51.33**
Moderately adequate	74	**49.33**	**5**	**3.33**	**71**	**47.33**	**73**	**48.67**
Adequate	**0**	**0**	**145**	**96.67**	**0**	**0**	**0**	**0**

Further, the mean and standard deviation of knowledge were seen and the present study results revealed that in the experimental group the pre-test mean score of knowledge was increased from 34.45±6.05 to 89.52±6.57 in the post test, so the mean improvement score was 55.07 i.e., 55.1%. The calculated paired 't' test value of t = 81.588 was found to be statistically significant at $p<0.001$ level and this clearly indicates that the Educational intervention regarding urinary tract infection among adolescent girls was found to be effective in increasing their level of knowledge in the post test.

Whereas, in the control group, mean score of knowledge was 35.99±7.94 in the pre-test and the post-test mean score was 36.07±7.91. The mean improvement score was 0.08 i.e., 0.1%. The calculated paired 't' test value of t = 1.867 was not found to be statistically significant and this clearly indicates that there was no statistically significant difference between the pre-test and post test level of knowledge regarding urinary tract infection among adolescent girls in the control group and it is presented in the table no 2.

These findings were consistent with a similar study conducted by **Indhumol T D. Pavithran, et.al.**(2014) on effectiveness of educational intervention on knowledge and attitude regarding urinary tract infection among adolescent girls. Subjects in the experimental group who had under gone structured teaching programs showed statistically significant improvement in knowledge on UTI ($t_{(117)=}$ 4,973$p<0.05$) indicating that the structured teaching program was effective in improving the knowledge of the adolescent girls.

And another study results (**Rakhi Gaur (2019)**) also consistent with the present study results and it is results revealed that majority of adolescent girl's mean pre-test knowledge score was 12.04±3.29 in experimental group and 11.38±3.28 in the control group respectively. The level of knowledge and prevention of UTI of subjects who were exposed to PTP was significantly better than that of the control group at 0.05 level of significance.

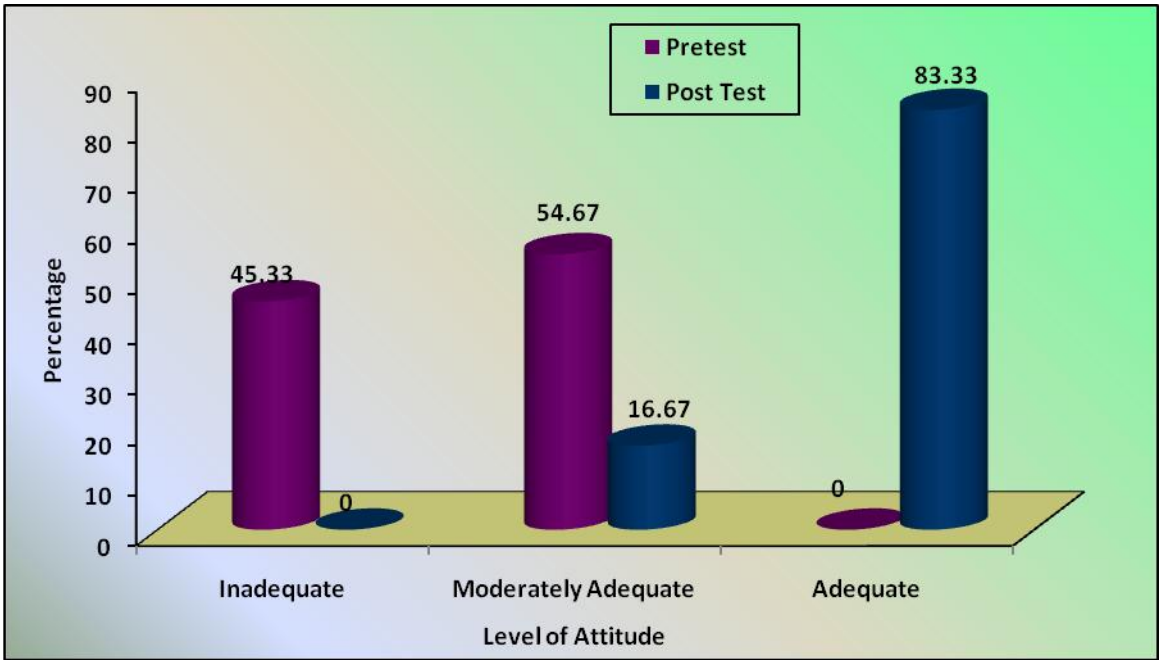
Table No. 2: Comparison of pre-test and post-test knowledge scores regarding urinary tract infection among adolescent girls in the experimental group and control group.

N=150

Group	Knowledge	Mean	S.D	Mean Improvement Score	Paired 't' Test Value
Experimental group	Pre-test	34.45	6.05	**55.07 (55.1%)**	**t = 81.588 p = 0.0001 S*** ***p<0.001, S – Significant**
	Post Test	89.52	6.57		
Control group	Pre-test	35.99	7.94	0.08 (0.1%)	t = 1.867 p = 0.064 N.S
	Post Test	36.07	7.91		

Description of level of attitude

Knowledge and attitude are the two sides of the coin. Each one is depend on another one. Hence the investigator is assessing attitude too along with knowledge.



Percentage distribution of pretest and post test level of attitude regarding urinary tract infection among adolescent girls in the experimental group

Most of the adolescent girls 82(54.67%) had neutral attitude and 68(45.33%) had unfavourable attitude regarding urinary tract infection in the pre-test. Whereas in the post test, after the administration of Educational intervention most of them 125(83.33%) had favourable attitude and 25(16.67%) had neutral attitude regarding urinary tract infection and in the control group, most of the adolescent girls 100(66.67%) had neutral attitude and 50(33.33%) had unfavourable attitude regarding urinary tract infection in the pre-test. Whereas in the post test, there was no much difference like most of them 105(70%) had neutral attitude and 45(30%) had unfavourable attitude regarding urinary tract infection and it is represented in table: 3.

Table No. 3: Distribution of pre-test and post-test level of attitude

N = 150

Level of knowledge	Experimental group				Control group			
	Pre test		Post test		Pre test		Post test	
	No	%	No	%	No	%	No	%
Unfavourable attitude	68	45.33	**0**	**0**	**0**	**0**	**0**	**0**
Neutral	**82**	**54.67**	**25**	**16.67**	**100**	**66.67**	**105**	**70**
Favourable attitude	**0**	**0**	125	83.33	50	33.33	45	30.0

Regarding level of attitude, in the experimental group, the results of present study revealed that the pre-test mean score of attitude was 27.03±9.28 and the post test mean score was 36.64±5.07. The mean improvement score was 9.61 i.e., 19.2%. The calculated paired 't' test value of t = 10.494 was found to be statistically significant at $p<0.001$ level and this clearly infers that the Educational intervention regarding urinary tract infection among adolescent girls was found to be effective in increasing their level of attitude in the post test.

Whereas in the control group, pre-test mean score of attitude was 24.97±9.71 and the post test mean score was 25.66±9.0. The mean improvement score was 0.69 i.e., 1.4%. The calculated paired 't' test value of t = 1.885 was not found to be statistically significant and this clearly indicates that there was no statistically significant difference between the pre-test and post-test level of attitude regarding urinary tract infection among adolescent girls in the control group and it is sated in the table no-4.

Table No. 4: Comparison of pre-test and post-test attitude scores regarding urinary tract infection among adolescent girls in the experimental group and control group.

N=150

Group	Attitude	Mean	S.D	Mean Improvement Score	Paired 't' Test Value
Experimental group	Pre-test	27.03	9.28	**9.61 (19.2%)**	**t = 10.494 p = 0.0001 S*** **
	Post Test	36.64	5.07		
Control group	Pre-test	24.97	9.71	0.69 (1.4%)	t = 1.885 p = 0.061 N.S
	Post Test	25.66	9.00		

Comparison of knowledge and attitude between pre-test and post-test

Regarding comparison of pre-test and post-test level of knowledge and attitude between experimental and control group. The unpaired t-test was used to compare knowledge and attitude in the pre and post-test. The calculated unpaired "t" test value of t = 63.513 was found to be statistically significant at $p<0.001$ level and the mean improvement score was 53.4. This clearly indicates that there was statistically significant difference between the post test knowledge scores regarding urinary tract infection among adolescent girls between the experimental and control group. This infers that the educational intervention on knowledge regarding urinary tract infection administered to adolescent girls in the experimental group was found to be effective in improving their post-test level of knowledge than the adolescent girls in the control group and it is shown in fig no:1 and 2.

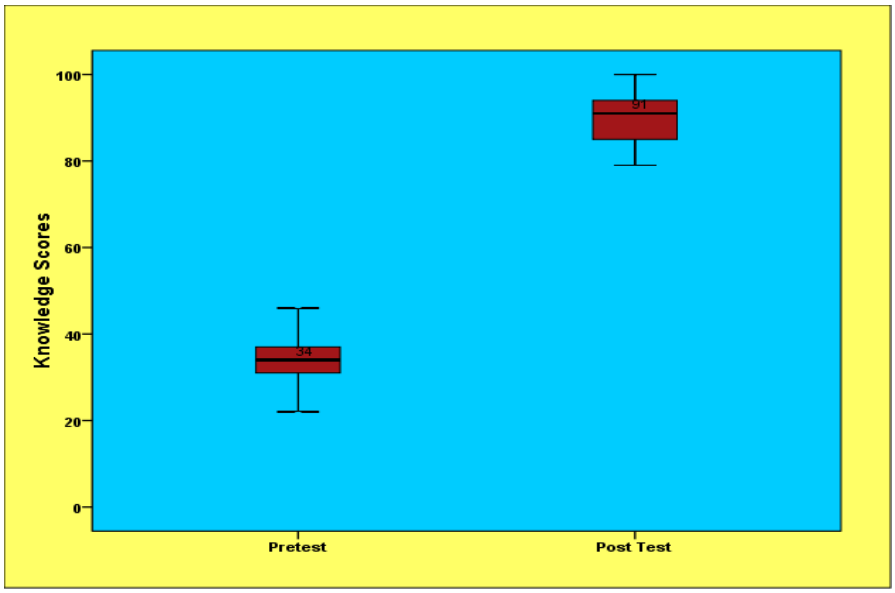


Figure No. 1: Box plot showing the comparison of pre-test and post-test knowledge scores regarding urinary tract infection among adolescent girls in the experimental group

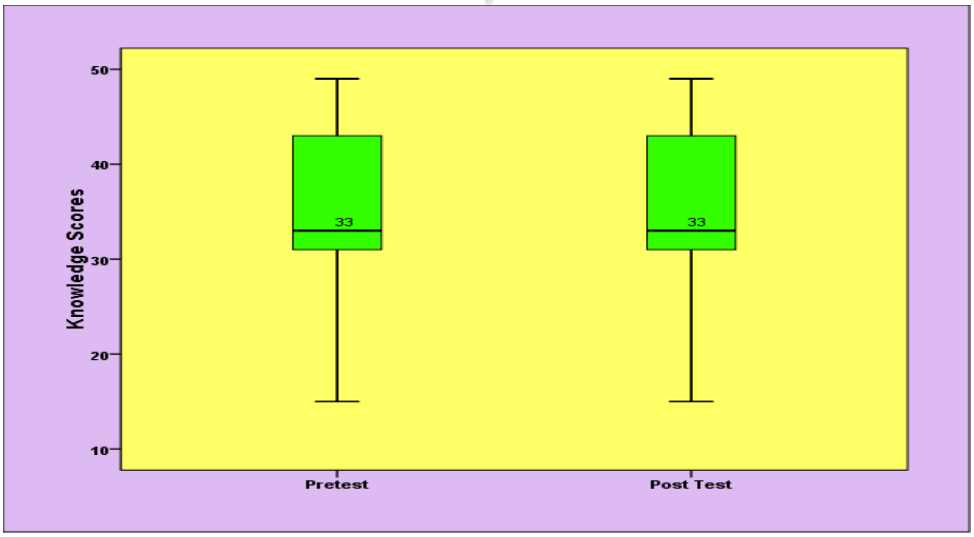


Figure No. 2: Boxplot showing the comparison of pre-test and post-test knowledge scores regarding urinary tract infection among adolescent girls in the control group

Regarding comparison of attitude in the pre and post-test experimental and control group, present results revealed that the calculated unpaired 't' test value of t = 1.879 was not found to be statistically significant which clearly indicates that there was no statistically significant difference between the pre-test attitude scores in the experimental and control group in the pre-

test, whereas in the post test the calculated unpaired 't' test value of t = 13.010 was found to be statistically significant at p<0.001 level and the mean improvement score was 10.98. This clearly indicates that there was statistically significant difference between the post test attitude scores regarding urinary tract infection among adolescent girls between the experimental and control group. This infers that the educational intervention on attitude regarding urinary tract infection administered to adolescent girls in the experimental group was found to be effective in improving their post-test level of attitude than the adolescent girls in the control group and is presented in fig no: 3 & 4.

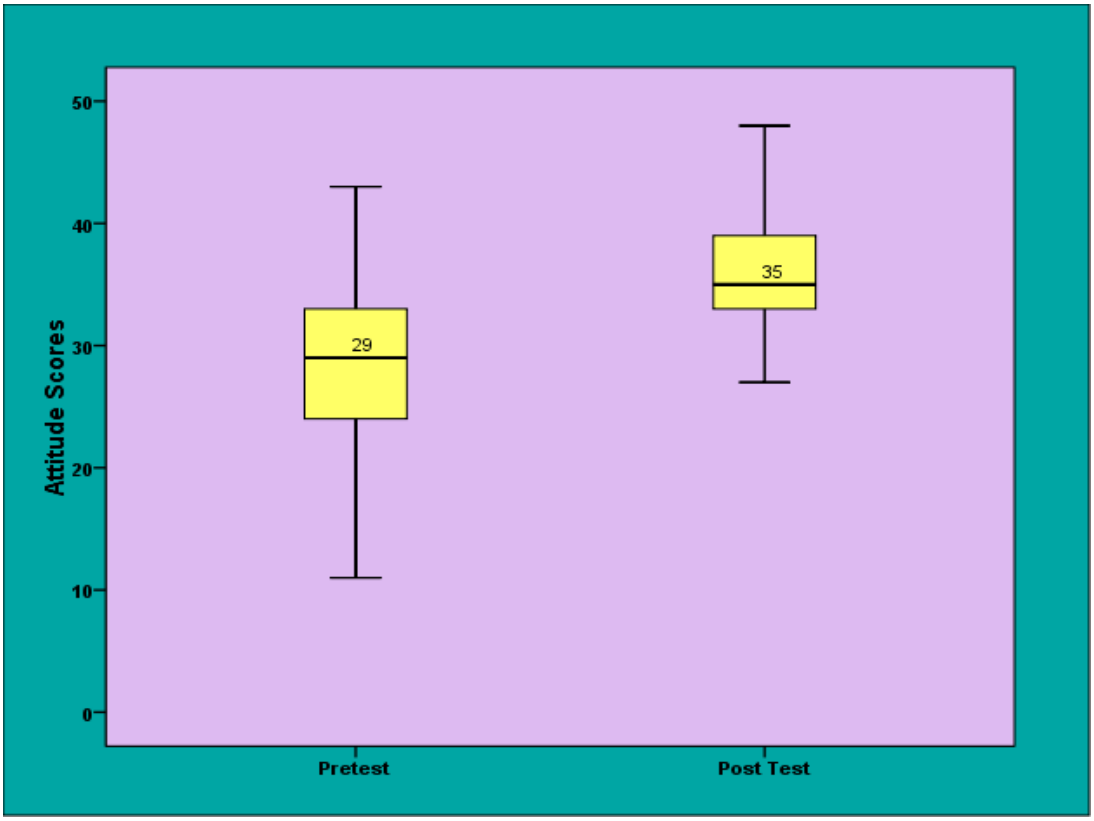


Figure No. 3: Boxplot showing the comparison of pre-test and post-test attitude scores regarding urinary tract infection among adolescent girls in the experimental group.

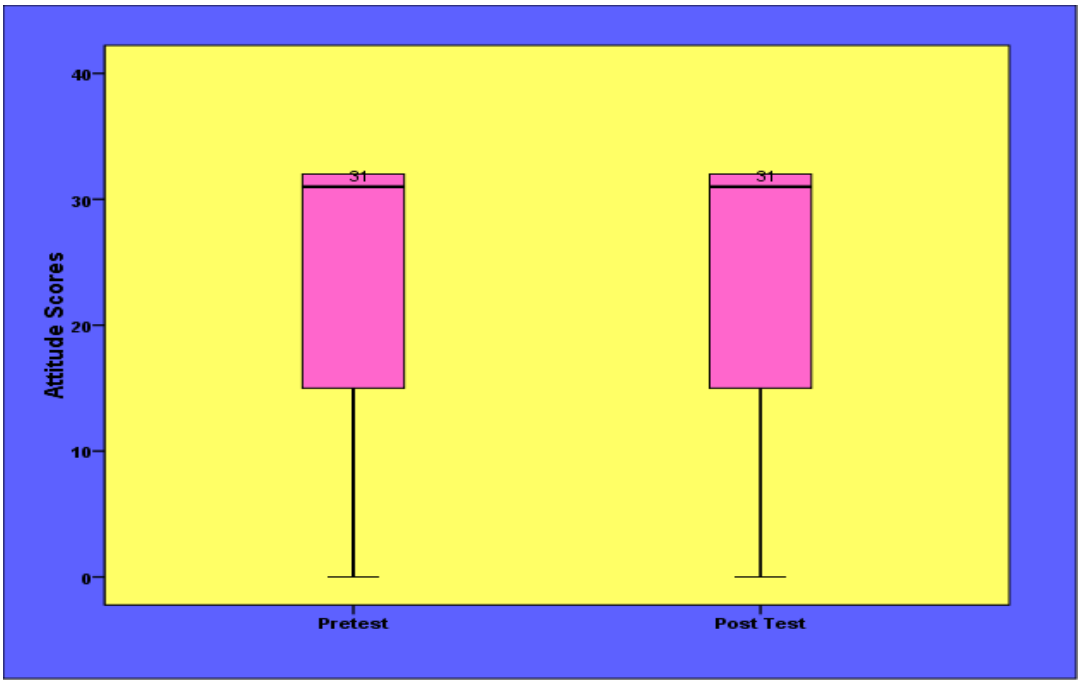


Figure No. 4: Boxplot showing the comparison of pre-test and post-test attitude scores regarding urinary tract infection among adolescent girls in the control group.

Thus, **hypothesis H_1** stated that there will be a significant difference between pre and post-test level of knowledge and attitude among adolescent girls in the experimental group is accepted.

Correlation the level of knowledge and attitude regarding urinary tract infection in experimental and control group.

The results of the present study revealed that the calculated Karl Pearson's Correlation value of r = 0.052 and r = 0.124 between pre-test knowledge and attitude scores in the experimental and control group showed that there was no statistically significant relationship between the two variables in the pre-test in both the groups and it is stated in table no-5.

But whereas, in the post test calculated Karl Pearson's Correlation value of r = 0.402 in the experimental group shows a positive correlation between post-test knowledge and attitude scores in the experimental group at $p<0.001$ level which clearly infers that when the knowledge regarding urinary tract infection among adolescent girls increases their attitude level also. Similarly, in the control group, the calculated Karl Pearson's Correlation value of and r = 0.092

between post-test knowledge and attitude scores in the control group showed a positive correlation, But which was not found to be statistically significant and it is given in table-6.

These finding were consistent with the study conducted by **Rakhi Gaur (2019)** there is positive correlation between pre-test knowledge and practice scores of adolescent girls in both groups.

Thus, **hypothesis H_2** stated that there will be significant correlation between knowledge and attitude in the post test scores of experimental and control group regarding UTI among adolescent girls is accepted.

Table No. 5: Correlation between pre-test knowledge and attitude scores regarding urinary tract infection among adolescent girls in the experimental and control group.

N = 300(150+150)

Group	Variables	Mean	S.D	Karl Pearson's 'r' Value
Experimental Group	Knowledge	34.45	6.05	r = 0.052 p = 0.524 N.S
	Attitude	27.03	9.28	
Control Group	Knowledge	35.99	7.94	r = 0.124 p = 0.131 N.S
	Attitude	24.97	9.71	

N.S – Not Significant

Table No. 6: Correlation between post-test knowledge and attitude scores regarding urinary tract infection among adolescent girls in the experimental and control group.

N = 300(150+150)

Group	Variables	Mean	S.D	Karl Pearson's 'r' Value
Experimental Group	Knowledge	89.52	6.57	**r = 0.402 p = 0.0001 S*** **
	Attitude	36.64	5.07	
Control Group	Knowledge	36.07	7.91	r = 0.092 p = 0.263 N.S
	Attitude	25.66	9.00	

***p<0.001, S – Significant, N.S – Not Significant

The investigator have come to conclusion after scrutinization many research studies done on assessment of knowledge and attitude and the outcome of study is there is a strong relationship between knowledge and attitude. Hence, the researcher also would like to conclude the same interpretation for the present study also. Though there is a relationship but is fund to be weak relationship. So it has to be analysed for the factors which are influencing the relationship in depth.

Association of post-test level of knowledge and attitude with selected demographic variables

The results of the present study revealed that the demographic variable educational status had shown statistically significant association with post-test level of knowledge regarding urinary tract infection among adolescent girls at p<0.05 level and the other demographic variables had not shown statistically significant association with post-test level of knowledge regarding urinary tract infection among adolescent girls.

The result showed that the demographic variables age and type of family had shown statistically significant association with post-test level of attitude regarding urinary tract infection among

adolescent girls at $p<0.05$ level and the other demographic variables had not shown statistically significant association with post-test level of attitude regarding urinary tract infection among adolescent girls.

The findings of this study were supported by a study conducted by **Ms. Nimmy Saji, et. al. (2018)** which showed that there was no significant association between pre-test knowledge of adolescent girls regarding prevention of UTI and selected socio demographic variables.

CONCLUSION:

The major conclusion drawn from this present study results that there was improvement in knowledge related to prevention of genitourinary tract infection and also improvement in the habitual practices among females adolescents regarding personal hygiene related to prevention of genitourinary infection.

REFERENCES

1. Heba Al-Kotb et al. (2016) A study on prevention for genitourinary tract infection among female adolescent students. (IOSR-JNHS) ww.iosrjournal.org Volume 5, Issue 4,(Jul-Aug 2016)
2. Indhumol T.D et. al. (2014) A study to assess effectiveness of structured teaching program on knowledge regarding prevention urinary tract infection among adolescent girls. Int. J. Pharm. Med. & Bio. Sc.2014(Vol, 3,No, 3 July (2014)
3. Iran Jahanbin et al. (2014) A study effect of peer-education on UTI-related prevention behaviour according to HBM among first grade high school female students. J Health Sci Surveillance sys January 2015 Vol 3, No 1 (2015)
4. Shashi Kant et al (2017) A study urinary tract infection among pregnant women at a secondary level hospital in Northern India, Indian journal public health, vol:61, Issue: 2
5. Changiri M, et al Beliefs of Female teenagers on prevention of Urinary tract infection. Journal of Biology and today's World 2014 3(10)
6. Ahn, S and K, Cho, personal hygiene practices related to Genito-urinary Tract and Menstrual Hygiene Management in Female adolescent Korean Journal of Women Health Nursing,2014, 20(3)
7. Akshaya P.L et al. (2017) A study to assess the knowledge regarding urinary tract infection among adolescent girls.[e- ISSN 2456-1630] www.joint.com J Nur Today Volume: 4 Issue:1 (2017)
8. Nimmy Saji et al.(2018) A study to assess the effectiveness of structured teaching programme on prevention of UTI among adolescent girls.www.ijshr.com Volume 3, Issue 3, July- Sept-2018.
9. Priyanka V. Shikhare et al. (2017) A study to assess the effectiveness of self Instructional Module on knowledge regarding urinary tract infection among adolescent girls.www.ijsr.net Vol 6 Issue 8, Aug (2017)
10. Shawn Dason et al (2011) Guidelines for the diagnosis and management of recurrent urinary tract infection in women

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