Effect Of Health Education on Knowledge and Practice Regarding Prevention of Urinary Tract Infection Among Women Residing in Selected Rural Regions, Maharashtra.

Ms. Ashvini Shivnarayan Vairale[1], Dr. Swati Prabhakar Gaiki[2]
[1]*MSC Nursing Final year, Dr. Panjabrao Deshmukh Nursing Institute, Shivaji Nagar,Amravati, Maharashtra.*
[2]*Associate professor cum HOD of Obstetrics and Gynaecological Nursing Department. Dr. Panjabrao Deshmukh Nursing Institute, Shivaji Nagar,Amravati, Maharashtra.*

***Abstract*—Background: Urinary tract infection are the alternate - most common infections, especially among ladies counting roughly 8.3 million sanatoriums visit every time leading to serious health issues. Bacteria present in urine are the cause for UTIs, indeed though fungi and contagion could also be involved. Among the women, who infected have been seen intermittent in a single time. Ladies are more susceptible for UTIs, although UTIs do in both manly and ladies. Urinary tract infections (UTIs) are more common in ladies than males and generally grounded on their unhealthy practices in their day to day lives.**

Objective: To assess the effect of health education on knowledge and practice regarding prevention of UTIs among women residing in selected rural regions.

Methods: A quantitative research approach, pre-experimental research design with one group pre-test and post-test was adopted. A total of 140 women, Baseline knowledge was assessed using a Structured Interview Schedule (SIS)and practice was assessed using checklist. A post-test was conducted after seven days using the same tool.

Result: The mean knowledge score increased from 9.15 ± 1.90 in the pre-test to 18.94 ± 1.76 in the post-test. The mean practice score increased from 4.71 ± 0.98 to 12.87 ± 0.96. The post-test comparison of knowledge and practice was statistically significant ($t = 35.297$, $df = 139$, $p < 0.01$). Pearson correlation showed a moderate positive correlation between pre-test and post-test knowledge scores ($r = 0.496$, $p < 0.001$), while knowledge-practice correlations were weak and non-significant. Age, marital status, occupation and monthly income were significantly associated with knowledge; monthly income was significantly associated with practice.

Conclusion: the study concluded that structured health education significantly improved the knowledge and preventive practices of women regarding urinary tract infections. Therefore, health education is an effective nursing intervention.

***Index Terms*—Health education, women, knowledge, practice, urinary tract infection, rural regions.**

I. INTRODUCTION

The presence of microbial pathogens in the urinary tract is known as a urinary tract infection (UTI). [1,2] While kidney and ureter infections are indicative of upper urinary tract infections, bladder and urethral infections are referred to as lower urinary tract infections.[3] UTIs can be either asymptomatic or symptomatic, with a wide range of symptoms from mild burning micturition to bacteremia, sepsis, or even death.[4] They can also be categorized as primary or recurrent, depending on the nature of occurrence, or as uncomplicated or complicated, depending on the factor that causes the infection. Despite the fact that UTIs can affect both sexes, women in the reproductive age range of 15–44 years are particularly susceptible, possibly as a result of their anatomy and reproductive physiology. [5]

Due to their narrow urethra and certain behavioral factors, such as delayed micturition, sexual activity, and the use of contraceptives, which encourage coliform bacteria to colonize the periurethral area, women are especially susceptible to UTIs. [6] With an incidence of roughly 1% among schoolgirls and 4% among women in their childbearing years, they are especially prevalent among women. Infection rates in females rise in direct proportion to sexual activity and childbearing. According to research,

approximately 25–30% of women in the 20–40 age range will acquire a UTI. [7]

II. OBJECTIVE

Primary objective: To assess the effect of health education on knowledge and practice regarding prevention of UTIs among women residing in selected rural regions.

III. METHODS

Study design and Setting: pre-experimental research design with one group pre-test and post-test with randomized shall be used to collect data before and after on health education on prevention of UTIs among women. A study at selected rural regions, Maharashtra.

INCLUSION CRITERIA

1. Women from selected rural area.
2. Women are able to read and write English and Marathi.
3. Women who are willing to participate in the study.

EXCLUSIVE CRITERIA

1. Women who are not present during the time of study.
2. Women who are not interested to participate in the study.
3. Who are suffering from any illness.

Research approach and design: A quantitative approach and pre-experimental one-group pre-test and post-test design were used. The study design was represented as O1 X O2, where O1 was the pre-test, X was the structured health education intervention and O2 was the post-test.

Setting and sample: The study was conducted among women residing in selected rural regions of Maharashtra. A total of 140 women were selected using purposive sampling. The study included women aged 18 years and above who were available and willing to participate.

Intervention: The structured health education covered the urinary system and UTI, definition, causes and influencing factors, signs and symptoms, diagnostic evaluation, management and preventive measures. The health education intervention lasted approximately 40–45 minutes.

Data collection: Pre-test knowledge and practice were assessed before the intervention. The health education programme was then administered. After seven days, the same knowledge questionnaire and practice checklist were used for post-test assessment.

Data analysis: Frequency, percentage, mean and standard deviation were used for descriptive analysis. Paired t-test and correlation analysis were used for inferential analysis, and chi-square test was used to assess associations with demographic variables. A p-value below 0.05 was considered statistically significant.

IV. RESULT

Demographic Profile:Most participants were in the age38-47year(35.7%),Educational status(42.1%), Religion(61.4%), Marital status - married(70%),Occupation-housewife(51.4), Monthly income(30%).

Knowledge Scores (Pre-test and Post-test)

The pre-test knowledge assessment showed that women had inadequate knowledge, with mean score:9.15 ± 1.90

In contrast, post-test knowledge scores showed significant improvement after health education, with mean score:18.93 ± 1.75

Practice Scores (Pre-test and Post-test)

The pre-test practice assessment revealed poor preventive practices, with mean score:
4.71 ± 0.97

After intervention, post-test practice scores improved considerably, with mean score:
12.87 ± 0.95

Graphical Representation:

Table describes the comparison of knowledge scores among 140 participants before and after the intervention. In the pre-test (Know Pre) assessment, the knowledge scores ranged from a minimum of 5.00 to a maximum of 15.00, with a mean score of 9.1500 and a standard deviation of 1.90390. In the post-test (Know Post) assessment, the scores improved, ranging from 15.00 to 24.00, with a higher mean score of 18.9357 and a standard deviation of 1.75561. Overall, the table indicates a substantial increase in knowledge levels after the intervention among the participants.

Table 2.1: Comparison of Pre-test and Post-test Knowledge Scores Among Participants (N = 140)

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	N	Minimum	Maximum	Mean	Std. Deviation
Knowledge Pre	140	5.00	15.00	9.1500	1.90390
Knowledge Post	140	15.00	24.00	18.9357	1.75561

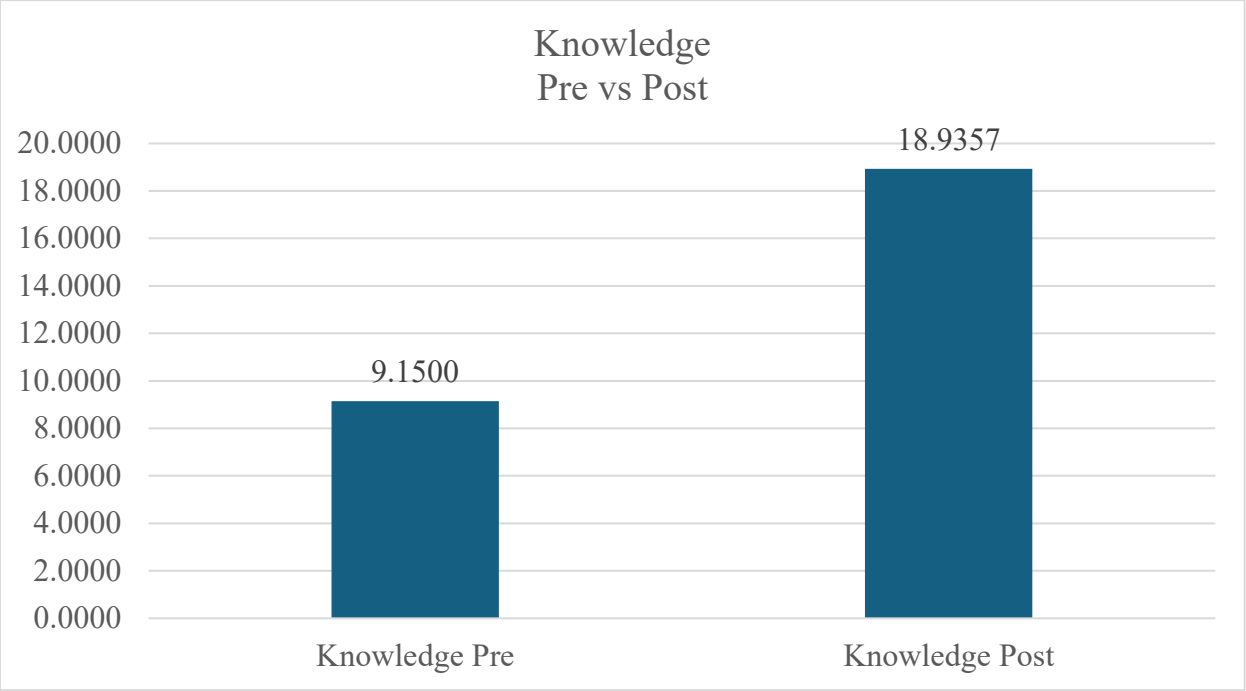

Figure 2.1: Mean Pre-test and Post-test Knowledge Score Comparison

Table presents the comparison of practice scores among 140 participants before and after the intervention. In the pre-test (Practice Pre) assessment, practice scores ranged from a minimum of 2.00 to a maximum of 6.00, with a mean score of 4.7143 and a standard deviation of 0.97660. In the post-test (Practice Post) assessment, the scores showed marked improvement, ranging from 11.00 to 14.00, with a higher mean score of 12.8714 and a standard deviation of 0.95844. Overall, the table indicates a significant enhancement in practice levels following the intervention among the participants.

Table 2.2: Comparison of Pre-test and Post-test Practice Scores Among Participants (N = 140)

	N	Minimum	Maximum	Mean	Std. Deviation
Practice Pre	140	2.00	6.00	4.7143	0.97660
Practice Post	140	11.00	14.00	12.8714	0.95844

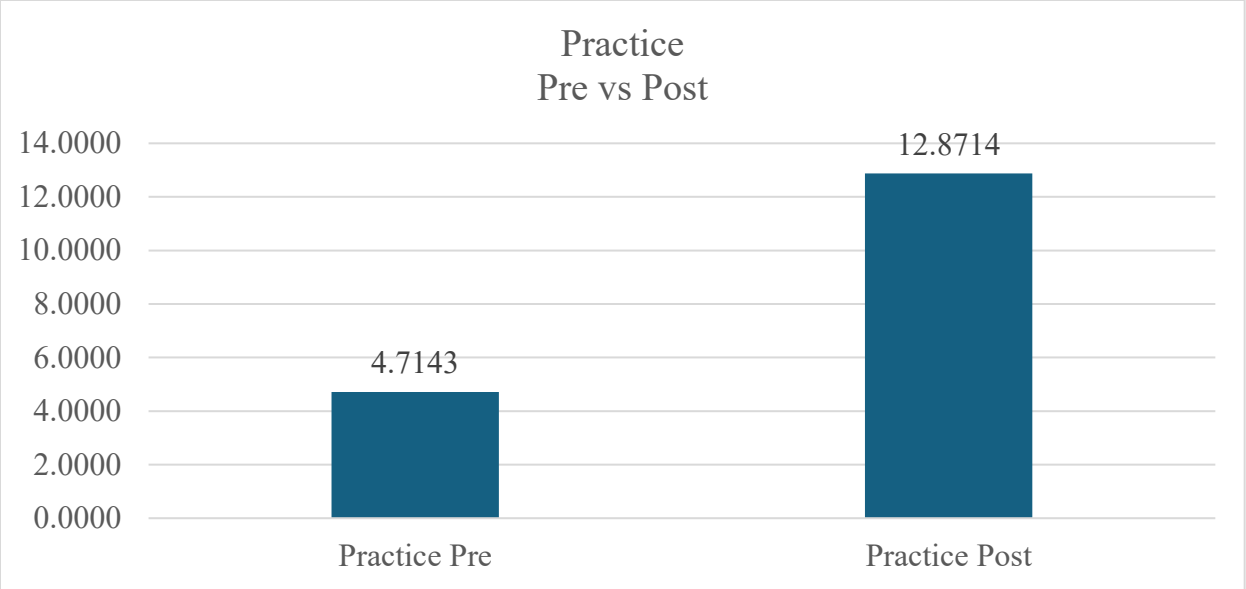

Figure 2.2: Mean Pre-test and Post-test Practice Score Comparison

Table depicts the association between knowledge levels and selected demographic variables using the Chi-square test. A statistically significant association was observed between age and knowledge ($\chi^2 = 9.575$, $p = 0.023$, $df = 3$), as the calculated value exceeded the table value of 7.815 at the <0.05 level. In contrast, education showed no significant association with knowledge ($\chi^2 = 8.644$, $p = 0.071$, $df = 4$), since the p-value was greater than 0.05 and the calculated value was less than the table value of 9.488. Similarly, religion was not significantly associated with knowledge ($\chi^2 = 3.151$, $p = 0.207$, $df = 2$), as it did not exceed the table value of 5.991. However, a highly significant relationship was found between marital status and knowledge ($\chi^2 = 15.806$, $p = 0.001$, $df = 3$), indicating strong demographic influence. Significant associations were also noted for occupation ($\chi^2 = 9.655$, $p = 0.022$, $df = 3$) and monthly income ($\chi^2 = 11.522$, $p = 0.009$, $df = 3$), both showing p-values <0.05 and calculated values greater than the table value of 7.815. Overall, the findings suggest that age, marital status, occupation, and monthly income significantly influenced participants' knowledge levels, whereas education and religion did not show a significant association.

Table 5.1: Association Between Knowledge Category and Demographic Variables Using Chi-square Test (N = 140)

Knowledge Category vs Demographic Variable	χ^2 value	P-value	df	Table Value	Level of Significance	Significance
Age	9.575	0.023	3	7.815	<0.05	Significant
Education	8.644	0.071	4	9.488	>0.05	Non-Significant
Religion	3.151	0.207	2	5.991	>0.05	Non-Significant
Marital Status	15.806	0.001	3	7.815	<0.05	Significant
Occupation	9.655	0.022	3	7.815	<0.05	Significant
Monthly Income	11.522	0.009	3	7.815	<0.05	Significant

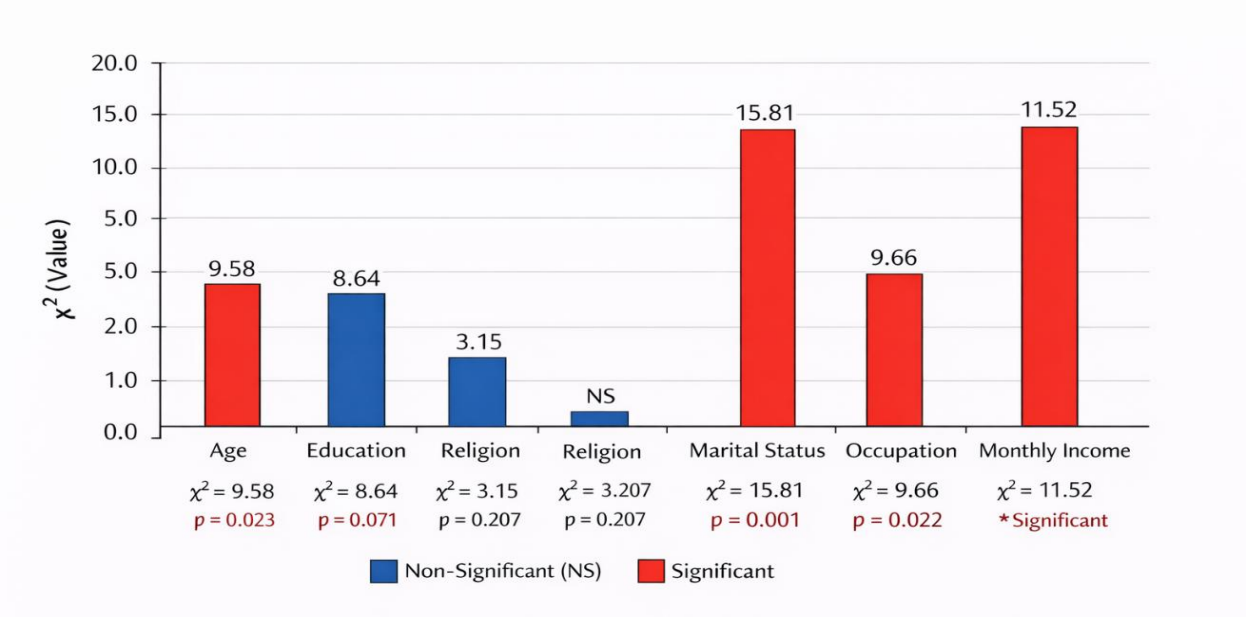

Figure 5.1: Bar Diagram Showing Association of Knowledge Levels with Demographic Variables

Table shows the association between practice category and selected demographic variables using the Chi-square test. The findings indicate that age was not significantly associated with practice levels ($\chi^2 = 0.83$, $p = 0.842$, $df = 3$), as the calculated value was much lower than the table value of 7.815 and the p-value was greater than 0.05. Similarly, education showed no significant association ($\chi^2 = 0.493$, $p = 0.974$, $df = 4$), with the calculated value being less than the table value of 9.488. Religion also did not have a significant relationship with practice ($\chi^2 = 0.035$, $p = 0.982$, $df = 2$), as it was below the table value of 5.991. In addition, marital status ($\chi^2 = 2.148$, $p = 0.542$, $df = 3$) and occupation ($\chi^2 = 1.066$, $p = 0.785$, $df = 3$) were found to be non-significant factors influencing practice levels. However, a statistically significant association was observed between monthly income and practice category ($\chi^2 = 10.365$, $p = 0.016$, $df = 3$), since the calculated value exceeded the table value of 7.815 and the p-value was less than 0.05. Overall, the results suggest that participants' practice levels were not influenced by age, education, religion, marital status, or occupation, whereas monthly income showed a significant impact on practice category.

Table 5.2: Association Between Practice Category and Demographic Variables Using Chi-square Test (N = 140)

Practice Category vs Demographic Variable	Calculated Value (χ^2)	p-value	df	Table Value	Level of Significance	Significance
Age	0.83	0.842	3	7.815	>0.05	Non-Significant
Education	0.493	0.974	4	9.488	>0.05	Non-Significant
Religion	0.035	0.982	2	5.991	>0.05	Non-Significant
Marital Status	2.148	0.542	3	7.815	>0.05	Non-Significant
Occupation	1.066	0.785	3	7.815	>0.05	Non-Significant

Monthly Income	10.365	0.016*	3	7.815	<0.05	Significant

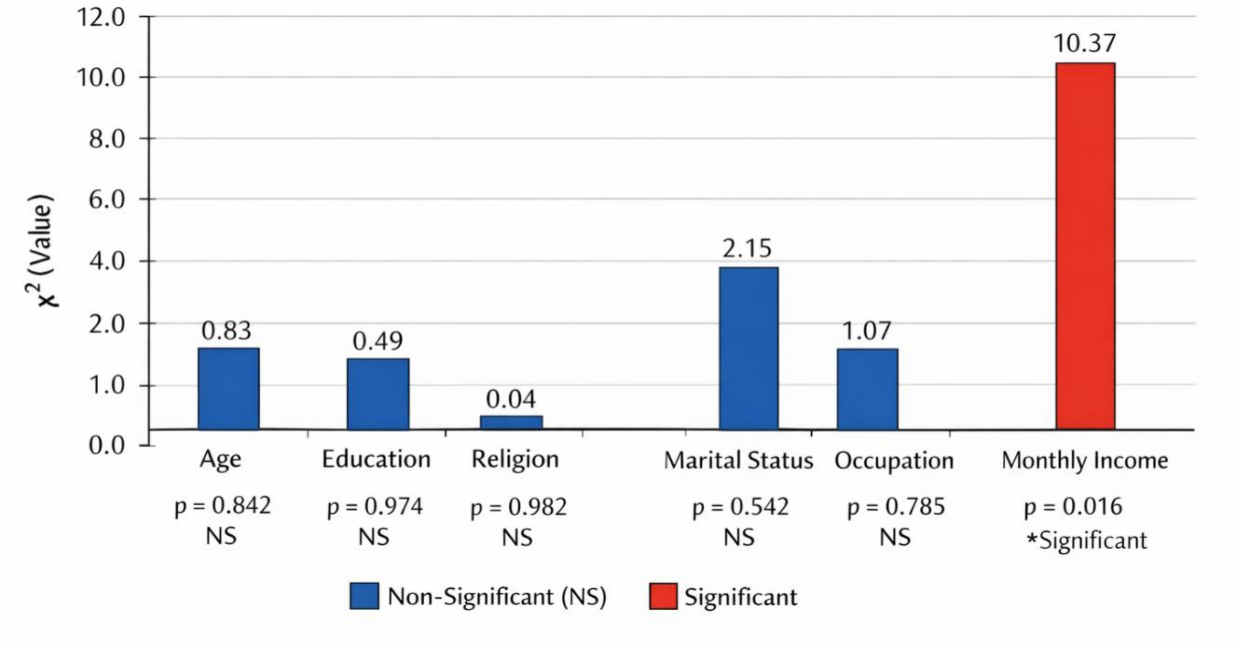

Figure 5.2: Bar Diagram Showing Association of Practice Levels with Demographic Variables

V. DISCUSSION

This study possesses several strengths, including its comprehensive analysis of behavioral and clinical risk factors for UTIs, the use of appropriate statistical tests, and an adequate sample size. Inclusion of comparisons with other studies also increases the validity of the findings. There are some drawbacks, however. Cross-sectional design excludes making inferences about causality, and reliance on self-reports may be susceptible to recall or reporting bias. Also, since the research was conducted in a special geographic location, the results cannot be fully generalized to other populations.

VI. CONCLUSION

The study concluded that women had inadequate baseline knowledge and practice regarding prevention of urinary tract infection. Following structured health education, there was a statistically significant improvement in knowledge and preventive practice. Health education is therefore an effective, simple and cost-effective nursing intervention that can be incorporated into community health nursing services to promote preventive health behaviour and early recognition of UTI.

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