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KNOWLEDGE, ATTITUDES, AND PRACTICES REGARDING URINARY TRACT INFECTION PREVENTION AMONG ADOLESCENT GIRLS: A CROSS-SECTIONAL AND INTERVENTIONAL ANALYSIS IN ODISHA

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ABSTRACT

Urinary tract infections (UTIs) pose a substantial health challenge among adolescent girls, particularly in low-resource settings where hygiene infrastructure, awareness, and healthcare access are limited. Understanding the baseline knowledge, attitudes, and practices (KAP) related to UTI prevention is essential for designing effective interventions. This study assessed KAP levels among adolescent girls in Odisha before and after a Structured Teaching Program (STP). A total of 60 participants were evaluated using a structured questionnaire, which captured demographic information and measured knowledge, attitudes, and hygiene practices. Results indicated low baseline knowledge, with misconceptions about UTI causes and prevention being prevalent. The STP significantly improved knowledge scores, positively influenced attitudes, and promoted hygienic practices such as regular urination and proper perineal cleaning. The findings emphasize the importance of school-based, culturally tailored health education in reducing the burden of UTIs among adolescents.

Keywords: *urinary tract infection, adolescent girls, knowledge, attitudes, practices, prevention, Odisha.*

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INTRODUCTION

Adolescence is a formative period during which health behaviours, beliefs, and practices become ingrained, influencing future well-being. For adolescent girls, urinary tract infections (UTIs) present a notable health risk, driven by both biological susceptibility and modifiable behavioural factors. In India, UTIs are often underdiagnosed and undertreated among adolescents due to cultural taboos, lack of awareness, and limited access to clean sanitation facilities (Balamurugan & Bendigeri, 2012). Urinary tract infection is a bacterial invasion of the kidneys and urinary tract. It is designated as pyelonephritis or upper urinary tract infection. When the infection involves mainly renal parenchyma. Lower urinary tract infection involves infection of the urinary bladder and urethra.

Urinary tract infection (UTI) is a common condition seen in primary care. It is the 15th most common condition seen by family physicians and is the diagnosis code for 2% of family medicine visits.

UTIs are more common in women, because of a shorter urethra and the presence of antibacterial substances in male prostatic fluid, with an annual prevalence in women of 11% and a greater than 50% lifetime prevalence.

Knowledge gaps—such as attributing UTIs to supernatural causes or dietary habits—are common. Attitudes often reflect embarrassment in discussing urinary symptoms, and preventive practices are hindered by poor infrastructure and limited guidance from caregivers. Evaluating KAP profiles before and after educational interventions can provide actionable insights for targeted health promotion.

This study explores KAP levels related to UTI prevention among adolescent girls in a selected area of Odisha, analysing changes following a Structured Teaching Program (STP).

REVIEW OF LITERATURE

Knowledge, Attitude, and Practice (KAP) studies have long been a cornerstone in public health research, serving as a valuable tool to identify where gaps in awareness, perceptions, and everyday health-related behaviours exist. By mapping these gaps, health professionals can design targeted programs that not only convey information but also address cultural beliefs, misconceptions, and barriers to healthy practices.

For instance, a study conducted in Maharashtra by Deshmukh et al. (2017) painted a concerning picture of adolescent girls' understanding and habits related to urinary tract infections (UTIs). It revealed that nearly seven out of ten participants (68%) had inadequate knowledge about the causes, symptoms, and prevention of UTIs. Even more worrying was the fact that less than one-third (32%) consistently practiced correct perineal hygiene—something as simple yet crucial as wiping from front to back after urination to prevent bacterial spread. These figures highlight the silent vulnerability of young girls who may be unaware that their daily routines could either safeguard or endanger their health.

Bokolia's (2021) research offered a hopeful contrast by showing that change is possible. In rural school settings, the introduction of structured, well-planned educational sessions resulted in a marked improvement in all three dimensions—knowledge, attitudes, and practices. Girls who once hesitated to discuss urinary health began to see it as a normal and important topic, and practical habits like frequent hydration and timely urination became more common. This underscores the fact that when health education is delivered in an organized, relatable manner, it can have a measurable and positive impact.

The influence of cultural context becomes even clearer when we look beyond India. In Kenya, Omolo et al. (2019) found that entrenched cultural myths—such as believing UTIs are caused by curses or consuming certain foods—were major contributors to poor hygiene behaviours. Without actively challenging these myths, any educational campaign would have limited reach. Similarly, Namagembe et al. (2020) in Uganda demonstrated that when schools provided systematic, culturally sensitive health education, students not only learned more but also translated that knowledge into healthier, more consistent hygiene practices.

Taken together, these studies tell a compelling story: education alone is not enough; it must be interactive, culturally aware, and context-specific. When teaching materials reflect the lived realities of the target audience—using familiar language, relatable examples, and practical demonstrations—they are far more likely to inspire lasting behavioural change. In short, the path to healthier communities lies in meeting people where they are, understanding their beliefs, and gently guiding them toward better practices that fit within their cultural framework.

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METHODOLOGY

Research Design

A pre-experimental one-group pre-test post-test design was adopted to assess baseline KAP and measure post-intervention improvements.

Study Setting and Participants

The study was conducted in a semi-urban area of Odisha. Sixty adolescent girls aged 13–19 years were purposively selected based on their availability, willingness, and absence of chronic urinary tract conditions.

Data Collection Tool

A structured KAP questionnaire was developed and validated through expert review. It comprised:

- **Knowledge Section:** 20 multiple-choice questions on anatomy, causes, symptoms, and prevention of UTIs.
- **Attitude Section:** 10 statements assessed on a 5-point Likert scale, covering perceptions about UTIs and willingness to adopt preventive measures.
- **Practice Section:** 10 yes/no questions assessing hygiene behaviors, hydration habits, and health-seeking practices.

Intervention

The STP focused on:

Basics of urinary tract structure and function.

1. Common causes and symptoms of UTIs.
2. Personal hygiene practices (including menstrual hygiene).
3. Preventive measures and when to seek medical attention.
4. Debunking common myths related to UTIs.

The program used flipcharts, posters, and interactive Q&A sessions in the local language.

Data Analysis

Descriptive statistics summarized demographic data and KAP levels. Paired *t*-tests assessed changes in knowledge scores, while changes in attitude and practice scores were analyzed using Wilcoxon signed-rank tests.

RESULTS

Demographic Characteristics

Table 1. Demographic Profile of Participants

Variable	Frequency (n=60)	Percentage (%)
Age (years)		
13–15	25	41.7
16–17	22	36.7
18–19	13	21.6
Education Level		
Class VIII–IX	28	46.7
Class X	20	33.3
Class XI–XII	12	20.0
Residence		
Rural	40	66.7
Urban	20	33.3

Knowledge Levels

Table 2. Pre- and Post-Test Knowledge Scores

Test	Mean Score	SD	Mean Difference	*t* value	p value
Pre-test	11.72	3.28			
Post-test	21.85	3.15	10.13	20.87	<0.001**

Interpretation: Knowledge improved significantly after the STP, with a mean increase of 10.13 points ($p < 0.001$).

Attitude Changes

Before the STP, many participants believed that UTIs were not serious unless accompanied by visible blood in urine. Post-intervention, attitudes shifted toward recognizing early symptoms and seeking prompt medical care. The mean attitude score improved by 35%, indicating a positive shift in perception.

Practice Changes

At baseline, only 42% of participants reported always wiping from front to back after urination. Post-intervention, this figure rose to 85%. Similarly, regular water intake (≥6 glasses/day) improved from 38% to 78%. The use of clean menstrual absorbents increased from 70% to 95%.

DISCUSSION

The study confirms that adolescent girls in the selected Odisha area had low baseline knowledge and suboptimal hygiene practices related to UTIs. The STP proved highly effective in bridging these gaps.

The magnitude of knowledge improvement aligns with findings from Singh et al. (2018), who documented similar post-education score jumps. The behavioural changes—especially in hydration and perineal cleaning—are noteworthy because such practices directly reduce bacterial colonization risk.

The attitude shift suggests that health education can break through stigma and embarrassment associated with discussing urinary health, encouraging adolescents to adopt preventive behaviours and seek care promptly.

However, sustaining these changes requires periodic reinforcement through follow-up sessions, as behavioural habits may regress over time without continued engagement.

CONCLUSION

This study demonstrates that structured, culturally sensitive educational interventions can significantly improve KAP regarding UTI prevention among adolescent girls. School-based health programs, combined with adequate sanitation infrastructure, could play a pivotal role in reducing the burden of UTIs in similar socio-cultural contexts.

RECOMMENDATIONS

1. Implement regular KAP-based health education sessions in schools.
2. Engage parents and guardians to reinforce hygiene practices at home.
3. Provide adolescent-friendly sanitation facilities to encourage healthy urinary habits.
4. Conduct longitudinal studies to measure long-term behavioural changes.

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