

Substandard sanitation: An evaluation of hygienic practices

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Abstract

The health of the urinary system is greatly impacted by poor cleanliness. Lack of access to sanitary facilities causes people, particularly women and students in low-resource environments, to engage in dangerous behaviours like drinking less water, and changing their daily schedules to avoid using unsafe or public restrooms. Adolescent girls and elderly women are especially at risk, with factors such as menstruation, menopause, and comorbidities worsening their vulnerability. Overcrowded and unsanitary public toilets act as reservoirs for bacteria, heightening the risk of cross-infection. This studies demonstrating greater infection rates among groups sanitary toilets have shown a clear correlation between these behaviours and a higher frequency of UTIs. This study was conducted among 403 participants which highlights hygienic practices, conducted for six months using pre-designed questionnaire form.

Keyword: Water; Sanitation; and Hygiene (WASH); Hand Hygiene; Post Pee Hygienic; Genital Hygiene.

1. Introduction

Sanitation and hygiene are key to public health. It plays a vital role in preventing communicable diseases and promoting overall well-being. Sanitation refers to the building and maintenance of facilities for safely disposing of human waste, wastewater, and solid waste. Hygiene involves behaviours and practices that help maintain health and prevent the spread of disease ^[1]. Poor sanitation and hygiene practices are closely related to the spread of infectious diseases like diarrhoea, cholera, typhoid fever, soil-transmitted helminth infections, and other waterborne illnesses ^[2]. Studies shows that limited access to water, sanitation, and hygiene (WASH) significantly adds to the global burden of disease and high mortality rates, especially in children under five. Improvements in sanitation and hygiene have been shown to reduce disease rates significantly ^[3].

Objective

The objective of the study was to evaluate hygienic practices and sanitation inadequacies among common population including school and various courses like pharmacy and nursing in Thiruvalla taluk, Pathanamthitta district Kerala.

2. Material and methods

A community -based prospective observational study was conducted to evaluate hygienic practices and sanitation inadequacies, among 403 participants (123 from school, 120 from college, 160 from common population) in Thiruvalla, Kerala. The study, approved by the Institutional Review Board of Nazareth College of Pharmacy, Othara, Thiruvalla. The study was conducted between December 2024 – May 2025. Participants aged between 10-85 were included and excluded those unwilling to participate, those unable to read and write. After obtaining consent, data was collected using

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a semi structured questionnaire which had been validated. Data collection form was given to obtain sufficient data and awareness was given to improve the sanitation related quality of life among the individuals. The data thus obtained was assessed statistically to assess the impact of poor sanitation. Data were analyzed using Microsoft Excel.

3. Results

3.1. Hand hygiene

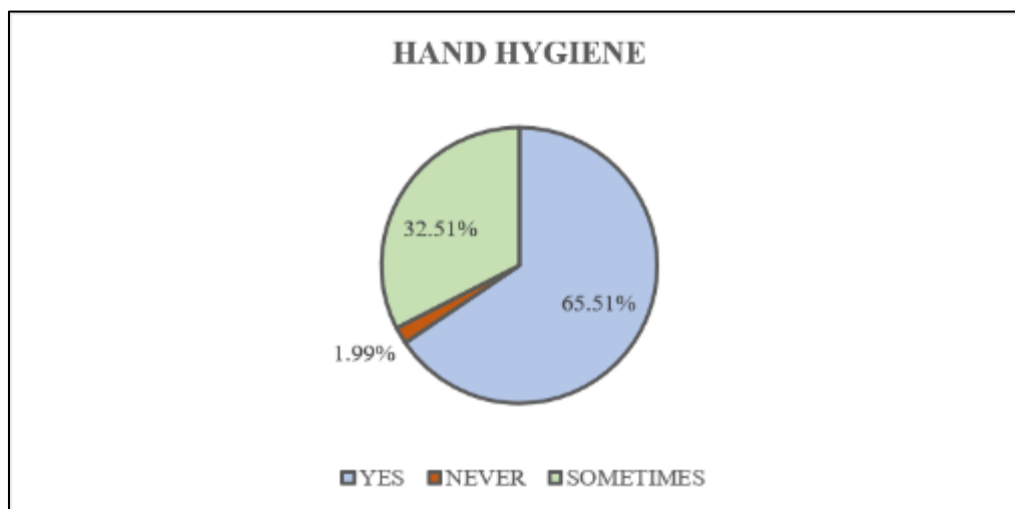


Figure 1 Distribution of hand hygiene practice

The above chart highlights adherence to hand hygiene protocol among the respondents. From the study population of 403 people, 264 (65.51%) participants consistently practised proper hand hygiene and 131 (32.51%) participants occasionally practised proper hand hygiene and 8 (1.99%) participants failed to adhere to proper hand hygiene.

3.2. Sanitary products usage

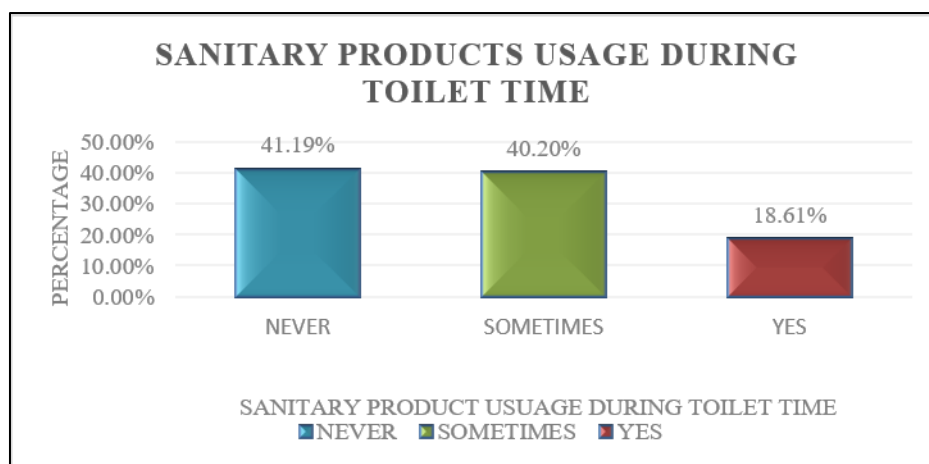


Figure 2 Distribution of sanitary products usage during toilet time

This graph shows the distribution of sanitary product usage during toilet time. Out of 403 participants, 166 (41.19%) individuals never used sanitary products during their toilet time, 162 (40.20%) individuals occasionally used the products during life time, 75 (18.61%) individuals used sanitary products frequently.

3.3. Limit water intake to avoid public toilet

This graph shows how participants restrict water intake to minimize unsanitary toilet use. Among the 403 participants, 165 (40.94%) individuals limit their water intake due to unsanitary toilet conditions and 121 (30.02%) individuals

occasionally limit their water intake and 117 (29.03%) participants never avoid drinking water despite unsanitary toilet.

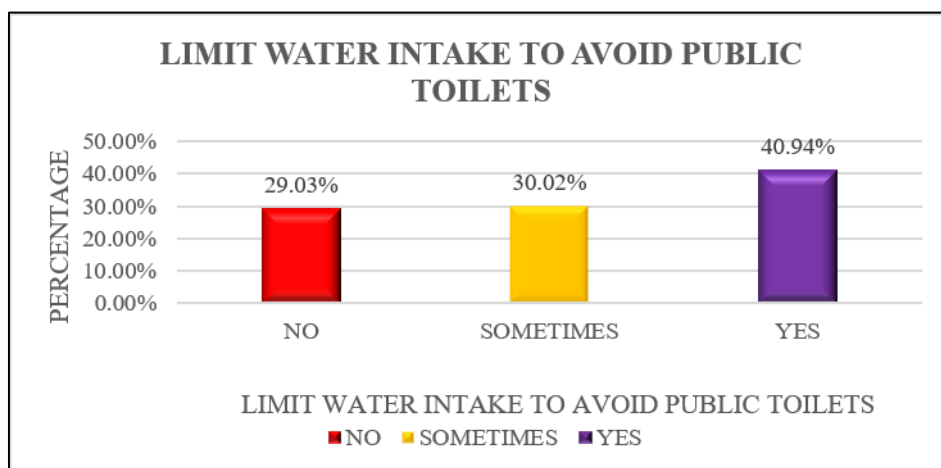


Figure 3 Graph to show restriction of water intake to avoid public toilet

3.4. Responses on dealing with unsanitary toilets

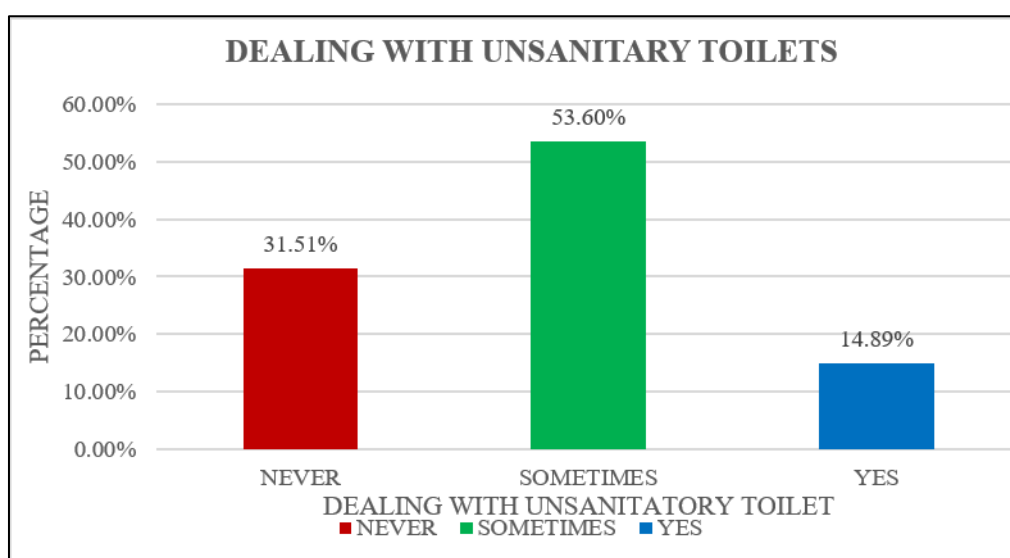


Figure 4 Distribution of responses on dealing with unsanitary toilets

This graph reveals the percentage of people using toilet with inadequate sanitation. From the study population of 403 people, 60 (14.89%) individuals rely on toilet with poor sanitation facilities and 216 (53.60%) individuals occasionally use toilet with poor sanitation facilities and 127 (31.51%) individuals never use toilet with poor sanitation facilities.

3.5. Maintaining hygiene during menstruation

The graph highlights participants adherence to proper hygiene during menstruation. Among 299 female participants, 195 (48.38%) participants practiced proper hygiene during menstruation, and 104 (25.81%) participants were not practiced proper hygiene during menstruation

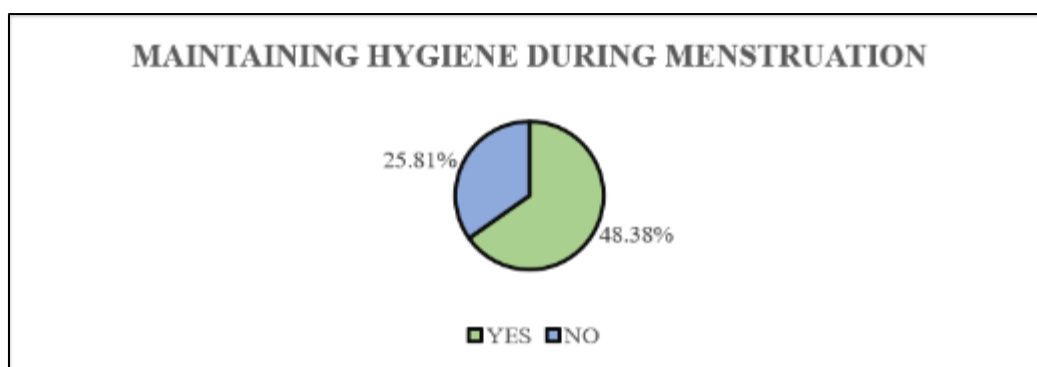


Figure 5 Distribution of maintaining hygiene during menstruation

4. Discussion

[Figure 1] From the study population of 403 people, 264 (65.51%) participants consistently practised proper hand hygiene and 131 (32.51%) participants occasionally practised proper hand hygiene and 8 (1.99%) participants failed to adhere to proper hand hygiene. This is having significant association with study conducted by Muath Elwaisi et.al., (2021) Rapid review of hand hygiene efficacy in reduction catheter associated urinary tract infections ^[4]. The study assess how well hand hygiene practices protect patients hospitalized to acute care hospitals from urinary tract infections linked to catheter use. The purpose is to determine how well hand hygiene works to prevent or lower the incidence of urinary tract infections linked to catheter use in patients. ^[5] ^[6]

In [Figure 2] Out of 403 participants, 166 (41.19%) individuals not used sanitary products during their toilet time, 162 (40.20%) individuals not usually used the products during life time, 75 (18.61%) individuals used sanitary products most commonly. Inadequate disposal can lead to the growth of germs quickly. Above [Figure 3] shows limitation of water intake to reduce unsanitary toilet use. Out of 403 participants, 165 (40.94) individuals limit their water intake due to unsanitary toilet conditions and 121 (30.02%) individuals occasionally limit their water intake and 117 (29.03%) participants never avoid drinking water despite unsanitary toilet. Water intake is essential otherwise it can lead to certain health consequences such as kidney stones, dehydration etc. Holding urine too long result in urinary tract infection. Lack of knowledge about a suitable amount was cited as the primary cause of inadequate water intake ^[7] ^[8]

[Graph 4] reveals the responses of participants dealing with unsanitary toilets. From the study population of 403 people, 60 (14.89%) individuals uses on toilet with poor sanitation facilities to prevent health consequences and 216 (53.60%) individuals occasionally use toilet with poor sanitation facilities and 127 (31.51%) individuals never use dirty toilets. Poor menstrual hygiene, the usage of school restrooms, and a prior history of UTI were found to be significantly associated with UTI. Above [Figure 5] shows out of 299 female participants, 195 (48.38%) participants practiced proper hygiene during menstruation, and 104 (25.81%) participants were not practiced proper hygiene during menstruation. Keeping clean during menstruation is crucial. Utilize hygienic and safe menstrual products, replace sanitary pads every 4–6 hours or whenever they are saturated, and rinse the genital area with clean water frequently. Understanding menstruation and adopting proper menstrual hygiene practices can enhance health results and reduce the risk of infections ^[9] ^[10].

Abbreviations

- UTIs: Urinary Tract Infections,
- WASH: Water, Sanitation, and Hygiene

5. Conclusion

Urinary tract infections (UTIs) and other urinary health issues are the main consequences of poor sanitation and inadequate hygiene practices, which have a substantial and well-established effect on the urinary system. Lack of access to hygienic, private restrooms causes behaviours like prolonged urination, which damages bladder health and raises the risk of infection. Recurrent UTIs are linked to using public or poorly maintained restrooms and improperly washing toilet seats before using them. Most people were unaware of the consequences on their health.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

There were no conflicts of interest to reveal.

Statement of informed consent

The authors certify that they have obtained consent from the participants in this study and their details will be concealed with due effort.

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