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Original Research

Cultural Perceptions and Urinary Tract Infection Among Adolescent Schoolgirls in Dhamar City, Yemen

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Abstract

Background: Urinary tract infection (UTI) is very common among females in all age groups. Many factors like low water intake, infrequent voiding, and poor menstrual hygiene have been implicated.
Aim: This study was aimed to evaluate prevalence of UTI among adolescent girls in governmental schools in Dhamar city, Yemen and its relation to cultural perceptions about school toilets, in hope to change these thoughts and improve hygienic services in those schools.
Methods: A total of 261 adolescent (13 – 20 years) students in governmental schools of Dhamar city were included in the study. A questionnaire to obtain demographic, socioeconomic profile, clinical manifestation, practice was used. Investigation included general urinalysis for midstream clean catch urine sample.
Results: The overall prevalence of UTI was 29.1%. More than two third (68.2%) of girls noted to avoid entrance to school bathrooms. Parents warning against entrance to school bathrooms noted in 34.5%. Fear from the presence of camera in bathrooms noted in 33.7%. Girls who retain urine for long time was 29.9%. Wrong practice of wiping was noted in 13.4% as they wipe from back to front. The most common symptom was urgency, which was in 39.1%. Lower abdominal, back pain, recurrent fever, incontinence, bad urine odor, cloudy urine, and dysuria were reported.
Conclusion: Urinary tract infection is a common problem in adolescent school girls which result in many complications and may lead to loss of school. Inadequate hydration, lack of clean toilet, poor personal hygiene, wrong believe of girls and their parents about school toilets, all of them predispose a school girl to urinary tract infection.

Keywords: Urinary Tract Infection, School Girls, Culture, Yemen

1. Introduction

Urinary tract infections (UTIs) are a severe public health problem and are caused by a range of pathogens [1]. Urinary tract infection is common disease affecting all age groups, from new-born to old age [2,3].

The World Health Organization had defined adolescence as the age group of 10 -19 year [4]. Agreeably it is a transitional period from dependent childhood to independent adulthood. Therefore, good physical and mental health of children and adolescents makes for good

health in adulthood. This is the earliest age to prevent morbidity in later life by means of any health intervention. Silent urinary tract infection may occur among school girls who are due to inadequate intake of water and infrequent passage of urine. The main reason for this is unhygienic school toilets and improper teaching regarding menstrual hygiene [5,6,7]. Among adolescent girls, acute uncomplicated urinary tract infection is more prevalent. This is the fourth main reason for outpatient visit among adolescent women. Dehydration can cause urinary tract infection [6,7].

Toilets and hygiene systems provide for one of the most basic human functions. Inadequate toilets, poor access and poor knowledge of urinary or bowel health can have wide ranging effects for physical, emotional and psychological health. Repeated urinary tract infections, linked to poor toilet usage [8]. While inadequate access to clean, good toilets will affect all adolescent girls badly, it can have a particularly negative impact for adolescent girls with disabilities and/or additional support needs [8,9,10].

Toilets can be a neglected facility in school buildings, become a battlefield for power relationships, and control in education settings, functioning as guides of the relationships between adults and children. Girls in developing countries report missing classes, particularly when they are menstruating, in order to ensure privacy in a public toilet [10,11].

The inadequate of school toilets in Yemeni schools, particularly their lack of cleanliness, lack of water and poor state of repair, a smaller number of toilets compare to the number of students in the school, no staff permanent for cleaning in the school, all of those problems were raised repeatedly and it became risk of transient on infection and disease which can cause short term illness and absence from school. In others it gives to situations that will continue outside school and may be showed in more serious forms in later life. Recent studies in Yemen clearly show that the main causes for low enrolment and high drop-out rates for girls are: lack of accessibility, socio-cultural factors and institutional factors [11].

There are special customs and traditions have some special parents in Yemen who have daughters of the problem they have plus anxiety from entering their daughter's public baths and give warnings constantly for their daughters, for example, there are cameras photograph the girls, defect entry bathrooms outside the home and attic wait until retain back to the house, which leads to the imprisonment of the urine for long periods and other warnings.

This study is to determine association between the cultural thoughts about school toilets risk factors and UTI and provide more knowledge about the prevalence and risk factors of Urinary tract infection among adolescent schoolgirls in Dhamar city, Yemen.

2. Methods

This cross-sectional descriptive study was carried out among adolescent girls aged between 13-20 years in level eighth to twelfth of selected governmental schools in Dhamar city, Yemen. Data was collected from selected governmental schools in Dhamar city, in Yemen. Students was informed about objective of this study. These school was a girls-only school, older schools and conveniently located. A total of 986 adolescent girl attended this school, 261 of whom were willing to join the study. All of the participants were living with their parents.

The data were collected by structured self- recording questionnaire which was distributed by investigators. The students were informed about the objectives of the study and the contribution was voluntary. language of the questionnaire was Arabic language. The students were instructed to exclude their names to be confident about secrecy and to answer the questions frankly. Data was obtained with using code number. The questionnaire was consisted from two parts, the first part about socio-demographic characteristics, including (age, marital status, place of residence, class). The second part was containing items that assessed the urinary tract infection among adolescent girls in these schools and its relation to environment and culture including 30 questions related to hygiene, parents thought, symptoms of UTI and many other related factors. Questionnaires were answered separately by the students and under direct observation. Urine samples were collected with clear instructors to the participants. The participants are instructed to collect mid-stream urine after vulval swabbing with clear water. The specimen was delivered to the laboratory within one hours from collection. Urine analysis was done using urine Dipstick testing and microscopic examination for pus cells. Diagnostic of UTI was made when there were pus cells more than 5/HPF or pus cells plus nitrite indicated UTI high colony count with more than one species of bacteria was considers as contaminations. Statistical analysis was carried out using the SPSS statistical package version 21 (SPSS Inc. USA).

3. Results

This study was conducted among adolescent girls in governmental school in Dhamar city. A total of 261 girls from different classes contribute in the research.

Table 1 shows general characteristics of the study population, 61.3% of girls are about 13-16 years old, and 38.7% aged 17-20 years. Only 1.1% of girls are married. It also shows that 63.6% of girls have a family history of urinary tract problems whereas 46.4% have a family history of diabetes mellitus. There is no clean water in schools (26.1%), no clean bathrooms in schools (80.8 %) whereas the percentage of urinary tract infection was 29.1% (Figure 1).

Table 2 shows practice of the study population that about 68.2% of girls avoid entrance to school's bathrooms and about 69.3% of girl's drink less than one litter daily. 49% of girls enter bathroom 2 times at night and 86.6%

do not know the proper way of cleaning after urination.14.9 % of girls do not take care about their underwear cleaning.

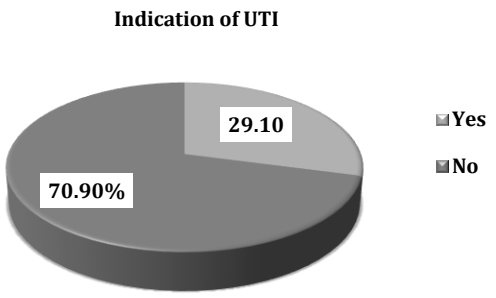

Figure 1: Percentage of urinary tract infection among the study subjects

UTI= Urinary tract infection*; Indication of UTI: Yes= pyuria >5 leukocytes/ high power field No = pyuria ≤ 5 leukocytes/ high power field

Table 1: General characteristics of the study subjects

Variable	Frequency (%)
Demographics	
Age (years)	
13-16	160 (61.3)
17-20	101(38.7)
Social state	
Single	258 (98.9)
Married	3 (1.1)
Class	
Eighth	55 (21.1)
Ninth	17 (6.5)
Tenth	95 (36.4)
Eleventh	52 (19.9)
Twelfth	42 (16.1)
Clinical history related to UTI*	
Previous urinary tract problems	
Yes	36 (13.8)
No	225 (86.2)
Family history of urinary tract problems	
Yes	166 (63.6)
No	95 (36.4)
Family history of diabetes mellitus	
Yes	121 (46.4)
No	140 (53.6)
Socioeconomic conditions related to UTI	
Presence of clean bathrooms in school	
Yes	50 (19.2)
No	211 (80.8)
Presence of clean water in school bathroom	
Always	20 (7.7)
Usually	82 (31.4)
Unusual	91 (34.9)
Never	68 (26.1)
Presence of clean water in home	
Always	252 (96.6)
Usually	7 (2.7)
Unusual	2 (0.8)

Table 2: Practices of the study subjects on entrance school bathroom and outside home bathroom

Variable	Frequency (%)
Avoidance of school bathroom	
Always	178 (68.2)
Usually	50 (19.2)
Unusual	22 (8.4)
Never	11 (4.2)
Need for bathroom in school	
Always	9 (3.4)
Usually	34 (13)
Unusual	82 (31.4)
Never	136 (52.1)
Take permission to enter bathroom in school	
Always	53 (20.3)
Usually	102 (39.1)
Unusual	64 (24.5)
Never	42 (16.1)
Urine sequestration for a long time	
Always	78 (29.9)
Usually	74 (28.4)
Unusual	59 (22.6)
Never	50 (19.2)
Daily amount of water (liter)	
< 1 liter	181 (69.3)
1-2 liters	56 (21.5)
> 2 liters	24 (9.2)
Number of urinations per day	
Four times or less	190 (72.8)
Five or more	71 (27.2)
Number of urinations at night	
One time	127 (48.7)
Two	128 (49)
More than two	6 (2.3)
Use of home prescriptions to lessen symptoms*	
Yes	52 (19.9)
No	208 (79.7)
Care of underwear	
Yes	222 (85.1)
No	39 (14.9)
Method of cleaning	
From front to back	226 (86.6)
From back to front	35 (13.4)

* One case missed

Table 3: Attitudes of the study subjects on entrance school bathroom and outside home bathroom

Variable	Frequency (%)
Warning of parents to their daughter from entrance school bathroom	
Yes	90 (34.50)
No	171 (65.50)
Fear from entrance school's bathroom (suspension of camera)	
Yes	88 (33.70)
No	173 (66.30)
Presence of a problem in entrance a bathroom outside the home	
Yes	68 (26.10)
No	82 (31.40)
In urgent	111 (42.50)
Give a permission from a teacher to enter bathroom	
Always	41 (15.70)
Usually	68 (26.10)
Unusually	81 (31.00)
Never	71 (27.20)

Table 3 shows attitudes of the study population that 33.7%of girls do not enter bathroom due to fear from presence of cameras inside bathroom and about 34.5% do not enter it due to parents warning. Teachers allow students to enter schools by 15.7% but never allow by 27%. Figure 2 shows clinical manifestations among the study population that about 39.1% of girls complain of urgency and 23.4 % complain of incontinence and bad odors of urine.

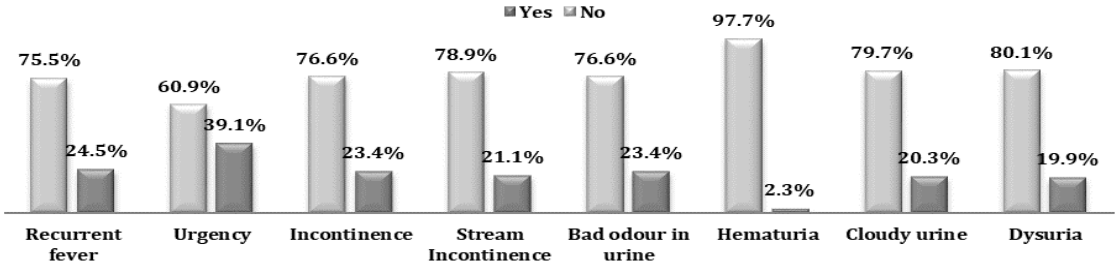

Figure 2: Clinical manifestations among the study subjects

4. Discussion

In present, urinary tract infection is among the leading cause of adolescent girls visiting a doctor. Several researches have been done and coming up for recommendations that UTI still problem to females. UTI is significantly present in the girls who had attained menarche but not practicing proper perineal hygiene [1,6].

To the best of our knowledge, this is the first study to evaluate the prevalence urinary tract infections among of adolescent girls in governmental schools and role of socio-cultural education on urinary tract infections in Dhamar city, Yemen. The incidence of UTI in our study was 29.1%. Whereas UTI among adolescent girls in India was reported prevalence of 20%. [12,13,14] In the present study, only 15% of adolescents had good hygiene practices. Repeated urinary tract infections, linked to poor toilet usage, poor diet and dehydration, can have long-term consequences, including renal failure, that manifest later in life. Hygienic practices during menstruation are very important as poor hygiene affects health by increasing vulnerability to infections of the urinary tract and perineum, and the reproductive tract [15,16]. Girls of reproductive age need access to clean and soft absorbent sanitary products, which protects their health in the long run. Various studies have shown that health education increases knowledge and positive attitudes towards puberty as a natural physiological phenomenon. [14].

5. Conclusion

Urinary tract infection is a common problem of adolescence causing much anxiety and loss of school in Yemeni governorates schools. There are numerous factors with high percentages present in our results, which could contribute to this high prevalence of UTI as lack of clean toilets, absence of clean water, poor menstrual hygiene, health education and wrong culture thoughts prompts young girl urinary tract infections. The results of the study provide important findings. The study revealed strong association between UTI and bad hygiene habits and there is association between UTI, culture and parent's thoughts. From this study the cultural perceptions become as one risk factors of UTI. The government should urgently provide schools with basic and clean sanitation facilities. Give immediate health education about the causes, prevention and treatment of UTI among adolescent girls. Continuous education programs should be delivered to students in secondary girl's schools serving in all Yemeni schools or should be included in the school curriculum. Regularly meeting with the parents for socio-cultural education.

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Competing interests
The authors declare that they have no competing interests.

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