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Beliefs of Female Teenagers on Prevention of Urinary Tract Infection: Application of Health Belief Model

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ABSTRACT

Urinary tract infection is a common infection among women and is followed by several complications. The aim of this study was determine the prevalence and factors influencing prevention of urinary tract infection based on health belief model. A cross-sectional study was conducted among 166 female students in Shadegan city, Iran; which was randomly selected with the proportional to size among different girls high school at Shadegan city for participation in this study. A structured questionnaire was applied for collecting data and data were analyzed by SPSS version 20 using bivariate correlations and logistic regression statistical tests. Almost 22.3% of the participants had history of experience urinary tract infection at last one in lifelong. The best predictor for urinary tract infection was perceived susceptibility with odds ratio estimate of 0.810 [95% CI: 0.664, 0.987]. Based on our result, it seems that designing and implementation of educational programs to increase susceptibility about chance of getting urinary tract infection among the female students may be useful in order to prevent urinary tract infection.

Key words: Urinary Tract Infection, Female Students, Health Belief Model

1. INTRODUCTION

Urinary tract infection (UTI) is known as a common infection among women; in more than 95 percent of cases urinary infection is created by a certain group of bacteria; the major pathogen of urinary infection is E.coli bacteria, which is a normal bacterial flora in intestines (1). It seems that the reasons for increased prevalence of such infections among women are proximity of their urethral and anus, short length of urethral and warm and wet environment of perineal (2); postponing urination, pregnancy, menopause, frequent intercourse, records on urinary infection during childhood are considered as predisposing factor to the infection (3). A quarter of women who reported urinary infection for the first time would be re-infected in less than 3 months (4). Early diagnose of urethral infection was considered very important to prevent relapse and indication of its complications such as rental failure, adhesions among pregnant women, abortion and early delivery (5). Prevalence of UTI between women is high; in this regard, Eriksson *et al* in their study reported 29.6% of women were diagnosed as having UTI at least one (6). Furthermore, Sorto *et al* reported the UTI incidence among the women in their study was of 35.8% (7). Studies showed the prevalence of UTI in different parts of the world, which made it necessary to determine and control its predisposing factors (8). Along this, personal health behaviors were considered as the major predisposing factors to relapse of urinary infection (9). Various factors are reflected in human behavior and it is vital to know the causality network to affect impressive factors on behavior, which has been investigated through years by behaviorists. Knowing effective factors on behavior showed to be operational in designing educational programs. On the other hand, studies on designing education programs showed that the most effective educational programs were based on theory-based approaches rooted in behavior change patterns. The very first step to plan an education program is to choose a proper pattern or theory in health

education while effective health education directly depends on the dominance on using best theories and proper approaches in each event (10). Several studies, also, reported that it was essential to focus on mental factors in health education comprehensive preventive programs as mediating and predicators of behavior; as the result health care providers should be aware of various effective factors on fulfilling preventive and health improving behaviors to be able to design and implement advantageous programs in the field (11-18). Hereof, it is worth to mention that health belief model (HBM) is an analytical behavior theory, which has been used in several studies on different fields of preventive behaviors (19-21). This model focused on how personal beliefs and perceptions about fear of health problems and evaluating perceived benefits and barriers of preventive behavior led to behavior adoption (22). Considering health belief model, people should first feel the risk to adopt preventive operations (perceived susceptibility), then understand the risk and severity of physical and mental complications of the illness or the behavior(perceived severity), and, later, proceed to adopt the preventive behavior in the case of positive benefit evaluation and avoiding major barriers (10). Considering the importance of the issue, the main objective of present study was determined, the prevalence and factors influencing prevention of UTI based on health belief model.

2. MATERIALS AND METHODS

It is a cross-sectional study investigating 166 female students in Shadegan city, Iran. Four female high schools in Shadegan city were selected randomly and samples were selected randomly among high school students proportional to size. Participants were asked to complete a questionnaire designed in this regard and information was gathered through self-reporting. Study subjects were justified about how to do the study, security of the information and the aim of the study. Samples declared their willingness to participate in the study.

2.1. Measure

The variables assessed in this study included three sections. Prior to conducting the main project, a pilot study was carried out. Initially the relevant questionnaires were administered to 30 female students who were similar to study population in order to estimate the duration of the study conduction and to evaluate the reliability of the questionnaire.

2.2. Part one- demographic information

it investigated information like age, marital status, parent's education level and history of experience UTI.

2.3. Part two- awareness questions

Students' awareness about UTI was investigated through answering 10 questions on yes or no scale, e.g. frequent and painful urination, involuntary urination and swallow are the symptoms of urinary infection.

2.4. Part three- questions on health belief model

HBM scale was designed based on a standard questionnaire (19). To measure HBM structures, researchers made use of sample questionnaires applicable to HBM to design their required questionnaire and structures were investigated through a 5-scale ranking. Experts of the field approved evaluation and the validity of the designed questionnaires. Its reliability was confirmed through test-retest method at 0.83, which was explained at following structures:

2.4.1. Perceived benefits

It was studied through 5 questions, e.g. anxiety and stress about complications of urinary infection decreases through appropriate and at time prevention.

2.4.2. Perceived barrier

It was studied through 5 questions, e.g. I do not know preventive ways to UTI.

2.4.3. Perceived severity

It was investigated through 4 questions, e.g. there would be negative complication if the proper treatment was not followed accordingly.

2.4.4. Perceived susceptibility

It was studied through 5 questions, e.g. my body is strong enough to resist against urinary infection.

2.4.5. Self-efficacy

It was studied through 5 questions, e.g. I can avoid urinary retention even if frequent urination is bothering to me. Data were analyzed by SPSS version 20 using multiple bivariate correlations, and logistic regression statistical tests at 95% significant level.

3. RESULTS AND DISCUSSION

Diagram 1 shows the history of experience UTI among participants; based on our findings 22.3 percent of students had history of experience UTI.

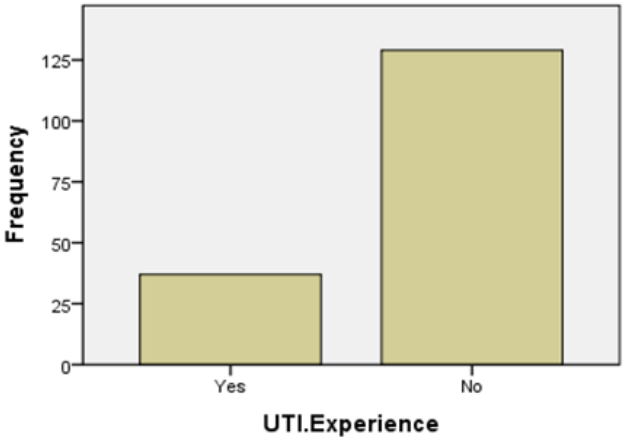

Diagram 1. Percentage of UTI experience among participants

Results from the present study showed that 22.3 percent of students had history of experience UTI. Regarding, the age of participants: 53.6 percent were seventeen, 31.9 percent were eighteen, and 14.5 percent were nineteen or older. Almost, 92.8 % of participants were single and 7.1 % were married. Furthermore, 34.9 percent of students (58 people) reported, were guided on urinary infection by family, 16.9 percent (28 people) by medicine doctor, 15.7 percent (26 people) by mass media (radio and television), and 13.3 percent (22 people) by health care staff. Table 1 shows perceived awareness, benefit, barriers, susceptibility and severity of urinary infection among understudy female students.

Table 1 . Frequency of Awareness, Benefit, Barriers, Susceptibility and Severity toward UTI

Variable	Weak		Average		Good	
	n	%	N	%	n	%
Knowledge	2	1.2	45	27.1	119	71.8
Perceived Benefits	3	1.8	29	17.5	134	80.7
Perceived Barriers	30	18.1	85	51.2	51	30.7
Perceived Susceptibility	10	6	31	18.7	125	75.5
Perceived Severity	7	4.2	49	29.5	110	66.3

Table 2 shows students self-efficacy condition. Our result showed, 33.7 percent (56 people) reported good self-efficacy rates of urinary infection in dressing, 51.2 percent (85 people) in dietary habits, and 31.1 (50 people) in urinary habits.

Table 2 . Frequency of Perceived Levels of Self-Efficacy (Dressing, Dietary and Urinary Habits)

Variable	Weak		Average		Good	
	n	%	N	%	n	%
Dietary Habits	11	6.6	70	42.2	85	51.2
How to dress	19	11.4	91	54.8	56	33.7
Urinary habits.	34	20.5	82	49.4	50	30.1
Total self-efficacy	5	3	98	59	63	38

Table 3 shows bivariate correlations between the health belief model constructs which were statistically significant at either .05 or .01 level.

Table 3. Predictor Variables Correlation Matrix

	X1	X2	X3	X4
X1. Knowledge	1			
X2. Perceived Benefits	0.155*	1		
X3. Perceived Barriers	0.108	0.052	1	
X4. Perceived Susceptibility	0.208**	0.207**	0.227**	1
X5. Perceived Severity	0.155*	0.184*	-0.104	0.091

* p <0.05, ** p <0.01

A step-wise model (Table 4) building procedure was conducted and finally on 5rd step the procedure stopped and the best model was selected, among the HBM constructs: perceived susceptibility was the more influential predictor on UTI infection.

Table 4. Multiple Logistic Regression Analysis for Health Belief Model Variables Related To UTI

Variable	*Odds Ratio*	*95.0% CI*		*P value*
		Lower	Upper	
Perceived Susceptibility	0.810	0.664	0.987	0.037
Final model: Step 5				

Our findings indicated 22.3 % of students had history of experience UTI at last one in lifelong; that could lead to several complications to them; therefore, it seems neces

sary to determine related factors to preventive behaviors among them. Furthermore, 34.9 % of students were guided on UTI in family and 15.7 percent by mass media. Considering parents education level, 31.9 percent of students' mothers were illiterate and 41 percent were at elementary level; it is plausible that needed information was not transferred to young girls. Therefore, it was suggested to design proper messages, convey them through connection channels to girls, and make use of high potential of mothers to convey health conceptions to teenagers. Results of our study reported that there were

still some barriers to accept health behavior, though students understood the benefits of doing correct health behavior and recognized complication of being infected and its possibility to them. The most important perception to be tailored in this regard would be lack of knowledge on preventing paths to the disease. In this regard, perceived barriers to adopt proper health behavior could be justified through motivating and assuring (10). Low susceptibility of students to avoiding urinary infection and being frequently affected by that were considered as main beliefs of perceived susceptibility and severity in present study; in this regard, several studies reported that teens believed they were not vulnerable to dangers of risky and deleterious behaviors to health. They showed low vulnerability beliefs to their circumference risks; in other words, they considered themselves to be safe against health risks and threats and did not feel the necessity to adopt preventive behaviors. Therefore, eternality or invulnerability could be the terms to describe person's understanding of the belief that "I am not in danger as much as others", which weakened possible adoption of preventive behavior. On the other hand, if a person conceived himself vulnerable to disease, there would be higher possibility to fulfill preventive behaviors (22). Therefore, it is essential to consider enhancement of perceived susceptibility and severity by students on possibility of being affected by urinary infections and their sever complications in education programs. Self-efficacy was known as an important factor in adopting known preventive behaviors; it was considered as a behavior perception to increase likely to require agenda and health promotion behaviors (10). Present study reported lower self-efficacy among students on urinary habits in comparison with other issues, and only 38 percent of students showed acceptable self-efficacy, which corresponded to results by Javaheri Tehrani *et al*. (23). Improving self-efficacy on fitting urinary habits among female students may introduce beneficial results to prevent urinary infection.

4. CONCLUSION

Results of present study reported long records of urinary infection among female students, which could result in several complications. It emphasized the need to offer training interventions among female students living in Shadegan city, Iran. Results, also, showed low levels of self-efficacy on good urinary habits among female students, which represents the importance of designing training interventions in the field to improve students self-efficacy.

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AUTHORS CONTRIBUTION

This work was carried out in collaboration between all authors.

CONFLICT OF INTEREST

The authors declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

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