Risk Factors for Urinary Tract Infection among Women at Productive Age at Babel Technical Institute in Hilla City

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ABSTRACT

Back ground *Urinary**:** tract infection is one of the most common bacterial infections in women, and 50% to 60% of adult women experience a UTI during their lifetime [1].A urinary tract infection (UTI) is a condition in which one or more parts of the urinary system (the kidneys, ureters, bladder, and urethra) become infected [2].**Objectives**: to assess Risk factors for U.T.I. among women in Reproductive age. To identify the causes & symptoms of U.T.I. To determine the relationship between the socio demographic characteristics and predisposing behaviors for U.T.I. **Methodology**: A descriptive analytic design was conducted on Non- Probability (purposive sample) of (100) women who have suffering from U.T.I. in Hilla City. A questionnaire has been used as a tool of data collection for the period 0f 9th of February 2015 to April 20th 2015 and consists of three part ;including : Socio Demographic, ,and dietary, hygienic factors , disease suffering& symptoms. Descriptive statistical analyses are used to analyze the data. **Results**: The results of the study reveal that of 35% women aged ((21-25)) years, (46%)were Institute & College, Social Status were Married(52%), resident in urban (72%); (52%) enough socio economic status , and 67%) were in housewife ,economic status (52%) were in enough level,. And about BMI were 67% in normal weight 18.5-24.9kg/m2. In light of women's responses to dietary factors, all items reported pass assessment, there is significant relationship P≤ 0.05 between dietary behaviors and socio demographic characteristics in women occupation and socio economic status. Women's responses to hygiene factors, all items reported pass assessment, except in Avoid Shower more than twice a day& Used for drying single-use wipes. There is significant relationship P≤ 0.05 with all Hygiene factors and Demographical Characteristics variables except in Age Groups. **Recommendations:** Educational programs in the early teen females about health food, health education for all women about personal hygiene.*

Keywords: urinary tract infection, Dietary& hygiene factors

INTRODUCTION

Urinary**:** tract infection is one of the most common bacterial infections in women, and 50% to 60% of adult women experience a UTI during their lifetime [1]. Urinary tract infections (UTIs) are a common type of infection caused by bacteria (most often *E. coli)* that travel up the urethra to the bladder. A bladder infection is called cystitis. If bacterial infection spreads to the kidneys and ureters, the condition is called pyelonephritis. Cystitis is considered a lower urinary tract infection. Pyelonephritis is an upper urinary tract infection and is much more serious. They can be painful and uncomfortable, but they usually pass within a few days or can be easily treated with a course of antibiotics [2]. Females are more prone to urinary tract infections than are males. This is because the urethra is shorter which cuts down the distance that bacteria have to travel to reach the bladder. The urethral opening is also much closer to the anus and can come into contact with bacteria more readily. Females also lack the prostatic secretions which are present in males. Prostatic secretions are bacteriostatic which means that they keep the bacteria from growing and multiplying as readily [3]. It is more

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common in females as compared to males, especially females of reproductive age group (from 15-50 years) [4].

METHODOLOGY

Design: A descriptive analytic non- probability was conducted (purposive sample) of (100) women in reproductive age who have suffering from U.T.I. in Hilla City. A questionnaire has been used as a tool of data collection for the period of 9th of February 2015 to April 20th 2015and consists of three- part; including: Socio Demographic, and dietary causes, hygiene, disease suffering& symptoms. Descriptive statistical analyses are used to analyze the data. Socio Demographic economic Status (5) items, dietary factors (7 items), disease (4 items), factors related to hygiene (11 items) these items are rated according to three level Likert scale (always, sometimes, never) and scored (3, 2, 1), symptoms suffering consist of (7) items. These suffering consist of (7) items. Descriptive statistical analyses were used to analyze the data. Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 20. Through the application of descriptive statistical data analysis include (Frequencies, Percentages, and arithmetic mean with standard deviation, and the two extremes values, minimum and maximum readings. Mean of score (M.S.) with their Standard Deviation (SD), Relative Sufficiency (R.S. %).

RESULTS

Table 1(Part-I). Distribution of Socio-Demographic Characteristics of Women at Reproductive Age

Variables	*Groups*	*Freq.*	*%*
Age	16-20	44	44
	21-25	36	36
	26-30	10	10
	31-35	11	11
	Total(100)	Mean ± SD=23.42 ±6.809	
Educational Level	Read – write	11	11
	Primary	26	26
	Secondary	17	17
	Institute & College	46	46
	Total(100)		
Social Status	Married	52	52
	Single	44	44
	Separate	1	1
	Widow	3	3
	Total(100)		
Residency	Urban	72	72
	Rural	28	28
	Total(100)		

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Table 1(Part-II). Distribution of Socio-Demographic Characteristics of Women at Reproductive Age

Variables	*Groups*	*Freq.*	*%*
Occupation	Work	33	33
	Housewife	67	67
	Total(100)		
Economic Status	Enough	52	52
	Just Enough	42	42
	Not Enough	6	6
	Total(100)		
BMI	<18.5	17	17
	18.5-24.9	67	67
	25-29.9	10	10
	30-39.9	6	6
	Total(100)	Mean ± SD21.46 ± 3.716	

Freq=Frequency; %=Percentage

Table (1) shows the highest percentage of the sample at age ranged from (21- 25) yrs and they are accounted (35%), with (*Mean ± SD=23.42 ±6.809*).The greater number of them *Institute & College* high levels of education, they are accounted for (46%) of the total sample. The highest percentage of the sample was married they are accounted (52%).The highest percentage of the sample was represented in urban 72%, and rural were 28%. The highest percentage of the sample was housewife they are accounted (67%). *Economic Status* the highest percentage of the sample was enough they are accounted (52%). *BMI* the highest percentage of the sample was normal weight (18.5-24.9kg/cm^2) they are accounted (52%) with *Mean ± SD21.46 ± 3.716.*

Table 2 (part-I). Distribution of dietary factors of (100) Women

Dietary Causes	*Scoring Levels*	*No.*	*%*	*χ^2-test*	*$P_{-value}^{(*)}$*	*MS*	*SD*	*RS*	*Ass.*
Drinking Filtered Water	Never	11	11						
	Sometimes	13	13	81.980	.000	2.65	.672	88.3 MS*100/3	P
	Always	76	76						
Drink 7 Glasses of Water A Day	Never	14	14						
	Sometimes	72	72	67.280	.000	2.0	.532	66.6	P
	Always	14	14						
Avoid Drinks Such As Tea And Coffee	Never	19	19						
	Sometimes	42	42	9.380	.009	2.2	.739	73.3	P
	Always	39	39						

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Table 2(part-II). Distribution of dietary factors of (100) Women

Dietary Causes	*Scoring Levels*	*No.*	*%*	*χ^2-test*	*$P_{-value}^{(*)}$*	*MS*	*SD*	*RS*	*Ass.*
Avoid Eating Red Meat	Never	12	12						
	Sometimes	66	66	49.520	.000	2.1	.577	70.0	P
	Always	22	22						
Avoid Eating Vegetables Such As Tomatoes	Never	2	2						
	Sometimes	29	29	68.180	.000	2.67	.514	89.0	P
	Always	69	69						
Eating Fruits Rich In Vitamin C	Never	5	5						
	Sometimes	53	53	37.940	.000	2.37	.580	79.0	P
	Always	42	42						

(*) HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; S: Sig. at P>0.05. The statistics based on the Chi – Square test

Table 2 shows women's responses to dietary factors, all items reported pass assessment.

Table 3 (part-I). Distribution of hygiene factors of (100) Women in Reproductive Age with UTI

Hygiene Causes	*Scoring Levels*	*No.*	*%*	*χ^2-test*	*$P_{-value}^{(*)}$*	*MS*	*SD*	*RS*	*Ass.*
Avoid Shower more than twice a day	Never	32	32						
	Sometimes	57	57	31.820	.000	1.79	.624	59.6	F
	Always	11	11						
Drying genital area after urinating	Never	23	14						
	Sometimes	35	72	5.540	.063	2.19	.787	73.0	P
	Always	42	14						
Used for drying single-use wipes	Never	34	19						
	Sometimes	37	42	.980	.613	1.95	.796	65.0	F
	Always	29	39						
Change underwear daily	Never	8	12						
	Sometimes	29	66	46.220	.000	2.55	.642	85.0	P
	Always	63	22						

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Table 3(part-II). Distribution of hygiene factors of (100) Women in Reproductive Age with UTI

Hygiene Causes	*Scoring Levels*	*No.*	*%*	*χ^2-test*	*P_{-value}(*)*	*MS*	*SD*	*RS*	*Ass.*
Drying underwear sunshine	Never	4	2						
	Sometimes	22	29	79.280	.000	2.70	.541	90.0	P
	Always	74	69						
Hands washing after using the toilet	Never	2	5						
	Sometimes	11	53	130.820	.000	2.85	.411	95.0	P
	Always	87	42						
Change diapers during the menstrual cycle	Never	2	8						
	Sometimes	14	29	117.680	.000	2.82	.435	94.0	P
	Always	86	63						
Avoid After defecation washing from back to front	Never	0							
	Sometimes	22	22	31.360	.000	2.78	.416	92.6	P
	Always	78	78						
Clean underwear with soap and water	Never	3	3						
	Sometimes	19	19	93.620	.000	2.75	.500	91.6	P
	Always	78	78						
your Underwear are cotton	Never	14	14						
	Sometimes	45	45	17.060	.000	2.27	.694	75.6	P
	Always	41	41						
Clean underwear isolated from other clothes	Never	26	26						
	Sometimes	13	13	36.980	.000	2.35	.869	78.3	P
	Always	61	61						

(*) HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; N S: Sig. at P>0.05. The statistics based on the Chi – Square test

** (RS: Relative Sufficiency)

Table 3 shows In light of women's responses to hygiene factors, all items reported pass assessment, except in (Avoid Shower more than twice a day& Used for drying single-use wipes) reported fall assessment.

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Table 4. Summary Statistics of the studied responding of Dietary factors & Hygiene factors

Health Behaviors	*No.*	*Min.*	*Max.*	*GMS*	*RS*	*Ass.*
Dietary Factors	100	2.0	2.67	2.335	77.8	Good
Hygiene Factors	100	1.79	2.85	2.32	77.3	Good

Table (4) shows the summarizes of the subjects at the part's responses that are done by using the compact form through calculating minimum, maximum mean of score, grand mean of score (G.M.S.), relative sufficiency (RS), and finally the conventional dichotomous responding scoring by (Bad, Moderate, and Good) through the intervals ("33.33 - 55.54", "55.55 - 77.76", and "77.77 - 100") respectively.

Table 5. Distribution of disease among (100) Women

Diseases Suffering Variables	*Groups*	*No.*	*Percent*
Tonsillitis	Yes	57	57
	No	43	43
Diabetes	Yes	27	27
	No	73	73
Hyper Tension	Yes	5	5
	No	95	95
History of UTI	Yes	60	60
	No	40	40

Table 5 shows the rate of UTI was (60%) among other diseases which affect women.

Table 6. TheRelationships for Dietary factorsandDemographical Characteristics variables

Relationships for Dietary Factors and Demographical Characteristics Variables	*C.C.*	*Sig.*	*C.S.*
Age Groups	0.844	0.001	S
Educational level	0.542	0.242	NS
Social status	0.594	0.001	S
Occupation	0.332	0.193	NS
Residency	0.364	0.138	NS
Socio-Economic Status	0.386	0.489	NS

(*) HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; NS: Non Sig. at P>0.05

Table (6) shows regarding to women's "Dietary factors" main domain, the results has reported that "Socio-Demographical Characteristics" variables, had significant relationship with overall assessment according to "Under/Upper" cutoff point in compact formed for the grand mean of score values, and that reported with (Age groups, and Social Status), since

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significant correlation ships were obtained in at least at P<0.05, as well as a non-significant relationship has obtained with the leftover-variables.

Table 7. Association between Socio-Demographical Characteristics variables with an overall assessments according to "Under/Upper" Cutoff Point of the studied Healthy Behaviors Factors

Relationships for Hygiene Factors and Demographical Characteristics Variables	*Hygiene Factors*		
	C.C.	*Sig.*	*C.S.*
Age Groups	0.870	0.323	NS
Educational level	0.785**	0.000	HS
Social status	0.779**	0.000	HS
Occupation	0.727**	0.000	HS
Residency	0.745**	0.000	HS
Socio-Economic Status	0.745**	0.000	HS

(**) HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; NS: Non Sig. at P>0.05

Table (7) shows regarding women's " Hygiene factors" main domain, the results had reported that "Socio-Demographical Characteristics" variables, had significant relationship with overall assessment according to "Under/Upper" cutoff point in compact formed for the grand mean of score values, and that reported with *(Educational level, Occupation, Residency and Socio-Economic Status)*, since significant correlation ships were obtained in at least at P<0.05, as well as a non-significant relationship had obtained with *Age Groups.*

DISCUSSION

Socio-Demographic Characteristics

The present study has reported that the highest percentage ((35%) of the study sample is at age group ranged (21-25) years old with mean age and standard deviation (23.42 ± 6.809) as shown in table (1).This finding is consistent with study[5] done in Iraq, theyfound The relationship of urinary tract infection with the age. It was clear that percentage of infection with *Candida* was high among females age group (19-39 years) they were sexually active and therefore, the prevalence of infection is expected to be high because they acquired infection by contact with infected person. In addition, most of the women at this age may be newly married, pregnant or using contraceptive pills that increase the chance of exposure to infection more than other age groups [5].

Educational level

Institute & College high levels of education, they are accounted for (46%) of the total sample. This finding is consistent with studies[6] done in USA among College Womenfor better understand the etiology of recurrent urinary tract infection (UTI) due to *Escherichia coli*[6]. Also agree with study of Jalali, in Iran the study found 47.8% of the pregnant women with UTI. At level of education of diploma was observed [7].

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Residency

The highest percentage of the sample was represented in urban 72%, and rural were 28%. This finding is consistent with studies, stated that infection may be due to difficult living circumstances in cities, environmental pollution [8].

Agree with studyfound Infection rate in urban individuals had complete ratio in contrast of rural individuals [9].

Social Status

The highest percentages of the sample (52%) were married. This agree with study found Sexually active women aged 20 to 40 years and postmenopausal women older than 60 years are the two populations at greatest risk for UTI[10] .

Occupation

The highest percentage of the sample was housewife they are accounted (67%). This agree with study In Najaf city found that infection rate in housewife women was the highest than other jobs [9].

BMI: the highest percentage of the sample were at normal weight (18.5-24.9 kg/cm^2) they are accounted (52%), with Mean ± SD21.46 ± 3.716.This disagree with study by (Parker AS.) estimated that the association of history of UTI with obesity[11].

Economic Status

The highest percentages were enough economic status they are accounted (52%). This disagree with study found the prevalence was higher among individuals in lower socioeconomic classes and those with a past history of UTI[12].

Distribution of Dietary Factors

Table (2) shows that all item were gives pass assessment with high mean scores & RS, pass assessment in which considered important in the prevention or reduction of UTI. While other items give pass assessment with high mean scores & RS, with high significant association among all items. This agree with (Rose Kivi and Matthew Sola) they found Drinking plenty of fluids (water is best) help to flush the bacteria out of bladder[13].

That agree with (Best Practice Guidelines), drink extra fluids when a bladder infected to help flush bacteria from the bladder in spite of this can dilute the antibiotic and possibly making the medication less effective that agree with**[3]** in keeping adequately hydrated by drinking plenty of water thought to help 'flush out' and eradicate bacteria from the urinary tract.

Regarding Coffee, alcohol, and soft drinks containing citrus juices and caffeine can irritate the bladder and aggravate symptoms [3].

Regarding Coffee, a study reported that high caffeine intake was associated with a modest increase in the incidence of frequent urinary incontinence [14].

Regarding red meat, the result of this study agree with a study found thatfood animal and meat reservoir might exist for (UTI), because of E. coli infection [15].

Regarding to Vegetables Tomato: This agree with study which found Many people with interstitial cystitis (IC), they have simple changes in their diet and avoid Store-bought tomatoes, onions, tofu, soybeans, lima beans and fava beans. Avoid Store-bought tomatoes, onions, tofu, soybeans, lima beans and fava beans can help to control symptoms and avoid IC flare-ups[16]. A study from the University of South Florida surveyed members of the Interstitial Cystitis Association (ICA) with a web-based questionnaire. 95.8% of respondents

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reported that certain foods and beverages affected symptoms. Most items had no effect on symptoms were tomatoes, coffee, tea, carbonated and alcoholic beverages, and spicy foods [17].

Regarding Vitamin C agree with (Head K A) found vitamin C consumption appeared to decrease the risk UTI[18].

Ascorbic acid was tested for its effect on UTI prevention during pregnancy, [19] they found the occurrence of UTIs was significantly lower in the group receiving vitamin C (12.7%) than the group without vitamin C (29.1%) (p=0.03; OR=0.35).

Regarding UTI & Diabetes

Chines study found increase UTI, because the presence of glucose in urine which facilitates the microbial proliferation [20].

Regarding UTI & Previous UTI

This finding is consistent with studies done in USA among College Women for better understand the etiology of recurrent urinary tract infection (UTI) due to *Escherichia coli*. Risk of second UTI is strongly influenced by sexual behavior, *E. coli* first UTI are more likely than are non-E. *coli* first UTI to result in a second UTI within 6 months. [6].Also other study estimated 20-30 percent of women with a first UTI will have two or more episodes and percent will have chronic recurring infections [6].

Also other study found the highest risk for community-acquired UTIs. The main risk factors forUTI are recent and frequent sexual intercourse, contraceptive use, and a history of UTIs [21**]**

Regarding UTI & Hygienic Factors

This finding is consistent with study done in USA among College Women wiping back to-front as opposed to front-to-back had no impact on rate of second UTI (RR = 0.91, 95 percent CI:0.45, 1.85) [6**].**Also other study found *Prevention of Urinary Tract Infections through* avoid nylon underwear； Bathing be use showers, Sitting around in wet bathing suits, Soaps that contain perfumes, colorations, Vaginal douches and sprays with Perfumes, Clothing that increases heat and perspiration in the perineal area [22].Also make lifestyle changes in order to help reduce the occurrence of bladder infections by wipe from front to back after urinating if you are female; do not use douches, feminine hygiene sprays, or powders, take showers instead of baths, wear cotton underwear and loose-fitting clothes, change your underwear daily, wear sanitary pads instead of tampons[3,13].

RECOMMENDATIONS

Educational programs in the early teen females about health food, health education for all women about personal hygiene. It is suggested that females should be regularly checked and examined by visiting the clinicians. They should be promptly treated after the proper investigations.

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