Assessment of Pregnant Women Knowledge toward Urinary Tract Infection in Primary Health Care Centers at Kirkuk City

تقييم معارف النساء الحوامل تجاه التهاب المسالك البولية في المراكز الرعاية الصحية الأولية في مدينة كركوك

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المستخلص

الهدف : تهدف الدراسة الحالية إلى تقييم معارف النساء الحوامل تجاه التهاب المسالك البولية في مدينة كركوك.

المنهجيــة دراسة وصفية وتحليلية أجريت من ١ نوفمبر ٢٠١٣ حتى ١٩ آب ٢٠١٤ في خمسة مراكز الرعاية الصحية الأولية النموذجية في مدينة كركوك. تم استخدام الاحتمالية (عينة عشوائية) لاختيار عينة من ١٨٠ امرأة تتراوح أعمارهن بين (١٥-٤٤) سنة. تم استخدام الاستبانة أداة لجمع البيانات . تم تحديد صدق المحتوى من قبل (٢٤) خبير في مختلف الاختصاصات العلمية . وتم تحديد ثبات الاستبانة من خلال دراسة استطلاعية . تم استخدام الإحصاء الوصفي والاستدلالي لتحليل البيانات.

النتائــج : أظهرت نتائج الدراسة إن أكثر عينة الدراسة (٣١,١%) و (٣١,١%) من الفئات العمرية (٢٠-٢٤) سنة و (٢٥-٢٩) سنة على التوالي ومتوسط أعمارهن (٢٩,٢ ±١,٣٣) سنة، ، ثلثهم تقريبا (٣٢,٢%) خريجات ابتدائية ، (٨٣,٣%) ربات بيوت، الغالبية العظمى (٩٨,٨%) يعيشون في الأماكن الحضرية ، (٦٥%) من طبقة اجتماعية اقتصادية واطئة . تقييم معارف النساء الحوامل حول التهاب المسالك البولية أظهرت النتائج أن معارف النساء " غير كافية " لمعظم المحاور والتي تشمل : ١- معلومات عامة عن التهاب المسالك البولية، ٢- الأسباب، ٣- طرق الانتقال، ٤- المضاعفات، ٥- الفحوصات. بينما كانت المعارف " كافية " للمحاور: ١- علامات وإعراض التهاب المسالك البولية، ٢- العلاج، ٣- الوقاية .كما أظهرت نتائج الدراسة وجود علاقة ذات دلالة إحصائية (P< 0.05) بين معارف النساء وبعض متغيرات الدراسة من الخصائص الديموغرافية والإنجابية.

التوصيات : أوصت الدراسة بزيادة وعي النساء الحوامل تجاه مضاعفات الحمل وبالأخص التهاب المسالك البولية من خلال وسائل الأعلام والبرامج التعليمية . إجراء دراسات أكثر حول التهاب المسالك البولية وتأثيرها على صحة الأم وناتج الحمل.

الكلمات المفتاحية: التهاب المسالك البولية، الام الحامل، الادوية المضادة للبكتريا

Abstract

Objective: To assess pregnant women Knowledge toward Urinary Tract Infection at Kirkuk City.

Methodology: A descriptive and analytical study was conducted from 1st of November 2013 and up to the 19 th of August 2014 in five typical primary health care centers at Kirkuk City. A Probability (randomly sample) was used to select the sample of 180 women aged (15-44) years. A questionnaire format was used as a tool for data collection , content validity of the questionnaire achieved through reviewing it by (24) experts in numerous scientific fields and reliability of the questionnaire was determined through a pilot study. Descriptive and inferential statistics were used to analyze the data.

Results : The results of the study revealed that most of the study sample (31.1%) & (31.1%) were in age groups (20-24) & (25-29) years respectively, with Mean ± SD (29.2 ±1.33) years. Nearly one third of them (32.2%) were primary school graduates , (83.3%) were housewives, the vast majority (98.8%) were livining in urban areas , and (65%) were from low socioeconomic class. Assessment of women's knowledge about UTI , the results reported " inadequate knowledge " for most UTI knowledge categories including: 1.General information about UTI , 2. Causes, Mode of transmission, Complications , Investigation. While " adequate knowledge " of women for the following categories : 1.Sign &symptoms of UTI , 2. Treatment, 3. Prevention.

Key words: UTIs, pregnant women, bacteriuria, antimicrobial drug resistance.

Introduction

Urinary tract infections (UTI) affect all age groups, but women particularly pregnant women are more susceptible than men, due to short urethra, pregnancy, easy contamination of urinary tract with fecal flora and various other reasons [(1)]. Urinary tract infections (UTIs) are one of the most common medical complications of pregnancy [(2)] . It is estimated that one in three women of childbearing age will have a UTI [(3)] . Because of the normal physiologic changes induced by gestation, pregnant women are especially susceptible to these infections. UTIs are characterized by the presence of infectious agents in the genito- urinary tract that cannot be explained by contamination. These agents have the potential to invade the tissues of the urinary tract and adjacent structures. The microbiological profile is well known and pathogens such as *Escherichia coli* have been present in the vast majority of cases. [(4)] .

The infection may be limited to the growth of bacteria in the urine (which frequently don't produce symptoms) or it can result in several syndromes associated with an inflammatory response to the bacterial invasion . Actually, the term UTI represents a wide variety of conditions, including asymptomatic forms of UTIs, urethritis, cystitis, acute pyelonephritis and pyelonephritis with bacteremia or sepsis[(5)] .

Pregnancy is a provocation for the asymptomatic to become symptomatic. About 10% of those with asymptomatic bacteriuria develop symptomatic bacteriuria during pregnancy. Symptomatic bacteriuria is easily diagnosed and treated due to its overt symptoms, but asymptomatic bacteriuria is difficult to diagnose and it is more common in pregnant women than non-pregnant women. In pregnancy, 30-40% of untreated pregnant women with asymptomatic bacteriuria develop acute pyelonephritis in late pregnancy [(6)] .

Urinary tract infection is more commonly seen in primigravida than multiparas. Previous history of urinary tract infection increases the chance of recurrent infection by 50 % , presence of asymptomatic bacteriuria increases the chance by 25%, and abnormality in the renal tract is found in about 25%. [(7)] .

All pregnant women should be screened for bacteriuria and subsequently treated with appropriate antibiotic therapy**.** Untreated UTIs can lead to serious obstetric complications, poor maternal and prenatal outcomes, such as pyelonephritis, low-birth-weight infants, premature delivery, and, occasionally, stillbirth; therefore, screening of pregnant women for UTI can minimize these UTI associated complications and prompt treatment of symptomatic UTIs and asymptomatic bacteriuria is warranted in pregnant women. [(8)] .

To prevent mother and child from any form of complication that may arise due to infection, it has been suggested to do routine culture screening for all pregnant women attending antenatal clinic even in the absence of UTI symptoms. It has been advised to treat bacteriuria with a course of antibiotic 3-7 days, which would reduce the risk of symptomatic UTI by 80 - 90% [(9)] **.**

Methodology

Descriptive and analytical study was carried out from 1st November 2013 to 19st August 2014 in order to achieve the objectives of the present study **.**The study was conducted in five typical primary health care centers (PHCCs) at Kirkuk City which were chosen as follows:

1. Kirkuk Health Directorate classified Kirkuk city

into two sectors, **first sector** includes (17) PHCCs, and the **second sector** includes (13) PHCCs .

2. The researcher choose only the typical PHCCs which are (5) from the total of (30) PHCCs.

The Study Sample included 180 Pregnant Women aged (15-44) years who were selected randomly from the five typical PHCCs at Kirkuk City.For the purpose of the present study, a questionnaire format was constructed to assess pregnant woman's knowledgeurinary tract infection who attended the typical primary health care center. The questionnaire format was based on the review of literature and related previous studies .The study instrument was comprised of four parts , which included the following :

Part one: Sociodemographic Characteristics

Part two: Reproductive History

Part three: History of Previous Medical Diseases &or Obstetrical Diseases

Part four: Pregnant Woman Knowledge toward Urinary Tract Infection : This part is a " knowledge scale" constructed to assess women's knowledge toward urinary tract infections . It consists of 64 items distributed among eight categories and as follows : **1.** general information about UTI (5 items), **2.** causes of urinary tract infection (11 items), **3.** mode of transmission of infection (8 items), **4.** signs and symptoms (12 items), **5.** complications (8 items), **6.** investigation and diagnosis (5 items), **7.**Treatment (6 items), **8.** Prevention (9 items)).

The data had been collected through the use of the constructed questionnaire and self reporting through an interview technique with the pregnant woman in the typical primary health care centers as a means of data collection process. Each pregnant woman spends approximately (20-30 min) to response to the questionnaire's items.

Results

The results of the study revealed that most of the study sample (31.1%) & (31.1%) were in age groups (20-24) & (25-29) years respectively, with Mean ± SD (29.2 ±1.33) years Fig (1). Nearly one third of them (32.2%) were primary school graduates Fig (2), (83.3%) were housewives Fig (3), and (65%) were from low socioeconomic class Fig (4).

The Study Finding Concerining Sociodemographic Characterstics of the Study Sample are Illustrateed through the following Figures:

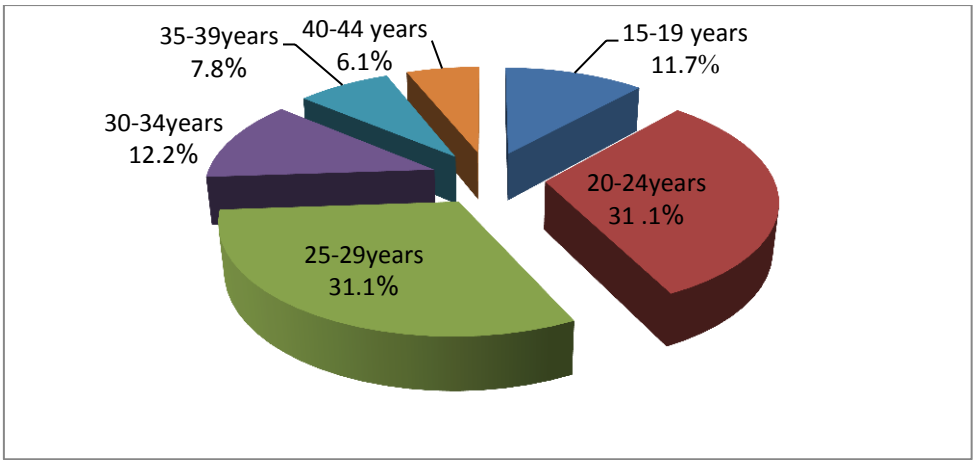

Figure (1) :Distribution of the Study Sample Acording to their Age

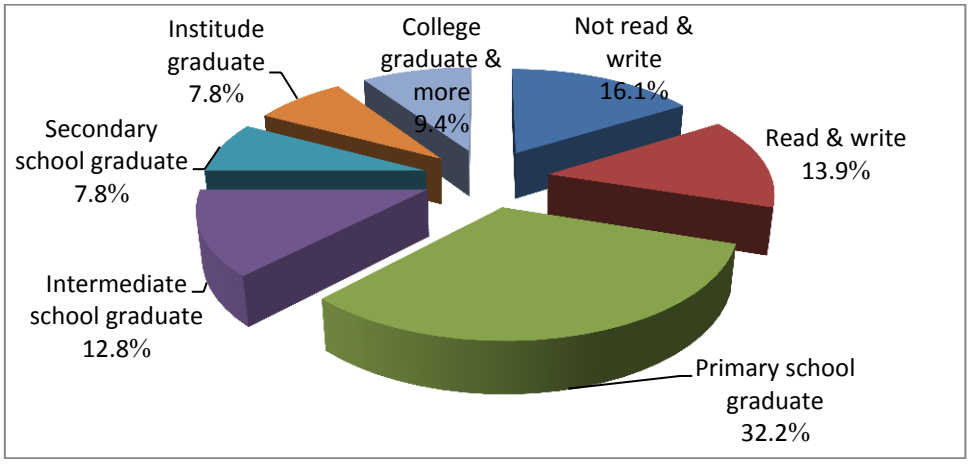

Figure (2): Distribution of the Study Sample According to their Education

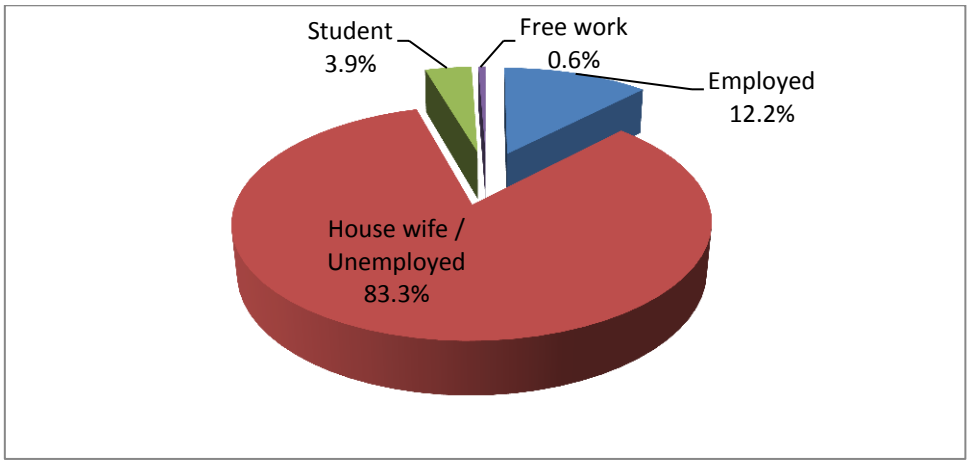

Figure (3): Distribution of the Study Sample According to their Occupation

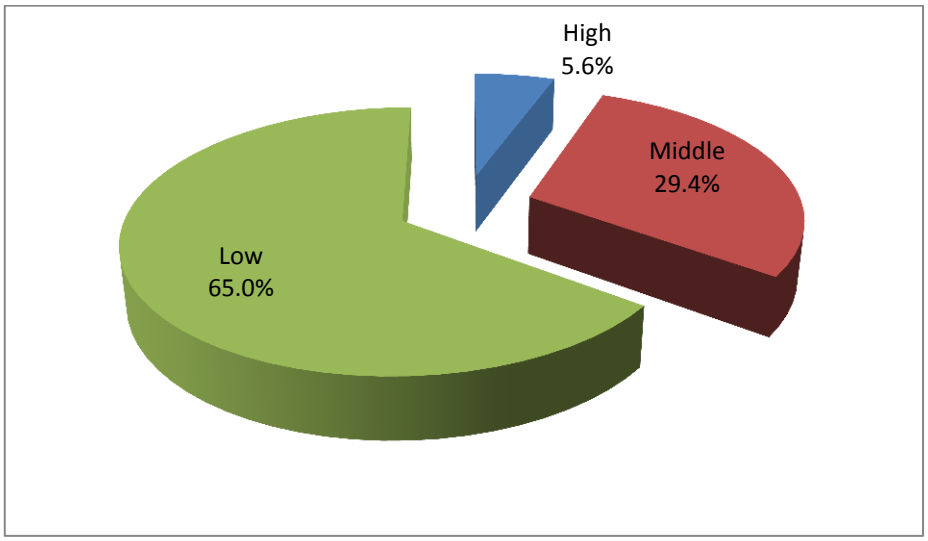

Figure (4): Distribution of the Study Sample According to their Socioeconomic Statues

Table (1) : Distribution of the Study Sample According to their Knowledge of UTI (N=180)

NO	1. General information about UTI	Yes		No		MS	Ass
		F	%	F	%		
1.1	Urinary tract consists of the kidneys, ureters, bladder and urethra	56	31.1	124	68.9	1.31	**Inadequate**
1.2	UTI in women is more than in men	124	68.9	56	31.1	**1.69**	**adequate**
1.3	UTI can spread to one of the kidneys	116	64.4	64	35.6	1.64	**adequate**
1.4	UTI is second most common type of inflammation in the body and the most common bacterial infection	27	15.0	153	85.0	1.15	**Inadequate**
1.5	Shortness and dilated urinary orifice of women urethra	37	20.6	143	79.4	1.20	**Inadequate**
GMS=1.40							
2	**Causes of UTI**						
2.1	Cause of urinary tract infection is the bacteria	71	39.4	109	60.6	1.39	**Inadequate**
2.2	The presence of congenital anomalies in the urinary tract	38	21.1	142	78.9	1.21	**Inadequate**
2.3	Presence of Diabetes mellitus	53	29.4	127	70.6	1.29	**Inadequate**
2.4	Deficiency of immune system	47	26.1	133	73.9	1.26	**Inadequate**
2.5	Retention of urine in bladder for a long time	115	63.9	65	36.1	1.64	**adequate**
2.6	Incomplete evacuation of urine from bladder	110	61.1	70	38.9	1.61	**adequate**
2.7	Sexual contact with a person infected with bacteria that cause inflammation	122	67.8	58	32.2	1.68	**adequate**
2.8	Lack of attention to personal hygiene of the genital and urinary area	144	80.0	36	20.0	**1.8**	**adequate**
2.9	The presence of kidney stones or cysts	90	50.0	90	50.0	1.5	**Inadequate**
2.10	Narrow and blockage in the urinary tract	56	31.1	124	68.9	1.31	**Inadequate**
2.11	Underwear clothing is made of non cotton marteial	118	65.6	62	34.4	1.66	**adequate**
GMS=1.49							
3	**Mode of transmission of UTI**						
3.1	Through the urethra to the bladder and urinary ureters and kidneys	38	21.1	142	78.9	1.21	**Inadequate**
3.2	Directly through the fistula between the bladder and bowel	25	13.9	155	86.1	1.14	**Inadequate**
3.3	By blood	49	27.2	131	72.8	1.27	**Inadequate**
3.4	From previous untreated UTI	137	76.1	43	23.9	**1.76**	**adequate**
3.5	Multiplication of bacteria in the urinary bladder	82	45.6	98	54.4	1.46	**Inadequate**
3.6	Contamination of the genital area and urinary by bacteria from the anus	66	36.7	114	63.3	1.37	**Inadequate**
3.7	Frequent sexual intercourse if the husband is infected with urinary tract infections .	127	70.6	53	29.4	1.71	**adequate**
3.8	Urinary catheter	29	16.1	151	20.0	1.16	**Inadequate**

GMS=1.39							
4	**Sign & Symptoms of UTI**						
4.1	Severe difficulty in urination (dysuria)	121	67.2	59	32.8	1.67	**adequate**
4.2	Burning feeling during urination	140	77.8	40	22.2	1.77	**adequate**
4.3	The presence of blood in urine	99	55.0	81	45.0	1.55	**adequate**
4.4	Change the colour of urine	137	76.1	43	23.9	1.76	**adequate**
4.5	Increase the number of frequency of urination	141	78.3	39	21.7	**1.78**	**adequate**
4.6	Out a few drops of urine (dropping of urine)	116	64.4	64	35.6	1.64	**adequate**
4.7	The presence of bad Oder in urine	132	73.3	48	26.7	1.73	**adequate**
4.8	A slight rise in temperature sometimes high fever	87	48.3	93	51.7	1.48	**Inadequate**
4.9	Pain in the back and flanks and lower abdomen	133	73.9	47	26.1	1.73	**adequate**
4.10	Pain during intercourse	110	61.1	70	38.9	1.61	**adequate**
4.11	Lack of control over urination or bedwetting	79	43.9	101	56.1	1.43	**Inadequate**
4.12	Frequent occurrence of uterine contractions	92	51.1	88	48.9	1.51	**Inadequate**
GMS=1.64							
5	**Complications of UTI**						
5.1	Atrophy of the kidney or chronic kidney failure	96	53.3	84	46.7	**1.53**	**adequate**
5. 2	Urinary tract obstruction leads to the occurrence of new infections	68	37.8	112	62.2	1.38	**Inadequate**
5.3	High blood pressure	62	34.4	118	65.6	1.34	**Inadequate**
5.4	Anemia	63	35.0	117	65.0	1.35	**Inadequate**
5.5	In the first months of pregnancy lead to abortion	68	37.8	112	62.2	1.38	**Inadequate**
5.6	In the last months of pregnancy leads to premature birth	57	31.7	123	68.3	1.32	**Inadequate**
5.7	Lead to child with low birth weight	47	26.1	133	73.9	1.26	**Inadequate**
5.8	May lead to the death of newborn in the perinatal period	37	20.6	143	79.4	1.21	**Inadequate**
GMS=1.34							
NO	**Investigation & Diagnosis**						
6.1	Ultrasound and Intra Venous Urogram	97	53.9	83	46.1	1.54	**adequate**
6.2	General urine examination to detect the presence of microbes and salts and alkaline urine acidity	147	81.7	33	18.3	**1.82**	**adequate**
6.3	Urine culture and drug sensitivity against bacteria	69	38.3	111	61.7	1.38	**Inadequate**
6.4	A blood test for urea and creatine (kidney function)	83	46.1	97	53.9	1.46	**Inadequate**

6.5	Checking for the presence of urine protein (albumin)	49	27.2	131	72.8	1.27	**Inadequate**
GMS=1.49							
7	**Treatment of UTI**						
7.1	Giving antibiotics	89	49.4	91	50.6	1.49	**Inadequate**
7.2	A lot of drinking water and fluids	146	81.1	34	18.9	1.62	**adequate**
7.3	Reduction of sexual intercourse during disease	123	68.3	57	31.7	1.68	**adequate**
7.4	Commitment of period of treatment by the doctor order	137	76.1	43	23.9	**1.76**	**adequate**
7.5	Do not eat and foods that contain spices	108	60.0	72	40.0	1.6	**adequate**
7.6	Commitment comfortable and stay away from stress	73	40.6	107	59.4	1.40	**Inadequate**
GMS=1.59							
3	**Prevention of UTI**						
8.1	Cleaning the anal area with soap and water immediately after defecation	127	70.6	53	29.4	1.71	**adequate**
8.2	Urinate before and after sexual intercourse	128	71.1	52	28.9	1.71	**adequate**
8.3	Drink a lot of water every 2-3 hours (8-10) glasses / 24 hour	121	67.2	59	32.8	1.67	**adequate**
8.4	You should not drying the genital area from behind (anal area) forward (genital area)	56	31.1	124	68.9	1.31	**Inadequate**
8.5	Using cotton underwear and stay away from rubber and nylon clothing	121	67.2	59	32.8	1.67	**adequate**
8.6	Changing underwear daily and exposed to sunlight	119	66.1	61	33.9	1.66	**adequate**
8.7	Urinating when you feel the desire to empty the bladder	144	80.0	36	20.0	**1.8**	**adequate**
8.8	Emptying the bladder completely when urinating and before going to sleep	141	78.3	39	21.7	1.79	**adequate**
8.9	Avoid constipation because it hinders empty the bladder of urine	66	36.7	114	63.3	1.37	**Inadequate**
GMS= 1.63							

Table (1) Illustrates Women's Responses toward UTI Knowledge through the following Categories:-

1.General information about UTI:

The finding shows that the highest mean of score **(1.69)** for item (1.2) which refers to " UTI in women is more than in men " while the lowest mean of score **(1.15)** for item (1.4) that refers to " UTI is second most common type of inflammation in the body and the most common bacterial infection " .The grand mean score **(GMS = 1.40)**.

Causes of UTI : The highest mean of score **(1.8)** for item (2.8) which refers to " Lack of attention to personal hygiene of the genital and urinary area ", while the lowest

mean of score **(1.2)** for item (2.2) which refers to " The presence of congenital anomalies in the urinary tract " .The grand mean score **(GMS =1.49)**.

Mode of Transmission of UTI : The highest mean of score **(1.76)** for item (3.4) which refers to "From previous untreated UTI " , while the lowest mean of score **(1.14)** for items (3.2) which refers to " Directly through the fistula between the bladder and bowel " .The grand mean score **(GMS =1.39)**.

Sign and Symptoms of UTI: The highest mean of score **(1.78)** for item (4.2) which refers to " Increase the number of frequency of urination" while the lowest mean of score **(1.43)** on item (4.11) which refers to " Lack of control over urination or bedwetting " . The grand mean score **(GMS =1.64).** .

Complications of UTI: showed that the highest mean of scores **(1.53)** for item (5.1) , while the lowest mean of score **(1.27)** was on item (6.5).that refers to " UTI May lead to the death of newborn in the prenatal period " . The grand mean score **(GMS 1.34)**.

Investigation and Diagnosis of UTI : The highest mean of score **(1.82)** for item No (6.2) which refers to " General urine examination to detect the presence of microbes and salts and alkaline urine acidity ", while the lowest mean of score **(1.27)** was on items (6.5) which refers to " Checking for the presence of urine protein (albumin) " . The grand mean score **(GMS =1.49)**.

Treatment of UTI : The highest mean of score **(1.76)** for item (7.4) which refers to " Commitment of period of treatment by the doctor ordered " , while the lowest mean of score **(1.40)** was on items (7.6) " Commitment comfortable and stay away from stress ". The grand mean score **(GMS =1.59).**

Prevention of UTI : The highest mean of score **(1.8)** for item (8.7) which refers to " Urinating when you feel the desire to empty the bladder ", while the lowest mean of score **(1.31)** was on item (8.4) that refers to " You should not drying the genital area from behind (anal area) forward (genital area) " .The grand mean score **(GMS = 1.63).**

Table (2) Grand Mean Score and Assessment of Women's Knowledge toward UTI Categories

NO	UTI Knowledge category	GMS	Assessment
1	General information about UTI	1.40	Inadequate
2	Causes of UTI	1.49	Inadequate
3	Mode of transmission of UTI	1.39	Inadequate
4	Sign &symptoms of UTI	**1.64**	**Adequate**
5	Complications of UTI	1.34	Inadequate
6	Investigation of UTI	1.49	Inadequate
7	Treatment of UTI	**1.59**	**Adequate**
8	Prevention of UTI	**1.63**	**Adequate**
Total		**1.496 ~1.5**	**Adequate**

Table (4-4B) shows that the highest grand mean score is **(1.64)** for category (4) " Women's Knowledge toward Sign & Symptoms of UTI" and the lowest grand mean score **(1.34)** for category (5) " Women's Knowledge toward Complications of UTI". The grand mean score for all UTI Knowledge Categories (1.49) ~1.5.

Discussion

Sociodemographic characteristics:

The result of present study present the highest percentages (31.1% , 31.1%) of Pregnant Women were within age groups (20-24),(25-29) years respectively, with mean and standard deviation 292±1.33 Fig (1). This result agrees with a study conducted by (Krcmery et al ., 2001) , who concluded that one of the risk factors for UTI in women include: having first UTI at an early age, and having a maternal history of UTIs. The reason for high incidence of UTI among this age group is because women at this age are more sexually active and this may have predisposed them to UTI [(10)]. The educational level for most women and husbands was a primary school graduate and they accounted for (32.2%) (29.4 %) respectively Fig (2). A previous study in Pakistan and Iran showed that educational level are not among the factors that influence the occurrence of UTI (Hazhir , 2007; Sheikh et al ., 2000) [(11) (12)] . Other study in Thailand showed that lower education level (< or = grade 6) was reported as the only risk factor that influenced UTI

Knowledge about urinary tract infection was illustrated in table (4-4A) through the following UTI knowledge categories .

Category 1. General information about UTI : The finding reported " inadequate " knowledge of women for this category **(GMS=1.40)**. Most women had deficient knowledge about the anatomy of urinary system , and the nature f this system in female which make it easy to be infected by UTI .It had been reported that women , in particular pregnant women are more susceptible to UTI than men, and easy contamination of urinary tract due to short female urethral and with its proximity to area like vagina, rectum ad anus , which are areas colonized with enteric flora **.** UTI It is important because it may involve kidneys, ureters, bladder and urethra & affects all age groups , but women particularly (Kovavisarach et al ., 2009) [(13)]. The occupation for the majority of women (83.3%) was house wife Fig (3) . The findings of this study agree with a study done by (Stanley, & Kayode, 2014) [(14)] on the prevalence and antimicrobial susceptibility pattern of UTI among pregnant women in Afikpo, Ebonyi State, Nigeria. The result of the study reported that the majority of the women were housewives and constituted (77.3%) .The finding reveals that (65.0%) of the study sample were from low socioeconomic status Fig (4). The findings of this study agree with a study done by (Marzieh Jalali et al., 2014) [(15)], a cross-sectional study that was carried out on 180 pregnant women referring to Karaj health centers in 2013 ,which showed that the low socioeconomic status was one of the factors that were significantly associated with increased UTI.

Pregnant Women's Knowledge Concerning Urinary Tract Infection:

pregnant women are more susceptible than men , and easy contamination of urinary tract due to, (short female urethra with its proximity to areas like vagina, rectum and anus , which are areas colonized with enteric flora) (Enayat et al ., 2008 ; Mahdy et al ., 2002) [(1) (16)] **.** However , UTIs may be more serious during pregnancy because they are more likely to travel to the kidneys (Hooton , 2001) [(17)] **.** UTI is the second most common cause of bacteremia in hospitalized patients . Kolawole et al ., 2009) [(18)] .

Category Two : Causes of UTI : The study finding reported " inadequate" Knowledge of women for this category **(GMS = 1.49) .** Most women didn't know about causes of UTI such as Cause of urinary tract infection is the bacteria , congenital anomalies, D.M. Deficiency of immune

system , kidney stones, blockage in the urinary tract. Abnormalities of urinary tract or stones , diabetes mellitus , immune suppression and past history of UTI tend to increase the risk (Patterson & Andriole , 1997) [19] . One study reviewing UTIs in diabetic patients at King Abdul- Aziz University Hospital in Saudi Arabia they found that the incidence has increased from 6% in 1986 to 11% in 1999 (Akbar , 2001) [20]. UTI reported in the presence of neurological diseases, congenital/acquired anomalies of bladder , vesico-ureteric reflux and suppressed immune system (Enayat et al ., 2008 ; Aboderin et al ., 2009) [1] [21] Bandyo padhyay et al ., (2005) [22] reported that Sexual activity and certain contraceptive methods are also said to increase the risk. The anatomical relationship of female's urethra and the vagina makes it liable to trauma during sexual intercourse as bacteria also have been massaged up the urethra into the bladder during pregnancy and child birth.

Category Three : Mode of Transmission of UTI: The study finding reported " inadequate " Knowledge of women for this category **(GMS=1.39)**. Most women had deficient knowledge about the UTI is transmitted through the urethra to the bladder and urinary ureters and kidneys , through the fistula between the bladder and bowel , by blood , Multiplication of bacteria in the urinary bladder, Contamination of the genital area and urinary by bacteria from the anus , Urinary catheter , Niduvaje et al ., (2006) reported that a urinary tract infection itself is no threat to a pregnant women or the fetus , but a UTI may spread to the bladder . From the bladder , the infection can spread to the kidneys , where it can cause pregnancy complications [23] .

Category Four : Sign & Symptoms of UTI : The study finding reported " inadequate " Knowledge of women for this category **(GMS =1.64)** .Women had " adequate " knowledge about sign & symptoms of UTI. It could be concluded that the pregnant women had such information related to the sign & symptoms UTI which may be acquired from health care givers such as doctor, nurse ..ect whom the women contact them when experienced such UTI complaints Van Brummen et al ., (2006) showed that Urogenital symptoms occur in almost all women during pregnancy. The frequency of overactive bladder symptoms starts from early pregnancy while urinary incontinence symptoms increase with gestational age although majority remain tolerable. Lower urinary tract symptoms are almost universal in antenatal period and are transient . These symptoms may reflect pregnancy induced changes in urinary bladder and urethra or may be manifestation of cystitis and urethritis. Frequency, nocturia and stress incontinences are the most common complaints [24].

Category Five : Complications of UTI : The finding reported " adequate " knowledge of women for this category **(GMS=1.34)**. Most women had deficient knowledge about complications which include Urinary tract obstruction leads to the occurrence of new infections **,** High blood pressure**,** anemia, UTI In the first months of pregnancy lead to abortion , UTI In the last months of pregnancy leads to premature birth &Lead to child with low birth weight **,** & may lead to the death of newborn in the perinatal period **(** Niduvaje K , Amutha , 2006 ; Delzell & Lefevre 2000 ; Foxman , 2002) reported that UTI during pregnancy may cause complications such as pyelonephritis , hypertensive disease of pregnancy , anemia , chronic renal failure , premature delivery and fetal mortality .The incidence of these complications can be decreased by treating promptly ASB and SB during pregnancy. [23] [25] [26]

Category Six : Investigation & Diagnosis of UTI : The finding reported " inadequate " knowledge of women for this

category **(GMS=1.49)**. Most women had deficient knowledge about Investigation & Diagnosis of UTI . Wing et al ., (2000), reported that the diagnosis of UTI may be made on the basis of clinical signs and symptoms in combination with urinalysis results . Urine culture remains an important test in the diagnosis of UTI , because it helps in the documentation of the infection , by determining the infecting bacteria and its antimicrobial susceptibility [(27)] .

Category Seven : Treatment of UTI : The finding reported " adequate " knowledge of women for this category **(GMS=1.59)**. Most women had adequate knowledge about treatment of UTI . It had been reported that 30-40% of untreated pregnant women with asymptomatic bacteriuria develop acute pyelonephritis in late pregnancy (Haslett et al ., 2002) [(6)] . Pyelonephritis is associated with significant morbidity during pregnancy , for the mothers and the fetus . Thus , exact screening and treatment of bacteriuria regardless of symptoms is must in order to avoid further complications . Anatomic and physiologic changes that occur during the pregnancy increase the risk of pyelonephritis in this period (Macejko & Schaeffer , 2007) [(28)] .

Concerning the present study finding , the majority of women were attending prenatal care regularly where the treatment , investigation ….ect concerning UTI were available

Category Eight : Prevention of UTI : The finding reported " adequate " knowledge of women for this category **(GMS=1.63)**. Most women had adequate knowledge about prevention of UTI **.** Dimetry et al ., (2007) & Amiri et al ., (2009) reported that the factors like low socio-economic status , sexual activity, washing genitals precoitus , not voiding urine postcoitus , and washing genitals from back to front have observed as risk factors for UTI during pregnancy [(29) (30)] .

In general , previous studies reported that the risk of urinary tract infection increase in those with conditions associated with impaired voiding or poor personal hygiene .This could be attributed to the increasing risk of general infection associated with bad hygiene (Amiri et al ., 2009). Fortunately , avoid UTI complications during pregnancy, a pregnant woman should contact her doctor immediately (30) .

In relation to the present study finding , the majority of pregnant women contact health care givers who render such instruction & information concerning UTI , some may related to UTI prevention .

Recommendation The study recommended to: Increase pregnant women awareness toward pregnancy complications , in particular UTI through mass media , an educational programs. Further studies about UTI and its effects on maternal health and pregnancy outcome.

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