

**Prevalence of urinary tract infection in pregnant women in terms of
various risk factors of Dhaka city**



Inspiring Excellence

**A DISERTATION SUBMITTED TO BRAC UNIVERSITY IN PARTIAL
FULFILLMENT OF THE REQUIRMENT FOR THE DEGREE OF BACHELOR OF
SCIENCE IN MICROBIOLOGY**

Submitted by

Eshrat Islam Ema

Student ID: 13326001

December 2018

Microbiology Program

Department of Mathematics and Natural Sciences

BRAC University

Dhaka, Bangladesh

DECLARATION

I hereby declare that the thesis is entitled **“Prevalence of urinary tract infection in pregnant women in terms of various risk factors of Dhaka city”** is based on my work and it contains no material previously published or written by another person and not accepted for the award of any other degree of a university or other institute of higher education. This research work was done in the Department of Gynaecology and Pathology, Maternal and Child Health Institute, Azimpur, Dhaka. The work was completed under the supervision of Dr. Md Mahboob Hossain, Professor of Department of Mathematics and Natural Science, BRAC University and Dr. Mehedi Hasan Sagor Medical Officer of Paediatrics of Maternal and Child Health Institute, Azimpur, Dhaka.

Eshrat Islam Ema

ID: 13326001

Bachelor of Science, Microbiology

Department of Mathematics and Natural Science

BRAC University

Dhaka, Bangladesh

CERTIFICATE

This is to certify that Eshrat Islam Ema has completed the thesis entitled **“Prevalence of urinary tract infection in pregnant women in terms of various risk factors of Dhaka city”** as a fulfilment of the requirements for the degree of Bachelors of Science in Microbiology thesis part by the BRAC University Dhaka, Bangladesh. This study has been conducted in the Department of Gynaecology and Pathology, Maternal and Child Health Institute, Azimpur, Dhaka under our joint supervision. Her work is original and the work is up to our full satisfaction.

Dr. Mahboob Hossain

Supervisor

Professor

Department of Mathematics and Natural Science

BRAC University, Dhaka.

Dedicated
To my
Beloved Parents
And to
My dearest husband

ACKNOWLEDGMENT

I am solely grateful to the Almighty who has given me the strength, attitude, confidence and skill to complete this study on lung cancer.

I offer my special gratitude to Chairperson, **Professor A.F. M Yusuf Haider**, Department of Mathematics and Natural Sciences for his graceful co-operation and support. He accepted my proposal to work on UTI of pregnancy at Maternal and Child Health Institute, Azimpur, Dhaka. I would also like to extend my heartfelt regards and gratitude to **Professor Dr. A. A. Ziauddin Ahmed**, the former Chairperson, Department of Mathematics and Natural Sciences, for providing me with the required mentorship that were elemental during my undergraduate studies in BRAC University.

I express my heartiest regards, profound and deepest appreciation to my respective supervisor Professor **Dr. Md Mahboob Hossain**, Department of Mathematics and Natural Science, BRAC University for their expert supervision and affectionate guidance to carry out the project work as well as to prepare this dissertation.

I take the opportunity to express my gratefulness and sincere gratitude to **Dr. Mehedi Hasan Sagor** Medical Officer of Paediatrics in Maternal and Child health Institute, Azimpur Dhaka. Who constantly supervised my work and provided with all facilities of the institute without which the present study could not be done.

I would like to thank all the pregnant women who willing took part in this study. I wish and pray for their healthy, happy and disease-free joyful life with their family members.

Finally, I would like to express my gratitude to all of my family members, who always inspires me & make me able to come to a successful end.

Sincerely,

Eshrat Islam Ema

ID: 13326001

Table of Content

Chapter	Content	Page Number
Chapter 1	Introduction	8
Chapter 2	Materials and Methods	20
Chapter 3	Results	30
Chapter 4	Discussion	68
Chapter 5	References	72

Abstract

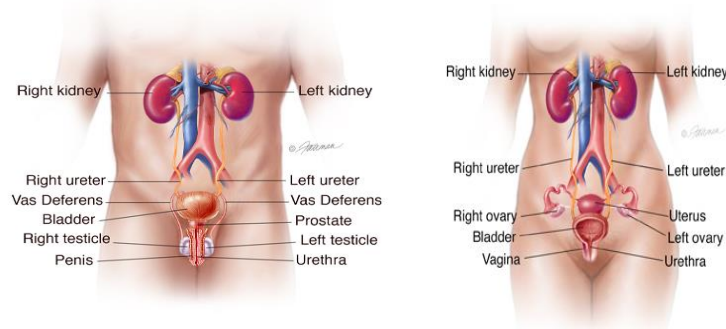
Urinary tract infections (UTI) are the most common bacterial infections during pregnancy. Untreated UTI can be associated with serious obstetric complications. This study was done to determine the prevalence of UTI among pregnant women attending in Maternal Hospital and Child Health Institute, Azimpur, Dhaka and to help the prevent complications of UTI. This study represents a cross-sectional study carried over a period of three months with a total of 214 pregnant women. Out of 214 pregnant women 83 (39%) were found to have UTI. In this study, some demographic characteristics of the total 214 pregnant women were studied. For example age range of getting pregnant, blood group, Patient's professions, weight data etc. Interestingly it was observed that our female education is still unsatisfactory. About 13% of the total pregnant women were illiterate and only 2% of were graduate. The within the women age group 21-25 years had the highest incidence of infection (64%). Multiple reasons are associated with increased urinary tract infection in pregnancy. The results underscore the importance of screening all pregnant women for significant bacteriuria since UTI is the most common bacterial infection during pregnancy. Hence, positive cases should be treated subsequently with antibiotics in order to reduce the adverse effects on both maternal and fetal health. There was the higher rate of infection in the third trimester 52 (63%) compared to second trimester 31(37 %) and 1st trimester 0.46%. This study also shows that 49 (59%) of women who had UTI were in their 2nd pregnancy compared to that of 3rd 10 (12%) pregnancy. The study also focused that past Caesarean delivery patients had a 43% higher rate of urinary tract infection than normal past delivery patients 29%. From the analysis, it was found that the antibiotic prescribed to pregnant women for UTI was not different to the prescribed to normal UTI patients. From another cross analysis between UTI and Non-UTI pregnant patients, both groups had a gastric problem with almost equal frequency. In this study, it was focused that the patients who did intercourse had more chances of UTI problem during pregnancy.

1.1. Introduction:

A urinary tract infection (UTI) is an infection in any portion of one's urinary framework — kidneys, urethras, bladder and urethra. Most diseases include the lower urinary tract — the bladder and the urethra. Women are at more prominent hazard of creating a UTI than are men. Contamination restricted to one's bladder can be agonizing and irritating. In any case, genuine results can happen in the event that a UTI spreads to one's kidneys (Martin, 2015).

The urinary tract makes and stores urine, one of the squander items of one's body. Urine is made within the kidneys and voyages down the ureters to the bladder. The bladder stores the urine until it is purged through the urethra, a tube that interfaces the bladder to the skin, after urination. The opening of the urethra is at the end of the penis in a male and before the vagina in a female. The kidneys are a match of fist-sized organs within the back that channel fluid squander from the blood and expel it from the body within the frame of urine. Kidneys adjust the levels of numerous chemicals within the body (sodium, potassium, calcium, phosphorous and others) and check the blood's corrosiveness. Certain hormones are too made within the kidneys. These hormones offer assistance control blood weight, boost ruddy blood cell generation and offer assistance make solid bones. Typical urine has no microbes in it, and the one-way stream makes a difference anticipate diseases. Still, microbes may get into the urine from the urethra and travel up into the bladder. Specialists regularly treat urinary tract diseases with antimicrobials. But you'll be able to take steps to diminish one's chances of getting a UTI within the to begin with put.

(Urology Care Foundation, 2018)



Female urinary tract

Male urinary tract

Figure 1: Urinary Tract System in male and female

1.2 Who gets UTIs?

UTIs are more common in ladies than men. This can be since in ladies, the urethra is closer to the anus than it is in men, and is additionally shorter. This implies the chances of microbes entering the urinary framework are more prominent in women. Women have a 1-in-3 chance of creating a UTI in their lifetime. The hazard of creating a UTI increments with age for both men and ladies (Brusie, 2010)

Ladies are more likely to create a UTI in case they:

Are sexually dynamic: This is often since having sex can chafe the urethra. When this happens it permits microbes to travel more effortlessly in spite of the fact that the urethra and into the bladder. Use a stomach as contraception: The stomach can put weight on the bladder and halt it from purging properly (Macejko, 2016).

Develop a bothering to spermicide utilized on condoms: A few ladies create a vaginal disturbance from spermicide, making the zone more powerless to infection (Macejko, 2016).

Are pregnant: Hormonal changes amid pregnancy make ladies more defenseless to UTIs (Macejko, 2016).

Have gone through menopause: When levels of the hormone estrogen decay, ladies may ends up more helpless to creating a UTI (Macejko, 2016).

In general, individuals are more likely to create a UTI on the off chance that they have:
Kidney stones or another condition that squares the urinary tract. **A condition that stops the bladder from purging completely** (e.g. a broadened prostate that presses on the bladder). **A urinary catheter** (a tube embedded into the urethra going into the bladder; regularly utilized after surgery in the event that an individual needs to stay in bed for a few time). **A therapeutic condition including the bladder or kidneys** (e.g. a few babies are born with issues that halt the pee voyaging legitimately in spite of the fact that the urinary system). **A restorative condition that debilitates the safe framework** (e.g. diabetes). **Medical medications** that debilitate the safe framework (e.g. chemotherapy). **A later restorative method on the urinary tract.** Babies and more seasoned individuals are too more inclined to UTIs. Men with an extended prostate may be more inclined to UTIs, as this may influence the stream of urine (*myDr, 2016*).

1.3 UTI Problem During Pregnancy:

Pregnancy causes various changes within the woman's body that increment the probability of urinary tract contaminations (UTIs). Hormonal and mechanical changes can advance urinary stasis and vesicoureteral reflux. These changes, together with an as of now brief urethra (around 3-4 cm in females) and trouble with cleanliness due to an expanded pregnant stomach, offer assistance make UTIs the foremost common bacterial diseases amid pregnancy (Hooton, 2010).

That's since the developing fetus can put weight on the bladder and urinary tract. This traps microbes or causes pee to spill. There are too physical changes to consider. As early as six weeks of development, nearly all pregnant ladies encounter ureteral expansion, when the urethra extends and proceeds to extend until conveyance. The bigger urinary tract, at the side expanded bladder volume and diminished bladder tone, all cause the pee to gotten to be more still within the urethra. This permits microbes to develop (Delzell, 2000). To form things more awful, a pregnant woman's urine gets more concentrated. It too has certain sorts of hormones and sugar (Delzell,2000). These can energize bacterial development and lower one's body's capacity to fight off "bad" microbes attempting to get in. Urinary tract contaminations (UTI) stay a driving cause of dreariness and healthcare consumption in all age groups (Delzell, 2000). UTI account for approximately 10% of essential care meetings by pregnant ladies and it was detailed that up to 15% of ladies will have one scene of UTI at a few time amid their life (Hooton, 2010). The rate of UTI detailed among pregnant moms is almost 8% Anatomically UTI can be classified into lower urinary tract contamination including the bladder and urethra and upper urinary tract disease including the kidney and pelvis ureter. The larger part of the UTI happen due to rising contamination (Hooton, 2010).

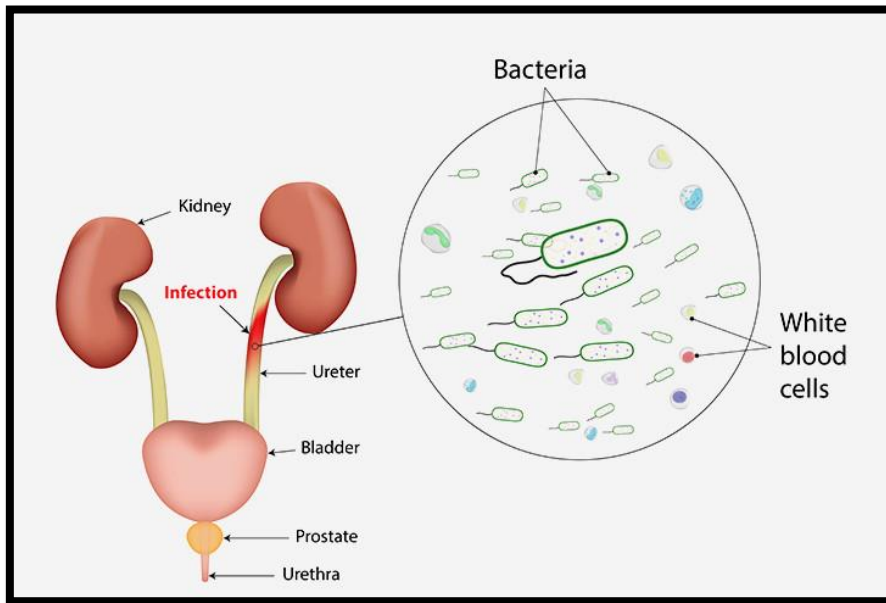
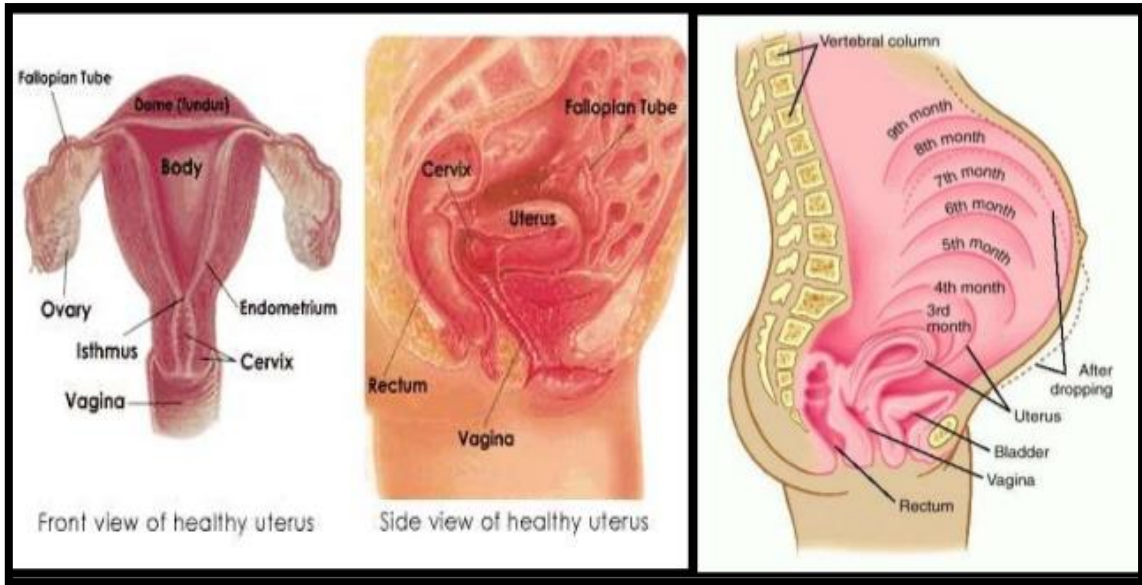


Figure 2: Difference between healthy the Urinary Tract of pregnant women and how bacteria cause UTI in urinary system

1.4.Types:

UTIs are more often than not caused by *E. coli*, microbes that are ordinarily found within the stomach related track and on the skin around the rectal and vaginal ranges. When the microscopic organisms enter the urethra, they can make their way up into the bladder and cause a disease.

There are three major sorts of UTI in pregnancy. They are asymptomatic bacteriuria, acute cystitis and acute pyelonephritis. The clinical introductions of these conditions shift.

(NPS, Medicine wise, 2014)

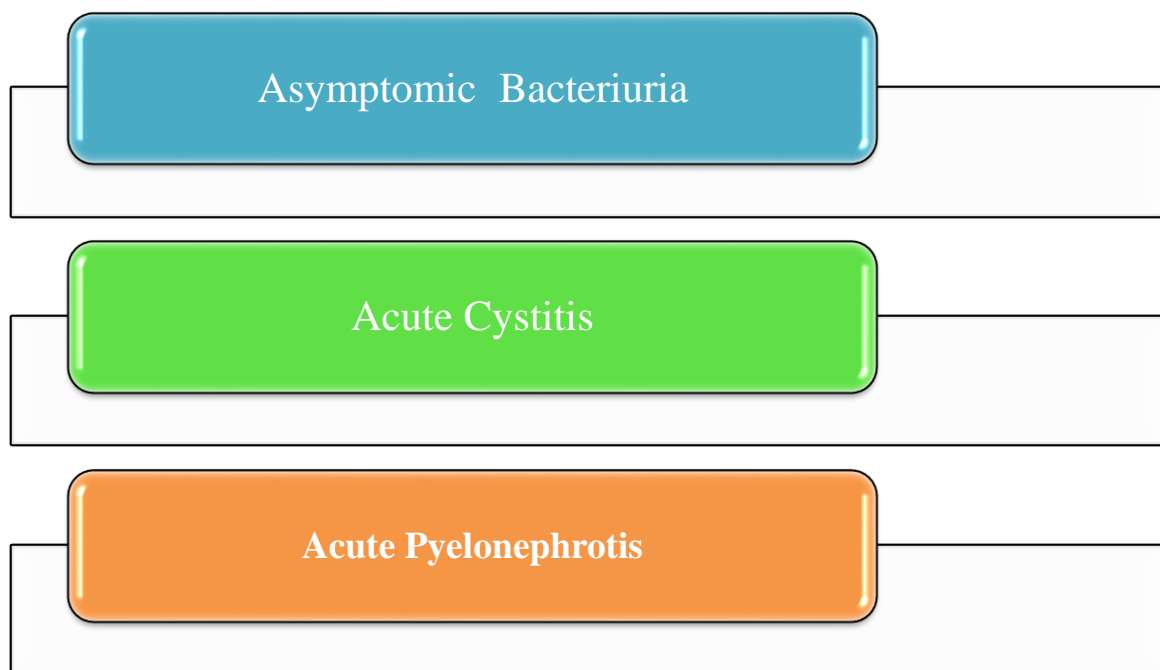


Figure: Major types of UTI in pregnancy

1.4.1 Asymptomatic Bacteriuria:

Asymptomatic bacteriuria happens when microscopic organisms is found in a voided urine test. It's caused by bacterial colonization of the urinary tract (Ernst, 2018). Asymptomatic bacteriuria happens in 2 to 7 percent of pregnant women (Bimoch, 2010). It ordinarily happens amid early pregnancy, with as it were roughly a quarter of cases recognized within the moment and third trimesters. Components that have been related with a better hazard of bacteriuria incorporate a history of earlier urinary tract disease, pre-existing diabetes mellitus, expanded equality, and low financial status, (Hooton,1993). Microbes are regularly presented into the urinary tract amid intercourse or when wiping after a bowel development. The bacterium *E. coli* is dependable for most cases of asymptomatic bacteriuria (Shivalingam, 2007)

1.4.2 Acute Cystitis:

Acute cystitis relates to contamination of the urinary bladder. Exceptionally frequently the urethra is additionally tainted. The major recognizing highlight of intense cystitis from asymptomatic bacteriuria is the nearness of dysuria, criticalness and recurrence (EH, 1970). Ordinarily the understanding remains afebrile. Extreme systemic side effects such as queasiness, spewing, tall review fever and trouble are as a rule missing. Most moms may not be mindful that they are having the disease since criticalness and recurrence are common indications in a typical pregnancy (Kim, 2016).

1.4.3 Acute pyelonephritis:

Acute pyelonephritis is contamination of the kidney and the pelvic ureter. It could be a genuine systemic illness affecting 1-2% of all pregnancies and the foremost common non-obstetric cause of healing centre affirmation amid pregnancy (Apuzzio, 2014). This complication is characterized by high-grade fever, chills and rigors, migraine, queasiness, heaving, lumbar torment and in genuine cases, decreased urine yield (Lindsey, 1981). Without treatment it can cause preterm work and maternal septicemia. Repetitive pyelonephritis has been ensnared as a cause of intra uterine development confinement and fetal passing. The in general rate of repeat is around 2-3% and it can repeat amid the same pregnancy (Angel, 1990).

Urinary tract infections (asymptomatic bacteriuria, cystitis, and pyelonephritis) are regularly experienced restorative complications of pregnancy. Pyelonephritis can result in noteworthy maternal and fetal dismalness and mortality, (Angel, 1990). Urinary tract infections (UTIs) are one of the foremost visit complications of pregnancy. When the lower UTI's of asymptomatic bacteriuria and cystitis are not annihilated, the ensuing chance of the advancement of pyelonephritis is expanded (Gabbe, 2002). The related diminished maternal dismalness and fetal prematurity are the objectives of a screening and treatment program for pregnant women. Untreated upper UTIs are related with lower birth weight, rashness, untimely labor, hypertension, preeclampsia, maternal iron deficiency, and ammonites (Loughlin, 1994).

1.5. Signs and Symptoms:

- Burning (distress) when urinating
- The got to urinate more frequently than usual
- A feeling of direness after you urinate
- Blood or bodily fluid within the urine
- Cramps or torment within the lower abdomen
- Pain amid sexual intercourse
- Chills, fever, sweats, spilling of pee (incontinence)
- Waking up from rest to urinate Change in sum of urine, either more or less
- Urine that looks cloudy, smells foul or curiously strong
- Pain, weight, or delicacy within the zone of the bladder
- When microscopic organisms' spreads to the kidneys you will encounter: back torment, chills, fever, queasiness, and heaving. (American Academy of Family Physicians, 2017)

However, Urine contaminations on the off chance that cleared out untreated can get to be perilous amid pregnancy. Usually, particularly genuine of kidney diseases as they can be life-threatening to both the mother and the infant. It can moreover increment the hazard of moo birth weight in babies and preterm work. In case not treated successfully, there's a chance that it may return indeed after conveyance. (William, 2nd Ed. Ch- 48)

1.6. Causes of Urinary Tract Infection in Pregnancy:

During pregnancy, there are typical changes within the work and life structures of the urinary tract. These incorporate kidney extensions and compression of the ureters and bladder by the developing uterus (Natalie, 2017). During pregnancy, the bladder does not purge as well. The pee isn't as acidic and it contains more sugars, protein, and hormones (Natalie, 2017). All of these variables can contribute to an expanded defencelessness to UTI. There are some major causes are given below:

1.6.1. Hormonal changes in One's Body: Increment in hormones which cause a slower stream of urine within the ureters, included weight on the bladder due to a developing uterus, and the failure to oust pee totally from the bladder can all contribute to a urine disease amid pregnancy (Natalie, 2017)

1.6.2. Bowel Microbes: One of the common reasons for urine contamination is microbes from the bowel. As the separate between the urethra and the rectum in ladies is exceptionally brief, it is simpler for microbes like *E. coli* to travel into the urinary tract (Natalie, 2017)

1.6.3. Intercourse Pregnancy: In spite of the fact that sexual activity during pregnancy is sound, it may increment one's chances of a UTI. The microbes in one's vagina get pushed into the urethra driving them into the urinary tract. Peeing some time recently and after intercourse and flushing the locale after intercourse can offer assistance anticipate UTIs (Natalie, 2017)

1.6.4. Intestinal tract bacteria: Microscopic organisms such as Group B *Streptococcus* commonly found within the intestinal tract may moreover be held mindful for a few UTIs amid pregnancy. This contamination can be effortlessly treated with antimicrobial (Natalie, 2017)

1.6.5. *E. coli* bacteria: These microbes come from the bowel. The human life systems posture a more prominent hazard of getting tainted in that the rectum is found close the urethra. After a bowel development, *E. coli* microbes may be passed to the urethra as one wipes themselves. The wiping ought to be from front to back and not bad habit versa. This makes a difference keep this locale free from this microscopic organism (Natalie, 2017)

Other reasons that increase one's chances of having a UTI while pregnant include:

- Sickle cell anemia.

- Recurrent urinary tract infections.
- Urinary tract surgery within the past.
- Maternal diabetes.
- Kidney complications (Natalie, 2017)

1.7. Pathogenesis:

Pregnant ladies are at expanded hazard for UTIs. Starting in week 6 and cresting amid weeks 22 to 24, roughly 90 percent of pregnant ladies create ureteral dilatation, which can stay until conveyance (hydronephrosis of pregnancy). Increased bladder volume and diminished bladder tone, together with diminished ureteral tone, contribute to expanded urinary stasis and ureterovesical reflux (Petterson, 1987). Also, the physiologic increment in plasma volume amid pregnancy decreases urine concentration Up to 70 percent of pregnant ladies create glycosuria, which empowers bacterial development within the urine (Petterson, 1987). Increments in urinary progesterins and estrogens may lead to a diminished capacity of the lower urinary tract to stand up to attack microbes. This diminished capacity may be caused by diminished ureteral tone or conceivably by permitting a few strains of microscopic organisms to specifically grow. These components may all contribute to the improvement of UTIs amid pregnancy (MJ 1993)

1.8. Bacteriology:

The life forms that cause UTIs amid pregnancy are the same as those found in nonpregnant patients. *Escherichia coli* accounts for 80 to 90 percent of diseases. Other gram-negative bars such as *Proteus mirabilis* and *Klebsiella pneumoniae* are too common (GJ, 1985) Gram-positive life forms such as bunch B *streptococcus* and *Staphylococcus saprophyticus* are fewer common causes of UTI (Petterson, 1987) Gather B streptococcus has imperative suggestions within the administration of pregnancy and will be talked about further. Less common life forms which will cause UTI incorporate *enterococci*, *Gardnerella vaginalis* and *Ureaplasma ureolyticum*. (Petterson, 1987)

1.9. Diagnosis:

Tests and procedures used to diagnose urinary tract infections include:

1.9.1. Analyzing a urine test: The specialist may inquire for a urine test called urinalysis for lab examination to seek for white blood cells, ruddy blood cells or microbes. To avoid potential defilement of the test, a pregnant woman educating to first wipe one's genital region with a sterile cushion and to gather the urine midstream. (Macejko, 2016)

1.9.2. Developing urinary tract microscopic organisms in a lab: Lab investigation of the urine is now and then taken after by urine culture. This test tells the specialist what microscopic organisms are causing patient's disease and which medicines will be most successful. (Takhhar, 2014)

1.9.3. Making pictures of one's urinary tract: In case of anyone has visited contaminations that one's specialist considers may be caused by a variation from the norm in one's urinary tract, you'll have an ultrasound, a computerized tomography (CT) check or attractive reverberation imaging (MRI). One's specialist may moreover utilize a different color to highlight structures in one's urinary tract. (Takhhar, 2014)

Most commonly used for pregnant women is analyzing urine culture and microscopic organisms in a lab.

1.10. Treatment:

Since of the threats of maternal and fetal complications, intense care ought to center on recognizing and treating asymptomatic and symptomatic bacteriuria, together with guaranteeing that an interchange prepare isn't the cause of the indications (Delzell, 2000). Antibacterial drugs such as cephalexin, nitrofurantoin, or trimethoprim/sulfamethoxazole Proof-of-cure societies and now and then suppressive therapy Treatment of symptomatic UTI isn't changed by pregnancy (Orenstien, 1999), except drugs which will hurt the baby are dodged. Since asymptomatic bacteriuria may lead to pyelonephritis, it ought to be treated with antimicrobials comparative to an intense UTI (Smaill, 2007). Antibacterial medicate determination is based on person and nearby helplessness and resistance designs, but great beginning empiric choices incorporate the following: Cephalexin Nitrofurantoin Trimethoprim/sulfamethoxazole after treatment, proof-of-cure societies are required (Delzell, 2000). Women who have pyelonephritis or have had more than one UTI may require

suppressive treatment, ordinarily with trimethoprim/sulfamethoxazole (sometime recently 34 weeks) or nitrofurantoin, for the rest of the pregnancy. In ladies who have bacteriuria with or without UTI or pyelonephritis, urine ought to be culture (Gabbe, 2002)

1.11. Prevention:

A few conditions that warrant treatment without holding up to see in case the body will free the disease itself.

1.11.1. Cranberry Juice: A few prove proposes that day by day utilization of 100% immaculate cranberry juice with no included sugar may anticipate UTIs since of a conceivable infection-fighting property contained within the juice. It is hazy how much and how regularly one ought to drink cranberry juice to anticipate UTIs. You ought to not drink cranberry juice on the off chance that you're taking the blood-thinning medicine, warfarin, because it may lead to dying (Lauren, 2011)

1.11.2. Drinking bounty of water: This weakens the pee and makes a difference flush out microbes that will be show (Lauren, 2011)

1.11.3. Avoiding drinks that may irritate the bladder: Coffee, alcohol, and soft drinks containing citrus juice or caffeine may irritate one's bladder and perpetuate excessive urinating (Lauren, 2011)

1.11.4. Wiping from front to back: Wiping from front to back after utilizing the washroom avoids microbes from the butt-centric locale from spreading to the vagina and urethra (Lauren, 2011)

1.11.5. Purging one's bladder before long after intercourse: It is imperative to undertake to flush out any microbes which will have entered the urethra by drinking a full glass of water and urinating before long after sex (Lauren, 2011)

1.11.6. Maintaining a strategic distance from the utilize of chafing female items: Utilizing certain items such as antiperspirant showers, douches, and powders can bother the urethra and cause a UTI (Lauren, 2011)

When treated accurately, UTIs once in a while advance to something more genuine (such as unremitting renal illness); in any case, in the event that you accept you will have a UTI, it is

imperative to require legitimate steps to kill the disease as rapidly as conceivable to avoid assist complications (Meredith Corporation, 2011).

Methods and Materials

2. Methods and Material

2.1. Study population: 214 patient data forms were collected.

2.2. Criteria for selection of sample:

Consideration criteria:

- ❖ Moms who are pregnant
- ❖ Moms who can get it Bangla or English
- ❖ Moms who are willing to participate
- ❖ Age gather of 17 to 35 years

Prohibition criteria:

- ❖ Moms who are not willing to participate
- ❖ Moms who are not accessible at the time of information collection
- ❖ Moms who were on treatment with antimicrobials

2.3.1. Sampling design: Examining plan or sampling design is the strategy of drawing an agent portion of the populace from an entirety population. In the think about the test plan chosen is irregular sampling. A test chosen after giving break even with and free chances of determination to each and each thing of the populace is called Random sampling.

2.3.2. Location of the study:

Maternal and Child Health Care Institute, Azimpur, Dhaka, Bangladesh

2.3.3. Duration: 3 months

2.4. Methods:

Continuous booked prenatal ladies who displayed at the prenatal clinics of the over said clinic amid the consider period were randomly enrolled into the consider upon verbal informed assent, either had any of the indications suggestive of urinary tract diseases or without any side effects were as it were included where as non-pregnant ladies were prohibited. A continuous 214 pregnant ladies with or without indications of UTI were included in this consideration. Pregnant ladies having a renal illness or on antimicrobial

treatment inside 72 hours to the think about days were prohibited due to the truth that the antimicrobial must have restrained or devastated the pathogens.

Socio-demographic information such as age, occupation, education level, family status and residence environment and term of development were collected from the pregnant ladies utilizing standard surveys and kept secret amid the investigate. Clean-catch midstream urine was collected from each pregnant lady into a wide-mouthed sterile screw- capped holder. With a Calibrated micro-loop 0.001 ml. of pee was refined on to a Blood agar & a MacConkey agar plate. After overnight hatching at 37 °C for 24 hours, colony checks yielding bacterial development of $\geq 10^5$ / ml was taken as being critical in both symptomatic and asymptomatic pregnant ladies.

2.5 Interviews:

Face to face, structured interviews were coordinated were control cases and the closest relative of lapsed cases. A total of 214 developments tolerant took portion within the examination. Information was gotten approximately age, occupation and living environment, number of children, history of urinary tract infection, period circle, do they know about UTI or not. Some of them were willingly explain every problem they were facing during UTI and some didn't cooperate well. Most of them were unknown about UTI. Interviews were taken from the outdoor patients who came to this hospital for free regular checkups and medicines.

2.6. Statistical Analysis:

Our sampling procedure is non-probabilistic and convenience sampling. Percentage and frequency of the attributable fractions were calculated for each risk factor of UTI in pregnancy. For analyses, the percentage and frequency of each risk factor were presented by pie diagram, bar diagram tables, Column diagram and interpreted.

UTI Questionnaire Form (Bangla)

❖ অনুবিভাগ-১ অংশগ্রহনকারীর তথ্যাদিঃ

১) রোগীর নামঃ

২) বয়সঃ

৩) ঠিকানাঃ

৪) তারিখঃ

৫) রক্তের গ্রুপঃ A+ () B+ () O+ () AB+ () A- () B- () O- () AB- ()

❖ অনুবিভাগ-২ রোগীর অর্থনৈতিক-সামাজিক তথ্যাদিঃ

• রোগীর পেশাঃ

• রোগীর শিক্ষাগত যোগ্যতাঃ নিরক্ষর () প্রাইমারী () S.S.C () H.S.C () স্নাতক () স্নাকোত্তর ()

• স্বামীর নামঃ

• স্বামীর শিক্ষাগত যোগ্যতাঃ নিরক্ষর () প্রাইমারী () S.S.C () H.S.C () স্নাতক () স্নাকোত্তর ()

• পরিবারের মাসিক উপার্জনঃ ≤ 5000 () ১০০০০ () ২০০০০ ()

অন্যান্য.....[টাকায়]

• পরিবার সামাজিক অর্থনৈতিক স্তরঃ গরীব () নিম্ন মধ্যবিত্ত () মধ্যবিত্ত () উচ্চ মধ্যবিত্ত ()
উচ্চতর শ্রেণী

• পরিবারেরে সন্তানসন্ততি কতজনঃ

• পরিবারেরে ধরনঃ একক পরিবার () যৌথ পরিবার ()

❖ অনুবিভাগ-৩ রোগীর শারীরিক সমস্যাঃ

• প্রস্রাব এর সময় ব্যথা বা জ্বলন্ত (অস্বস্তি) অনুভব হয়ঃ হ্যাঁ () না ()

• স্বাভাবিক তুলনায় প্রায়ই প্রস্রাব করার প্রয়োজন হয়ঃ হ্যাঁ () না ()

• মূত্রের সাথে রক্ত বের হয়ঃ হ্যাঁ () না ()

• পেট বা নিম্ন পেটে ব্যথা হয়ঃ হ্যাঁ () না ()

• জ্বর, ঘাম, প্রস্রাবের লিক (অসম্পূর্ণতা) হচ্ছে কি? হ্যাঁ () না ()

- ঘুম থেকে প্রস্রাব প্রবণতার জন্য জেগে উঠছেন: হ্যাঁ () না ()
- মেঘলা ও অস্বাভাবিক শক্তিশালী এবং নোংরা গন্ধযুক্ত মুত্র হচ্ছে কি? হ্যাঁ () না ()
- প্রস্রাব প্রবাহ শুরু হইতে বিলম্ব হয়: হ্যাঁ () না ()

❖ অনুবিভাগ-৪ রোগীর স্বাস্থ্যসেবা ও পরিবেশ সক্রান্ত তথ্যাদি:

- ❖ কততম Trimester চলছে: 1) 1 st Trimester 2) 2 nd Trimester 3) 3 rd Trimester
- গর্ভাবস্থা সংখ্যা: ১) ১ম গর্ভাবস্থা ২) ২য় গর্ভাবস্থা ৩) ৩য় গর্ভাবস্থা ৪) অধিক
- গর্ভাবস্থার সময় আন্তঃসম্পর্ক করছেন? হ্যাঁ () না ()
- গর্ভাবস্থার পূর্বে UTI সমস্যা ছিল কি? হ্যাঁ () না ()
- আপনি কি UTI সম্পর্কে সচেতন? হ্যাঁ () না ()
- ঠিকমত ঔষুধ সেবন করছেন? হ্যাঁ () না ()
- পূর্বের Delivery কোন পদ্ধতিতে হয়েছিল: 1) Normal 2) Caesarian
- দৈনন্দিন পানি গ্রহণ পরিমাণ: ১.৩ লিটার () ১ লিটার () ১.৫ লিটার () হাফ লিটার ()
অন্যান্য -----
- যে antibiotic দেওয়া হয়েছে তা ঠিকমত সেবন করছেন? হ্যাঁ () না ()
- রোগীর বাসস্থান কাছাকাছি বাসস্থান এবং পরিবেশ: নোংরা () স্যাঁতস্যাঁতে () মোটামুটি স্বাস্থ্যকর () পরিষ্কার আবাসিক এলাকা ()
- কি ধরনের Underwear use করছেন? ১) সিনথেটিক ২) সুতি ৩) অন্যান্য
- গর্ভাবস্থার পূর্বে মাসিকচক্র নিয়মিত ছিল? হ্যাঁ () না ()
- Sanitary System: ১) উচ্চ commode ২) নিম্ন Commode ৩) টয়লেট ৪) কাঁচা পায়খানা

❖ **অনুবিভাগ-৫: Patient's Treatment information from Doctors feedback:**

- Type of UTI: 1) Asymptomatic 2) Symptomatic
- Name of the UTI problem: 1) Bacteriuria 2) Acute Cystitis 3) Pyelonephritis
- Does the patient prescribe paracetamol for relieving UTI pain: 1) Yes 2) No
- Antibiotic prescribed:
 - 1) Ampicillin
 - 2) Ciprofloxacin
 - 3) Azithromycin
 - 4) Cefixime
 - 5) Cephalexin
 - 6) Nitrofurantoin
 - 7) Clindamycin
- Recurrences after taking antibiotic: 1) Yes 2) NO
- Reasons for recurrences:
- Name of the Vitamin she is prescribed: 1) Vitamin C 2) Beta-carotene 3) Zinc
- Have the patient had any kidney infection? If yes it is related to UTI? Ans:
- Fever:
- Body temperature:
- Blood pressure:
- Patients weight:
- Fetal weight:
- Reason behind UTI:
- Iron are given during pregnancy:
- any complications caused by UTI:

❖ অনুবিভাগ-৬ স্বাস্থ্যসেবা ও স্বাস্থ্যবিধি গ্রহণ সংক্রান্ত তথ্যাদিঃ

- যে সেবন আপনি এখান থেকে পাচ্ছেন তা নিয়মিত অনুসরণ করছেন? হ্যাঁ () না ()
- আপনি কত মানসিক অস্বস্তি বোধ করেন মূত্রাশয় সমস্যা? অনেক বেশি () বেশি () মোটামুটি () হালকা অস্বস্তি () একদমি না ()
- আপনি বর্তমান লক্ষনের জন্য কোনো ঔষধ গ্রহণ করেছেন? হ্যাঁ () না ()
- কি ঔষধ সেবন করছেনঃ
- বাসায় কোন ব্যবস্থা গ্রহণ করছেন? হ্যাঁ () না () কি ধরনের ব্যবস্থা?
- এখানে কতদিন অন্তর অন্তর মূত্রাশয় সমস্যা হলে চিকিৎসার জন্য আসেন? ৩দিন () প্রতিসপ্তাহ () প্রতিমাস () বছর ()
- ❖ আপনি ক্যাফিনযুক্ত পানীয় পান? Soft drinks () coffee () tea () অন্যান্য.....
- আপনি UTI সমস্যার জন্য পরীক্ষা করিয়েছেন? হ্যাঁ () না ()
- সে সেবন নিচ্ছেন তা দিয়ে আপনি কি মানসিক ভাবে সন্তুষ্ট? হ্যাঁ () না ()
- পূর্বে কি কখন মূত্রাশয় সমস্যার জন্য চিকিৎসা নিয়েছিলেন? হ্যাঁ () না ()
- গরম কোন তাপ পেতে দিলে UTI ব্যথা প্রশমিত হয়? হ্যাঁ () না ()

UTI Questionnaire Form (English)

❖ Section: 1 Patient's Demographic Data:

- Patients Name:
- Age:
- ABO- blood group: A+ ve/ A- ve/ / B+ ve/ / B- ve/ / O+ ve/ / O- ve/ / AB+ ve/ AB- ve/

❖ Section-2: Patient's Socio-Economic Information:

- Patients occupation:
- Patients educational Level: 1) Illiterate 2) Primary, 3) S.S.C 4) H.S.C. 5) Graduate 6) Post- Graduate
- Name of the husband:
- Husband's educational qualifications: 1) Illiterate 2) Primary, 3) S.S.C 4) H.S.C. 5) Graduate 6) Post- Graduate
- Household income: 1) <5000 2) 10000 3) 20000 4) Others (BDT)
- Family status:
 - Very poor
 - Poor
 - Lower middle class
 - Middle class
 - Upper class
 -
- How many children do you have?
- Family type: Single family () Joint family ()

❖ Section 3: Physical problems of the patient:

- Feeling of pain or burning (embarrassment) during urine: Yes () No ()
- It is often necessary to urinate more than usual: yes () (not)
- Blood is released with urine: yes () (not)
- Stomach or lower abdominal pain: yes () (not)
- Is there any fever, sweating, urine leak (incompleteness)? Yes () not ()
- Waking up from sleep to peer tendency: Yes () No ()

- Having cloudy and abnormal strong and dirty smell? Yes () not ()
- Delay from start of urine flow: Yes () No ()

❖ **Section-4: Patient Healthcare and Environmental Information:**

- Which Trimester is Running: 1) 1st Trimester 2) Trimester 2nd 3) Trimester 3rd
- Number of pregnancy: 1) 1st pregnancy 2) second pregnancy 3) 3rd pregnancy 4) more
- Doing intercourse during pregnancy? Yes () not ()
- Had UTI problem before pregnancy? Yes () not ()
- Are you aware of UTI? Yes () not ()
- Using the right medicines? Yes () not ()
- Previous delivery was done in any way: 1) Normal 2) Caesarian
- Daily consumption of water: 1.3 liters (1 liter) (1.5 liter) (half liter) Other -----

- Are you having the given antibiotic properly? Yes () not ()
- Patients resident accommodation and environment: dirty () damp () fairly healthy () clean residential area
- What kind of underwear are you using? 1) Synthetic 2) Cotton 3) Other.....
- Before the pregnancy did the menstrual cycle be regular? Yes () not ()
- Sanitary System: 1) High Commode 2) Low Commode 3) Toilet 4) Raw Bathroom

❖ **Section-5: Patient's Treatment information from Doctors feedback:**

- Type of UTI: 1) Asymptomatic 2) Symptomatic
- Name of the UTI problem: 1) Bacteriuria 2) Acute Cystitis 3) Pyelonephritis
- Does the patient prescribe paracetamol for relieving UTI pain: 1) Yes 2) No
- Antibiotic prescribed: 1) Ampicillin
- 2) Ciprofloxacin
- 3) Azithromycin
- 4) Cefixime
- 5) Cephalexin
- 6) Nitrofurantoin

- 7) Clindamycin
- Recurrences after taking antibiotic: 1) Yes 2) NO
- Reasons for recurrences:
- Name of the Vitamin she is prescribed: 1) Vitamin C 2) Beta-carotene 3) Zinc
- Have the patient had any kidney infection? If yes it is related to UTI? Ans:
- Fever:
- Body temperature:
- Blood pressure:
- Patients weight:
- Fetal weight:
- Reason behind UTI:
- Iron are given during pregnancy:
- any complications caused by UTI:

❖ **Section-6: Information about health care and sanitation:**

- Are you following the routine you are getting from here? Yes not
- How much mental discomfort do you experience in bladder problems? Much more more rough light mood Not quite
- Have you taken any medication for current symptoms? Yes not
- What kind of medicines you are having?
- Are you taking any action at home? Yes No
- How long do you have to go for treatment if there is a problem of UTI? 3 days per week per month year
- Do you drink caffeinated drink? Soft drinks coffee tea other.....
- Have you tested for the UTI problem? Yes not
- Are you satisfied with the treatment given from this institute? Yes not
- Do you take the treatment for UTI earlier? Yes not
- Does UTI pain relief if you get hot heat? Yes not

Results and Discussion

3.1. RESULTS:

The Demographic Characteristics of Pregnant Women in Maternal and Child Health Institute, Azimpur Regarding Urinary Tract Infections During 2018

Table1: Frequency distribution of pregnant women based on age

Age Limit	Frequency	Percentage
15-20	47	22%
20-25	110	51%
25-30	55	26%
30-35	2	1%
35-40	0	0%
40-45	0	0%
Grand Total	214	100%

Table 1 shows that a total data of age limit of pregnant women who were related to the analysis. About 22% of pregnant women were from 15 to 20 age, 51% from 20 to 25 ages, 26% from 25 to 30 age, only 1% related to 30-35 age. Therefore, most women were getting pregnant age the age of 20 to 25 which was an appropriate time for getting pregnant. Most of the gynaecologist of that institute suggest that age between 20 to 25 was the best for getting pregnant than the other age. Because Ladies were most prolific and had the most obvious opportunity with regards to getting pregnant in their age of 20 to 24 (Matthiessen, 2016). This was the time when they had the most astounding number of good quality eggs accessible and their pregnancy dangers were least. At age 25, their chances of imagining following 3 months of attempting were just shy of 20 percent (Matthiessen, 2016). Fertility begins to decline at around 32 years of age. After 35, the decline was accelerating (Domonell, 2018). The risk for miscarriage and genetic abnormalities also begins to rise under the age of 20 and after age 35 (Domonell, 2018). They might face more complications in their pregnancy or during delivery having a baby later in life. The most risk factors were facing the under age of 20 and over 30 aged pregnant mothers faces:

- ❖ Caesarian/ C-Section Delivery
- ❖ Premature Birth
- ❖ Low Birth weight
- ❖ Birth Defects
- ❖ Still Birth (Domonell, 2018).

Medical conditions were more common in women after 35 years, such as diabetes and high blood pressure. This can result in complications of pregnancy such as gestational diabetes and preeclampsia.

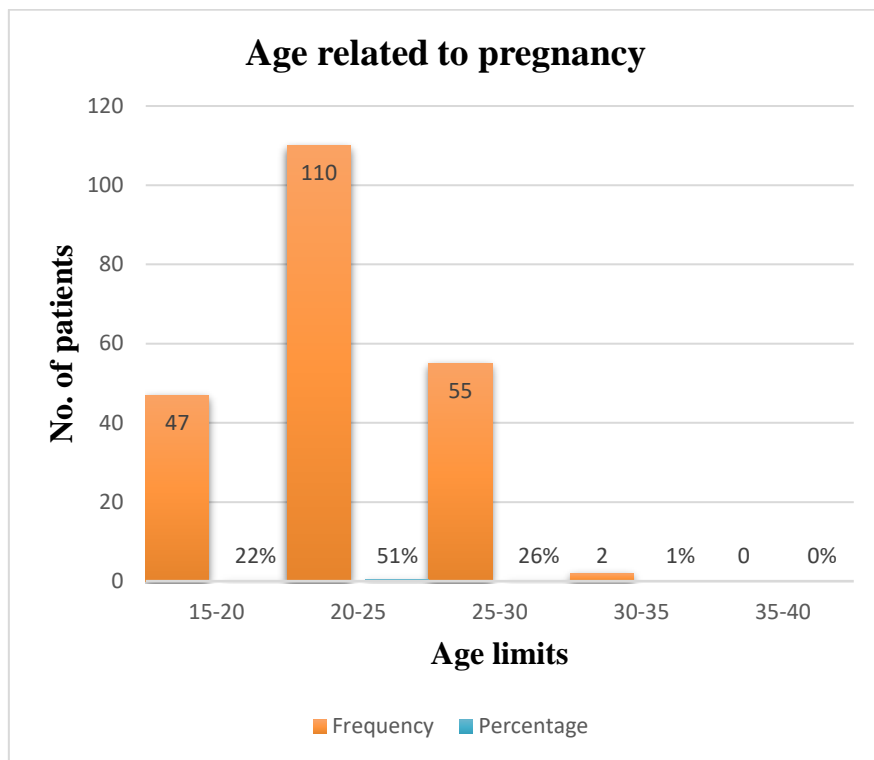


Figure 3: Pregnant women related to their age of getting pregnant

Table 2: Frequency distribution of pregnant women related to blood group

Blood group type	Frequency	Percentage
A+ ve	33	15%
B+ ve	48	22%
O+ ve	52	24%
AB+ ve	61	29%
AB- ve	5	2%
B- ve	9	4%
O- ve	5	2%
AB- ve	1	0%
Grand Total	214	100%

The table no. 2 shows that the categories of blood group related to the patients of pregnancy. Interestingly higher number of (29%) the pregnant women had AB+ ve blood Group, 24% had O+ ve, 22% had B+ ve, 15% had A+ ve and only 2% had A- ve, 4% had B- ve and 2% had O- ve and most surprising subjects was 0% had AB- ve. So, the result was all the patients of pregnancy with negative blood group types are rare and most rare blood group was AB- with 0% of possibility. If any complications occur, they will surely alert about arranging their blood during delivery time.

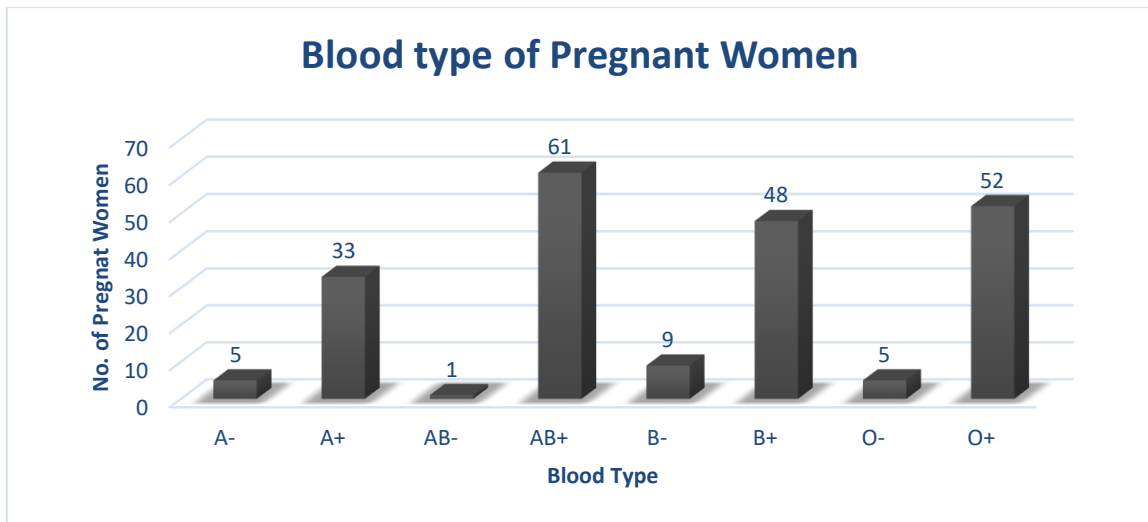


Figure 4: Pregnant women related to blood group type

Table 3: Frequency distribution of pregnant women related to weight (in Kg)

Weight range (kg)	Frequency	Percentage
40-45	4	2%
46-50	23	11%
51-55	77	36%
56-60	48	22%
61-65	42	20%
66-70	8	4%
71-75	11	5%
76-80	0	0%
81-85	0	0%
86-90	1	0%
Grand Total	214	100%

Weight can affect the ability to get pregnant, whether it's too high or too low. Overweight or underweight may also lead to problems during pregnancy. Achieving a healthy weight can

help a woman get pregnant and improve her pregnancy and baby chances. Among 214 patients of pregnancy. From the table no. 3 it can be seen that 36% of pregnant women had weight between 51-55 kg, 22% of pregnant women had between 56-60 kg, and 20% had 61-65 kg 4% had 66-77kg 5% had 71-75 kg. And 11% of pregnant women had weight between 46-50 kg and only 2% had 40 -45 kg. Having overweight or obesity during pregnancy rises the risk of creating problems during pregnancy like- Gestational hypertension, Gestational diabetes, C-section etc. For underweight babies born to underweight mothers (women with BM were below 18.5) were at a higher risk for health problems, including: Premature birth (also referred to as premature birth) or premature birth before 37 weeks. Low birth weight (1/2 pounds smaller). (Ministry of Health, 2014). These infants were at risk for problems of health and development. According to the experts, Underweight women should gain 28 to 40 pounds. And overweight women may need to gain only 15 to 25 pounds during pregnancy. In general, one should gain about 2 to 4 pounds during the first three months if she was pregnant and 1 pound a week during the rest of her pregnancy (Ministry of Health, 2014).

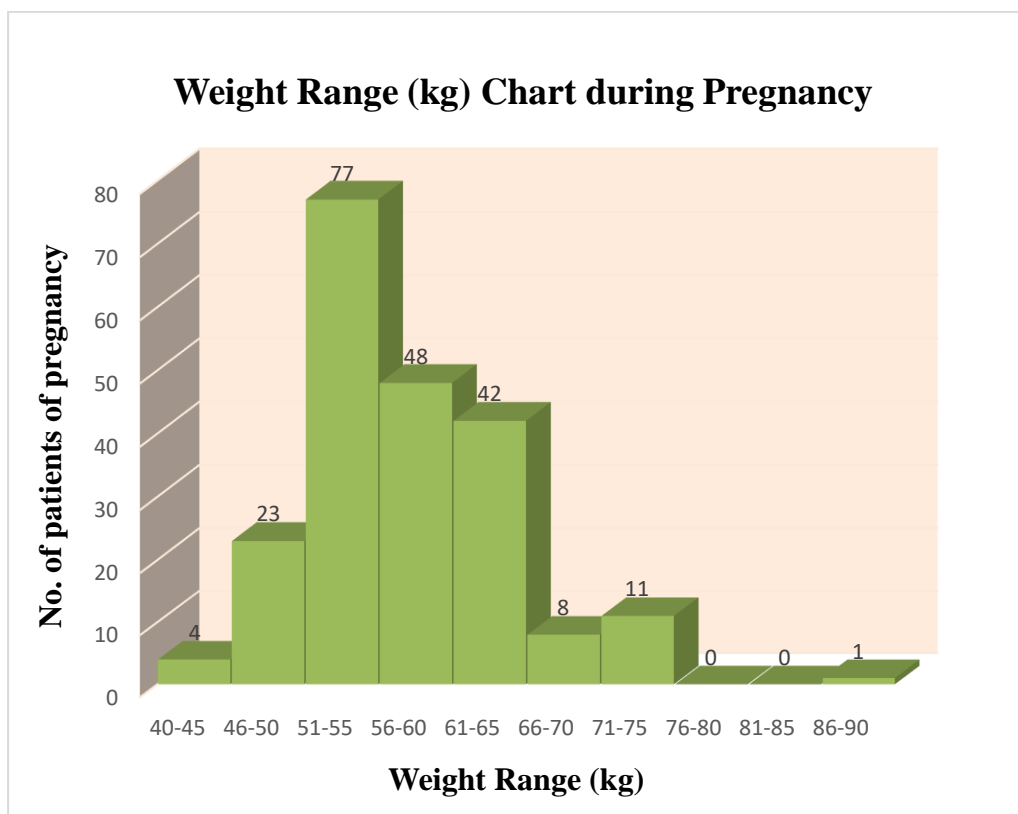


Figure 5: Total pregnant women related to weight (kg)

Table 4: Patients of pregnancy related to their profession

Profession	No of Patients	Percentage
House wife	143	67%
Beautician	4	2%
Call Center	1	0.46%
Garments worker	5	2%
Cleaner	4	2%
Handicraft maker	1	0.44%
Lady Brick mason	1	0.44%
Maid	15	7%
Nurse	1	0.46%
Online business	1	0.46%
Parlor worker	4	2%
Receptionist	4	2%
Sales girl	8	4%
Service holder	4	2%
Student	16	7%
Tailor worker	3	1%
Grand Total	215	100%

Table no. 4 shows that among all the pregnant women about 67% of the total were housewives. I found an equal estimation of 7% was students and 7% of women were house-maids. Only 2% were service holder which means only 2% of women were involved in corporate life. others profession was found like- tailor worker 1%, salesgirls 4%, parlor workers and beautician were in total 4%, receptionist 2%, cleaner 2%, handicrafts maker 0.44%, working in call centre 0.46%, online business 0.46%, and the nurse was 1(0.46%) person. It was clear that among 214 patients only 33% of patients were involved in different professions and most of the women were a housewife. From face to face interviews, I found

some reasons behind being housewife was lack of education, lack of permission, Lack of opportunity, lack of experiences and some of them were not interested to work outside.

Table 5: Frequency distribution of pregnant women related to their education Level

Educational Level	Frequency	Percentage
Illiterate	27	13%
Class 3	1	0.46%
Primary	39	18%
High School	22	10%
Class 9	1	0.54%
Class 10	2	1%
S.S.C	62	29%
H.S.C	35	16%
Degree	13	6%
Diploma Courses	2	1%
Honors	5	2%
Graduate	5	2%
Grand Total	214	100%

Table no. 5 shows that the educational level of the total pregnant women who were examined was not so good. As most of them were from middle-class background lack of expenses, family support, the crisis did not allow them to continue their education. About 13% of women were illiterate, 0.46% studied till class 3 because of poverty and gender discrimination didn't get the chance to continue their study. 0.54% of women studied till class 9 and about 29% of total women completed S.S.C and didn't continue their study and got married in early age. 10% of patients completed H.S.C, 18% had completed primary level. Among the 214 patients it was found only 9% were continuing their study. 6% of them studying Degree, 2% doing honours and 1% doing diploma courses. Only 2% of total patients were found, Graduate. Our Government should work more on female education.

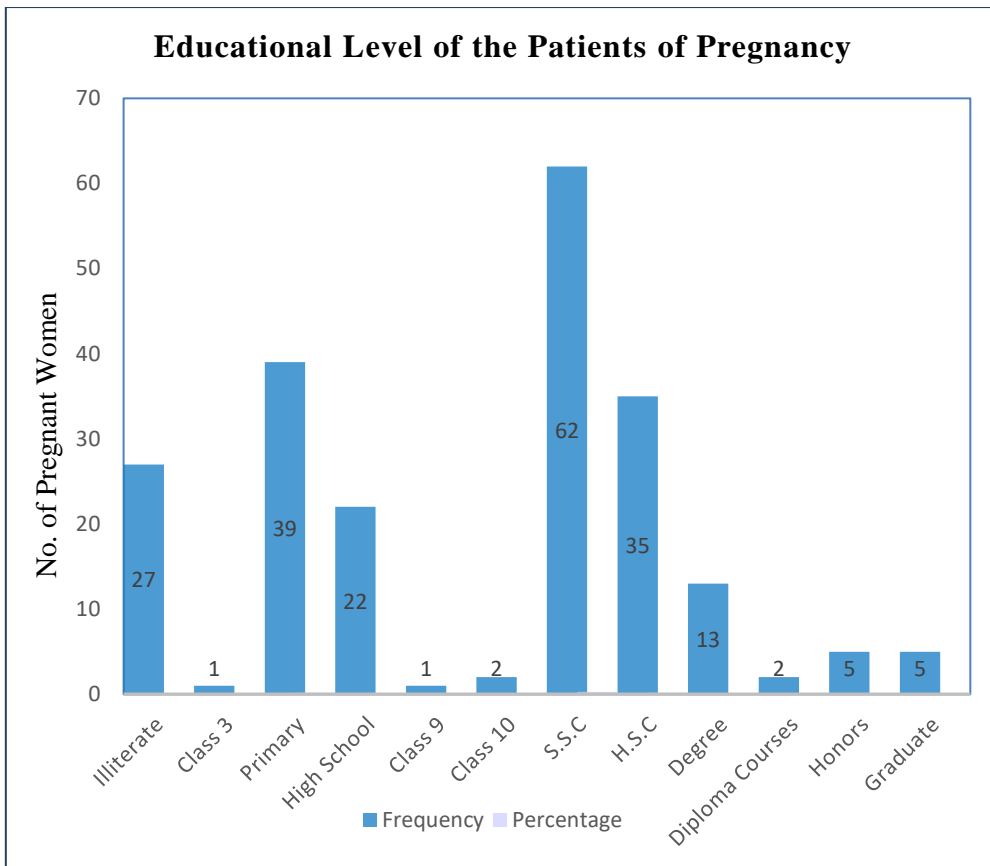


Figure 6: Educational Level related to pregnant women

❖ **Graphs Related to Urinary Tract Infection in Pregnancy:**

Table 6: Prevalence of Urinary Tract Infection in pregnant women in relation to age

Age limit of UTI	Frequency	Percentage
15-20	19	23%
20-25	53	65%
25-30	9	11%
30-35	2	1%
Grand Total	83	100%

Table no. 6 shows that 19 (23%) patients were between 15 to 20 years age range, 53 (65%) were between 20-25 years age range, 9 (11%) were between 25-30 years age range, and 2 (1%) were between 30-35 years age range women suffers from UTI problem during pregnancy. Table no. 6 suggests that the age range between 20 to 25 years were the highest risk of having UTI problem during pregnancy.

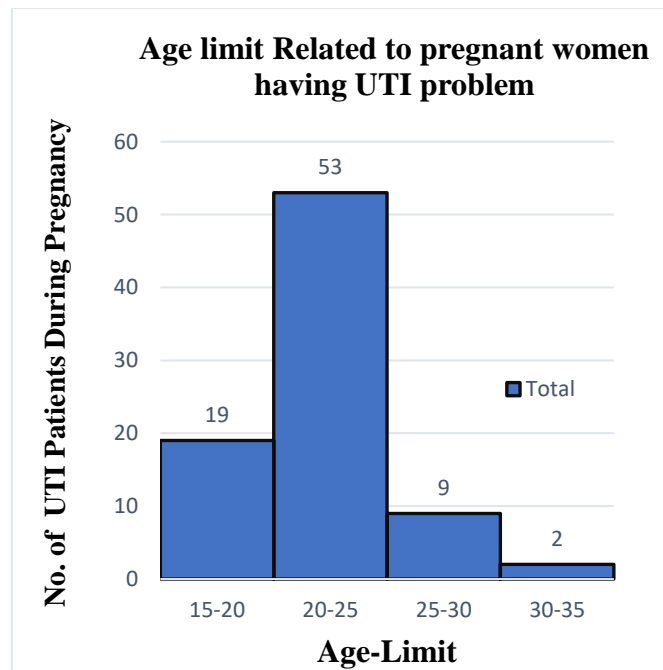


Figure 7: Age (In years) related to UTI patients during pregnancy

Table 7: Prevalence of urinary tract infection in pregnant women in relation to monthly income of their family

Monthly Income of Families (BDT)	Family Status	Frequency	Percentage
5000-10000	Lower class	3	4%
11000-15000	Lower-middles lass	25	30%
16000-20000	Lower-middles class	20	24%
21000-25000	Middle-class	16	19%
26000-30000	Middle-class	10	12%
31000-35000	Middle-class	3	4%
36000-40000	Middle-class	6	7%
Total		83	100%

Table no. 7 shows that it was found that 4% of people earn only 5000-10000 BDT in a month. 30% of family's monthly income was only 11000-15000 BDT, 24% of family monthly income 16000-2000 BDT; It's really difficult for them to had proper food, proper treatment, proper environment, Proper Place to live in Dhaka city. Poverty just made them helpless to had proper treatment. From face to face interviews they told me that most of them were depending on Government medicines, treatments and free check-ups and other medicines like antibiotics were costly for them to afford. 19% earn 21000-25000 BDT in a month which was also difficult to maintain a family properly. In total 77% family were belonging to the lower middle-class family. It's really difficult for them to had proper food, proper treatment, proper environment. Poverty just made them helpless to had proper treatment. From face to face interviews they said that most of them were depending on Government medicine and other medicines like antibiotics were costly for them to afford. Besides, 12% of them earn monthly 26000-30000 BDT. 4% of the families' monthly income above 30000 BDT. And 7% of people had above 35000 BDT incomes in a month. In total 23% of total UTI patients of pregnancy were from middle-class family. They came here to save money for future and family. Free check-ups and maximum medicines like Vitamins,

irons were given by the Government. But all of them were satisfied with the treatments and check-ups of this institute.

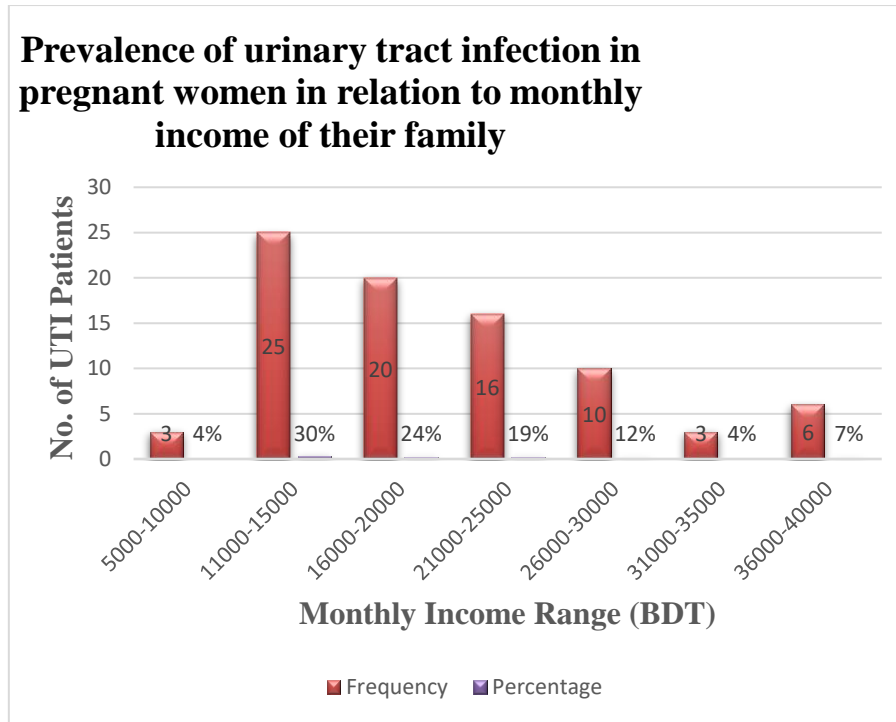


Figure 8: Prevalence of urinary tract infection in pregnant women in relation to monthly income of their family and their family status

Table 8: Prevalence of urinary tract infection in pregnant women in relation to family type

Family Type	Frequency	Percentage
Single Family	67	81%
Joint Family	16	19%
Total	83	100%

Table no. 8 shows that the majority of family type was single about 67 (81%) women were from single family and only 16 (19%) women were from joint family.

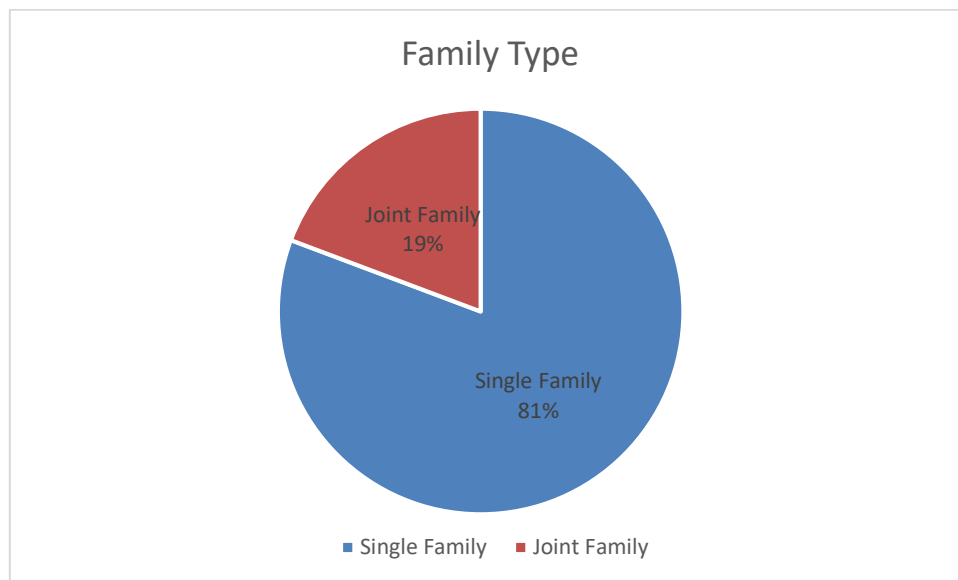


Figure 9: Prevalence of urinary tract infection in pregnant women in relation to the family type

Table 9: Prevalence of urinary tract infection in pregnant women in relation to Spouse's professions

Spouse's Profession	Frequency	Percentage
Barber	1	1%
Brick mason	1	1%
Businessman	6	7%
Chef	1	1%
CNG driver	1	1%
Computer operator	1	1%
Cook	1	1%
Day labor	3	4%
Delivery man	1	1%
Driver	5	6%
Electrician	2	2%
Executive	1	1%
Factory worker	3	4%
Fruit seller	1	1%
Furniture maker	1	1%
Garments technician	1	1%
Hawker	5	6%
Hospital staff	1	1%
Leguna driver	1	1%
NRB	7	8%
Pathao driver	1	1%
Pharmacy Shop	1	1%
Pion	1	1%

Rickshaw puller	5	6%
Sales executive	1	1%
Salesman	1	1%
Security guard	6	7%
Senior executive	1	1%
Service holder	10	12%
Shopkeeper	3	4%
Teacher	1	1%
Tea-stall	1	1%
Technician	1	1%
Vegetable seller	1	1%
Waiter	2	2%
Worker	1	1%
Workshop	2	2%
Grand total	83	100%

Table no. 9 shows that their spouses were from different professional backgrounds. About 12% of them were service holder. 8% of their husbands working in abroad. 7% of them were security guards, 6% were rickshaw-puller, 6% hawkers, 6% driver, 4% were shopkeepers, 7% was the businessman, 4% were day labor, and 4% were factory workers. Others- garments technician, teacher, tea-stall owner, the fruit seller, vegetable seller, salesman, sales executives, pion and working in the pharmacy shop, worker, Pathao driver etc.

Table 10: Prevalence of urinary tract infection in pregnant women in relation to place

Residence Place	Frequency	Percentage
Dirty sanitation	34	41%
Moderately hygiene	48	58%
Well cleaned place	1	1%
Grand Total	83	100%

Table no. 10 shows that most of the patients of UTI lived in a moderate hygiene place. About 58% of pregnant women with UTI problem have moderately clean sanitation system and the environment near their residence not good enough for them. Besides, only 1% found who have a better place to live. Further, 41% of pregnant women were living in polluted and Unhygienic areas. Data generated shows that in Dhaka city still toilet system is placed in an open area or latrine system. Pregnant women who have UTI problem may be due to the fact that they cannot use of open toilets in the city. When there's destitute sanitation and not utilizing preventative procedures such as post-coital voiding and fitting cleanliness when toileting.

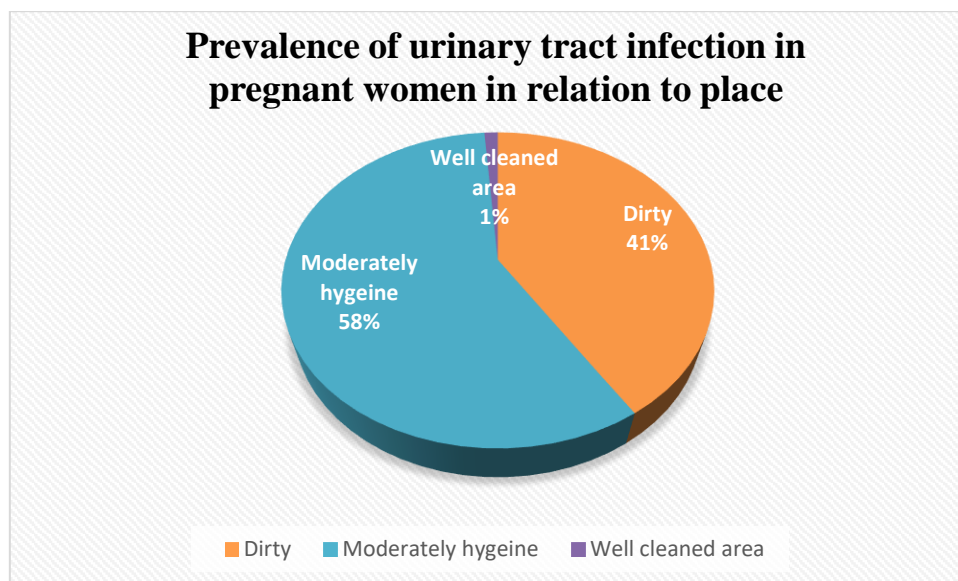


Figure 10: Prevalence of urinary tract infection in pregnant women in relation to place

Table 11: Frequency Distribution of UTI patients of pregnancy related to trimester

No. of Trimester	Frequency of UTI patients	Percentages
1st	0	0%
2nd	31	37%
3rd	52	63%
Grand Total	83	100%

Table no. 11 shows that among 214 patients of pregnancy UTI mostly occurs during their pregnancy at 3rd trimester 52 (63%). And in their 2nd trimester, 37% of them were suffering from UTI problem. 0% of the 1st trimester. No risk found during the 1st trimester. The Doctors who were dealing with these patients said that it occurs during 3rd trimester because of intercourse, Drinking less water, unhygienic condition and lack of proper treatments.

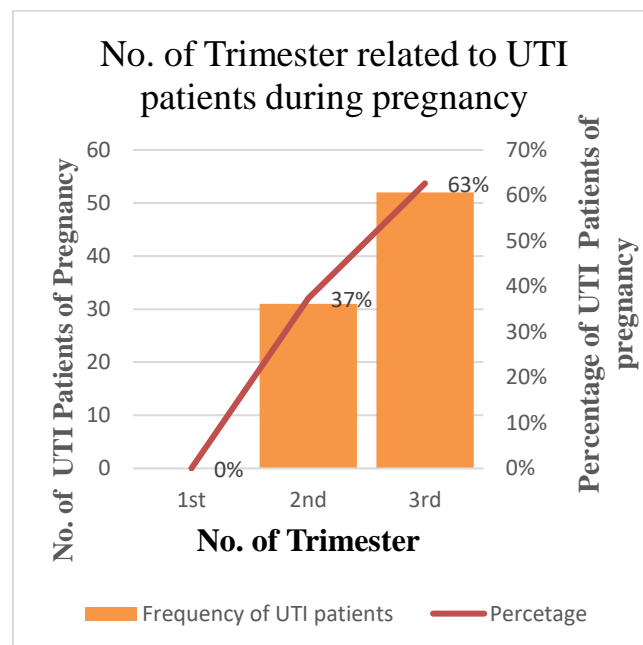


Figure 11: The trimester No. of pregnancy related to UTI problem of pregnancy

Table 12: Prevalence of urinary tract infection in pregnant women in relation to pregnancy week

Pregnancy Week	Frequency	Percentage
16-20	8	10%
21-25	14	17%
26-30	39	47%
31-35	22	27%
Total	83	100

Table no. 12 shows that UTI mostly occurs between 26 to 30 weeks of pregnancy. From the analysis 47% of them were of 26 to 30 weeks of pregnancy. 27% of them were between 30-35 weeks. 17% were between 21 to 25 weeks of pregnancy and 10% were of 15 to 20 weeks of pregnancy.

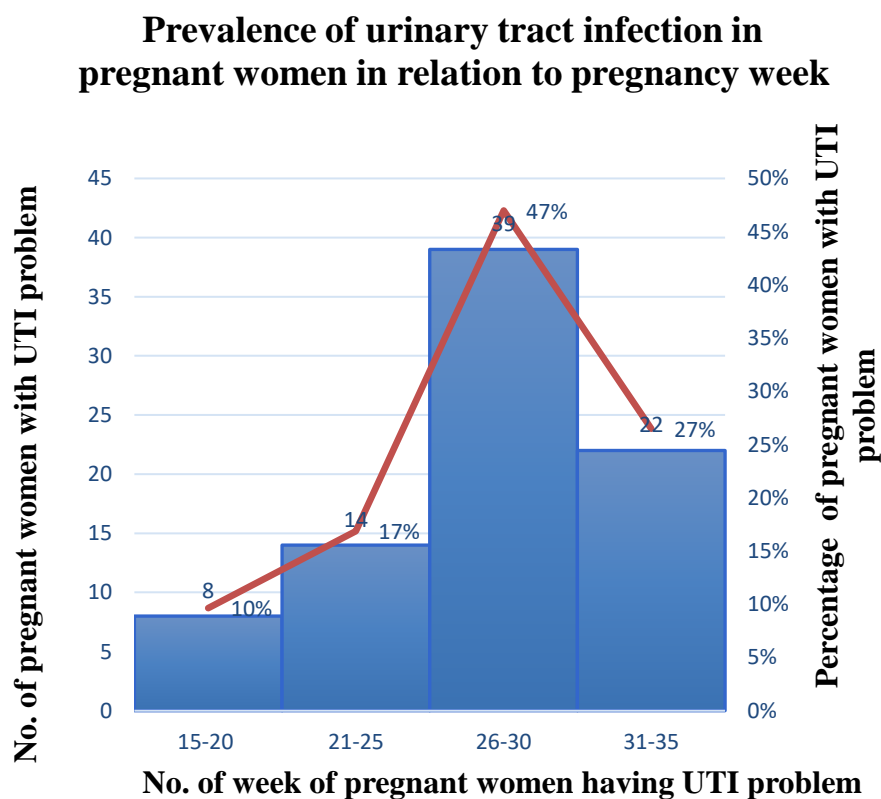


Figure 12: Urinary tract infection in pregnant women in relation to pregnancy week

Table 13: Frequency distribution of pregnant women having UTI problem based on antibacterial drug uses

Name of Antibiotic	Frequency	Percentage
Amoxicillin	5	6%
Amoxicillin+ Clavulanic acid	6	7%
Azithromycin	26	31%
Cefixime	6	7%
Cefuroxime	22	27%
Cefuroxime +Clavulanic acid	15	18%
Nitrofurantoin	3	4%
Grand total	83	100%

Table no. 13 shows that the doctors were giving the antibiotics according to their type of UTI. Most of the UTI patients of pregnancy were prescribed cefuroxime 27% and cefuroxime + clavulanic acid 18% in total 45%. According to the gynaecologist of the Institute Cefuroxime was the safest antibiotic can be taken for recovering UTI problems during pregnancy (Christopha, 2009). Cefuroxime it had less risk factors than other antibiotics during pregnancy (Adelaide, 2004). clavulanic acid protects cephalosporin from degradation by enzyme enzymes and effectively extends the medication spectrum of cephalosporin to embrace several microorganisms commonly proof against Cefuroxime and alternative cephalosporins, 31% Azithromycin were prescribed to them who had common cold problems along with UTI. nitrofurantoin was also effective for curing UTI (WM Bamford & Company Limited. Nifuran. Medicine Safety Data Sheet. 2004). 4% were giving nitrofurantoin. About 13% Amoxicillin were prescribed to pregnant mother for UTI. Amoxicillin also safe for both pregnant and baby (Schaeffer, 2007). cefixime was also an effective antibiotic for UTI but it's for pregnancy was not clinically proven yet, (Product Information. Suprax (cefixime) Lupin Pharmaceuticals Inc, Baltimore, MD)

Table 14: Prevalence of urinary tract infection in pregnant women in relation to number of pregnancies.

No. of pregnancy	Frequency	percentage
1st	24	29%
2nd	49	59%
3rd	10	12%
Total	83	100%

Table no. 14 shows that most of the women suffer from UTI during pregnancy in their 2nd pregnancy. And from interviews, some of them had previous UTI problem in their history during their first pregnancy. About 59% of them had UTI problem in their 2nd pregnancy. From the doctors of that institute told that about the repetitions of the problem occurs because they were not concerned much about UTI, lack of drinking water, Unhygienic conditions, Intercourses etc. And 12% of them had UTI problem during their 3rd pregnancy. Reasons were same as 2nd pregnancy UTI problems. And those who were suffering from UTI problem for 1st-time pregnancy. Most of them had intercourses often during pregnancy, lack of drinking water were major reasons.

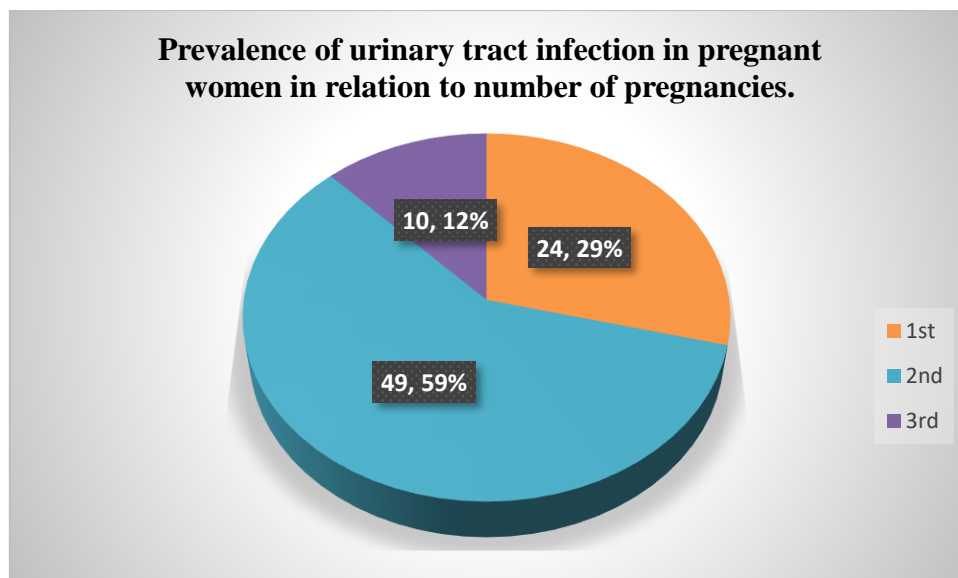


Figure 13: Urinary tract infection in pregnant women in relation to number of pregnancies.

Table 15: Prevalence of urinary tract infection in pregnant women in relation to their past delivery

Past delivery Of UTI Patients	Frequency	Percentage
Normal	24	29%
Caesarian	35	43%
Nil	23	28%
Total	82	100%

Table no. 15 shows that a pregnant woman whose past delivery was C-section or caesarian had more UTI problem in present pregnancy. About 35 (43%) of pregnant women who had C-section in their previous delivery had UTI problem. Those whose past deliveries were normal had 24 (29%) of UTI problem and the others who were 1st time pregnant had UTI problem 23 (28%). But From the doctor’s suggestion UTI does not relate to their past delivery.

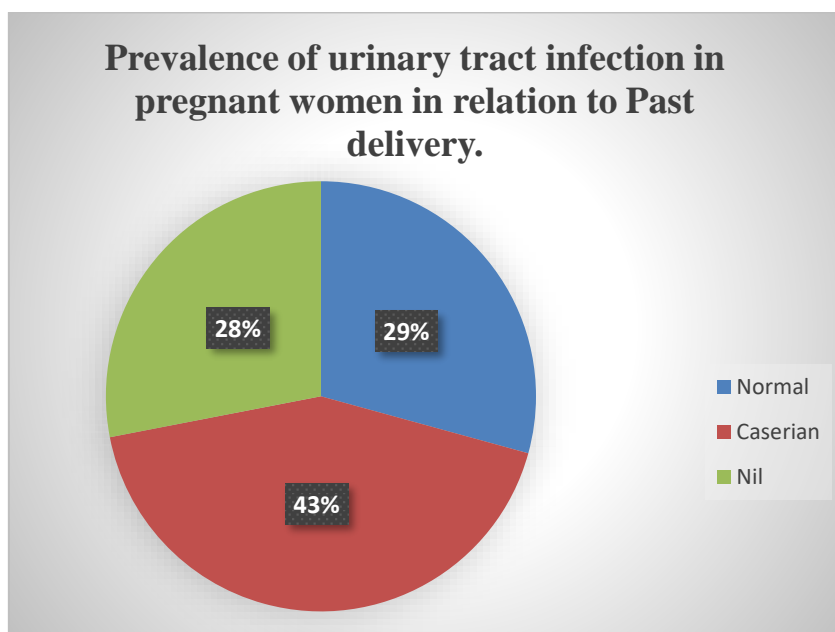


Figure 14: Urinary tract infection in pregnant women in relation to past delivery

Table 16: Prevalence of urinary tract infection in pregnant women in relation to their period circle before pregnancy

Period Circle before Pregnancy	Frequency	Percentage
Regular	83	100%
Irregular	0	0%
Total	83	100%

Table no. 16 shows that 100% of pregnant women with UTI problem had regular periodic circle. None of them had period circle delay issue. The patients who had period problem were before marriage only one or two had these problems but it was solved after they got married. Besides, from doctor's suggests there was no relation of period circle with UTI during pregnancy.

Table 17: Prevalence of urinary tract infection in pregnant women in relation to symptoms

Symptoms of the UTI positive patients	Frequency No. of UTI positive patients	Percentage
Frequent urination + Pregnancy Camp	28	34%
Frequent urination + cloudy and strange smell	11	13%
Frequent urination + discomfort/ painful urination	19	23%
Waking up to urinate, feel like you need to urinate more often	12	14%
Frequent urination + Itching problem often	13	16%
Total	83	100%

Table no. 17 shows that the common symptoms were identified of UTI positive patients of pregnancy. About 34% UTI positive pregnant women suffer from frequent urination and pregnancy cramp. Their pregnancy cramps were extreme for example, Pain, tenderness, or cramps in the lower abdomen or bladder area. 13% of UTI positive pregnant women suffer from frequent urination and cloudy, strange smell while urination. 23% suffers from frequent and discomfort urination. 14% of pregnant women with UTI problem often wake up to

urinate and had the feeling of need to urinate more often. Others about 16% had irritation and itching problem along with frequent urinating.

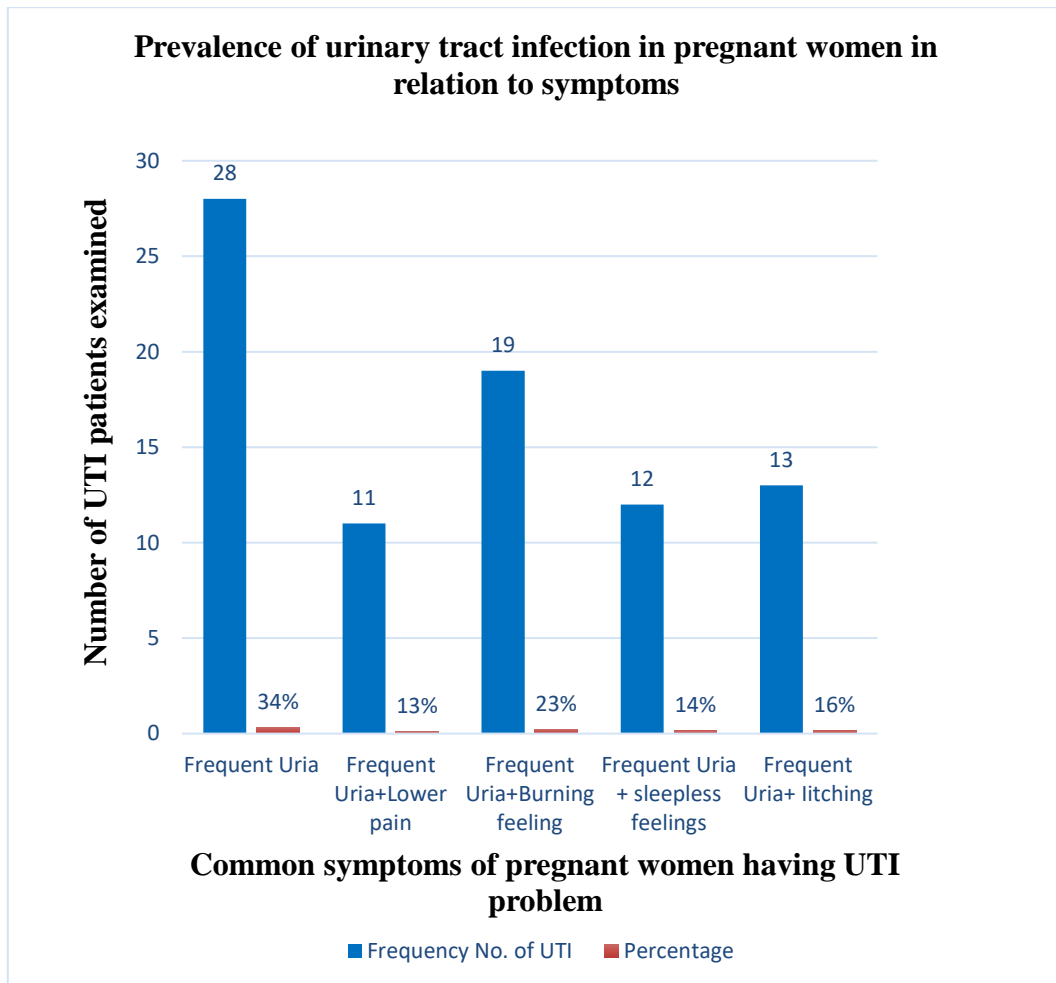


Figure 15: Urinary tract infection in pregnant women in relation to symptoms

Table 18: Prevalence of urinary tract infection in pregnant women in relation to common cold problem

Common Cold problem in UTI positive patients	Frequency	Percentage
Without Common Cold	67	80%
Common cold	16	20%
Grand Total	83	100%

Table no. 18 shows that, among 83 pregnant women with UTI problem 20% of them having UTI problem. UTI relate to common cold, chills and fever. As soon as possible this problem must be treated. The doctors of that institution prescribed mild syrups for removing common cold problem and also gave antibiotic like azithromycin for 3-5 days courses if they had common cold with UTI problem. They said it could cure both problems fast. Azithromycin was not harmful for baby and mother. It's totally safe during pregnancy.

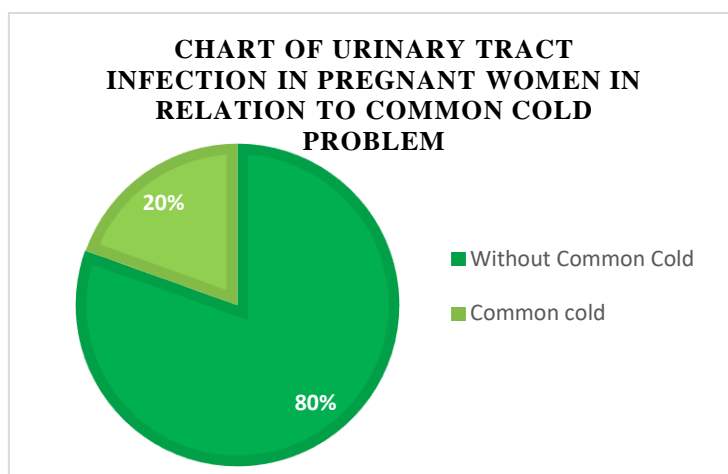


Figure 16: Urinary tract infection in pregnant women in relation to common cold problem

Table 19: Prevalence of urinary tract infection in pregnant women in relation to their undergarments

Type of material of undergarments	Frequency	Percentage
Cotton	64	77%
Synthetic	19	23%
Total	83	100%

Table no. 19 shows that unhygienic undergarments can cause UTI to pregnant women. Most of them were using cotton fabric but still having UTI problem. Doctor's suspects that unhygienic environment and washing clothes improperly could cause yeast infection. Yeast contaminations were caused by an actually happening contagious life form called *Candida albicans*. The acidic environment of the vagina makes a difference keep the yeast from developing, but when the pH was changed, a yeast contamination can happen, (Martin, 2016). Dampness and other bothering can too advance the yeast to develop, causing vaginal tingling. On the other hand, it was found that, 23% of pregnant women having UTI problem were using synthetic material. From clinical studies and doctor's suggestion it was proved that synthetic product was not good for sensitive skins. Interviews with the patients revealed that the reasons behind using synthetic products it's cheaper, easily washable and it can be used for long time. It's not comfortable as cotton products. From some gynaecologists of that institute suggests that using synthetic undergarments can cause fungal infections because a hypersensitivity to polyester may be a sort of texture hypersensitivity, moreover alluded to as material dermatitis. It happened when one's skin changes after coming into contact with certain clothing or other textures. An important relation found that for unhygienic environment and lack of cleanliness the pregnant women having urine infection also suffers from itching problems like fungal infections. Doctors giving the medicines ointment for treating fungal infections during pregnancy.

Table 20: Prevalence of urinary tract infection in pregnant women in relation to their amount of drinking water

Amount of Drinking water	Frequency	Percentage
About half liter per day	2	2%
1 liter per day	21	25%
Half-1.5 liter per day	5	6%
1-2 liter per day	55	66%
Total	83	100%

Table no. 20 shows that during pregnancy drinking plenty of water was necessary for both mother and baby. Water was a major component of our blood, carrying basic supplements to cells and flushing absent hurtful squander items (Aparna, 2017). Moreover, it makes a difference our bodies to retain fundamental supplements from nourishment and speeds up the rate at which glucose was retained in this manner boosting our vitality levels (Aparna, 2017). During pregnancy drinking water weakens one's urine, which diminishes one's hazard of contamination. It's particularly critical to remain hydrated within the final trimester, when drying out can cause withdrawals that can trigger preterm labor. Ten mugs might appear like a part, particularly in the event that you're fighting queasiness amid pregnancy. From the examined Pregnant UTI patients were drinking water less amount than they need to drink (Aparna, 2017). Doctors advised them to drink at least 3 liter per day to stay hydrated. But 2% of them drink only half liter for which they faced painful urination. 25% of them were drinking 1 liter per day which was not good for them. 66% of them drinking 1-2 liter per they and from face to face interview they told me they drink less water because they thought frequent urination was caused because they drink too much water. Moreover, 6% of them drank half to 1.5 liter per day. Doctor suggested the UTI patients to drink plenty of water for their betterment and for curing UTI problem.

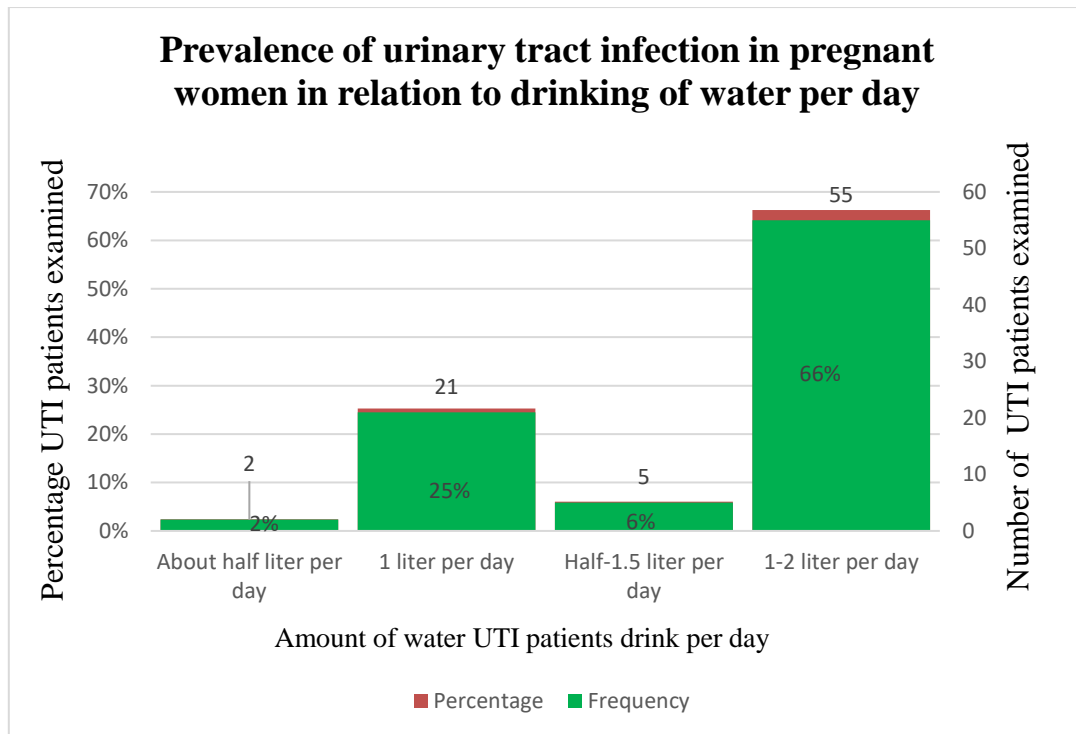


Figure 17: Urinary tract infection in pregnant women in relation to their amount of drinking water

Table 21: Prevalence of urinary tract infection in pregnant women in relation to intercourse activity

Intercourse activity	Frequency	Percentage
No Intercourse	32	39%
Intercourse during pregnancy	51	61%
Total	83	100%

Table no. 21 shows that examined pregnant women with UTI problem 51 (61%) of them were sexually active during pregnancy and 32 (39%) of them were not active. Among 39% most of women from last trimester, some of them felt really uncomfortable with these questions. As it is found that most of them having intercourse during their pregnancy period so this one of common reason for causing UTI (Marcellin, 2010)

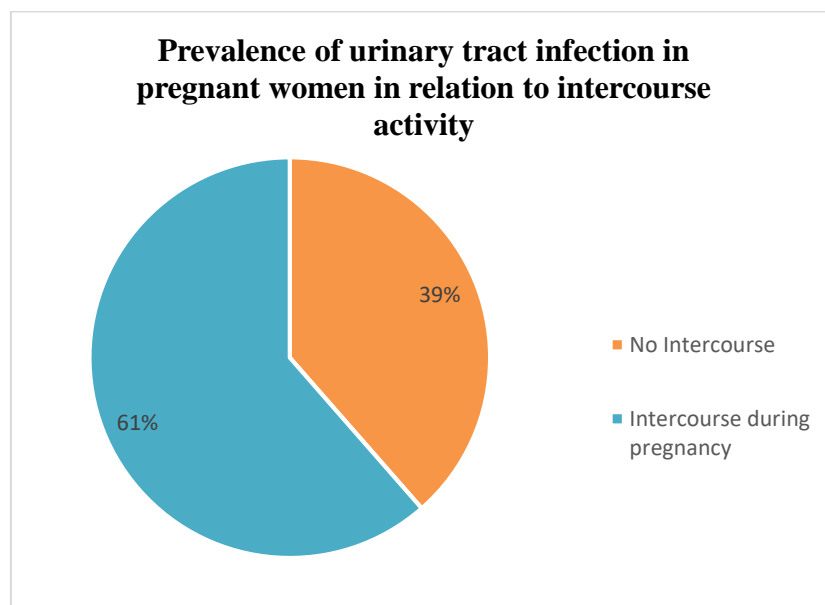


Figure 18: Urinary tract infection in pregnant women in relation to intercourse activity

Table 22: Prevalence of urinary tract infection in pregnant women in relation to vitamins

Name of Vitamins	Frequency	Percentage
Calcium orotate	6	7%
Calcium orotate+VD3	77	93%
Total	83	100%

Table no. 22 shows that two types of vitamins were giving to the mothers. Calcium was really necessary for pregnancy. 93% were calcium orotate+ vitamin D and minerals. On the other 7% were prescribed Calcium orotate. There was no significant difference between thwas two calcium.

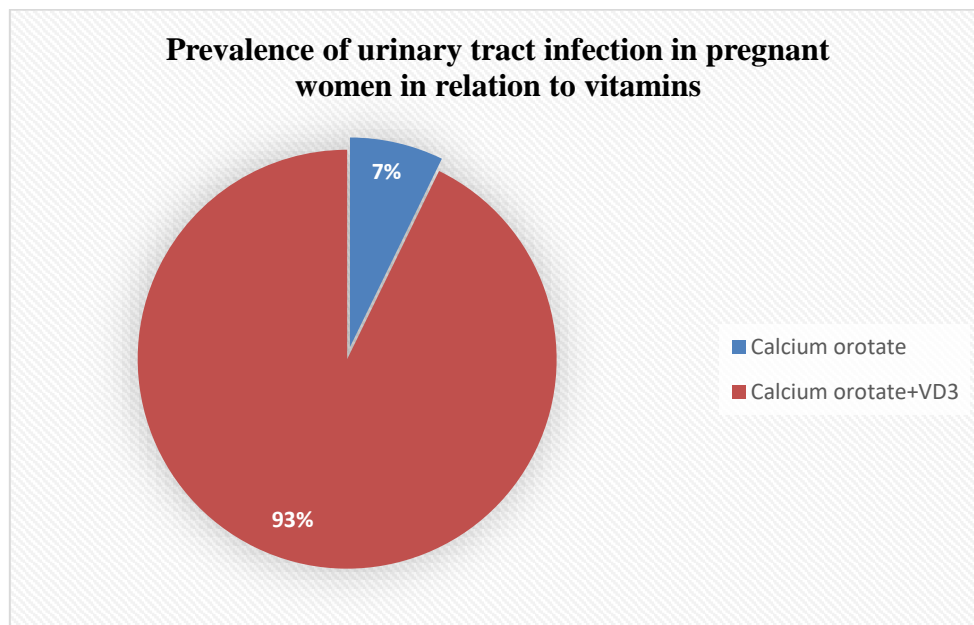


Figure 19: Urinary tract infection in pregnant women in relation to vitamins

Table 23: Prevalence of urinary tract infection in pregnant women in relation to recurrent urinary tract infections

Recurrences of UTI during pregnancy	Frequency	Percentage
No recurrences	74	89%
Has recurrences	9	11%
Total	83	100%

Table no. 23 shows that about 89% of the women had no recurrences but only 11% women were found recurrence problems. It was suspected by the doctors of that Institution, recurrences occur during pregnancy because of unhygienic environment, incomplete antibiotic courses, lack of having drinking fluids, intercourses. These are the main reasons behind recurrences.

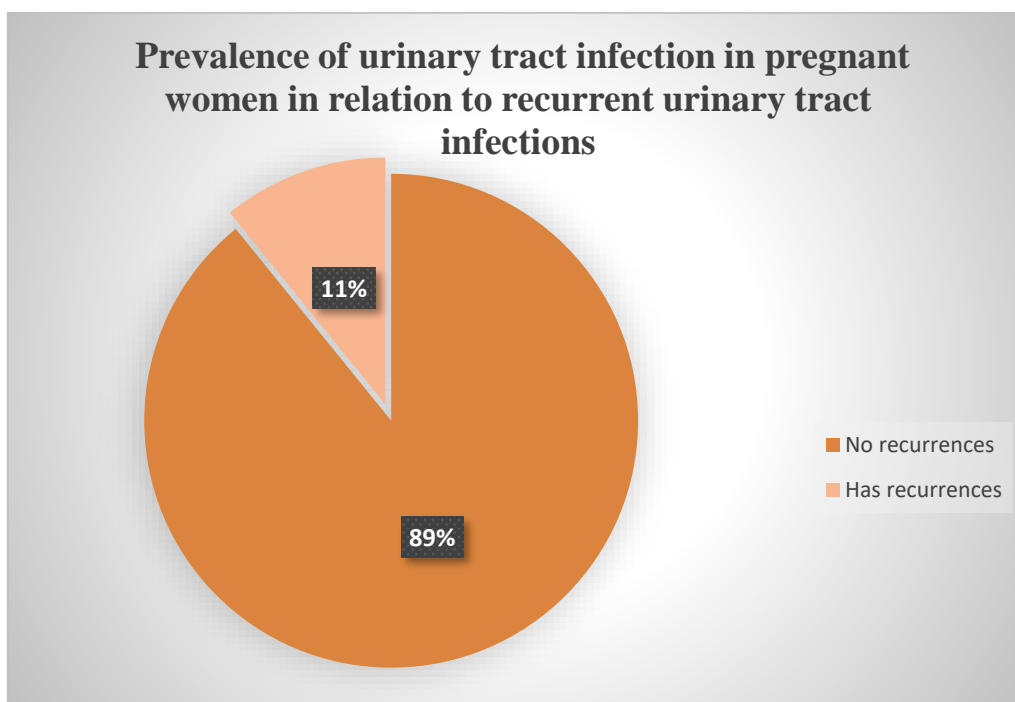


Figure 20: Urinary tract infection in pregnant women in relation to recurrent urinary tract infections.

Table 24: Prevalence of urinary tract infection in pregnant women in relation to iron medicine has prescribed to them

Name of iron medicines	Frequency	Percentage
Ferrous sulphate + Folic Acid +Zinc	55	66%
Folic Acid + Zinc	6	7%
No	22	27%
Total	83	100%

Table no. 24 shows that there was no significant difference between ferrous sulphate+ folic acid and zinc (66%) and folic acid +zinc (7%). Both had similar function just difference in amount. Among them some doctors are not prescribing iron tablets to the other 27% of UTI patients. Reasons are not specified they didn't clarify the reason during collecting data. Iron was necessary for both mother and baby.

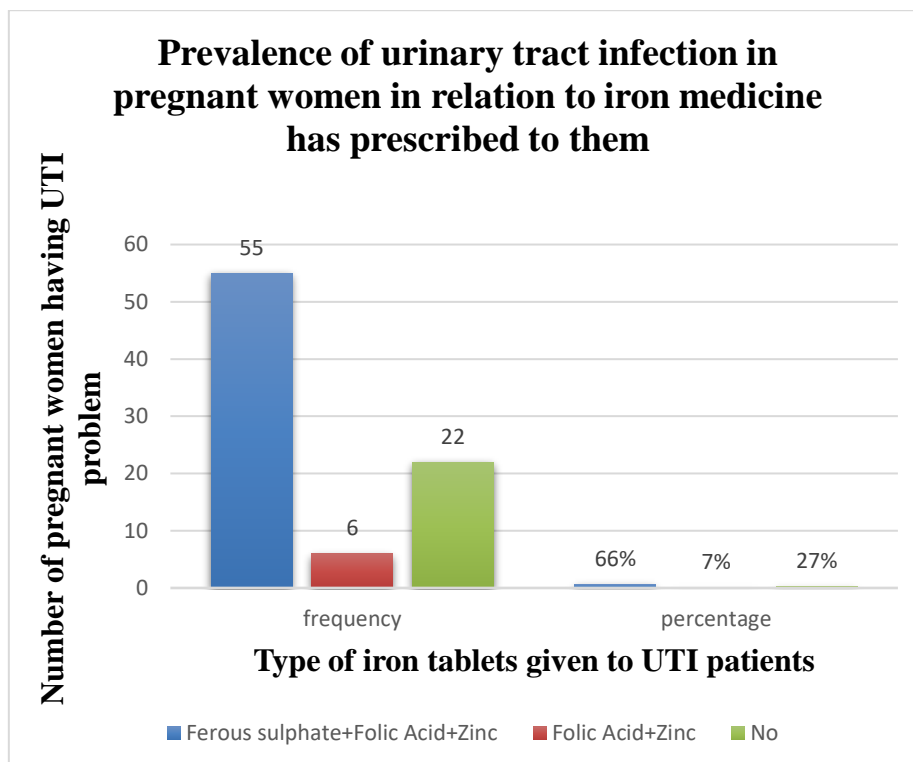


Figure 21: Urinary tract infection in pregnant women in relation to iron medicine has prescribed to them

Table 25: Prevalence of urinary tract infection in pregnant women in relation to a gastric problem

Pregnant women with UTI problem having a gastric problem	Frequency	Percentage
Yes	75	90%
No	8	10%
Total	83	100%

A gas during pregnancy was a frequent occurrence, which also means that a gas during pregnancy was a common concern. About 90% pregnant women having UTI problem are also having gastric problem (Modi, 2013). The hormone progesterone was one of the most causes of abundance gas during pregnancy. As our body produces more progesterone to back our pregnancy, progesterone unwinds muscles in our body (Levitt, 2004). This incorporates the muscles of our digestive tract (Modi, 2013). Slower moving digestive system muscles cruel that our assimilation moderates down (Levitt, 2004). This permits a gas to construct up, which in turn leads to bloating, burping, and flatulence. Besides, 10% of them didn't have any gas problems.

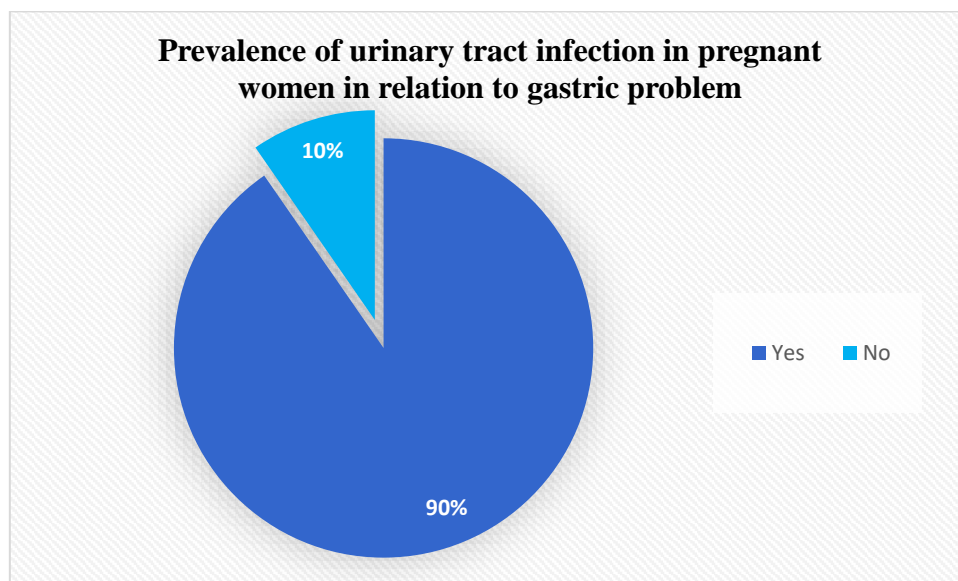


Figure 22: Urinary tract infection in pregnant women in relation to gastric problem

Table 1: Cross analysis table between UTI and Non-UTI pregnant women

Type of Pregnant Patients	Frequency	Percentage
UTI	83	39%
Non-UTI	131	61%
Total	214	100%

Cross analysis table-1 shows that a total 214 patients were responded to the survey, and it was glad to see that 61% of pregnant women had no UTI problem and only 39% have the UTI problems during pregnancy. There are some risk factors may occur doctors suspect that if the UTI remain untreated premature delivery, low fetal weight, painful pregnancy cramps even Kidney diseases and might occur to the patient.

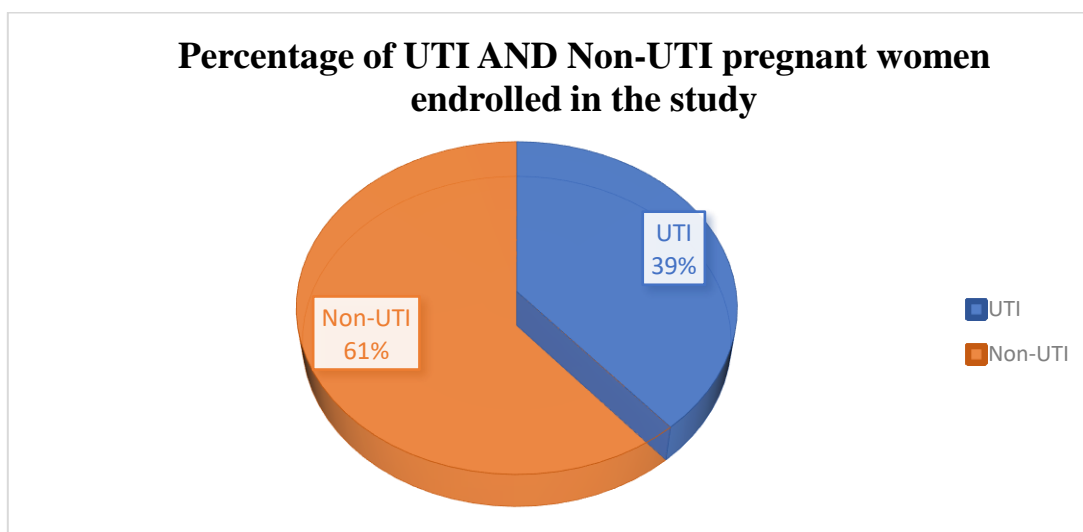


Figure 23: Details of patients examined

Table 2: Cross table analysis between UTI and Non-UTI pregnant women related to a gastric problem

Gastric Problem	UTI	Non-UTI	Total
Yes	75 (90%)	124 (95%)	199
No	8 (10%)	7 (5%)	15
Total	83	131	214

Cross table analysis no. 2 shows that among 214 pregnant women 199 women had a gastric problem from which 75 with UTI problem and 124 were Non-UTI pregnant women. Total 199 of 214 patients had gastric problem. Most of the women had gastric problem often because the hormone progesterone was one of the most common causes of abundance gas during pregnancy. As our body produces more progesterone to back our pregnancy, progesterone unwinds muscles in our body, (Levitt, 2004). This incorporates the muscles of our digestive tract. Slower moving digestive system muscles cruel that our assimilation moderates down, (Levitt, 2004). This permits gas to construct up, which in turn leads to bloating, burping, and flatulence. Besides, 10% of them didn't have any gas problems.

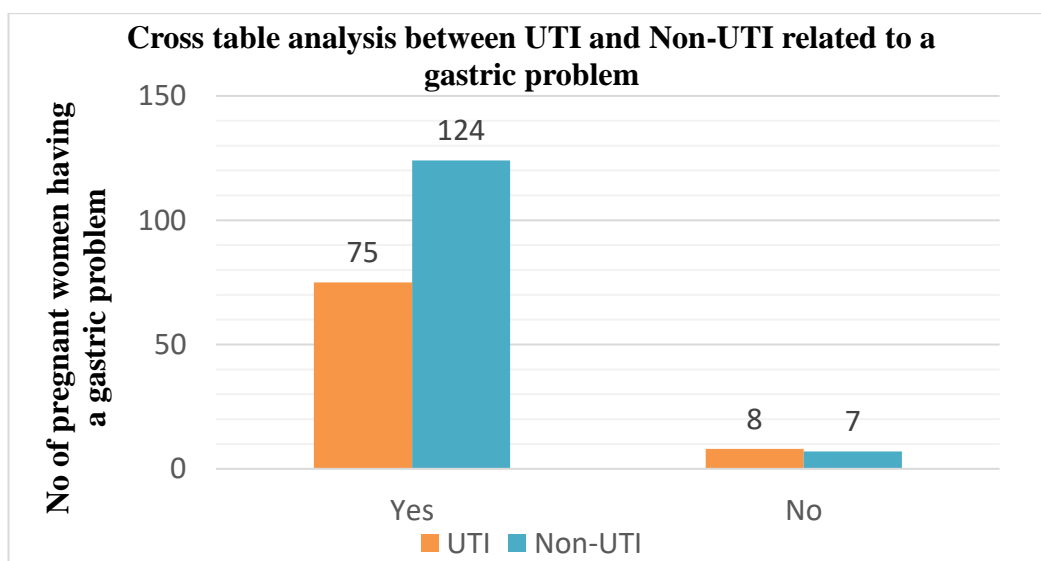


Figure 24: Cross table analysis between UTI and Non-UTI pregnant women related to a gastric problem

Table 3: Cross table analysis between UTI and Non-UTI related to residence environment

Residence place	Non-UTI	UTI	Total
Moderately hygiene	75 (61%)	34 (39%)	109
Unhygienic/ Dirty	49 (51%)	48 (49%)	97
Well-Cleaned Area	7 (88%)	1 (13%)	8
Total	131	83	214

Cross table analysis no. 3 shows that out of 214 pregnant women, 75 of them are Non-UTI pregnant patients and 34 of them are UTI patients, in total 109 pregnant women are living under moderately hygiene area. Which means the environment near their residence were polluted and unfairly. Out of 97 pregnant women 49 were Non-UTI patients and 48 were UTI patients living into slum area in Dhaka city. They were living under totally dirty, extremely polluted, unhygienic slum area. For these reasons they always remain sick and facing various types of sickness. 7 out of 8 were found to have Non-UTI and 1 had UTI problem are living under well-cleaned area.

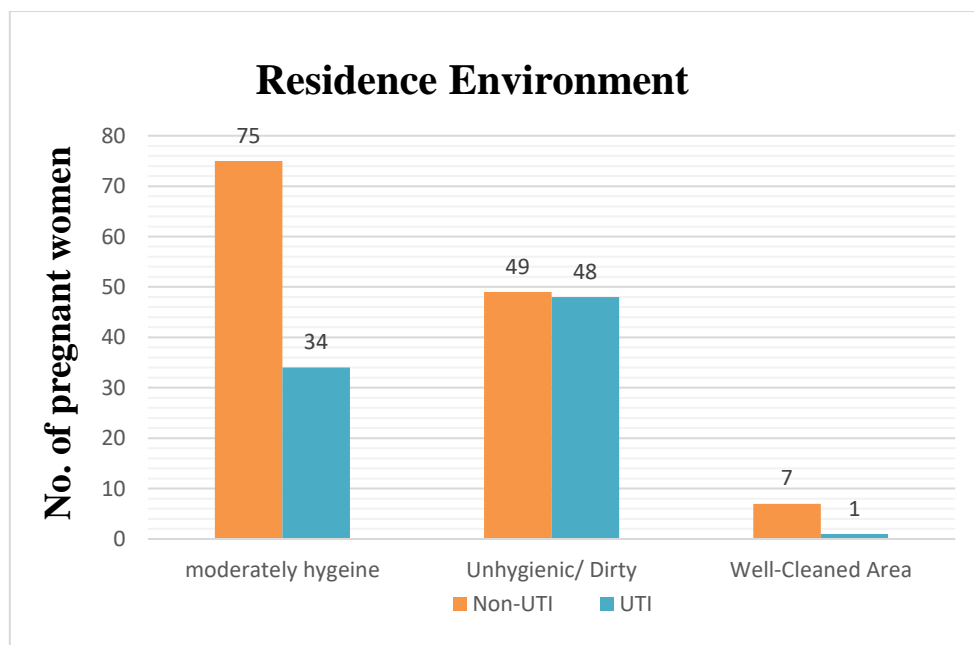


Figure 25: Cross table analysis between UTI and Non-UTI pregnant women related to residence environment

Table 4: Cross table analysis between UTI and Non-UTI related to amount of water pregnant women drink per day

Amount of water	UTI	Non-UTI	Total
Less than 1 liter	2	0	2
1 liter	21	0	21
1.5-2.5 liter	60	23	83
2.5-3.5 liter	0	108	108
	83	131	214

Cross analysis table no. 4 shows that out of 214 pregnant women 108 of them had no UTI problem because they used to drink a lot of water per day and it was good to know they knew about water was necessary for them to stay hydrated. On the other side, out of 214 patients 60 women used to drink 1.5 to 2.5-liter water per day which was not good enough for pregnancy it can be one the reason causing UTI. Beside 23 pregnant women who had no UTI problem were also used to drink 1.5-2.5 liter per day it was not good for their health they must drink minimum 3 to 3.5-liter water per day during pregnancy to live a healthy life for both her and baby. It was shocking two pregnant women had UTI problem but still didn't drink much water they only used to drink less than 1 liter per day. And 21 pregnant women who had UTI used to 1-liter water per day. For their concern it was important to cure UTI water was best home remedies to cure UTI problem fast.

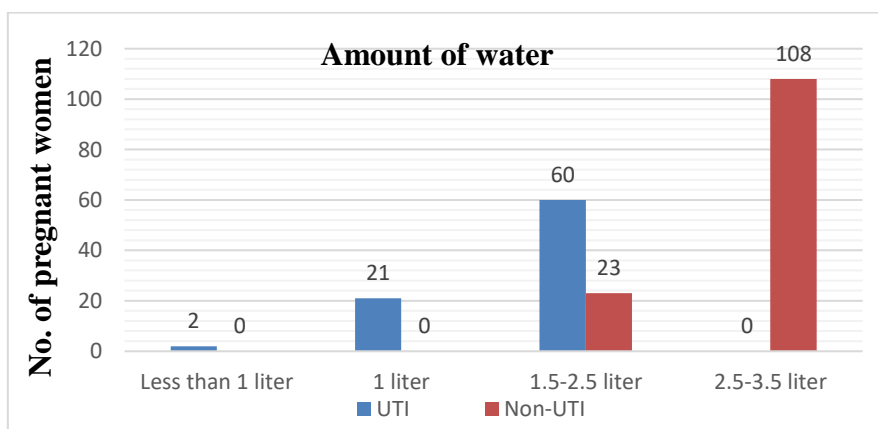


Figure 26: Cross table analysis between UTI and Non-UTI pregnant women related to amount of water drink per day

Table 5: Cross table analysis between UTI and Non-UTI related to intercourse activity during pregnancy

Intercourse Activity	UTI	Non-UTI	Total
Yes	51 (86%)	8 (14%)	59
No	32 (21%)	123 (79%)	155
Total	83	131	214

Cross analysis table no. 5 shows that intercourse really a major cause of UTI during pregnancy. Out of 214 pregnant women 123 of them are not doing intercourse during pregnancy they have no UTI problem. Besides, 32 women were did not do intercourse during pregnancy but still having UTI problem for other reasons. Out of 83 UTI patients 51 women did intercourse activity and out of 131 only 8 women did not doing intercourse but not having UTI problem till now.

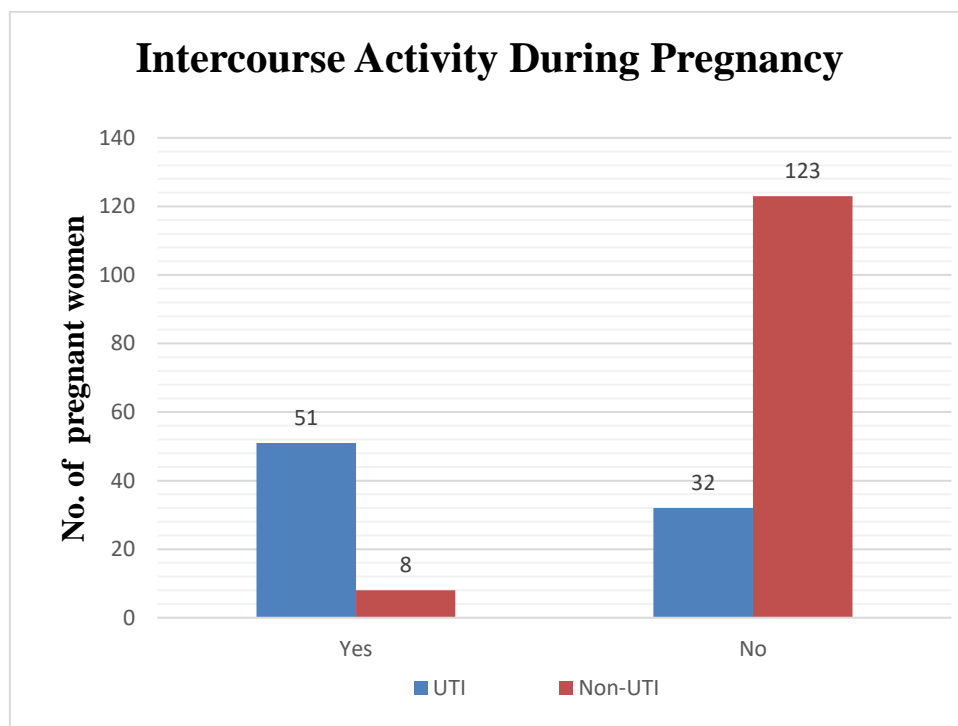


Figure 27: Cross table analysis between UTI and Non-UTI related pregnant women to intercourse activity during pregnancy

Table 6: Cross table analysis between UTI and Non-UTI pregnant patients related to past delivery

Type of Delivery	Past Delivery of UTI	Past Delivery of Non-UTI	Total
Caesarean	35 (58%)	32 (42%)	67
Normal	24 (33%)	48 (67%)	72
Grand Total	59	80	139

Out of 214 pregnant patients 139 women had past delivery records. Other 75 women were 1st time pregnant. Out of 214 patients 67 women have caesarian delivery records. Among them 35 had UTI problem and 32 had no UTI. And in normal delivery records 24 have UTI problem and 48 women did not have any UTI problem.

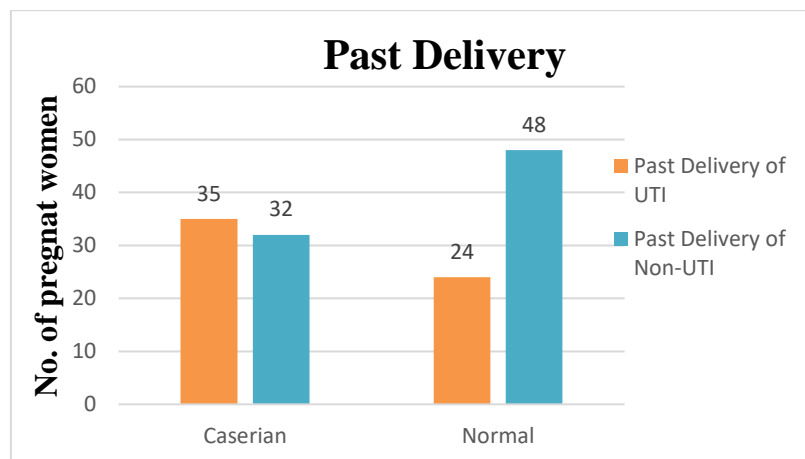


Figure 28: Cross table analysis between UTI and Non-UTI pregnant patients related to past delivery

4. Discussion:

Urinary tract diseases are one of the common infections happening amid pregnancy. The aim of the present study is to decide the predominance of urinary tract disease in pregnancy. A total of 214 pregnant women were included in the study. In this study out of 214 pregnant cases 83 patients were found to have UTI problem. In this study, some demographic characteristics of total 214 pregnant patients were included. For example, age range of getting pregnant, blood group, Patient's professions, weight data etc. Interestingly it was observed that our female education still now has no improvement. About 13% of total patients were illiterate. Only 2% of patients found graduate. Most of them studied till S.S.C then got married. The Government should make them more aware and give more facilities to these women. Apart this study focusing on UTI positive pregnant patients. The prevalence of infection in relation to age, individuals of the age group 21-25 years had the highest incidence of infection (64%). Followed by age group 16-20 years of 23%, 26-30 years of 11% and less incidence in the age group 30-35 years only 2%. Similar result was found in a study by (Kavita, 2015) and they found that out of 163 pregnant cases 21 patients had UTI and individuals of the age group 21-25 years had the highest incidence of infection 57.142%. The reason can be due to the reality that many women inside this age gather are likely to have had many children before current pregnancy and it has been detailed that multiparty could be a hazard factor for obtaining bacteriuria in pregnancy. Sexual activity and certain contraceptive strategies are too said to extend the chance and ladies are generally sexually dynamic at this age (Kavita, 2015).

There was higher rate of infection in the city because of environmental pollution. The patients living in moderately hygiene area is facing UTI problem and in this study out of 83 UTI patients 48 (58%) women lived in moderately hygiene area and 43 (41%). From face to face interview it was found that most of them were having poor sanitation system and rest of them moderately clean sanitation system. The reason might be due to use of open toilets in city. When there is poor sanitation and not utilizing preventative methods such as post-coital voiding and fitting cleanliness when toileting (Kavita, 2015). Similarities found from the study by (Kavita 2015). Prevalence of Urinary Tract Infection in Pregnant Women in the Region of Warangal there was higher rate of infection in the city (57.142%) compared to town (23.809%) and village (19.047%). Difference is in this study only focused in city sanitation and environment near their residence. There was higher rate of infection in the

third trimester 52 (63%) compared to second trimester 31(37 %) and 1st trimester 0.46%. There is an increased frequency of urinary tract infection in the third trimester compared to the first and second trimester of pregnancy. This distinction may be as a result of either alter in urinary stasis and vesicoureteral reflux or diminish in urinary progesterone and estrogens within the different trimester of pregnancy (Emilie, 2014). Some dissimilarities found from the study by (Kavita, 2015) there was higher rate of infection in the Second trimester (42.857%) compared to first trimester (38.095 %) and third trimester (19.047%).

This study also shows that 59% of women who had UTI were in their 2nd pregnancy and above with high incidence rate than 3rd 12% pregnancy. Results of this study are similar to the results reported by (Bimoch, 2018). The highest prevalence of UTI among the multigravida as a result of pressure effect of a bigger uterus on the ureter and pressure on the bladder from the descending part leading to stasis of urine and the increased multiplication of urine (Lawanii, 2015).

The study also focused that past Caesarean delivery patients had 43% higher rate of urinary tract infection than normal past delivery patients 29%. This new information has been identified from the studies about UTI in pregnancy. The reason behind might be remaining unhygienic and previous UTI records as the doctor's suggestion from that Institution.

Another information was found that from the symptoms 34% had asymptotic bacteriuria because they had problem of frequent urination and pregnancy cramps. 13% of UTI positive pregnant women suffered from frequent urination and cloudy, strange smell while urination. 23% suffered from frequent and discomfort urination. 14% of pregnant women with UTI problem often wake up to urinate and had the feeling of need to urinate more often. Others about 16% had irritation and itching problem along with frequent urinating. All the symptoms were related to asymptotic bacteriuria. It was failed to identify acute cystitis patients and pyelonephritis patients. There was too much rushes so doctors could not give them urine test for UTI problem. It was a major drawback found during this study.

From the analysis it was found that, the antibiotic prescribed to pregnant women for pregnancy was not different from normal UTI patients (Christensen, 2000). Most of the UTI patients of pregnancy were prescribed cefuroxime 27% and cefuroxime + clavulanic acid 18% in total 45%. According to the gynaecologist of the institute cefuroxime was the safest antibiotic can be taken for recovering UTI problems during pregnancy (Christopha, 2009). Cefuroxime had less side effects than other antibiotics during pregnancy (Adelaide, 2004).

Clavulanic acid protects cephalosporin from degradation by enzyme enzymes and effectively extends the medication spectrum of cephalosporin to embrace several microorganisms commonly proof against cefuroxime and alternative cephalosporins, azithromycin was prescribed to 31% of the patients who had common cold problems along with UTI. Nitrofurantoin was also effective for curing UTI (WM Bamford & Company Limited. Nifuran. Medicine Safety Data Sheet. 2004). 4% patients were giving Nitrofurantoin. Amoxicillin were prescribed to 13 % of the pregnant mother for UTI. Amoxicillin was also safe for both pregnant and baby (Schaeffer, 2007). Cefixime was also an effective antibiotic for UTI but it's for pregnancy was not clinically proven yet, (Product Information. Suprax (cefixime)." Lupin Pharmaceuticals Inc, Baltimore, MD)

Water dilutes the urine and helps flush out bacteria that may be present. Therefore, water is necessary to prevent UTI. In this study it was found that 25% patients used to drink water 1 liter per day had UTI problem. 66% of UTI patients used to drink only 1-2 liter per day. It is clearly identified after cross analysis with Non- UTI pregnant patients that the 60 out of 83 UTI pregnant patients who used to drink 1-2 liter per day than the patients of 108 Non- UTI patients who used to drink 2-3.5 liter water per day.

From another cross analysis between UTI and Non-UTI pregnant patients both groups had a gastric problem equally. Because during pregnancy. As our body produces more progesterone to back our pregnancy, progesterone unwinds muscles in our body (Levitt, 2004). This incorporates the muscles of our digestive tract (Modi, 2013). Slower moving digestive system muscles cruel that our assimilation moderates down (Levitt, 2004). This permits gas to construct up, which in turn leads to bloating, burping, and flatulence.

Moreover, in this study is was focused that the patients who did intercourse had more chances of UTI problem during pregnancy. From cross analysis it was observed that out of 83 UTI pregnant patients 51 (83%) did intercourse regularly and had UTI. Besides, 123 out of 131 Non-UTI patients did not do intercourse during pregnancy period. As it was found that most of them having intercourse during their pregnancy period so this is one of common reasons of causing UTI (Marcellin, 2010). Other author had similar observation (Onuh *et al.*, 2004). Sexual activity and certain contraceptive methods are also said to increase the risk and women are mostly sexually active during the period of pregnancy.

From this study it appeared that the predominance of urinary tract disease amid pregnancy was 39% within the region of Dhaka city. The physiological changes of pregnancy inclined

ladies to UTI were considered with other components such as age, sexual action, and past history of UTI. Wellbeing instruction around individual cleanliness ought to be emphasized by the antenatal care doctor to all pregnant ladies. This ponder proposes that since, UTI was the foremost common bacterial disease during pregnancy, screening of bacteriuria in pregnancy ought to be a must. Legitimate secure antimicrobial treatment ought to be considered since, Urinary tract diseases are related with hazard to both mother and the embryo.

5. References:

1. Akinloye, O., Ogbolu, D.O., Akinloye, O.M. & Terry, O.A. (2006). Asymptomatic bacteriuria of pregnancy in Ibadan, Nigeria: a re-assessment. *British Journal of Biomedical Science*. 63, 109-112.
2. *Am Fam Physician*. 1999 Mar 1; 59(5):1225-34, 1237.
3. *Am Fam Physician*. 2000 Feb 1;61(3):713-720.
4. American Academy of Family Physicians, William's Obstetrics Twenty-Second Ed. Cunningham, F. Gary, et al, Ch. 48.
5. Angel JL, O'Brien WF, Finan MA, Morales WJ, Lake M, Knuppel RA. Acute pyelonephritis in pregnancy: a prospective study of oral versus intravenous antibiotic therapy. *Obstet Gynecol*. 1990; 76:28–32.
6. Australian Medicines Handbook. Adelaide: Australian Medicines Handbook Pty Ltd, 2004.
7. Barnick, C.G.W & Cardozo, LD. (1991). the lower urinary tract in pregnancy, labour and puerperium. In: Studd J, editor. *Progress in Obstetrics and Gynaecology* Vol. 9. London: Churchill Livingstone, pp 195-204
8. Barr JG, Ritchie JW, Henry O, el Sheikh M, el Deeb K. Microaerophilic/anaerobic bacteria as a cause of urinary tract infection in pregnancy. *Br J Obstet Gynaecol*. 1985; 92:506–10
9. Bladder infection (urinary tract infection—UTI) in adults. National Institute of Diabetes, Digestive, and Kidney Diseases. <https://www.niddk.nih.gov/health-information/urologic-diseases/bladder-infection-uti-in-adults>. Accessed June 30, 2017.
10. Chen YK, et al. (2010). No increased risk of adverse pregnancy outcomes in women with urinary tract infections: A nationwide population-based study. DOI: 10.3109/00016349.2010.486826
11. Christensen B Which antibiotics are appropriate for treating bacteriuria in pregnancy? *J Antimicrob Chemother* 2000;46Suppl 12934
12. Constipation during pregnancy – causes, symptoms and relief tips. (2013, June 11) pregmed.org/constipation-during-pregnancy-causes-symptoms-and-relief-tips.htm
13. Cranberry. National Centre for Complementary and Integrative Health. <https://nccih.nih.gov/health/cranberry>. Accessed June 30, 2017.

14. Cristopha, 2009 (CKS)Clinical Knowledge Summaries Urinary tract infection (lower) - women. CHRISTOPHA, 2009. Available from: www.cks.nhs.uk/urinary_tract_infection_lower_women (Accessed Feb, 2011).
15. Crittenden A. 2001. *The Price of Motherhood: Why the Most Important Job is Still the Least Valued*. New York, NY: Henry Holt and Company.
16. Dalzell, J.E. & Lefevre M.L. (2000). Urinary tract infection of pregnancy. *American Academy of Family Physicians* 61, 713-21.
17. Delzell JE, et al. (2000). Urinary tract infections during pregnancy. aafp.org/afp/2000/0201/p713.html
18. Delzell JE, Lefevre ML. Urinary tract infections during pregnancy. *Am Fam Physician*. 2000; 61(3):713–21. [PubMed]
19. Dr Bimoch Projna Paty "Prevalence of Urinary Tract Infection in Pregnant Women in a Tertiary Care Hospital of Odisha" *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 17, no. 5, 2018, pp 47-50.
20. Emilie Katherine Johnson (2016), Urinary Tract Infection in Pregnancy, MD, MPH Head of Clinical Research, Attending Physician, Division of Urology, Ann and Robert H Lurie Children’s Hospital of Chicago; Assistant Professor of Urology, Assistant Professor, Center for Healthcare Studies, Institute for Public Health and Medicine Northwestern University, The Feinberg School of Medicine.
21. Emilie KJ. Urinary Tract Infections in Pregnancy. Medscape. [Online] 2014 [Cited 2014Nov 1]Available from:URL: <http://emedicine.medscape.com/article/452604overview>
22. eTG. Therapeutic Guidelines. Recurrent urinary tract infections in adults. (Amended Oct 2015).https://tgldcdp.tg.org.au/viewTopic?topicfile=urinary-tract-infections&guidelineName=Antibiotic#toc_d1e650 (March 2016 edition).
23. Ezeome, I.V., Ikeme, A.C., Okezie, O.A. & Onyebueke, E.A... (2006). Asymptomatic bacteriuria in pregnant women in Enugu, Nigeria. *Tropical Journal of Obstetrics and Gynaecology* 23, 12-13.
24. FDA drug safety communication: FDA updates warnings for oral and injectable fluoroquinolone antibiotics due to disabling side effects. U.S. Food and Drug

- Administration. <https://www.fda.gov/Drugs/DrugSafety/ucm511530.htm>. Accessed Aug. 7, 2017.
25. Ferri FF. Urinary tract infection. In: Ferri's Clinical Advisor 2017. Philadelphia, Pa.: Elsevier; 2017. <https://www.clinicalkey.com>. Accessed June 30, 2017.
 26. Gabbe. 4th ed. Churchill Livingstone: 2002. Infection of the urinary tract. Chapter 40 in Gabbe: Obstetrics-Normal and problem pregnancies; pp. 1067–70.
 27. Gas during pregnancy: Causes and prevention. (2014, July) americanpregnancy.org/pregnancy-health/gas-during-pregnancy/
 28. Harms, R. W. (2014, May 16). Is It Safe to Take Stool Softeners to Treat Pregnancy Constipation? Retrieved from mayoclinic.org/healthy-lifestyle/pregnancy-week-by-week/expert-answers/pregnancy-constipation/faq-20058550
 29. Holly Ernst , 2018 Medically reviewed by PA-C on October 4, 2018 — Written by the Healthline Editorial Team and Jill Seladi-Schulman, PhD
 30. Hooper DC. Fluor quinolones. <https://www.uptodate.com/contents/search>. Accessed Aug. 7, 2017.
 31. Hooton TM, et al. Acute uncomplicated cystitis and pyelonephritis in women. <https://www.uptodate.com/contents/search>. Accessed June 30, 2017.
 32. Hooton TM, et al. Recurrent urinary tract infection in women. <https://www.uptodate.com/contents/search>. Accessed June 30, 2017.
 33. <http://www.aafp.org/>
 34. Jacquelyn Cafasso , 2016 Acute cystitis, Medically reviewed by Steve Kim, MD on March 30, 2016
 35. Kass EH. Pregnancy, pyelonephritis and prematurity. *Clin Obstet Gynecol.* 1970; 13:239–54
 36. Kavita 2015, Prevalence of Urinary Tract Infection in Pregnant Women in the Region of Warangal)
 37. Lauren, 2011 bpac.org.nz/BPJ/2011/april/pregnant-uti.aspx
 38. Lindsey Marcellin, (2010), MD, MPH Marcellin, 1996-2018 Ziff Davis, LLC. Everyday Health is among the federally registered trademarks of Ziff Davis, LLC

39. Loh, K., & Sivalingam, N. (2007). Urinary tract infections in pregnancy. *Malaysian family physician: the official journal of the Academy of Family Physicians of Malaysia*, 2(2), 54-7.
40. Loughlin KR. Management of urologic problems during pregnancy. *Urology*. 1994; 44:159–69.
41. Macejko AM, Schaeffer AJ. Asymptomatic bacteriuria and symptomatic urinary tract infections during pregnancy. *Urol Clin North Am* 2016; 34(1):35-42.
42. Macejko, A.M. & Schaeffer, A.J... (2007). Asymptomatic Bacteriuria and Symptomatic Urinary Tract Infections during Pregnancy. *Urologic Clinics of North America* 34, 35-42.
43. F. & Vazquez, J.C. (2007). Antibiotics for asymptomatic bacteriuria in pregnancy. *Cochrane Database of Systematic Reviews*, Issue 2, CD000490
44. Managing urinary tract infections in pregnancy. (2011). bpac.org.nz/BPJ/2011/april/pregnant-uti.aspx
45. Martin JA, et al. 2015. Births: Final data for 2013. National Vital Statistics Report 64(1):1-65. http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_01.pdf [Accessed November 2016]
46. Matuszkiewicz-Rowinska J, et al. (2015). Urinary tract infections in pregnancy: Old and new unresolved diagnostic and therapeutic problems. DOI: 10.5114/aoms.2013.39202
47. Mayo Clinic. 2016. Egg freezing. <http://www.mayoclinic.org/tests-procedures/egg-freezing/home/ovc-20168991> [Accessed November 2016]
48. Mayo Clinic. Urinary tract infections. (Updated July 2015). <http://www.mayoclinic.org/diseases-conditions/urinary-tract-infection/basics/definition/con-20037892> . Accessed May 2016.
49. Mayo Foundation for Medical Education and Research (MFMER), 1998-2018
50. Mayo Foundation for Medical Education and Research (MFMER), 2016
51. Michael Levitt, MD, Veteran Affairs Medical Center, Minneapolis, MN, and Larry Szarka, MD, Mayo Graduate School of Medicine, Rochester, MN – Published June 2004.

52. Ministry of Health. 2014. Guidance for Healthy Weight Gain in Pregnancy. Wellington: Ministry of Health.
53. Natalie 2017, Natalie J Gauld, Irene SL Zeng, Rosemary B Ikram, Mark G Thomas, Stephen A Buetow, Treatment of uncomplicated cystitis: analysis of prescribing in New Zealand 1st July 2016, Volume 129 Number 1437
54. NPS MedicineWise. Urinary tract infections (updated July 2014). <http://www.nps.org.au/conditions/urine-bladder-and-kidney-problems/bladder-disorders/urinary-tract-infections>. Accessed May 2016.
55. NPS MedicineWise. Urinary tract infections (updated July 2014). <http://www.nps.org.au/conditions/urine-bladder-and-kidney-problems/bladder-disorders/urinary-tract-infections>. Accessed May 2016.
56. OHN E. DELZELL, JR., M.D., and MICHAEL L. LEFEVRE, M.D., M.S.P.H., University of Missouri-Columbia School of Medicine, Columbia, Missouri
57. Olsen, B.E., Hinderaker, S.G., Lie, R.T., Gasheka, P., Baerheim, A., Bergsjø, P. & Kvale, G... (2000). the diagnosis of urinary tract infections among pregnant women in rural Tanzania; Prevalences and correspondence between different diagnostic methods. *Acta Obstetrica Gynecologia Scandinavica* 79, 729-736.
58. Orenstein R, Wong ES
59. Overactive bladder (OAB): Lifestyle changes. Urology Care Foundation. [https://urologyhealth.org/urologic-conditions/overactive-bladder-\(oab\)/treatment/lifestyle-changes](https://urologyhealth.org/urologic-conditions/overactive-bladder-(oab)/treatment/lifestyle-changes). Accessed July 3, 2017.
60. Patterson TF, Andriole VT. Bacteriuria in pregnancy. *Infect Dis Clin North Am*. 1987; 1:807–22.
61. Patterson, T.F. & Audriole, V.T... (1987). Bacteriuria in pregnancy. *Infectious Disease Clinics of North America* 1, 807-822.
62. Product Information. Suprax (cefixime)." Lupin Pharmaceuticals Inc, Baltimore, MD.
63. Ramus RM, Sheffield JS, Mayfield JA, Wendel GD Jr "A randomized trial that compared oral cefixime and intramuscular ceftriaxone for the treatment of gonorrhea in pregnancy." *Am J Obstet Gynecol* 185 (2001): 629-32
64. Ronak Modi, MD, and Harris R. Clearfield, MD, MACG, Drexel University College of Medicine, Philadelphia, PA – Updated July 2013.

65. Sheikh, M.A., Khan, M.S., Khatoon A. & Arain G.M... (2000). Incidence of urinary tract infection during pregnancy. *Eastern Mediterranean Health Journal*. 2/3, 265-271.
66. Smaill FM, Vazquez JC. Antibiotics for asymptomatic bacteriuria in pregnancy. *Cochrane Database of Systematic Reviews* 2007, Issue 2. Art. No.: CD000490. DOI: 10.1002/14651858.CD000490.pub2
67. Sobel JD and Kaye D. Urinary tract infections. In: Mandell, Douglas, and Bennett's Principles and practice of infectious diseases, 7, Mandell GL, Bennett JE, and Dolin R (Eds), Elsevier, Philadelphia 2010. Vol 1, p.957.
68. Stamm WE, Hooton TM. Management of urinary tract infections in adults. *N Engl J Med*. 1993; 329:1328–34.
69. Takhar SS, et al. Diagnosis and management of urinary tract infection in the emergency department and outpatient settings. *Infectious Disease Clinics of North America*. 2014;28:33.
70. Takhar SS, et al. Diagnosis and management of urinary tract infection in the emergency department and outpatient settings. *Infectious Disease Clinics of North America*. 2014; 28:33.
71. The American Journal of Medicine
72. Urinary tract infections (UTIs). (2015). acog.org/~media/For%20Patients/faq050.pdf/
73. Urinary tract infections (UTIs). The American College of Obstetricians and Gynaecologists. <https://www.acog.org/Patients/FAQs/Urinary-Tract-Infections-UTIs>. Accessed June 30, 2017.
74. Urinary tract infections in adults (revised July 2014). <http://www.nhs.uk/Conditions/Urinary-tract-infection-adults/Pages/Introduction.aspx>. Accessed May 2016.
75. Urinary tract infections in adults.
76. Urinary tract infections. National Institutes of Health. <https://nihseniorhealth.gov/urinarytractinfections/whatareurinarytractinfections/01.html>. Accessed June 30, 2017.
77. Vazquez JC, Villar J. Treatments for symptomatic urinary tract infections during pregnancy. *Cochrane Database Syst Rev*. 2003 ;((4)) [PubMed]

78. Volume 113, Issue 1, Supplement 1, 8 July 2002, Pages 35-44
79. WebMD Medical Reference Reviewed by Nazia Q Bandukwala, DO on April 17, 2018
80. WebMD Medical Reference Reviewed by Nazia Q Bandukwala, DO on April 17, 2018
81. Wein AJ, et al., eds. Infections of the urinary tract. In: Campbell-Walsh Urology. 11th ed. Philadelphia, Pa.: Elsevier; 2016. <https://www.clinicalkey.com>. Accessed June 30, 2017.
82. Wein AJ, et al., eds. Infections of the urinary tract. In: Campbell-Walsh Urology. 11th ed. Philadelphia, Pa.: Elsevier; 2016. <https://www.clinicalkey.com>. Accessed June 30, 2017.
83. Werner K. Allscripts EPSi. Mayo Clinic, Rochester, Minn. April 7, 2017.
84. William's Obstetrics Twenty-Second Ed. Cunningham, F. Gary, et al, Ch. 48.
85. WM Bamford & Company Limited. Nifuran. Medicine Safety Data Sheet. 2004. Available from: www.medsafe.govt.nz (Accessed Mar, 2011).