

**PREVALENCE AND ASSOCIATED FACTORS OF URINARY
TRACT INFECTIONS AMONG PREGNANT WOMEN ATTENDING
ANTENATAL CARE IN KIRYANDONGO GENERAL HOSPITAL**

BY:

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**A RESEARCH DISSERTATION SUBMITTED TO THE FACULTY OF
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FULFILMENT OF REQUIREMENTS FOR THE AWARD OF
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INTERNATIONAL UNIVERSITY**

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(SENIOR LECTURER OBSTETRICS AND GYNEACOLOGY)

APRIL 2018.

DECLARATION

I, Wanyenya Mona, declare that this research dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institute

SIGNATURE:

Mona
.....

DATE:

03/05/2018
.....

APPROVAL

I undersigned, certify that this research dissertation is the work of the candidate carried out during her studies under direct supervision. I certify that I have read and hereby recommend for examination of the research dissertation, Prevalence and associated factors of urinary tract infections among pregnant women attending the antenatal care in Kiryandongo General Hospital.

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DEDICATION

I dedicate this piece of work to my beloved mother Mrs Kuloba Grace for all the love and support, all the sacrifice to ensure my success in my education up to this level. The guidance and encouragement for you will always be my motivation towards any goal

ACKNOWLEDGEMENT

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DEFINITION OF OPERATIONAL TERMS

Asymptomatic; This is when a patient has a disease or infection but experiences no symptoms

Infection; This is a detrimental colonization of a host organism by a foreign species

Prevalence; This is the total number of disease cases in a population at a given period of time

LIST OF ACRONYMS

Et al	and others
MOH	Ministry Of Health
OPD	Outpatient Department
UK	United Kingdom
UTI	Urinary Tract Infection
KIU	Kampala International University
SPSS	Computer Software Statistical Package For Social Science

TABLE OF CONTENTS

DECLARATION	i
APPROVAL	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
DEFINITION OF OPERATIONAL TERMS	v
TABLE OF CONTENTS.....	vi
ABSTRACT.....	ix
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background:.....	1
1.1 Problem Statement.....	1
1.2 Justification of the Study.....	2
1.3 Main Objective.....	2
1.4 Specific Objectives were.....	2
1.5 Research Questions.....	2
1.6 Scope of the Study	3
1.6.1 Geographical Scope.....	3
1.6.2 Content Scope.....	3
1.6.3 Time scope.....	3
1.7 Conceptual Framework.....	4
CHAPTER TWO: LITERATURE REVIEW.....	5
2.1 Definition of UTI.....	5
2.2 Normal Flora of the Urinary Tract.....	5
2.3 Urinary Tract Pathogens.....	5
2.4 Epidemiology of UTI.....	6
2.5 Symptoms of UTI or Bladder Infection.....	7
2.6 Routes of UTI Spread	7
2.6.1 Ascending.....	7
2.6.2 Haematogenous Pathway.....	8
2.6.3 Lymphatic Pathway.....	8
2.7 Classification of UTIs.....	8

2.7.1 Community Acquired UTI	8
2.7.2 Hospital Acquired UTI.....	8
2.8. Types of UTIs	8
2.8.1 Primary UTIs.....	8
2.8.2 Recurrent UTIs.....	8
2.8.3 Uncomplicated UTIs	9
2.8.4 Complicated UTIs	9
2.9. Defence Systems against Bacteria	9
2.10. Clinical Diagnosis of UTI.....	10
2.11. Laboratory diagnosis.....	10
CHAPTER THREE: METHODOLOGY.....	12
3.1. Introduction:.....	12
3.2 Study Design.....	12
3.3 Study Area	12
3.4. Sampling Criteria.....	12
3.5. Sample Size Determination.....	12
3.6. Data Collection	13
3.7. Data Analysis.....	13
3.8. Data Quality Control.....	13
3.9. Study variables.....	13
3.10. Ethical Consideration.....	14
3.11 Inclusion criteria	14
3.12. Dissemination of Results	14
CHAPTER FOUR: RESULTS	15
4.1 Introduction.....	15
4.2 Socio-Demographics of respondents	15
4.3: UTI Prevalence	17
5.1. Discussion	20
5.2. Conclusion	21
5.3. Recommendations.....	21
REFERENCES	23
APPENDICES	25
APPENDIX I: INTRODUCTORY LETTER	25
APPENDIX II: MAP OF UGANDA SHOWING KIRYANDONGO DISTRICT	26

LIST OF TABLES

Table 1; Respondent age distribution

Table 2: Association between UTI and age groups

Table 3: Association between UTI and Education, Marital Status, Gestation Age, and Occupation

LIST OF FIGURES

Figure 1: Shows the number of participants who attended according to gestational age

ABSTRACT

Urinary tract infections (UTI) is a common problem in women most especially pregnant women. This can lead to morbidity, miscarriages, abortions and sometimes death. The study aimed at determining prevalence of UTI and associated factors among pregnant women attending ANC in Kiryandongo general hospital

This study examined the prevalence of UTIs and associated factors in 100 pregnant women attending ANC in Kiryandongo general hospital from June 2017 to December 2017 where retrospective descriptive study was used where retrospective review of medical records from which required data was obtained

The general prevalence of UTI was 18% while the age specific prevalence was 9%(15-19), 17.5%(20-25), 12.5%(26-30),33%(31-35),33%(36-45) associated more with maternal age >31years, low socio economic status, no education ,being married, increasing gestational age.

Urinary tract infections are common during pregnancy .it occurs in all age groups of pregnant women however with increasing age, the prevalence of UTI increases therefore they should be well investigated earlier for better management and care in order to prevent the complications both to the mother and the fetus

CHAPTER ONE: INTRODUCTION

1.1 Background:

Urinary tract infections (UTIS) are caused by bacteria, fungi or protozoa. The urinary tract is the body's filtering system for removal of liquid wastes. The urinary system consists of kidney, ureters, bladder and urethra.

Women are especially susceptible to bacteria which may invade the urinary tract and multiply resulting in infections (Trace comforth, 2008). Bacteriuria is an indication that the urinary tract tissues are invaded by bacteria which may be transported from other sites, this condition is known as urinary tract infections.

UTIs generally cause complications such as cystitis, pyelonephritis, acute urethral syndrome, interstitial cystitis and many others to patients that get it. Since pregnant women are immune suppressed, this increases the risk of microbial infections especially in poorly nourished mothers and are at a high risk of being invaded by organisms causing UTIs, that are closely associated with morbidity, miscarriages, abortions, still birth, and sometimes death of these patients, pregnant women with asymptomatic bacteriuria have 30% risk for pyelonephritis in their second and third trimester, urinary tract infections common among pregnant women is *Escherichia coli*, and the most affected age group is 30 -39 years (Smith 1995). Pregnant women (patients) are considered compromised UTI hosts because of the physiologic changes associated with pregnancy. These changes increase a healthy, pregnant woman's chance of serious infections complications from symptomatic and asymptomatic urinary infections.

1.1 Problem Statement.

Urinary tract infections (UTI) are the common bacterial infections during pregnancy and are associated with serious obstetric complications. There is increase in the number of pregnant women yearly, routine urine examination is carried out but the current trend of significant bacteriuria among pregnant women in Kiryandongo general hospital need to

be established. Since pregnant women are immune suppressed, this increases the risk of microbial infections especially in poorly nourished mothers and are at high risk of being invaded by organisms causing UTI. However there are also risk factors that have been associated with increased prevalence of UTI such as low socio economic status, grand multiparity, education level,

Bacterial infections are increasingly common among the major causes of morbidity, miscarriages, abortions, stillbirth and deaths among pregnant women. The knowledge from this study will therefore help guide clinicians and midwives to properly manage this condition and reduce the cost of health care.

1.2 Justification of the Study.

This study will help to identify associated factors and target age groups to provide proper management of these patients in order to reduce on complications such as: cases of morbidity, miscarriages, stillbirth and at times death.

1.3 Main Objective

To determine the prevalence and associated factors of urinary tract infections among pregnant women attending antenatal clinic in Kiryandongo general hospital

1.4 Specific Objectives were

- i. To determine the prevalence of urinary tract infections among pregnant women attending antenatal clinic in Kiryandongo General hospital
- ii. To determine the most affected age group of pregnant women with UTI in Kiryandongo General Hospital
- iii. To describe the relationship between prevalence of UTI with associated factors such as level of education, marital status, occupation, gestational age.

1.5 Research Questions

The study was carried out to answer the following questions:

- i. What is the prevalence among pregnant women attending antenatal clinic in Kiryandongo General Hospital?
- ii. Which age group of pregnant women is most affected with UTI in Kiryandongo General Hospital?
- iii. What is the relationship between the prevalence of UTIs and level of education, occupation, marital status, gestational age?

1.6 Scope of the Study

1.6.1 Geographical Scope

The hospital is on the Kampala-Gulu highway, in Kikube Parish, Kiryandongo sub county, Kibanda County, Kiryandongo District, about 50 kilometers (30mi), northeast of Masindi General Hospital. This is approximately 211 kilometers (131mi) north of Mulago National referral Hospital, the largest Hospital in the country. The coordinates of the Hospital are 01, 52'46.0"N, 32 03'43.0E (latitude: 1.879439; Longitude: 32.061950) Google (4th may 2016).

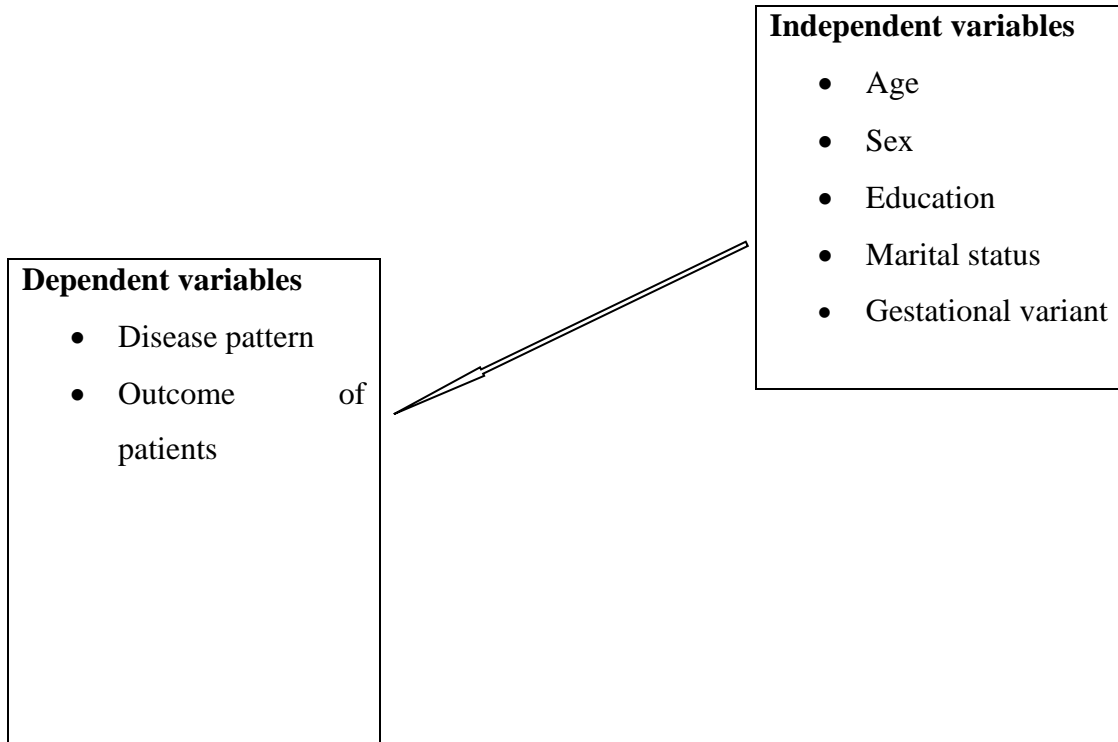
1.6.2 Content Scope

The study was only limited to the prevalence and associated risk factors of Urinary tract infection among pregnant women attending antenatal care at Kiryandongo General Hospital, Kiryandongo District, Uganda.

1.6.3 Time scope

The research was done from June 2017 to December 2017.

1.7 Conceptual Framework



CHAPTER TWO: LITERATURE REVIEW

2.1 Definition of UTI.

Urinary tract infection is a condition where one or more structures in the urinary tract become infected after bacteria overcomes its strong natural defences. It's also defined as more than 100 organisms per milliliter of urine in a symptomatic patient or greater than 100,000 organisms per milliliter in an asymptomatic patient, with accompanying pyuria (> 7WBCs/ml), Monica, 2006.

The urinary tract is the body's filtering system for removal of liquid wastes, it consists of kidney, ureters, bladder and urethra. Women are susceptible to bacteria which invade the urinary tract and multiply resulting into infection called UTI.

2.2 Normal Flora of the Urinary Tract.

A normal urinary tract from the kidney to the neck of the bladder of both male and female are devoid of known microorganisms, (Meares, 1981). According to Stanley (1995) the Urethra of normal males are either free of bacteria or contain some small numbers of gram positive organisms such as *Staphylococcus epidermidis*, *Streptococci* or *diphtheroids*. Stanley (1995).

Similarly the last third of the Urethra of normal females is either sterile or contain gram positive organisms such as *lactobacii* and *corynebacteria*. Longitudinal culture studies done by Meares (1975) in normal women show that some of them have intermittent colonization of the urethra and external vaginal introitus for brief intervals with small numbers of various gram negative bacteria primarily *Escherichia coli* which tend to disappear spontaneously without causing symptoms or requiring treatment.

2.3 Urinary Tract Pathogens.

The most common cause of UTI are bacteria from the bowel that live on the skin near the rectum or in the vagina which can spread and enter the urinary tract through the urethra. Once these bacteria enter the urethra, they travel upward causing infection in the bladder and sometime other parts of the urinary tract, studies done in America and Britain show that the most common bacteria causing UTI are gram negative bacilli up to

10%. However, UTI may also be caused by gram positives, commonly by Staphylococcus or Enterococcus infections caused by anaerobic bacteria are rare (Child 1988).

Escherichia coli, Klebsiella, Enterobacter, Proteus, Providencia, Pseudomonas, Seratia, Citrobacter and rarely Salmonella account for over 60% of the Gram negative bacilli causing UTI in pregnant women. Studies done in Uganda by Sunday FX (1990) also revealed the above.

Urinary tract infections (UTIs) are serious health problems affecting more than 10 million people each year around the world give the figure (Smith . 1995). Some studies done in National Institute for Infectious diseases in “Lazzaro Spallanzan” IRCCS, Rome, Italy (November 15, 1999 - Dec, 31, 2001) showed that community acquired UTIs are more common among pregnant women as compared to their control groups. It was evidenced that sixteen UTIs (0.5% of all admissions) were community. Escherichia coli was found to be the most prevalent causative agent and followed by Pseudomonas aeruginosa, Salmonella, Candida albicans and others.

2.4 Epidemiology of UTI.

UTI has been established as the commonest bacterial infections in the community.

Responsible for 25% of all community acquired bacteriuria, 1-2 %

of boys and 3-8% of girls develop UTI during their childhood, 40-50% of women have a history of at least one episode of UTI during their lifetime.

Pregnant women with asymptomatic bacteriuria have a 30% risk of acute pyelonephritis in their second and third trimester. In UK 60 women per 1000 population visit hospital for UTI. It is rare in men and it is also a major cause of hospital acquired infections (> 40%), partly due to bladder catheterization (National Institute of Health, 1990). Education beyond high school and age < or = 30 years is inversely proportional to UTI whereas sickle cell trait doubles the risk of UTI (Carreno and Funai, 2003)

The epidemiology of UTIs in developing countries is influenced by infections, like urinary schistosomiasis, HIV, diabetes as well as prevalence of other infections such as tuberculosis or brucellosis (Allan, 2001).

Results of various epidemiology studies indicate that bacteriuria and urinary tract infections occur more commonly in pregnant women due to their physiological changes involved (Smith, 1995).

2.5 Symptoms of UTI or Bladder Infection.

Symptoms of UTI or bladder infection are not easy to miss and include a strong urge to urinate that cannot delay which is followed by sharp pain or burning sensation in the urethra when the urine is released. Most often very little urine is released and the urine that's released may be tinged with blood.

The urge to urinate recurs quickly and soreness may occur in the lower abdomen, back or sides. This cycle may repeat itself frequently during the day or night. Most people urinate about six times a day.

When the need to urinate occurs more often a bladder infection should be suspected (MOH, 2003).

When the bacteria enter the ureters, and spread to the kidneys, symptoms such as back pain, chills, fever, nausea and urinary tract infection, proper diagnosis is vital since this symptoms can also be caused by other problem such as infections of the vagina or vulva, (Tracee, 2008).

2.6 Routes of UTI Spread

Sobel and Kaye (1984) pointed out three possible routes by which bacteria can enter, invade and spread within the urinary tract and these are

2.6.1 Ascending.

In the ascending route, bacteria initially colonize the urethra tissues and may eventually gain access to the urethra. Sexual intercourse is a common cause of UTI because the female anatomy can make women more prone to infection. During sexual intercourse bacteria in the vagina is sometimes massaged into the urethra by the motion of the penis.

The urinary bladder then becomes the next target of infection followed by the ureter and finally the kidneys. Despite this progression bacteria encounters stepwise host defence mechanism to resist the attack.

2.6.2 Haematogenous Pathway.

This is when the origin of pathogens (bacteria) is from within the blood system following bacterial infection of blood a condition known as bacteraemia.

2.6.3 Lymphatic Pathway.

This is when the source is from the lymphs and lymphnodes which is the lymphatic system. The urinary tract of normal individuals is remarkably resistant to infections. However, pregnant women are less likely to offer maximum resistance to bacterial invasion due to their reduced immunity (Kevin, 1988).

2.7 Classification of UTIs

Different classifications have been devised to help doctors choose treatment and determine the causes of UTIs.

2.7.1 Community Acquired UTI.

Most UTIs are thought to develop in the community at large. It is unclear how primary community acquired infections occur or how they are spread. Although most cases have been thought to rise sporadically, a rare outbreak in 1996 - 2000 caused by drug resistant bacteria suggests epidemic spread of community acquired infection could be more common than previously thought and may be spread via contaminated food. Most community acquired infections are not serious and probably develop when the intestines become colonized with bacteria that are also predisposed to infecting the urinary tract. (Foxman, 1990).

2.7.2 Hospital Acquired UTI.

UTIs are also commonly acquired in the hospital, often due to contaminated urinary catheters. Hospital acquired infections tend to be more serious because the bacteria that cause them are often resistant to drug treatment and patients are often immune suppressed and in poor general health. (Ragnar, 2004).

2.8. Types of UTIs

2.8.1 Primary UTIs

This is an infection that is occurring for the first time (Ragnar, 2004).

2.8.2 Recurrent UTIs.

These are UTIs occurring for the second or more times caused by the same organisms. Most women who have had an uncomplicated UTI have occasional recurrences. About 25 - 55% of these women can expect another infection within a year of the previous one.

Between 3-5% of women have ongoing recurrent urinary tract infection or relapse. Recurrence is often categorized as either re-infection or relapse. (Ragnar, 2004).

About 80% of recurring UTIs are reinfections. A re-infection occurs several weeks after antibiotic treatment has cleared up the initial episode and can be caused by the same bacterial strain that caused the original episode or a different one. The infecting organism is usually introduced through the urinary the rectal region from fecal matter and moves up through the urinary tract, (Kahelmo, 1996).

2.8.3 Uncomplicated UTIs

Are only associated with bacterial infection most often with Escherichia Coli. They affect women much more often than man. Cystitis is the most common urinary tract (the bladder and urethra) and nearly always in women. In most cases, the infection is brief and acute and only the surface of the bladder is infected. Deeper layers of the bladder may be harmed if the infection becomes persistent or chronic or if the urinary tract is structurally abnormal. (Sobel, 2000, Allan, 2001).

Pyelonephritis is a condition when infection spreads to the upper urinary tract (the ureters and kidney) it's commonly a kidney infection.

Almost half of all women with cystitis may have infection of the upper urinary tract.

2.8.4 Complicated UTIs

Complicated Urinary tract infections occur nearly as often in man as in women. These are also caused by bacteria but they are associated with catheter use in the hospital settings, bladder and kidney dysfunction, or kidney transplant (especially in the 1st three months after transplant). Recurrence occurs in up to 50 -60% of patients with complicated UTI if the underlying structural or anatomical abnormalities are not corrected, (National Institute of Health, 1990).

2.9. Defence Systems against Bacteria

Infection does not always occur when bacteria are introduced into the bladder, a number of defence systems protect the urinary tract against infection causing bacteria.

Urine itself functions as an antiseptic, washing potentially harmful bacteria out of the body during normal urination. (Urine is normally sterile). The ureters are structurally designed to prevent urine from backing up into the kidneys while the prostate gland in men secretes infection fighting substances.

The immune system in both sexes continuously fights bacteria and other harmful micro-invasers. In addition immune system defences and antibacterial substances in the mucous lining of the bladder eliminate many organisms.

In normal fertile women, the vagina is colonized by lactobacilli, beneficial microorganisms that maintain highly acidic vaginal environment. Lactobacilli also produce hydrogen peroxide, which helps eliminate bacteria and reduces the ability of Escherichia Coli to adhere to vaginal cells, some interesting research suggests that when bacteria infect the bladder, the cells that line the bladder literally sacrifice themselves and self-destruct (apoptosis). In so doing, they fall away from the lining, carrying the bacteria with them. This eliminates about 90% of Escherichia Coli (Sobel, Kaye Donald, 1984).

2.10. Clinical Diagnosis of UTI

Clinically patients present with fevers, low abdominal pain, dysuria, tenderness in one of both kidneys, vomiting, Oliguria, urinary frequency, diarrhea and convulsion, especially in children, pyuria among others, strong urge to urinate that can't be delayed, sharp pain or burning sensation in the urethra when urine is released. When the bacteria enters the ureters and spreads to the kidneys, symptoms such as back pain, chills, fever, nausea and vomiting may occur, as well as the previous symptoms of the lower urinary tract infection, (Tracee Cornforth, 2008).

2.11. Laboratory diagnosis

Diagnosis is obtained using midstream urine which is collected into sterile wide mouth urine containers.

Microscopy is done to primarily identify pus cells, epithelial cells, yeast cells, and red blood cells in case of a UTI. Positive nitrates, leukocyte esterase, WBCs, RBCs and protein are suggestive of a UTI.

For further identification of organisms, urine culture and sensitivity tests are carried out. When a standard wire loop is used, less than 10^4 organisms/ml is not significant, 10^4 to 10^5 organisms/ml of urine indicates indeterminate bacteriuria and it is suggestive to repeat the culture, above 10^5 organisms/ml indicates significant bacteriuria/growth.

CHAPTER THREE: METHODOLOGY.

3.1. Introduction:

In this chapter the methods that were used to carry out the study were discussed. This included, the study design, study site, sample size determination, sampling criteria, data collection and analysis, ethical considerations, study variables and dissemination of results

3.2 Study Design

It was retrospective-descriptive study using the quantitative method which involved retrospective review of patient medical records from which required data that is those who were recorded to be diagnosed with UTI based on the clinical symptoms and urinalysis test. A register of pregnant mothers attending ANC at Kiryandongo general hospital was used with the hospital's permission. Annual/quarterly reports, work plans, strategic plan documents were also used to gather required information

3.3 Study Area

The population is composed of many tribes mainly the banyoro and Baluli and others include baganda, langi, Acholi, amongst other tribes. The study was hospital based and that was from antenatal clinic in Kiryandongo General Hospital

3.4. Sampling Criteria

Participants' medical documents were chosen based on non-probability sampling procedure. This sampling technique refers to procedures directed towards obtaining a certain type of participant in this pregnant attending ANC

3.5. Sample Size Determination

Using Kish and Leslic formula, the sample size will be

$$N = \frac{Z^2Pq}{d^2}$$

Where N = Sample size

Z = Score at 95% confidence limit (interval)

P = Proportion of the population affected by UTI

d = Required precision, 10%

q = 1-p

The proportion is taken as 50% which gave the maximum sample to obtain results required, 10% precision because the true proportion is not known

Therefore
$$N = \frac{(1-d)^2 \times 0.5 \times 0.5}{(0.1)^2} = 96$$

From the above calculation sample size N was taken as 100

3.6. Data Collection

It involved secondary data collection(from the records of the facility) using a data sheet which involved entering the patient's records obtained from the register of pregnant mothers attending the ANC at Kiryandongo general hospital between June 2017 – December 2017 , all this was carried out with the permission from the hospital management. Annual/ quarterly reports were also use to obtain the required information of prevalence of uti among pregnant women attending ANC in Kiryandongo general hospital that is to say the required data was obtained from records as those recorded to be diagnosed with UTI based on clinical symptoms and urinalysis test

3.7. Data Analysis.

Data will be analyzed with the aid of statistics using SPSS 11.0 and results presented on graphs, tables and guided by a qualified statistician.

3.8. Data Quality Control

Data collection instruments included data collection sheet was tested by my supervisor to check out its reliabilities to gather proper information during the process. Adjustments were made where necessary and permission letter was authenticity by the supervisor

3.9. Study variables

The study has dependent variables which included sex, age, level of education, gestational age, occupation, marital status,

3.10. Ethical Consideration

Confidentiality of the information gotten from the registers of pregnant mothers attending ANC was maintained. Permission was sought from the Kiryandongo general hospital facility and was granted.

3.11 Inclusion criteria

All pregnant mothers who attended and whose data was recorded in ANC in Kiryandongo general hospital was between June 2017 - December 2017 were included

3.12. Dissemination of Results

Copies of Analysed and processed results of the study were distributed as follows

The original copy was given to Kampala International University –Western Campus,
One copy for Kiryandongo general hospital and another to researcher (Wanyenya Mona) for personal reference.

CHAPTER FOUR: RESULTS

4.1 Introduction

The study findings on the prevalence of Urinary Tract Infections among pregnant women in Kiryandongo general hospital were obtained from a total sample of 100 pregnant mothers who visited the health facility for antenatal care

4.2 Socio-Demographics of respondents

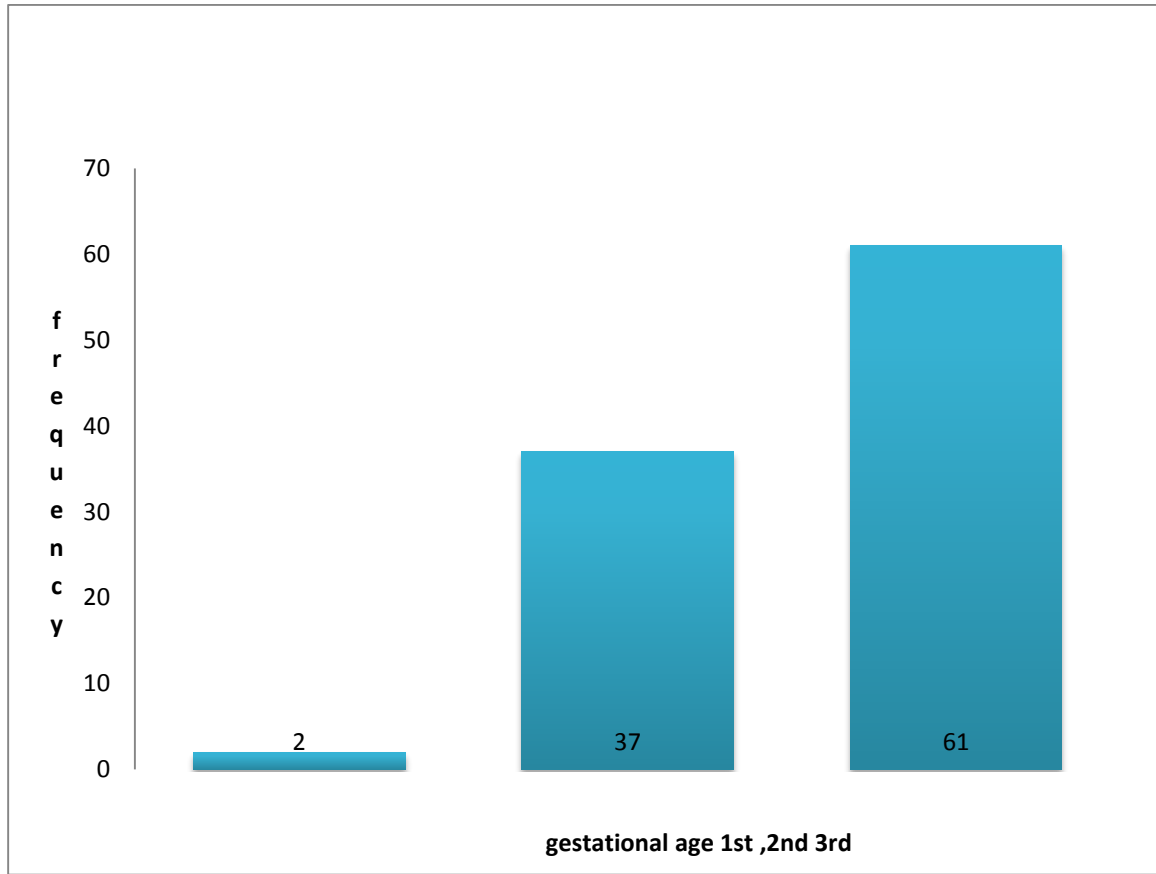
The pregnant women studied were between 15 to 45 years representing age groups of 15-19, 20-25, 26-30, 31-35,36-45 . A majority (40%) of the pregnant mothers tested were in the between (21-25), compared to 9 in the lower age group(31-35) and other variables that is of education, marital status, occupation as shown in table 1;below and figure 1 shows a chart that shows the number of people who attended according to the gestational age.

Table1; Respondent age distribution

Socio demographic characteristics of the study population

Variable	Frequency
Age group	
15-19	11
20-25	40
26-30	24
31-35	9
36-45	12
Education	
Educated	30%
Not educated	70%
Marital Status	
Single	25%
Married	75%
Employment	
Unemployed	85%
Employed	15%
Gestational age	
1 st	2%
2 nd	37%
3 rd	61%

Figure 1: Shows the number of participants who attended according to gestational age



4.3: UTI Prevalence

The table 2 below shows pregnant mothers who were documented to have had UTI in relation to associated factors of age. And table 3 shows other variables such as Level of education, gestational age, marital status, occupation .A total of 18 pregnant women had UTI compared to the majority of 72.

Table 2: Association between UTI and age groups

VARIABLE	FREQUENCY	UTI PREVALENCE	p- value
AGE			
15-19	11	1(9%)	0.15
20-25	40	7(17.5%)	0.02
26-30	24	3(12.7%)	0.03
31-35	9	3(33%)	<0.01
36-45	12	4(33%)	<0.01

Significance at p-value <0.05, 95% C.I

Table 3: Association between UTI and Education, Marital Status, Gestation Age, and Occupation

Education	
Education	3 (10%)
Uneducated	15(21.4%)
Marital status	
Single	2 (8%)
married	16 (21%)
Occupation	
unemployed	16 (18%)
employed	2 (13%)
Gestational.Age	
1st	0(0%)
2nd	6(16.2%)
3rd	12(19.7%)

CHAPTER FIVE: DISCUSSION OF RESULTS

5.1. Discussion

The prevalence of urinary tract infection among pregnant women who attended antenatal clinic in Kiryandongo general hospital during the period of June to December of 2017 were found to be 18%. This prevalence was lower as compared to similar studies done in Al-mukalla district hospital in Yemen by Al-Haddad (30%) and in Peshawar by Jawad Ahmad, Akram shah, Noor Shad Ali (29.57%) This could be attributed to the geographical differences, social habits, social economic status and differences in education.

Urinary tract infection was more dominant in age group 31-35 and 36-45 (33%) with a p-value of <0.01 showed a significance because for every 3 mothers , one had a UTI and other age groups 20-25 and 26-30 were also significant (0.02 and 0.03) p-values respectively that is for every 5mothers, 1 had a UTI(20-25) and for every 8 mothers, 1 had a UTI.This is in agreement to the studies done in Al-mukalla district in Yemen and Komfo Anokye teaching hospital in Kumasi, Ghana,in regard to the trend of urinary tract infections increased with increase in maternal age

In this study, uneducated mothers were associated with UTIs in comparison to educated mother. Education provides insight on the health care seeking behaviours of women with UTIs and therefore without education there is a poor health seeking behavior.

Unemployment (18%) was found to be more associated with UTIs as compared to employment (13%) thus indicating its association with low socio economic status which could be due to contributing factor of resistance because a person cannot afford a full dose and therefore may end up buying and taking inadequate dose which has no therapeutic effect and also poor hygiene practices

Gestational age; the third trimester (19%) was found be most associated with UTIs compared to first trimester, therefore increased with increase in gestational age which could due to anatomical and physiological changes at different gestational ages

In marital status those who were married (21%) were more associated with UTIs compared to the single mothers which was similar to the studies done in lower Mulago hospital (15%) , Uganda by Ronald Mayanja, Paul Kiondo, Kaddu-Mulindwa, Stephen Kaddu, Francis Ogwang,Chakura Andrew, Joseph Ngozi, Charles Kiggundu in that it was higher than in married than in those who were single

5.2. Conclusion

UTIs is one of the major health problems among mothers attending Kiryandongo General Hospital. Among the 100 pregnant women studied it affected 18% of them regardless of the age, gestational age, education level, employment status, marital status, and is the second cause all over the world for antibiotic prescription and even though it might have serious complications on both the pregnant woman and the fetus, UTI is a preventable disease that could be easily controlled through health education to target groups about its nature, cause, risk factors and preventive measures and encourage periodic screening for early detection and treatment.

Further researches are recommended to;

- Assess relationship between Dietary factors and UTI during pregnancy in Kiryandongo using standard measures for dietary intake.
- Assess relationship between family and genetic factors, using blood groups and UTI during pregnancy especially with high recurrence.
- Assess factors leading to recurrence of UTIs in obstetric population.

5.3. Recommendations

Refresher courses and seminars should be provided to the health care providers so as to be well informed about the latest information concerning proper management of expectant mothers.

Since the majority of mothers are not well learnt, health education information, translated to local languages, leaflets or verbally offered to pregnant mothers at the antenatal clinic on how they can prevent acquiring urinary tract infections.

A functional laboratory routine test should be established at the antenatal clinic and bacterial identification materials for microbiology laboratory.

Appropriate antibiotic drugs should be provided to pregnant mothers identified with UTIs

REFERENCES

Ahmad Jawad, Akram Shah, Noor Shad Ali, prevalence of Urinary Tract infection in pregnant women of Peshawar.

Available at: <http://www.jpmi.org.pk/index.php/jpmi/article/view/821>

Al-Dujiady AA et al. Urinary Tract infection during pregnancy in Tekrit. Medical journal of Tekrit, 2000, 6: 220-4.

A. M. Al-haddad, Urinary Tract Infection among pregnant women in Al-Mukalla district.

Available at: <http://www.uptodate.com/urinary-tract-infections-and-asymptomatic-bacteriuria-in-pregnancy>

Awanes AM, Al-Saadi MG, Andoas SA. Antibiotic Resistance in Recurrent Urinary Tract Infection. Kufer medical journal, 2000, 3:159

Bauer AW et al. Antibiotic susceptibility testing standardized single disk method. American journal of clinical pathology, 1966, 45: 493-6.

Chesbrough Monica (2000) Examination of urine and antimicrobial sensitivity testing in district laboratory practice in tropical countries Part 2 Pg 105 -143.

Child S.J. (1988), Management of urinary tract infection, The American Journal of Medicine Vol. 85 (Suppl 3 A).

Dominic Marchiano, Infection in pregnancy. A symptomatic bacteriuria Health article (Feb 2006).

Available at: <http://www.healthline.com/channel/pregnancy.html>

John E. Delzell and Michael L. Lefevre. Urinary Tract Infections during pregnancy.

Available at: <http://www.aafp.org/afp/2010/0201/p713.html>

Kenneth todar (2011).Bacterial Resistance to antibiotics.

Available at: <http://en.wikipedia/antibioticresistance>

Krcmery S, Hromec J, Demesova D. Treatment of lower urinary tract infection in pregnancy. International journal of antimicrobial agents, 2001, 17 (4): 279-82.

Laurence DR, Bennet PN, Brown MJ. Clinical pharmacology, 8th ed. Edinburgh, Churchill Livingstone, 1997: 207-10.

Leticia A. Jones and Patrick J. woodman.Urinary tract infection in pregnancy.

Available at: <http://www.emedicine.medscape.article/452604>

Lucas MJ, Cunningham FG. Urinary tract infection in pregnancy. Clinical obstetrics and gynecology, 1993, 36: 493-6.

Measemm (1971) “Use of antibiotics in urology surgery” Surgical infection-selective antibiotic therapy Page 97.

Sobel D.J. Kaye Donald, (1984) “Host Factors in Pathogenesis of Urinary Tract Infections” The American Journal of Medicine Vol. 76 Page 122 - 128.


Thomas M. Hooton. Urinary tract infections and asymptomatic bacteriuria in pregnancy.

Available at: <http://en.wikipedia/antibioticresistance>

Ronald Mayanja, Paul Kiondo, Kaddu-Mulindwa, Stephen Kaddu, Francis Ogwang, Chakura Andrew, Joseph Ngozi, Charles Kiggundu, The prevalence of asymptomatic Bacteriuria and associated factors among women attending ANC in lower Mulago Hospital,Uganda

APPENDICES

APPENDIX I: INTRODUCTORY LETTER

 **KAMPALA INTERNATIONAL UNIVERSITY - WESTERN CAMPUS**

P O BOX 71, ISHAKA UGANDA
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**OFFICE OF THE DEAN
FACULTY OF CLINICAL MEDICINE & DENTISTRY**

15/02/2018

TO WHOM IT MAY CONCERN

RE: WANYENYA MONA (BMS/0010/132/DU)

The above named person is a fifth year student at Kampala International University pursuing a Bachelor of Medicine, Bachelor of Surgery (MBChB) Programme.


She wishes to conduct her student research in your community.

and associated factors
Topic: Prevalence of urinary tract infections among pregnant women attending antenatal care in Kiryandongo hospital

Supervisor: Dr. Mulwana Johnie

Any assistance given will be appreciated.

S.O. Akib
Dr. Akib Surat O
Assoc Dean FCM&D



Alford Kim...
Medical Superintendent
13 APR 2018
P. O. Box 123, Kiryandongo

"Exploring the Heights"
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APPENDIX II: MAP OF UGANDA SHOWING KIRYANDONGO DISTRICT

