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Prevalence and Associated Risk Factors of Urinary Tract Infections in Pregnant Women Admitted on Maternity Ward in Jinja Regional Referral Hospital

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ABSTRACT

Urinary tract infection (UTI) is the most common disorder caused by bacterial agents in pregnancy, which can lead to important complications in newborn of such mothers in case of inappropriate diagnosis and treatment. The aim of this study was to determine the prevalence of and associated risk factors of urinary tract infections among pregnant women admitted on maternity ward at Jinja Regional Referral Hospital. The study was a descriptive cross-sectional study using quantitative methods. The calculated sample was 150.Data was collected from pregnant women admitted on maternityward. Data was coded and tabulated using SPSS program.14% of the studied women had urinary tract infection. Factors associated with UTI during pregnancy were previous low socio-economic status; null parity; low education level and increasing gestational age. Frequency of urination followed by supra-pubic pain, then nocturia, were the common complaints. Urinary tract infections remain a prevalent problem during pregnancy especially, in developing countries. Genital hygiene, urination habits and low socioeconomic status play significant role inthe occurrence of UTI during pregnancy. These findings could be attributed to lack of knowledgeabout UTI risk factors and its prevention during pregnancy.

Keywords: prevalence, urinary tract infections, pregnant women

INTRODUCTION

Urinary tract infection refers to both microbial colonization of the urine and tissue invasion of any structure of the urinary tract. Bacteria are most commonly responsible although yeast and viruses may also be involved [1-5].Urinary tract infection (UTI) is the most common disorder caused by bacterial agents in pregnancy, which can lead to important complications in newborn of such mothers in case of inappropriate diagnosis and treatment [6-9]. UTIs are the most common bacterial infections of pregnancy. UTI is a major health problem; it has been reported among 20% of the pregnant women and it is the most common cause of admission in obstetrical wards. Symptomatic and asymptomatic bacteriuria has been reported among 17.9% and 13.0% pregnant women, respectively [10]. Urinary tract infections represent the most common bacterial infection in pregnancy [11]. Expectant women are at a greater risk for urinary tract infection, beginning in week 6 and peaking during weeks 22 to 24 [12]. This is due to a number of structural and physiological factors, with the occurrence of infection of the kidney increasing in the third trimester of pregnancy. The prevalence is constant and most of the recent studies, in developing and developed countries, report similar rates [13]. Urinary tract infections in pregnancy are among the commonest health problems globally, particularly in low-income countries [14]. The financial burden of urinary tract infection in adult females is noteworthy. The health care costs associated with urinary tract infections in terms of morbidity, number of beds occupied, fewer staffs and resource are also great and include considerable financial constraints to pregnant

women [15].

METHODOLOGY

Study design

This will be a descriptive cross-sectional study using both quantitative and qualitative methods. Data will be collected using a questionnaire.

Study Area

The study will be conducted on maternity ward which belongs to the Obstetrics and Gynaecologydepartment of Jinja Regional Referral Hospital.

Study population

Pregnant women admitted on maternity ward in JRRH.

Inclusion and exclusion criteria

Inclusion criteria

Pregnant mothers admitted on maternity ward.

Exclusion Criteria

Mother with history of diabetes mellitus.

The immuno-suppressed such as those with HIV/AIDS.

Mothers who will decline to consent will be excluded and replaced

Sample size determination

Sample size will be determined using the formula by Susan Rose et al, 2015.$N=4PQ/D^2$

Where n = required sample size, 4 standard value, p = estimated proportion of pregnant womenwith UTI, 10% (0.1), d = margin of error at 5% (standard value of 0.05) and Q = 1-P. N=144.

10% shall be added for non-respondents and increase precision in the collection of specimens.The sample size shall therefore be **150**.

Technique of sampling participants

Simple random sampling method will be employed in selecting respondents. Respondents shall be selected from the attendance register and assigned numbers. Pregnant women with an odd number admitted on maternity ward shall be recruited for the study. If consent is denied the nextrespondent with an odd number shall be recruited for the study.

Data analysis

Data will be checked for completeness and enter into a computer, analysed at different levels. Statistical analyses will be carried out using the statistical package for the social science (SPSS),Version 21to summarize continuous variables with descriptive statistics. While a chi-square test will be employed to analyse the relationship between demographic factors and prevalence of UTI multiple regression analysis will be applied to eliminate any confounding factors associated with the urinary tract infections in pregnancy. Significance will be measured at 95% confidence and $P< 0.05$ will be considered significance in all inferential tests conducted.

Objective 1: Descriptive statistics followed by a chi-square test will be conducted for bivalent data to determine the prevalence of UTI in pregnant women.

Ethical consideration

In order to make sure that the study was ethically sound, the researcher fulfilled the followingissues:

Institutional consent

Approval will be provided by the research and ethics committee of Jinja Regional Referral Hospital. At health facility level, permission from the Hospital research committee will be sought to allow access to the patients.

Privacy and confidentiality

Privacy will be ensured by making sure that information collected does not contain an individualidentity. All questionnaires will be coded. To ensure confidentiality, the information collected will be kept under key and lock and only accessible to the researcher for use. Participants will be interviewed separately from other clients to avoid breech of privacy and confidentiality.

Informed consent

Participation in this study will not in any way be compulsory. Detailed information about the study will be explained to the participants. After understanding all the details, informed consent forms will be issued and written consent obtained.

Justice

Every respondent will be given equal opportunity to participate in the study. Systematic random sampling method will be used to select the participants to ensure that all respondents have equal chance of being selected for the study.

Respect of individual person (human right)

Each respondent will have an entitlement to her opinions, response and comments and every response provided during the course of the study will be respected. Potential respondents who will decline to participate in the study will be respected.

RESULTS

Figure 1: A pie chart showing prevalence of urinary tract infections

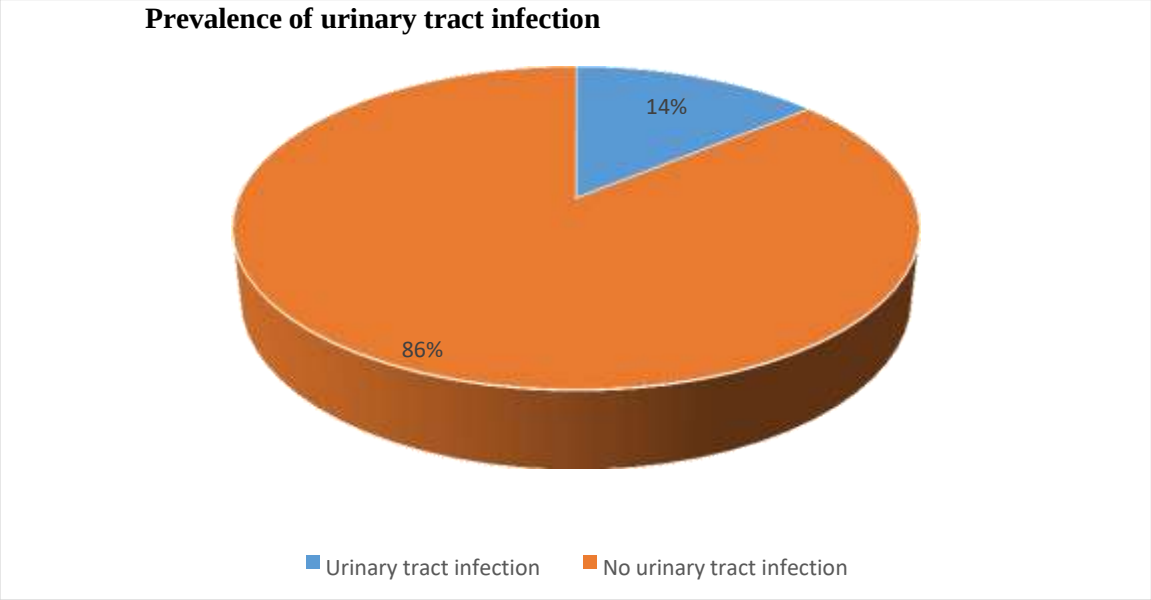


Table 1: Age and prevalence of urinary tract infections

Age (years)	Prevalence of urinary tract infection (%)
<19	14
20-30	67
>30	19

Figure 2: A pie chart showing age and prevalence of urinary tract infections

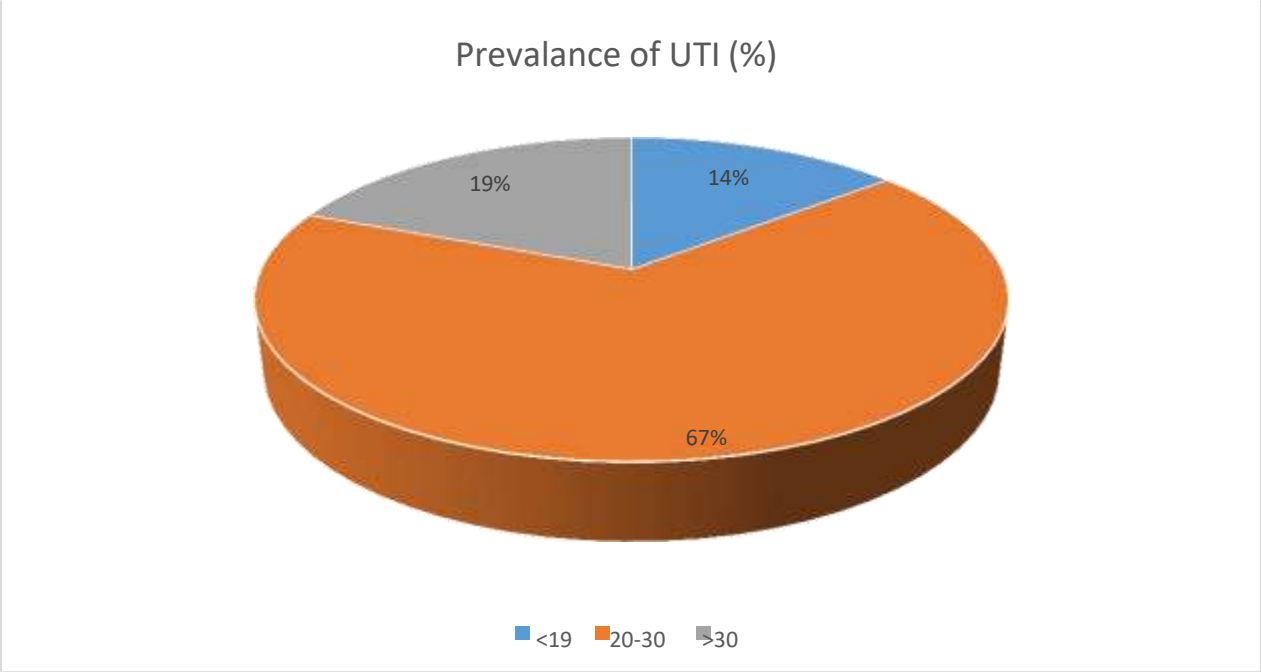


Table 2: Occupation and prevalence of urinary tract infections

Occupation	Prevalence of urinary tract infection (%)
Peasant farmer	48
Civil servant	9
House wife	28
Others	15

Figure 3: Graph showing occupation and prevalence of urinary tract infections

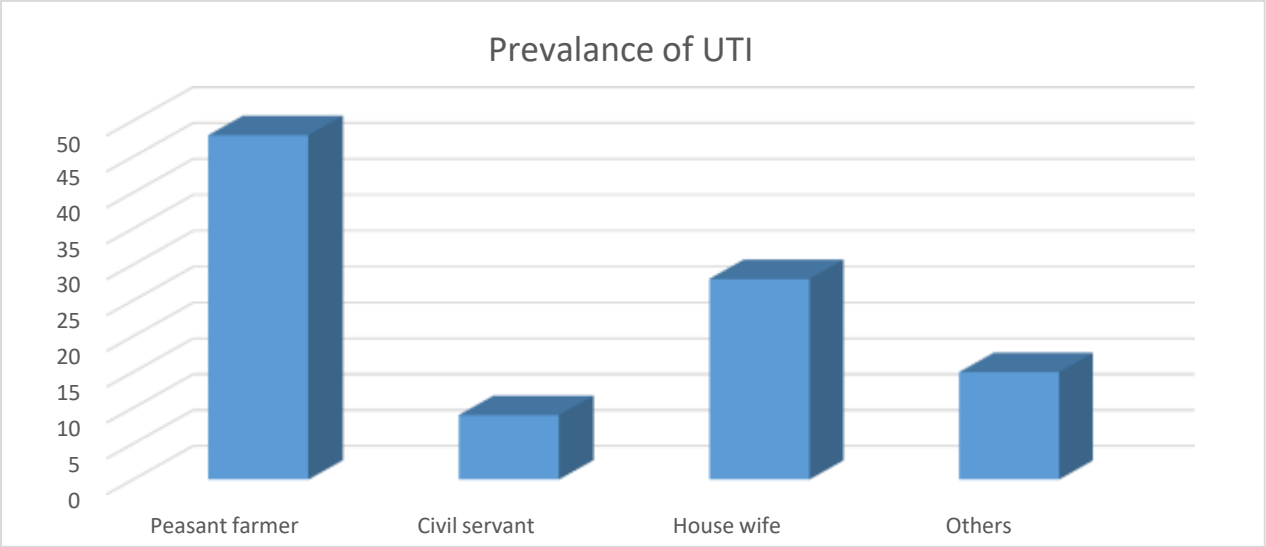


Table 3: Education level and prevalence of urinary tract infections

Education level	Prevalence of urinary tract infection (%)
Non	52
Primary	19
Secondary	24
Tertiary	5

Figure 4: A pie chart showing education level and prevalence of UT

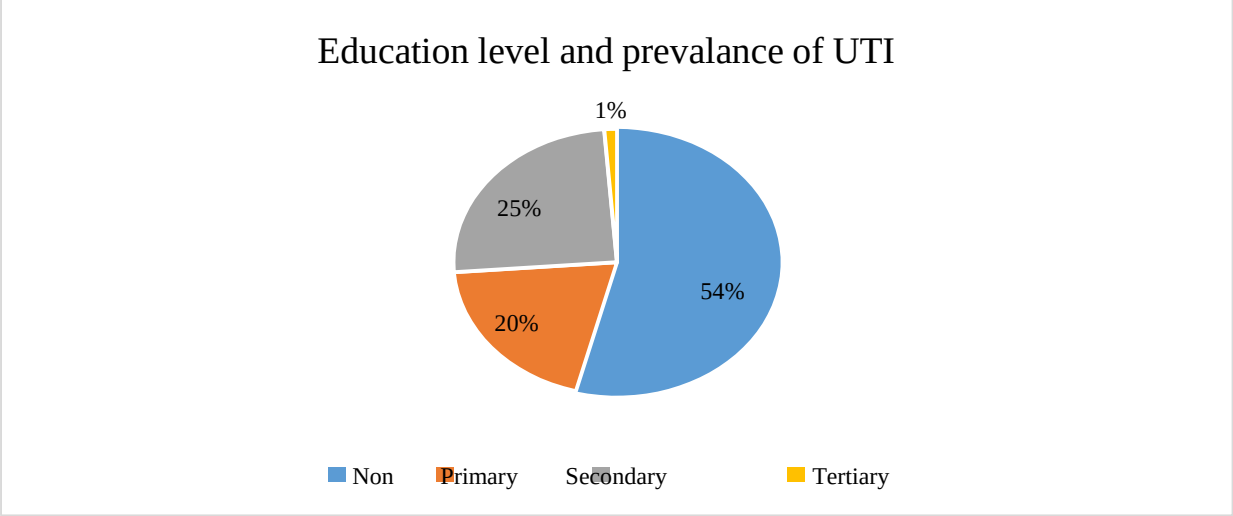


Table 4: Gravidity and prevalence of urinary tract infections

Gravidity	Prevalence of urinary tract infection (%)
Prime-gravida	57
Multi-gravida	43

Figure 5: A pie chart showing gravidity and prevalence of urinary tract infections

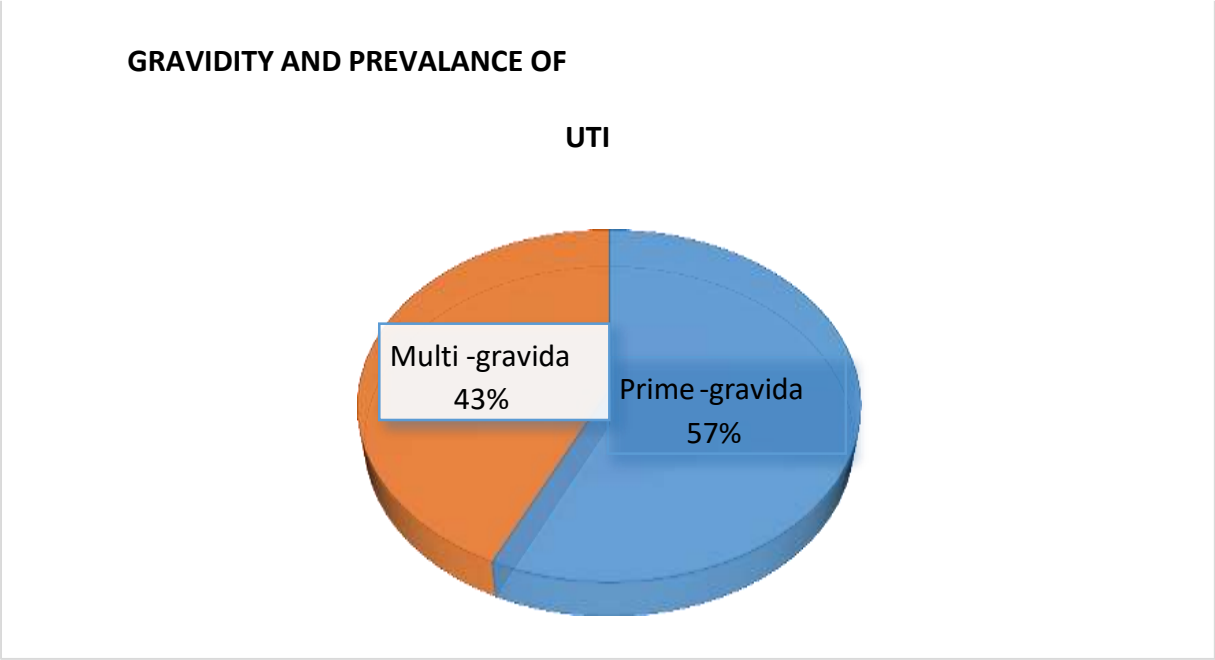


Table 5: Showing gestational age and prevalence of urinary tract infections

Trimester	Prevalence of urinary tract infections (%)
1st trimester	14
2nd trimester	29
3rd trimester	57

Figure 6: A graph showing gestational age and prevalence of urinary tract infections

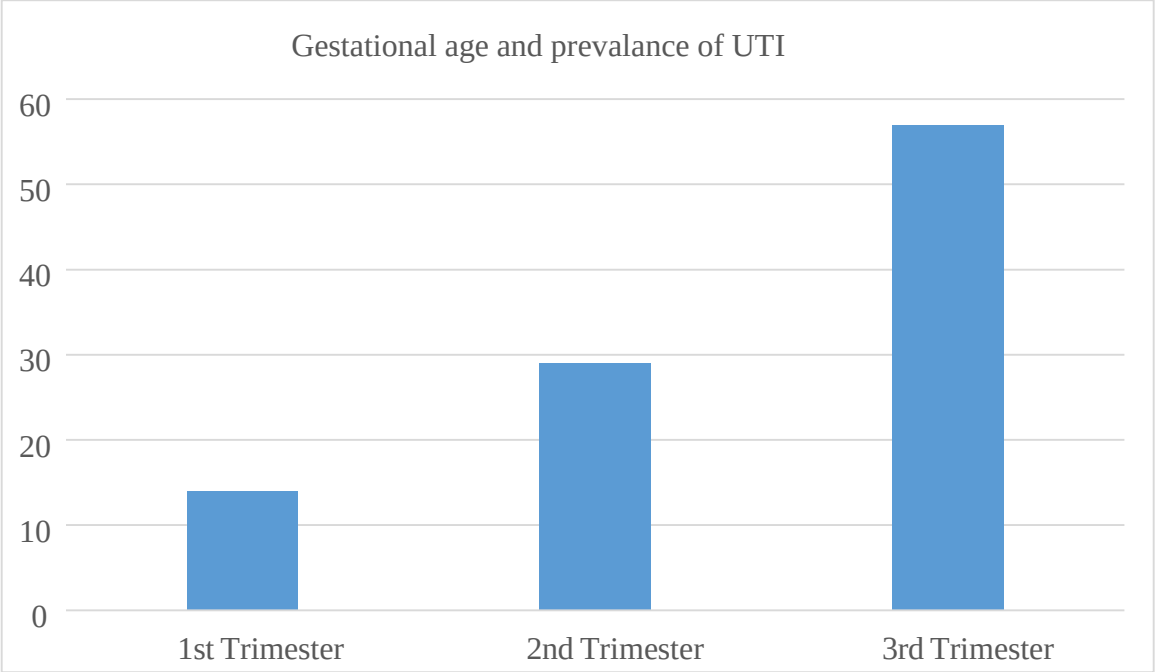


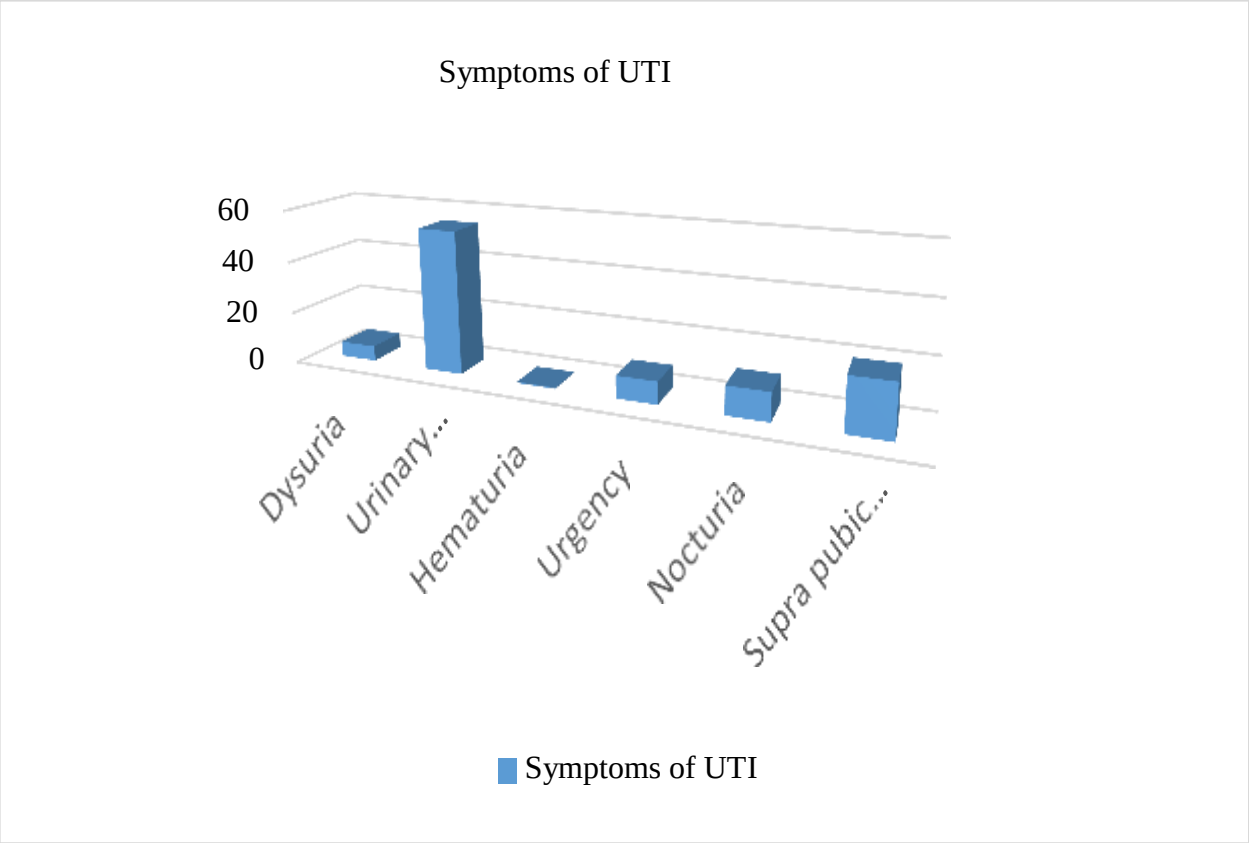
Table 6: Showing health related factors and prevalence of urinary tract infections

Health related factors	Prevalence of urinary tract infections (%)
Diabetes mellitus	0
Hypertension	0
HIV/AIDS	2
Kidney disease	0

Table 7: Showing the commonest symptom of urinary tract infection

Symptom	Percentage (%)
Dysuria	5.8
Urinary frequency (> 4 times in 1 hour)	54.7
Haematuria	0.3
Urgency	8.5
Nocturia	10.7
Supra-pubic pain	20

Figure 7: A graph showing the percentage occurrence of symptoms of UTI



DISCUSSION

Infection of the urinary tract (UTI) represents the most common medical complication ofpregnancy and ranges from asymptomatic bacteriuria to pyelonephritis. Pregnant women are at greater risk of UTIs, particularly because of the physiologic and anatomic changes that occur in normal pregnancy. Physiological changes of pregnancy increase vulnerability to the development of urinary tract infections with the resulting maternal morbidity and poor fetal outcomes. This study was conducted to determine the risk factors and prevalence of urinary tract infection among pregnant women admitted on maternity ward in Jinja Regional Referral Hospital. A descriptive cross-sectional study was carried out on 150 pregnant women admitted on maternity ward in Jinja Regional Referral Hospital. Data were collected using the pre constructed tools through face-to-face interview. Findings from this study showed that the prevalence of urinary tract infection was at 14%among pregnant women admitted on maternity ward in Jinja Regional Referral Hospital. Urinary tract infections occur more frequently in pregnant women because of the anatomicaland physiologic changes that occur in the renal system during pregnancy. This result tallies withstudies carried out by A. Masinde I. [16] who reported prevalence of symptomatic and asymptomatic bacteriuria at 17.9% and 13.0% respectively. On the other hand, the prevalence was higher in Abakaliki Metropolis, Nigeria where nearly halfof the pregnant women had a urinary tract infection [17-25]. The difference in UTI prevalence during pregnancy could be due to variations in UTI perception, screening method, and confounding factors such as parity, age, and pregnancy. Regarding symptoms of UTI, this study revealed that the most frequent symptoms were frequency of urination followed by supra-pubic pain, nocturia, urgency. Similar results were reported by [16-25] who found that frequency of urination and supra-pubic pain were among the most common symptoms of urinary tract infection among infected women in Tanzania. Considering obstetric factors, urinary tract infections were more common among prime gravid mothers than in multiparous women [18]. The prevalence of UTI increased with increase in gestational age. Similar results were reported by Length 2015. This could be due to any of the numerous anatomical and hormonal variations in pregnant women lead to urethral dilation and urinary inertia which increased changes of developing UTI [19-25]. Parity and gestational age considerably affect the prevalence of urinary tract infection. These have been

previously reported in many studies[20].Regarding age, urinary tract infections were more common among pregnant mothers betweenthe ages of 20-30 years. Regarding education level and socio-economic status, urinary tract infections were more common in pregnant mothers of low socio-economic status and who were uneducated [21].Lower levels of education and low socio-economic grade have correlation with higher prevalence of ASB in many studies and reports [22]. This is because educationimproves the attitudes and beliefs of women.

CONCLUSION

Based on the above findings the study concluded that, UTI remain a prevalent problem during pregnancy especially, in developing countries. Genital hygiene, urination habits and low socioeconomic status play significant role in the occurrence of UTI during pregnancy. These findings could be attributed to lack of knowledge about UTI risk factors and its prevention during pregnancy.

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