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DIPLOMA PROGRAMMES

AWARENESS OF URINARY TRACT INFECTION AMONG FEMALE STUDENTS OF HOLY FAMILY NURSING AND MIDWIFERY TRAINING COLLEGE, BEREKUM.

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2022

DECLARATION

We hereby declare that this submission is our own work towards the Diploma in Registered Midwifery and that, to the best of our knowledge, it contains no material previously published by another person nor material which has been accepted for the award of diploma of the University, except where due acknowledgement has been made in the text.

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ABSTRACT

The study focused on the awareness of urinary tract infection among female students of Holy Family Nursing and Midwifery Training College, Berekum. A descriptive study design was used to collect in-depth information for the study. A simple random sampling method was employed to select the students from each class. A total of 50 respondents were sampled for the study. The data for the study was collected by administering the questionnaire to the participants.

The study found that 70% (35) of the respondents indicated they never had UTI, 28% (14) had UTI once per semester and 2% (1) had UTI twice per semester. In finding out the last time they had UTI in school, Over half 52% (26) of the respondents indicated they had UTI once a while in school, 26% (13) indicted they never had UTI in school and 22% (11) can't remember when they had UTI in school. In finding out what they do when diagnosed with UTI 58% (29) of the respondents used hospital management in managing UTI, 36% (18) of them based on previous management (self-medication) and 6% (3) used combination of local and hospital management.

The study recommended that the women's commission should organize awareness programs on UTI for better reproductive health of students. At the ANC level midwives should be watchful about the prevalence of UTI among pregnant women.

The study concluded that UTI persisted both at school and at home. Hospital management was mainly used as the management of UTI among respondents. Respondent were conscious of preventive measure of UTI.

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ABBREVIATION

CA-UTIs	Community-Acquired Urinary Tract Infections
N-UTIs	Nosocomial Urinary Tract Infections
UTI	Urinary Tract infection

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CHAPTER ONE

INTRODUCTION

1.0 Background of the study

The urinary tract (UT) is the organ that collects and stores urine and releases it from the system (body). It is made up of many parts including the kidneys, ureters, bladder, urethra and other structures (Odoki, et al., 2019). Usually, diseases occur as a result of infections cause by pathogenic microorganisms, externally or internally of the body. Urinary Tract Infection (UTI) is a type of infection, involving the existence of microorganisms in the UT which is believed to be germ-free (Al-Badr & Al-Shaikh, 2019).

Urinary tract infections (UTIs) are the inflammatory disorders of the urinary tract caused by the abnormal growth of pathogens (Puca, 2014). Urinary tract infection is known to cause short-term morbidity in terms of fever, dysuria, and lower abdominal pain (LAP) and may result in permanent scarring of the kidney (Gales, Jones, & Gordon, 2018). Urinary tract infections can be community acquired or nosocomial. Community-acquired urinary tract infections (CA-UTIs) are defined as the infection of the urinary system that takes place in one's life in the community setting or in the hospital environment with less than 48 hours of admission. Community-acquired UTI is the second most commonly encountered microbial infection in the community setting (Wagenlehner & Naber, 2015). Nosocomial urinary tract infections (N-UTIs) are the infection of the urinary tract that occurs after 48 hours of hospital admission, and the patient was not incubating at the time of admission or within 3 days after discharge (Dias Neto, Martins, & Da Silva, 2018).

Urinary tract infections may be asymptomatic, acute, chronic, and complicated or uncomplicated, and the clinical manifestations of UTIs depend on the portion of the urinary tract involved, the etiologic organisms, the severity of the infection, and the patient's ability

to mount an immune response to it. Both asymptomatic and symptomatic UTIs pose a serious threat to public health care, hence reducing the quality of life and resulting into work absenteeism (Baros, Ribeiro, & Costa, 2019). Symptoms of UTIs such as fever, burning sensations while urinating, lower abdominal pain, itching, formation of blisters and ulcers in the genital area, genital and suprapubic pain, and pyuria generally depend on the age of the person infected and the location of the urinary tract infected (Gales et al., 2018). Several factors such as gender, age, race, circumcision, HIV, diabetes, urinary catheter, genitourinary tract abnormalities, pregnancy, infants, elderly, and hospitalization status bear significant risk for UTIs (Afriyie, Gyansa-Lutterodt, & Amponsah, 2015). The commonest pathogenic organism isolated in UTI is E. coli followed by K. pneumoniae, Staphylococcus, Proteus, Pseudomonas, Enterococcus, and Enterobacter (Donkor, Tettey-Quarcoo, Nartey, & Agyemang, 2017). About 150 million people suffer from UTIs each year globally which results in greater than 6 billion dollars in direct health care (Fofana, 2018). UTIs are the most common outpatient infections in the United States (US). With the exception of a spike in young women aged 14−24 years old, the prevalence of UTIs increases with age (Plowman, et al., 2018).

A Columbian study showed a prevalence of acute UTIs for women and men, respectively, of 23.3% and 6.8%, and a prevalence of recurrent UTIs of 54.2% and 15.7%, respectively (Ambuila, Ramirez, & Bedoya, 2018). The prevalence of UTIs in Algeria among all patients admitted in acute care units for more than 48 hours was reported to be 4.5% (Fofana, 2017). Urinary tract infection is ranked third among Human Acquired Infections (HAIs) in Ghana, recording a prevalence of 2.2% higher than respiratory tract infections with the secondary and tertiary health institutions predominating in terms of prevalence. The prevalence of urinary tract infection in Southern and the Northern part of Ghana is 18.5% (Larbi, et al., 2019). A

study done at the Komfo Anokye Teaching Hospital in the Ashanti region of Ghana found 34.5% prevalence of UTI caused by Gram negative bacteria (Agyepong, et al., 2018).

There is a link between the prevalence of UTI among female students and the level of personal hygiene (Isah et al., 2019) or the state of toilet facilities in the hostels, sexual activity; another factor that predisposes females to UTI (Staphylococcus aureus for example, which is a member of skin flora might stay on the skin and get transmitted during sexual intercourse) and enhances better transmission of UTI especially in females, who usually have higher prevalence than males as seen in a study conducted by Ojo and Anibijuwon (2019), hence the need for this study among female students in Holy Family Nursing and Midwifery Training College, Berekum in order to assess the awareness of urinary tract infection among female students.

1.1 Problem statement

Urinary tract infections (UTIs) are one of the major causes of morbidity and comorbidities in patients with underlying conditions, and it accounts for the majority of the reasons for hospital visit globally (Odoki, et al., 2019). UTIs remain one of the most common forms of infection both in the community and, particularly, within the healthcare setting (Al-Badr & Al-Shaikh, 2019). In many parts of the world, UTI is among the common bacterial infections that cause morbidity and mortality. Globally, about 150 million people are affected annually leading to a world income loss of about 6 billion US dollars through medication (Abbo & Hooton, 2014).

The issue is more prevailing in the less developed countries like Africa, accounting for not less than 250 million people affected annually (Getenet & Wondewosen, 2018).

From a study conducted by Chandra et al., (2017 it was observed that there was high prevalence (63.47%) of urinary tract infection among participants at Mwananyamala Hospital at Kinondoni district, Tanzania. The study found that most of participants (68.11%) have

little knowledge and awareness about urinary tract infection. According to this study, the knowledge about urinary tract infection is still a problem despite several studies that come with this factor and recommendations. Evidenced revealed high prevalence of urinary tract infection in children in the age group of 6-12 years also showed that there were a poor knowledge and unhygienic use of toilets among school children, (Raya, 2018). Urinary tract infection is high in Kumasi and Accra both in the Southern sector of the country (Agyepong, Govinden, & Owusu-Ofori, 2018).

1.2 General objective

To assess the awareness of urinary tract infection among female students of Holy Family Nursing and Midwifery Training College, Berekum.

1.3 Specific objective

1. To determine the prevalence of urinary tract infection among female students
2. To investigate the knowledge of female students on urinary tract infection
3. To determine measures for preventing urinary tract infections among female students

1.4 Operational definition of terms

Prevalence: defined as the state of being widespread

Knowledge: defined as having an adequate understanding of UTI.

Preventive measures: ways to keep UTI from happening

Mid-stream urine specimen: a specimen obtained from the middle part of urine flow: Clean catch urine specimen.

History of UTI: is any history of infection pertaining to the urinary tract diagnosed by a physician.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section of this thesis focuses on reviewing relevant scholarly materials on UTI following the specific objectives of the study. The section allows the researcher to provide the basis for the current study as well as giving credit where necessary to other relevant work published by other researchers.

2.1 Prevalence of Urinary Tract Infection

Urinary tract infection (UTI) is a common bacterial infection known to affect the different parts of the urinary tract and the occurrence is found in both male and female (Ochei et al., 2018). Both genders are susceptible to the infection however, women are mostly vulnerable due to their anatomy and reproductive physiology (Arunachallam et al., 2017). Despite the wordiness, UTI is a very serious infection that if left untreated or not diagnosed early becomes an issue to the individual: male or female. The knowledge of UTI is very crucial in preventing its occurrence and recurrence (Changizi et al., 2014).

A study in Uganda revealed that the prevalence of bacterial UTI was highest in the age group 20–29 with (32.6%) as compared to the lowest value of (1.2%) in the adolescent age group of 10–19 years. Urinary tract infection was highest in females with (37.5%) as compared to (22.0%) in men. Escherichia coli was the most prevalent bacterial uropathogen with (41.9%) followed by Staphylococcus aureus (31.4%), Klebsiella pneumoniae (11.6%), Klebsiella oxytoca (7.0%), Proteus mirabilis (3.5%), Enterococcus faecalis (3.5%), and Proteus vulgaris (1.2%) (Odoki, et al., 2019).

A study conducted in Ghana on UTI prevalence found that thirty-one (10%) of the 307 patients enrolled in the study had UTI, all of which were uncomplicated. Urinary tract infections were more common in females (93.6%) than males (6.4%). Eight different bacterial species were isolated from urine specimens of the study participants; the most prevalent was Escherichia coli (48.4%) followed by Klebsiella sp. (16.1%) and Staphylococcus aureus (12.9%) (Donkor, Horlortu, Dayie, Obeng-Nkrumah, & Labi, 2019).

A total of 140 midstream urine samples analyzed by Salwa & Maher (2018) to investigate the prevalence of UTI among males and females indicated that UTI can be as high as 74.3%, with the prevalence in females 32.8% higher than males in Saudi Arabia. However, isolates recovered from male patients can be 1% higher than isolates from female patients and can be as high as 50.5% and 49.5% respectively in Kumasi, the Southern part of Ghana (Agyepong, et al., 2018). Also, with the rate of UTI (11.3%) observed in Eastern Nepal, female show higher prevalence (70.53%) than male (29.47%) (Mahato, Mahato, & Yadav, 2018).

Most pregnant women (70%) may develop glycosuria and this, in combination with physiological amino acid urea at pregnancy and a low urine osmolality favor bacterial growth. Urinary tract infections recur in 4 to 5% of pregnancies (McCormick, Ashe, & Kearney, 2018). However, approximately 5% of non-pregnant women can be affected compared with pregnant women (Akintobi, Bamkefa, Ejionueme, & Adejuwom, 2018).

A cross-sectional investigation to identify the prevalence of UTI and its risk factors was study conducted in Turkey. The study found that UTI were detected in 7.1% (overall) – in 10.1% of girls and in 4.2% of boys. 6.2% of the girls and 2.4% of the boys had previously been diagnosed with UTI. The study concluded that students drinking an inadequate amount of water and having a family history had a high prevalence of UTI (Zincir, et al., 2018).

A descriptive study to assess the knowledge and practices regarding prevention of urinary tract infection (UTI) among adolescent girls at selected Higher Secondary Schools. Among adolescent girls, lower urinary tract infections are very common. At least one episode of urinary tract infection will occur in nearly 5-6% of girls during first grade to graduation from high school. Compare to boys, the recurrence rate is 50% greater in girls. Due to urinary tract infection every year nearly 6-7 million young women visits physicians (Patel, Pari, Rathva, Josmita, & Varia, 2020).

A study conducted in Ghana reported that prevalence of urinary tract infection among patients' whose samples were analyzed was 15.9%. Predominant uropathogens isolated were E. coli (46.4%), Coliform (41.1%) and Coliform spp. with Candida (6.2%) (Afriyie, Gyansa-Lutterodt, & Amponsah, 2015).

2.2 Knowledge on Urinary Tract Infection

Urinary tract infection (UTI) refers to microbial invasion of the urinary tract by one or more uropathogenic bacteria species, leading to significant bacteriuria and the presence of symptoms such as dysuria (Puca, 2014). Increased risk of UTIs is primarily caused by alterations in voiding either in the presence or absence of surgical intervention. A history of presurgical recurrent UTIs is the most important risk factor for developing a UTI after treatment (Weintraub, Reuven, & Paz-Levy, 2018). Urinary tract infection is caused by colonization and growth of microorganisms such as bacteria, fungi and viruses within the urinary tract (UT) (Worku, Alamneh, & Abegaz, 2021).

A study reported that Failure in infection prevention and control in patients with comorbid conditions often starts with indwelling urinary catheterization. Poor hand hygiene, poor aseptic technique, and poor catheter placement all predispose towards UTIs. Unnecessary or overlong catheterization is a further risk factor, with poor urethral orifice asepsis a predisposing factor.

The formation of biofilms on catheters following catheterization is inevitable (Jacobsen, Stickler, & Mobley, 2019).

A study conducted in Uganda found that age ≤19 years, female gender, married individuals, genitourinary tract abnormalities, diabetes mellitus, hospitalization, indwelling catheter >6 days had statistically significant relationships with UTI. The study therefore concluded that screening for UTI in hospitalized patients, female gender, married individuals, genitourinary tract abnormalities, indwelling catheter, and diabetics should be adopted (Odoki, et al., 2019).

Research done by Agyepong et al. (2018) shows that Proteus mirabilis, Klebsiella pneumoniae, Enterobacter spp., Acinetobcter baumannii, E. coli, Yersinia spp., Burkholderia cepacia, Pasteurella spp., Salmonella enterica, Vibrio spp., Pseudomonas aeruginosa, Citrobacter koseri, Chromo bacterium violaceum, Pantoea spp., Serratia spp., Providencia rettgeri, Cadecea lapagei, Sphingomonas paucimobilis and Aeromonas spp., are mostly obtained from urine analysis.

A Ghanian study found that respondents (71%) had knowledge regarding Gram positive bacteria such as Staphylococcus aureus causing urinary tract infections (Adjei & Opoku, 2017). Ojo and Anibijuwon (2019) reported that E. coli, Proteus spp., Klebsiella spp., Staphylococcus spp., Streptococcus spp. as well as Pseudomonas spp. are the dominant uropathogens obtained from patients in Nigeria.

A study revealed that revealed that majority of respondents (68%) knew that factors like spinal cord injury, age, diabetes and catheterization affect the etiology of UTI. Patients with spinal cord injury (SCI) and catheterization develop UTIs with uropathogens that form thick biofilms on the bladder wall making these infections difficult to eradicate (Ronald, 2019). Patients with diabetes have some defects in their immune systems such as impaired neutrophil function, decreased T-cell-mediated immune response, low levels of prostaglandin E, thromboxane B2,

leukotriene B4 incomplete emptying of bladder due to autonomic neuropathy, poor metabolic control as well as higher glucose concentration in the urine results in urinary colonization by pathogenic microorganisms (Boyko, Fihn, Scholes, Abraham, & Monsey, 2018).

A descriptive study was conducted to assess the knowledge and prevention practice regarding of urinary tract infection among adolescent girls. Simple Random sampling technique was used to collect samples. The result revealed that most of the samples (71.5%) were having poor knowledge and majority (87%) has poor practice standard. The study concluded that a significant poor knowledge and practice was found regarding prevention of urinary tract infection among adolescent girls (Patel, et al., 2020).

A descriptive (non-experimental) research approach was adopted for a study in India. The objective of the study was to estimate the occurrence and assess the knowledge with identify the practice regarding prevention of urinary tract infection among adolescent girls. Percentage distribution of knowledge level shows that majority (90%) of adolescents had moderately adequate knowledge and 5.6% of them had inadequate knowledge, whereas only 4.3% of adolescents had adequate knowledge on prevention of urinary tract infection. Over half (52.6%) of the respondents had not received health education in past 6 month related to urinary tract infection; most (60%) had received health education related to menstrual hygiene. The sources of information were teachers (44.9%), internet (22.4%), friend (21.7%) and mother (10.8%). The study finding ensure that there is a great need for adolescent to maintain good menstrual hygiene, parents should encourage their children to maintain good hygiene during menstrual period and maintain personal care, frequently check-up and early deduction is needed to prevent any types of infection related to reproductive system (Semwal & Sharma, 2020).

A descriptive research design was employed for a study conducted in Nepal. The study found that one hundred and fifty-nine (64.63%) of women had no information about Urinary tract infection. Regarding knowledge on urinary tract infection 60 (24.39%) had poor knowledge, 160 (65.05%) had average knowledge and 26 (10.56%) of respondents had good level of knowledge. The study showed that most knowledgeable area was management and treatment of urinary tract infection and least knowledgeable area was on the area of incidence and causes of the urinary tract infection. Most (64.63%) of the respondents did not have any Information regarding UTI. The sources of information on UTI were health worker (41.38%), newspaper/books (29.89%), friends/family (20.68%) and radio/television (8.05%) (Dhakal & Adhikari, 2015).

A hospital-based cross-sectional study was conducted in Ethiopia. The study found out that symptoms suggestive of UTI were observed in 97 (43.11%) of the study subjects. The most frequently observed complaints were flank/loin pain, which was observed among 90 (40%), frequent urination, 80 (35.56%), and urgent urination, 66 (29.3%). Fever, dysuria, suprapubic pain, nausea and vomiting were also observed among 52 (23.2%), 42 (18.7%), 38 (16.9%), 26 (11.6%) and 5 (2.2%) participants, respectively (Worku, Alamneh, & Abegaz, 2021).

An Indian study found that among the selected subjects 44% of subjects have good knowledge regarding prevention of UTI. The main symptoms of urinary tract infection as indicated by the respondents were are fever (67.2%), dysuria (60.4%), supra pubic pressure or discomfort (56.2%) and flank pain (45.2%). Knowledge of respondents on the main causes of urinary tract infection was adequate as infrequent bladder emptying (72%), inadequate water intake (40%), poor menstrual hygiene (32%), poor perineal washing (32%), vaginal discharge (28%), poor nutrition (12%) and pregnancy (20%) were all mentioned by respondents as causes of UTI (Raj, James, Jimmy, Mariya, & Ananda, 2020).

A quantitative research approach with non- experimental descriptive study was adopted to conduct a study in India. The findings of the study revealed that majority (82.2%) of the respondents have a knowledge about urinary tract infection. However, most of the respondents have never experienced urinary tract infection (82.2%). Most of the respondents knew about the causes of UTI (71.1%) (Mangai, et al., 2019).

2.3 Measures for Preventing Urinary Tract Infections

Urinary tract infection is the most common healthcare-acquired infection in the world, accounting for 40% of all nosocomial infections (Plowman, Graves, Esquivel, & Roberts, 2018). Although most UTIs are mild and easily resolved with appropriate antibiotic treatment, more severe infections can be devastating, resulting in bacteremia, sepsis and death. Because of the frequency with which they occur, UTIs also impose a substantial economic burden on healthcare systems (Plowman, et al., 2018).

A descriptive (non-experimental) research approach was adopted for a study in India. The objective of the study was to identify the practice regarding prevention of urinary tract infection among adolescent girls. The study found that most of adolescent used sanitary pads (71.7%) followed by cloth (28.2%). Most of adolescent drying undergarments in sunlight (79.1%) whiles a few dried them under another cloth (20.8%). Mostly adolescent do not clean perennial areas after voiding (76.5%). Direction of cleaning were front to back (42.5%), back to front (22.2%), in any direction (25.9%) and several repetitive movements (9.2%). Majority number of adolescent wear undergarment that is 47.8%, and mostly girls change under garment once a day (43%). Care of their pubic hair were as follows; removing with razor (42.1%), remove with hair removing cream (31.7%), do not remove hair only clean hair (23.9%) and clipping (2.17%) (Semwal & Sharma, 2020).

A quantitative research approach with non- experimental descriptive study was adopted to conduct a study in India. Stratified random sampling technique was used to select the subject for the study. Data collected from 100 subjects were analyzed by descriptive and inferential statistics using SPSS version 22. Among the selected subjects 58% of the subjects had a favourable practice regarding prevention of urinary tract infection. Findings of the study revealed that majority (58%) of the subjects had a favorable practice, followed by 42% of subjects had neutral practice and no one had unfavorable practice regarding prevention UTI (Raj, et al., 2020).

A descriptive survey design was adopted to assess the knowledge and prevention practices of urinary tract infection among female students resident in University of Jos. The findings of the study revealed that respondents aware that cleaning the perineum from front to back (56.6%), keeping the genital area clean and dry (75.7%), avoiding fluids that irritate the bladder such as alcohol (86.2%) and emptying the bladder frequently when full (53.3%), and wearing cotton underwear and loose-fitting clothing (48.7%) helps in the prevention of urinary tract infection. (Mangai, et al., 2019).

CHAPTER THREE

MATERIALS AND METHODS

3.0 Introduction

This chapter details, the study area and study population, study design, sampling techniques, data collection method and instrument, data analysis techniques, ethical consideration, and the limitations of the study.

3.1 Study area

The study was carried out at the Holy Family Nursing and Midwifery Training College, Berekum. The college was established in the year 1957. The College is located in the western part of Berekum, on the premises of The Holy Family Hospital. The school shares boundary with the Holy Family Hospital, Berekum and Freeman Methodist School. The College runs three Diploma programs; Registered General Nursing (RGN), Registered Midwifery (RM), and a two-year Post Basic Midwifery.

3.2 The study population

The target population of study is made up of all female students in Holy Family Nursing and Midwifery Training College, Berekum.

3.3 Study design

A descriptive survey was adopted to assess the awareness on urinary tract infection among female students in which questionnaire was used to gather relevant data.

3.4 Sampling technique and Size

A simple random sampling method was employed to select the students from each class. A total female students of ten were drowned from RGN 24, RM19, RGN 23, RM 18, RGN 22, RM17 by filling a bowl with ten 'Yes' and the remaining with 'No' on pieces of papers. The same procedure was done to select twenty students each from PBM 4 and PBM 5. The random sampling procedure gave all the female students an equal opportunity to be part of the study. Giving the procedure, those who chose 'Yes' were selected to be part of the study but those who chose 'No' were not selected to be part. A total one hundred female students were chosen for the study.

All Covid-19 protocols were observed in the process of sampling and data collection to prevent the spread of the disease among both the students and the researcher. All students were encouraged to wear their nose/face mask.

3.5 Data collection methods and instruments

Data was collected using structured questionnaire which was self-administered with all COVID 19 protocols observed during the data collection process. The data collection tools used in this study was both structured and open ended questionnaires. The questionnaire was designed in English and administered in English as well for purposes of clearer understanding by the selected participants. Each student used a maximum of 20 minutes to complete the questionnaire.

3.6 Data analysis techniques

The data obtained from the study were checked for accuracy, utility, and completeness. The data were coded and analyzed using Microsoft excel and the results were presented in tables or figures.

3.7 Ethical consideration

An introductory letter was obtained from the College before we conducted the study. Informed written permission was requested from all participants. Participants were made to understand that, participating in this research was entirely voluntary and that they were at liberty to discontinue to be participants of the research with no penalty. There was strict anonymity and confidentiality on any detail on participants of the study were given during the research. Participation in this study did not cost any money. No money was given to participants as incentives for participating in this research. The research came with no risk that bordered on physical damage to the participant.

3.8 Limitation of the study

The limitations to this study were, the limited time with which we had to complete the study and the smaller sample size that was chosen for the study.

CHAPTER FOUR

ANALYSES OF DATA

4.0 Introduction

A detailed of the analysed results is presented in this chapter. The data collected was coded and analysed with the help of Microsoft excel.

4.1 Socio-Demographic Characteristics of Respondents

Analysis conducted on respondents of the socio-demographic data**.** In finding out their level of education it was established that, 56% (28) were in Year two, 24% (12) of the respondents were in Year three and 20% (10) were in Year one. With the age distribution, 34% (17) of the respondents were between the ages of 22-24 years, 28% (14) were between the ages of 18-21 years, 26% (13) were between 25-29 years and 12% (6) were 30 and above years Analysis of the religion of the respondents revealed that majority of the respondents 72% (36) were Christians whiles 28% (14) were Muslims. As shown in the table below

Table 1: Respondents socio demographic data

Variable	Categories	Frequency (n)	Percentage (%)
Year	YEAR 3	12	24
	YEAR 2	28	56
	YEAR 1	10	20
Age	18-21	14	28
	22-24	17	34
	25-29	13	26
	30 and above	6	12
Religion	Christian	36	72

	Muslim	14	28
	Others	0	0

4.2 Rate of UTI among respondents

In trying to find out the rate of UTI among the respondents per semester, 70% (35) of the respondents indicated they never had UTI, 28% (14) had UTI once per semester and 2% (1) had UTI twice per semester. In finding out the last time they had UTI in school, Over half 52% (26) of the respondents indicated they had UTI once a while in school, 26% (13) indicted they never had UTI in school and 22% (11) can't remember when they had UTI in school. In finding how often they get UTI at home, 42% (21) indicated they never had UTI at all, 34% (17) can't remember how often they get UTI at home and 24% (12) get UTI once a while at home. As shown in the table below.

Table 2: Rate of UTI among respondents

Variable	**Categories**	**Frequency (n)**	**Percentage (%)**
How often do you acquire UTI per semester?	Once	14	28
	Twice	1	2
	Thrice	0	0
	Not at all	35	70
When was the last time you had UTI in school?	Once a while	26	52
	Can't remember	11	22
	Not at all	13	26
How often do you get UTI at home?	Once a while	12	24
	Can't remember	17	34
	Not at all	21	42

4.3 Management of UTI among respondents

Some questions were used in trying to know the management of UTI among students. In finding out what they do when diagnosed with UTI 58% (29) of the respondents used hospital management in managing UTI, 36% (18) of them based on previous management (self-medication) and 6% (3) used combination of local and hospital management. On how they arrived at their diagnosis, 82% (41) of the respondents arrived at UTI diagnosis through sings and symptoms and 18% (9) arrived at UTI diagnosis based on laboratory investigation. As shown in the table below.

Table 3: Management of UTI among respondents

Variable	**Categories**	**Frequency (n)**	**Percentage (%)**
What do you do when diagnosed UTI?	Hospital management	59.1	92
	Based on previous management	20	40
	Combination of management	25	55
	Herbal management	5	10
How do you arrive at diagnosis?	Based on laboratory investigation	30	59.1
	Signs and symptoms	20	40.9
	Herbalist	0	0

4.4 UTI prevention among respondents

Questions were asked to find out the prevention of UTI among respondents, in finding out how they clean their genital area after emptying their bladder, 72% (36) uses tissue to clean their genital area after emptying the bladder and 28% (14) uses water to clean their genital area after emptying their babbler. In finding out what quantity of water they drink per day, 50% (25) of the respondents indicated they drink above 2 litres per day, 24% (12) drink one

litre per day, 20% (10) drink two litres per day and only 6% (3) drink less than one litre per day. Respondents were asked how often they wash their hands before cleaning the vulva, 14% (7) of them indicated they wash their hands before cleaning their vulva very often and 86% (43) sometimes wash their hands before cleaning their vulva. Respondents were asked how often they take in fruit, 46% (23) of them eat fruit very often, 30% (15) sometimes eat fruits, and 24% (12) rarely eat fruits. In finding out how frequent the water flows at school, 72% (36) of the respondents indicated the water flows at a moderate frequency, 14%(7) high frequency and 10%(5) very high frequency. In finding out where respondents normally empty their bladder, 58% (29) of the respondents indicated they empty their bladder in the bathroom and 42% (21) empty their bladder using the toilet. As shown in the table below.

Table 4: UTI prevention among respondents

Variable	**Categories**	**Frequency (n)**	**Percentage (%)**
What do you use to clean your genital area after emptying the bladder?	Tissue	36	72
	Water	14	28
What quantity of water do you drink per day?	Less than 1 litre	3	6
	One litre	12	24
	Two litres	10	20
	Above 2 liters	25	50
How often do you wash your hands before cleaning the vulva?	Never	0	0
	Rarely	0	0
	Sometimes	43	86
	Very often	7	14
How often do you eat fruits?	Never	0	0
	Rarely	12	24

	Sometimes	15	30
	Very often	23	46
How frequent does the water flow?	Low frequency	2	4
	Moderate frequency	36	72
	High frequency	7	14
	Very high frequency	5	10
What do you do after emptying your vulva?	Bath room	29	58
	Toilet	21	42

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter provides an in-depth look at the major findings that emerged out of the research study, comparison of the analyzed data with findings from other literatures, conclusion and recommendations.

5.1 Discussions

5.1.1 Rate of UTI among respondents

In trying to find out the rate of UTI among the respondents, it came out clearly that UTI persist in both school and at home (74% and 58) respectively.

This finding agrees with the study conducted by Salwa and Maher (2018), prevalence of UTI among respondents indicated that UTI can be as high as 74.3%. Mahato et al. (2018) reported a rate of UTI (11.3%) in Eastern Nepal. also a study by Donkor et al. (2019) found that 93.6% of respondent had urinary tract infections in school. Likewise, Salwa and Maher (2018) stated that as over half (59%) of the respondents had UTI whiles at home.

5.1.2 Management of UTI among respondents

In Finding the UTI management among respondents, it was noticed that UTI was managed mainly in the hospital (92%) and diagnosis is based on laboratory investigations(59.1%) . Similar findings were reported by Semwal and Sharma (2020) as respondents mentioned that they managed their UTI by consulting the physician at the hospital. This is in line with the study conducted by Mangai et al. (2019) which reported respondents signs and symptoms of

urinary tract infection were used in diagnosing UTI in respondents. Laboratory investigations were done on few occasions.

5.1.3 UTI prevention among respondents

People are aware of the preventive measures of UTI by drinking water averagely over 2 litres, have adequate water flow within their environment, eat fruits and ensuring personal hygiene. Semwal and Sharma (2020) reported that most respondent do clean perineal areas after voiding (76.5%).

Similarly, Raj et al. (2020) stated that respondents knew the importance of drinking water and UTI prevention and hence most of the respondents indicated drinking up to about 8 glasses of water a day or above 2 liters of water a day.

Consistently, Mangai et al. (2019) found that 76% of the respondents eat fruit. This is done to help prevent UTI.

5.2 Conclusion

The study concluded that UTI persisted both at school and at home. Hospital management was mainly used as the management of UTI among respondents. Respondent were conscious of preventive measure of UTI.

5.3 Recommendations

1. The women's commission should organize awareness programs on UTI for better reproductive health of students.
2. At the ANC level midwives should be watchful about the prevalence of UTI among pregnant women.

3. Future work should be geared towards ascertaining the risk factors or predisposing conditions for urinary tract infection.

REFERENCES

Abbo, L., & Hooton, T. (2014). Antimicrobial stewardship and urinary tract infections. *Antibiotics, 3*(2), 174-192.

Adjei, O., & Opoku, C. (2017). Urinary tract infections in African infants. *International Journal of Antimicrobial Agents, 24*, 32-34.

Afriyie, D. K., Gyansa-Lutterodt, M., & Amponsah, S. K. (2015). Susceptibility pattern of uropathogens to ciprofloxacin at the Ghana police hospital. *Pan Afr Med J, 22*(1). doi:10.11604/pamj.2015.22.87.6037.

Agyepong, N., Govinden, U., & Owusu-Ofori, A. (2018). Multidrug resistant Gram negative bacterial infections in a teaching hospital in Ghana. *Antimicrobial Resistance and Infection Control,, 7*(37), 1-8.

Akintobi, A., Bamkefa, B., Ejionueme, A., & Adejuwom, C. (2018). Bacterial analysis of urine of pregnant and non-pregnant women having urinary tract infection (UTI), attending the General Out-Patient (GOP) clinic of the University College Hospital (UCH), Ibadan, Nigeria. *Nature and Science, 11*(2), 73-77.

Al-Badr, A., & Al-Shaikh, G. (2019). Recurrent urinary tract infections management in women: A review. *Sultan Qaboos University Medical Journal, 13*(3), 359-367.

Ambuila, W. E., Ramirez, F. R., & Bedoya, A. (2018). Microbial aetiology and sensitivity of asymptomatic bacteriuria among ante-natal mothers. *African Health Sciences, 10*(4), 349-352.

Baros, I. C., Ribeiro, A. D., & Costa, A. C. (2019). Microorganisms prevalent in urinary tract infections and antimicrobial sensitivity profile: analysis of patients attended at the military police hospital of the State of Goiás, Brazil. *J Health Sci Inst, 29*(4), 243-247.

Boyko, E., Fihn, S., Scholes, D., Abraham, L., & Monsey, B. (2018). Risk of urinary tract infection and asymptomatic bacteriuria among diabetic and nondiabetic postmenopausal women. *American Journal of Epidemiology, 161*(6), 557-564.

Dhakal, R., & Adhikari, S. (2015). Knowledge on urinary tract infection among primigravida women. *International Journal of Health Sciences and Research, 5*(10), 200-205.

Dias Neto, J. A., Martins, A. C., & Da Silva, L. D. (2018). Community acquired urinary tract infection: etiology and bacterial susceptibility. *Acta Cir Bras., 18*, 33-36.

Donkor, E. S., Horlortu, P. Z., Dayie, N. T., Obeng-Nkrumah, N. O., & Labi, A. K. (2019). Community acquired urinary tract infections among adults in Accra, Ghana. *Infection and Drug Resistance, 12*, 2059-2067.

Donkor, E. S., Tettey-Quarcoo, P. B., Nartey, P., & Agyemang, I. O. (2017). Selfmedication practices with antibiotics among tertiary level students in Accra, Ghana: a cross-sectional study. *Int J Environ Res Public Health, 9*(10), 3519-3529.

Fofana, B. K. (2018). *Isolation of uropathogenic bacteria and their antimicrobial susceptibility pattern in urine samples of patients with suspected urinary tract infection in Eastern regional hospital, Koforidua.*

Gales, A. C., Jones, R. N., & Gordon, K. A. (2018). Activity and spectrum of 22 antimicrobial agents tested against urinary tract infection pathogens in hospitalized patients in Latin America: report from the second year of the SENTRY antimicrobial surveillance program. *J Antimicrob Chemother, 45*(3), 295-303.

Getenet, B., & Wondewosen, T. (2018). Bacterial uropathogens in urinary tract infection and antibiotic susceptibility pattern in Jimma University specialized hospital, Southwest Ethiopia. *Ethiopean Journal of Health Science, 21*(2), 6-141.

Jacobsen, S. M., Stickler, D. J., & Mobley, H. L. (2019). Complicated catheter-associated urinary tract infections due to Escherichia coli and Proteus mirabilis. *Clin Microbiol Rev, 21*, 26-59.

Larbi, A. K., Obeng-Nkrumah, N., Owusu, E., Bjerrum, S., Bediako-Bowan, A., Sunkwa-Mills, G., . . . Fenny, A. P. (2019). Prevalence and associated risk factors of asymptomatic bacteriuria in ante-natal clients in a large teaching hospital in Ghana. *Ghana Medical Journal, 101*(1), 60-68.

Mahato, S., Mahato, A., & Yadav, J. (2018). Prevalence and identification of uropathogens in Eastern Nepal and understanding their antibiogram due to multidrug resistance. *Asian Pacific Journal of Microbiology Research (APJMR), 2*(1), 09-17.

Mangai, M. J., Gakung, B., Hosea, G., Peter, U., PAtience, U., Shikpup, D., . . . David, S. (2019). Assessment of knowledge and prevention practices of urinary tract infection (UTI) among female students residence in university of Jos. *International Research Journal of Public and Environmental Health, 5*, 89-96.

McCormick, T., Ashe, G., & Kearney, M. (2018). Urinary tract infection in pregnancy. *The Obstetrician & Gynecologist, 10*(3), 156-162.

Odoki, M., Aliero, A. A., Tibyangye, J., Maniga, J. N., Wampande, E., Kato, C. D., . . . Bazira, J. (2019). Prevalence of bacterial urinary tract infections and associated factors among patients attending hospitals in Bushenyi District, Uganda. *International Journal of Microbiology*, 1-9. doi:10.1155/2019/4246780

Ojo, O. O., & Anibijuwon, I. I. (2019). Urinary tract infection among female students residing in the campus of the University of Ado Ekiti, Nigeria. *African Journal of Microbiology and Research, 4*(12), 1195-1198.

Patel, E. M., Pari, M. L., Rathva, N. P., Josmita, H., & Varia, H. S. (2020). A descriptive study to assess the knowledge and practices regarding prevention of urinary tract infection (UTI) among adolescent girls at Selected Higher Secondary Schools. *International Journal of Psychosocial Rehabilitation, 24*(5), 6899-6904.

Plowman, R., Graves, N., Esquivel, J., & Roberts, J. A. (2018). An economic model to assess the cost and benefi ts of the routine use of silver alloy coated urinary catheters to reduce the risk of urinary tract infections in catheterized patients. *J Hosp Infect, 48*, 33-42.

Puca, E. (2014). Urinary Tract Infection in Adults. *Clin Microbiol Open, 3*(6). Retrieved from 10.4172/2327-5073.1000e120

Raj, A., James, J., Jimmy, J., Mariya, S., & Ananda, S. (2020). Knowledge and Self Reported Practices Regarding Prevention of Urinary Tract Infection among Adolescents Girls in Selected College of Mangaluru. *European Journal of Molecular & Clinical Medicine, 7*(11), 4515-4522.

Ronald, A. (2019). The etiology of urinary tract infection: traditional and emerging pathogens. *The American Journal of Medicine, 113*(1), 14-19.

Salwa, H. A., & Maher, A. A. (2018). Prevalence of microorganisms isolates from urinary tract infections at some hospitals in Sana'a City, Yemen. *International Journal of Current Microbiology and Applied Science, 3*(6), 876-885.

Semwal, T., & Sharma, M. (2020). A study to estimate the occurrence, knowledge, practice regarding prevention of urinary tract infection among adolescent girls in selected community areas, Dehradun, Uttarakhand. *International Journal of Medical Science and Public Health, 9*(9), 521-528.

Wagenlehner, F. M., & Naber, K. G. (2015). Treatment of bacterial urinary tract infections: presence and future. *Eur Urol., 49*(2), 235-244.

Weintraub, A. Y., Reuven, Y., & Paz-Levy, D. (2018). Prevalence and risk factors for urinary tract infection up to one year following midurethral sling incontinence surgery. *Eur J Obstet Gynecol Reprod Biol, 22*(2), 146-150.

Worku, G. Y., Alamneh, Y. B., & Abegaz, W. E. (2021). Prevalence of Bacterial Urinary Tract Infection and Antimicrobial Susceptibility Patterns Among Diabetes Mellitus Patients Attending Zewditu Memorial Hospital, Addis Ababa, Ethiopia. *Infection and Drug Resistance, 14*, 1441-1454.

Zincir, H., Erten, Z. K., Ozkan, F., Sevig, U., Baser, M., & Elmali, F. (2018). Prevalence of urinary tract infections and its risk factors in elementary school students. *Urologia International*.

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Our Ref. HFNMTC/GC/011/270223

Your Ref. .....

Date February 27, 2023

Ms. Martha Kyeremaa
Holy Family NMTC
Post Office Box 21
Berekum

Dear Ms. Kyeremaa

PERMISSION TO CONDUCT RESEARCH

With reference to your Memorandum dated February 27, 2023, I write to notify you that the students listed below have been granted permission to conduct their research in the College on the topic **'Awareness of Urinary Tract Infection among Females students of Holy Family Nursing and Midwifery Training College Berekum.'**

1. **Amponsah Gloria**
2. **Konadu Vera**
3. **Ansu Appiah Albertha**

Thank you.

Yours sincerely

PRINCIPAL
HOLY FAMILY NURSING AND
MIDWIFERY TRAINING COLLEGE
BEREKUM

Monica Nkrumah (FGCNM)
Principal

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APPENDICES

QUESTIONNAIRE FOR STUDENTS

Dear Student,

This is an academic research questionnaire aimed at **assessing the awareness of the causes of urinary tract infection among female students of HFNMTC, Berekum**. The results of the survey are for research purposes only and the confidentiality of respondents is guaranteed.

Thank you for your contributions to this research.

INSTRUCTIONS

You are kindly requested to read through the items and respond to them.

Write or Tick [√] the appropriate box that corresponds to your choice concerning each statement.

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

1. Which year are you: ……
2. Indicate your age as at last birthday: a. 18-21 years [] b. 22-24 [] c. 25-29 years [] d. 30 years and above []
3. Your Religion: a. Christianity [] b. Islam [] c. Others (specify)……

SECTION B: RATE OF UTI AMONG FEMALE STUDENTS

4. How often do you acquire UTI per semester?
   a. Once []
   b. Twice []
   c. Thrice []
   d. Not at all []

5. When was the last time you had UTI in school?
    a. Once a while []
    b. Can't remember []
    c. Not at all []
6. How often do you get UTI at home?
    a. Once a while []
    b. Can't remember []
    c. Not at all []

SECTION C: MANAGEMENT OF UTI AMONG FEMALE STUDENTS

7. What do you do when diagnosed UTI? (***indicate as many as used***)
    a. Hospital management []
    b. Based on previous management (self medication) []
    c. Combination of local and hospital management []
    d. Herbal management []
8. How do you arrive at diagnosis?
    a. Based on laboratory investigation []
    b. Signs and symptoms []
    c. Herbalist []

SECTION D: UTI PREVENTION AMONG FEMALE STUDENTS

9. What do you use to you clean your genital area after emptying the bladder?

    ……

    ……

10. What quantity of water do you drink per day?

    ……

11. How often do you wash your hands before cleaning the vulva?

    a. Never []

    b. Rarely []

    c. Sometimes []

    d. Very often []

12. How often do you eat fruits?

    a. Never []

    b. Rarely []

    c. Sometimes []

    d. Very often []

13. How frequent does the water flow at school?

    a. Low frequency []

    b. Moderate frequency []

    c. High frequency []

    d. Very high frequency []

14. At home where do you normally empty your bladder?

    …….