

**FACTORS CONTRIBUTING TO THE PREVALENCE OF
VULVOVAGINAL CANDIDIASIS AMONG GIRLS
STUDYING AT KATUNGURU SEED
SECONDARY SCHOOL
IN RUBIRIZI
DISTRICT**

**A RESEARCH REPORT SUBMITTED TO THE UGANDA NURSES
AND MIDWIVES EXAMINATIONS BOARD IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR
THE AWARD OF A DIPLOMA IN
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Abstract

Vulvovaginal candidiasis (VVC) is an opportunistic fungal of the female lower genital tract, the vulva and the vagina caused by *Candida* spp. (Sobel, et al, 2007).

The purpose of the study is to assess the factors contributing to the prevalence of Vulvovaginal candidiasis (VCC) among secondary school girls at Katunguru seed school in Rubirizi district.

The study design used was an analytical cross-sectional design which utilized quantitative method of data collection. The sample size of 60 respondents was employed, achieved through simple random sampling.

The study found out that there were relationships between social-demographic characteristics and prevalence of VVC, most of the girls (80%) had some awareness about VVC and majority of the respondents (75%) had good practices towards the prevention and reducing the prevalence of VVC

There is a great need for health education by health workers to explain to the girls issues concerning their health and also emphasize proper test and confirm the diagnoses of diseases and give full treatment for the diagnosed cases.

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Declaration

I hereby declare that this research report has not been submitted to any institution of learning for a similar award. And that the views herein are my own, where other authors' information has been used, acknowledgements or references have been quoted.

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Approval

This research report has been produced under my close supervision as University supervisor and is being submitted to UNMEB for examination purpose. I therefore recommend its submission for further consideration.

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Dedication

I dedicate this work to my family members my father Mr.Karibita William, my mother Tusiime Jolly, my brothers AkatwijukaYohana, Turyamuhaki Andrew, Twinomujuni Alex, AinebyoonaKenneth,Atwongyire Samuel,TukamusiimaEliab and my sisters Najunafabis,EkyiyasiimireSherina, Leah, AtukundaLoidah and Costence.

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Abbreviations

AIDS: Acquired immune deficiency syndrome or acquired immunodeficiency syndrome.

BEDM-MUK: Bachelors of Medical education, Makerere University.

CDC: Center for Disease Control.

ECS: Endocervical swab.

HVS: High vaginal swab.

KIU: Kampala International University.

SPSS: Statistical package for social sciences.

STIs: Sexually transmitted infections.

STDs: Sexually transmitted diseases.

***Spp*:** Species.

VVC: Vulvovaginal Candidiasis.

UNMEB: Uganda Nurses and Midwives Examination Board.

Definition of terms

Dyspareunia: Discomfort during sexual intercourse.

Dysuria: Discomfort during urination.

Species: A group of organisms which live eat together and have similar characteristics.

Probiotics: Are defined as live microorganisms that are believed to provide health benefits when consumed.

Vulvovaginal candidiasis (VVC): Is a fungal or yeast infection of the female lower genital tract, the vulva, and the vagina caused by *Candidaspp*.

Vaginitis; Is the inflammation of the vaginal wall resulting into discharge, itching and pain.

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CHAPTER ONE

1.0 Introduction

This study was aimed at establishing the prevalence of Vulvovaginal candidiasis (VVC) among secondary school girls at Katunguru Seed secondary school in Rubirizi district. This chapter comprises of the following sections; Background, statement of the problem, general objectives, specific objectives, research questions and justification.

1.1 Background Information

Vulvovaginal candidiasis (VVC) is an opportunistic fungal or yeast infection of the female lower genital tract, the vulva, and the vagina caused by *Candida* spp. (Sobel, et al, 2007). It can be referred to as candidiasis or moniliasis. VVC can be recurrent or relapsing. Recurrent or relapsing VVC occurs when a woman presents with four or more episodes per year. This condition affects less than 5% of healthy women (Nyirjesy and Sobel, 2013).

According to International Society for the Study of Vulvovaginal Disease, 2013 the incidence of VVC in symptomatic women varies depending on the location in the world, as well as the populations studied. The highest incidences of *Candida* are reported by epidemiological studies made in African countries such as Nigeria, followed by Brazil then Australia.

In India, incidence of *Candida* ranges from 17.7 to 20.4% and this epidemiological study reported a higher incidence of VVC in women at reproductive age (20–40 years) than in women at menopause.

In a study carried in Mysore, South India indicated that *Candida* was detected in 885/2528 (35%) vaginal specimens tested on culture. Of the 885, 180 (20%) satisfied the case definition for diagnosis of vulvovaginal candidiasis, while the remaining 705 (80%) were considered asymptomatic infections (Sujit, et al, 2015).

Candida spp. are part of the lower genital tract flora in 20%–50% of healthy asymptomatic women (McClelland, et al, 2009), *C. albicans* is the most frequent colonizer and is incriminated in most cases of VVC. Nevertheless, over the last 10 years, research evidence has demonstrated an increment in the frequency of cases caused by non-*albicans* species, with *C. glabrata* consistently being the leading species (Ray, et al, 2007).

The normal vagina is characterized by dynamic interrelationships between *Lactobacillus acidophilus* and other endogenous flora, estrogen, glycogen, vaginal pH, and metabolic by-products of these microbiomes. *L. acidophilus* produces hydrogen peroxide (as a by-product of metabolism), which is toxic to pathogens and keeps the healthy vaginal pH acidic. Vaginitis occurs when the vaginal microfloras have been altered by invading pathogens or biochemical changes in the environment (Odds, 2008). Changes in the vaginal environment encourage the *Candida* population, enhance their adherence to vaginal epithelial cells, and facilitate germination of daughter yeast cells (Force, et al, 2008). These changes may transform asymptomatic colonization into symptomatic *Candida* infection. VVC, like many other similar diseases, has the potential to cause great psychological distress and negatively impact a patient's quality of life.

Vaginitis is a wide spread inflammatory condition of the female genital tract. It affects a wide range of women all over the world. The condition is caused by several types of microorganism including yeast, especially *Candida* species. *Candida* spp. is normal flora of the vagina that

eventually become pathogenic under some prevailing conditions, and thus present as a common etiology of vulvovaginitis. When prompt recognition and laboratory confirmation is not achieved, this could lead to devastating genital discomfort and a major reason for frequent hospital visits.

The most common symptom is vaginal itching, which may be severe. Other symptoms include burning with urination, white and thick vaginal discharge that typically does not smell bad, pain with sex, and redness around the vagina. Symptoms often worsen just before a woman's period (Sobel, 2007).

In a 6-month study on VVC among nonpregnant women aged 15–45 years with and without clinical signs and symptoms of vulvovaginal discomfort in Gwagwalada, Nigeria. Paired high vaginal swab (HVS) and endo cervical swab (ECS) samples were collected from each of the 200 participating subjects and analyzed for isolation and identification of both *C. albicans* and non-*albicans Candida* spp. Of the 200 subjects recruited, 28 had *Candida*-positive cultures from both HVS and ECS samples, making the prevalence of VVC 14.0% (Infunanya, 2015).

About 75% of women have at least one vaginal yeast infection at some point in their lives while nearly half have at least twice (womenshealth.gov, 2014). About 5% have more than three infections in a single year (Egan, 2012).

A Ugandan study at Mbarara regional referral hospital, South-west by (Kiguli, 2013) found out that, the prevalence of vulvovaginal candidiasis (VVC) to be 45.6%.

1.2 Statement of the Problem

About 75% of women will experience at least one episode of vulvovaginal candidiasis (VVC) during their lifetime. In fact, 70%–75% of healthy adult women have at least one episode of VVC during their reproductive life, and half of college women will by the age of 25 years have had one episode of VVC diagnosed by a physician (*Pirotta, 2012*).

Vulvovaginal candidiasis (VVC) is not considered a sexually transmitted disease, because it does affect children and celibate women, and also *Candida* spp. are seen as normal vagina flora in healthy women. However, this does not mean that *Candida* cannot be sexually transmitted (*Mayo Clinic, 2015*).

Diagnosis of VVC is based solely on patient history and genital examination is not possible because of the low specificity of symptoms and signs, since other causes mimic VVC, like leukorrhea and pruritus vulvae. Therefore, to have a definitive diagnosis of VVC, cultural isolation and identification of *Candida* spp. are crucial.

In Rubirizi district, particularly Katunguru seed secondary school the study area, girls have not been spared by the above experiences of vulvovaginal candidiasis as records from the nearby health Centre III show that at least 29 (43%) girls report with VVC every month.

Despite effort by the government and Non-government organizations (NGOs) to provide health services, there are still a number of VVC cases among Katunguru seed secondary school girls. It is due to this gap in which the researcher took the initiative to conduct this study so as to identify healthy education needs targeting the girls.

1.3 Justification

There is substantial evidence to suggest that Vulvovaginal candidiasis is the second most common cause of vaginal inflammation after bacterial vaginosis (*Berman, 2016*). And its associated health problems have a significant economic impact on health systems and the medical costs associated with both direct and indirect costs. Direct medical costs may include preventive, diagnostic and treatment services related to Vulvovaginal candidiasis, while indirect costs relate to loss of income from decreased productivity, restricted activity and absenteeism.

This study finding will provide data on the prevalence of VVC in the study area thus; it will be beneficial in the following ways:

- i. **Community:** The study finding will be used to improve on the knowledge and practices of girls on the prevention and management of VVC.
- ii. **Nursing education:** The finding may also be used by Health tutors and other students as reference in similar future studies.
- iii. **Nursing practice:** Intervention are always planned based on known problems, the findings of this study therefore will help the nurses in proper planning of their interventions.
- iv. **Nursing research:** The finding will increase on the available information about Vulvovaginal candidiasis (VVC).

1.4 Study Objective

1.4.1 General Objective

1. Assessment of the factors contributing to the prevalence of Vulvovaginal candidiasis (VCC) among secondary school girls at Katunguru seed school in Rubirizi district.

1.4.2 Specific Objectives

1. To ascertain the knowledge about the causes of Vulvovaginal candidiasis (VVC) among the girls of Katunguru seed secondary school in Rubirizi district.
2. To find out the practices of girls contributing to (Vulvovaginal candidiasis) VVC among the girls of Kantunguru seed secondary school in Rubirizi district.

1.5 Research Questions

1.5.1 What is the level of awareness about Vulvovaginal candidiasis (VVC) among the girls of Katuguru seed secondary school in Rubirizi district?

1.5.2. What are the practices of girls contributing to Vulvovaginal candidiasis (VVC) among the girls of Katunguru seed secondary school in Rubirizi district?

CHAPTER TWO

Literature Review

2.0 Introduction

This chapter deals with the review of literature relevant to this study and it was obtained from various sources which include medical and nursing journals, text books and internet. It shows the definitions, epidemiology, causes, risk factors, preventive measures, diagnosis and treatment of VVC.

2.1 Knowledge about Vulvovaginal Candidiasis

Candidiasis is a fungal infection due to any type of *Candida* (a type of yeast). When it affects the mouth, it is commonly called thrush. Signs and symptoms include white patches on the tongue or other areas of the mouth and throat. Other symptoms may include soreness and problems swallowing. When it affects the vagina, it is commonly called a yeast infection.

Vulvovaginal candidiasis is caused by overgrowth of *Candida* yeast species in the vagina and is characterized by curd-like vaginal discharge, itching, and erythema (Achkar, et al, 2010). Vulvovaginal candidiasis has been associated with considerable direct and indirect economic costs (Foxman, et al 2012), enhanced susceptibility to HIV infection (Røttingen, et al, 2011) and is being investigated for a potential relationship with preterm birth (Rickard, et al, 2011). Treatment of vulvovaginal candidiasis is warranted when a woman presenting with a complaint of symptoms consistent with vulvovaginal candidiasis also has laboratory confirmation of the presence of *Candida* from a vaginal specimen. Short-course azole-based treatment regimens are considered effective and safe (Sobel, 2007) and are accessible and affordable in most settings.

Much of the epidemiologic literature concerning vulvovaginal candidiasis reports on studies in which women were queried on their self-reported history of vulvovaginal candidiasis (Geiger, et al, 2010), but without laboratory-confirmation of infection by *Candida*. Other studies, in which investigators only measure the presence of *Candida* infection of the vagina, are not able to identify women with symptomatic vulvovaginal candidiasis disease; this latter study design is frequently employed for studies conducted in low-income settings. Few studies have diagnosed vulvovaginal candidiasis through laboratory confirmation of infection in symptomatic women, and few studies have measured the incidence of confirmed cases of vulvovaginal candidiasis (Achkar, et al, 2010).

The lack of representative data on the epidemiologic features of laboratory-confirmed vulvovaginal candidiasis has been evident throughout the time in which vulvovaginal candidiasis has evolved from being considered a “nuisance infection” to a clinically relevant condition (Kurz, et al, 2010). In India, only two studies have been conducted in which laboratory-confirmed vulvovaginal candidiasis was diagnosed in a community-based sample. As reduction of HIV transmission and of adverse birth outcomes remain public policy priorities in India (Hawkes and Santhya, 2012) in their studies have shown that, gynecological morbidity is extremely common, additional investigation of the epidemiologic features of vulvovaginal candidiasis is warranted.

The symptoms of vaginal thrush include vulval itching, vulval soreness and irritation, pain or discomfort during sexual intercourse (superficial dyspareunia), pain or discomfort during urination (dysuria) and vaginal discharge, which is usually odourless (Kurz, et al, 2010). This can be thin and watery, or thick and white, like cottage cheese.

As well as the above symptoms of thrush, vulvovaginal inflammation can also be present. The signs of vulvovaginal inflammation include erythema (redness) of the vagina and vulva, vaginal

fissuring (cracked skin), edema (swelling from a build-up of fluid), also in severe cases, satellite lesions (sores in the surrounding area). This is rare, but may indicate the presence of another fungal condition, or the herpes simplex virus (*National Institutes of Health, 2015*).

2.1.1 Epidemiology of Vulvovaginal Candidiasis

The number of cases of vaginal yeast infection is not entirely clear because it is not a reportable disease and it is commonly diagnosed clinically without laboratory confirmation.

Candidiasis is one of the three most common vaginal infections along with bacterial vaginitis and Trichomonas. Approximately 20% of women get an infection yearly (*Guzel, 2011*). About 75% of women have at least one infection in their lifetime (*Sobel, 2007*).

2.1.2 Causes of Vulvovaginal Candidiasis

Vaginal yeast infections are typically caused by the yeast species *Candida albicans*. *Candida albicans* is a common fungus often harbored in the mouth, digestive tract, or vagina without causing adverse symptoms (*National Institutes of Health, 2015*).

The causes of excessive *Candida* growth are not well understood (*Pirotta, 2012*), but some predisposing factors have been identified.

While *Candida albicans* is the most common yeast species associated with vaginal thrush, infection by other types of yeast can produce similar symptoms. A Hungarian study of 370 patients with confirmed vaginal yeast infections identified the following types of infection (*Ostorházi, et al, 2015*); *Candida albicans*: 85.7%, Non-*albicans Candida* (8 species): 13.2%, *Saccharomyces cerevisiae*: 0.8%, *Candida albicans* and *Candida glabrata*: 0.3%.

Non-*albicans* *Candida* is often found in complicated cases of vaginal thrush in which the first line of treatment is ineffective. These cases are more likely in those who are immunocompromised (Sobel and Jack, 2012).

2.1.3 Preventive measures

Despite the lack of evidence, wearing cotton underwear and loose fitting clothing is often recommended as a preventative measure (womenshealth.gov, 2014). Avoiding douching and scented hygiene products is also recommended. Treatment is with an antifungal medication. This may be either as creams such as clotrimazole or with oral medications such as fluconazole (Berman, 2016). Probiotics have not been found to be useful for active infections (Safdar, 2009).

2.1.4 Diagnosis

Vaginal wet mount in candidal vulvovaginitis, showing slings of pseudohyphae of *Candida albicans*. Vulvovaginal candidosis is the presence of *Candida* in addition to vaginal inflammation (Guzel, 2011). The presence of yeast is typically diagnosed in one of three ways: vaginal wet mount microscopy, microbial culture, and antigen tests (Guzel, 2011). The results may be described as being either uncomplicated or complicated. Uncomplicated thrush is when there are less than four episodes in a year, the symptoms are mild or moderate, it is likely caused by *Candida albicans*, and there are no significant host factors such as poor immune function. Complicated thrush is four or more episodes of thrush in a year or when severe symptoms of vulvovaginal inflammation are experienced. It is also complicated if coupled with pregnancy, poorly controlled diabetes, poor immune function, or if the thrush is not caused by *Candida albicans* (National Institutes of Health, 2015).

About 5-8% of the reproductive age female population will have four or more episodes of symptomatic Candida infection per year; this condition is called recurrent vulvovaginal candidiasis (RVVC). Because vaginal and gut colonization with Candida is commonly seen in people with no recurrent symptoms, recurrent symptomatic infections are not simply due to the presence of Candida organisms. There is some support for the theory that RVVC results from an especially intense inflammatory reaction to colonization. Candida antigens can be presented to antigen presenting cells, which may trigger cytokine production and activate lymphocytes and neutrophils that then cause inflammation and edema (*Watson and pirotta, 2012*).

2.1.5 Treatment

A study by Von Ariel (2011) found out that, the use of intravaginal agents such as; butoconazole, clotrimazole, miconazole, nystatin, tioconazole, terconazole was effective in the treatment of VVC. At the same time he documented that, Candidal vulvovaginitis in pregnancy should be treated with intravaginal clotrimazole or nystatin for at least 7 days or oral fluconazole as a single dose. For severe disease another dose after 3 days may be used.

In a similar study by Berman (2016) he reported that short-course topical formulations (i.e., single dose and regimens of 1–3 days) effectively treat uncomplicated candidal vulvovaginitis. The topically applied azole drugs are more effective than nystatin. Treatment with azoles results in relief of symptoms and negative cultures in 80–90% of patients who complete therapy.

The creams and suppositories in this regimen are oil-based and might weaken latex condoms and diaphragms. Treatment for vaginal thrush using medication is ineffective in up to 20% of cases. Treatment for thrush is considered to have failed if the symptoms do not clear within 7–14 days. There are a number of reasons for treatment failure. For example, if the infection is a different

kind, such as bacterial vaginosis (the most common cause of abnormal vaginal discharge), rather than thrush (*National Institutes of Health, 2015*).

2.1.6 Recurrence of VVC

For infrequent recurrences, the simplest and most cost-effective management is self-diagnosis and early initiation of topical therapy. However, women whose condition has previously been diagnosed with candidal vulvovaginitis are not necessarily more likely to be able to diagnose themselves; therefore, any woman whose symptoms persist after using an over the counter preparation, or who has a recurrence of symptoms within 2 months, should be evaluated with office-based testing. Unnecessary or inappropriate use of topical preparations is common and can lead to a delay in the treatment of other causes of vulvovaginitis, which can result in worse outcomes. When there are more than four recurrent episodes of candidal vulvovaginitis per year, a longer initial treatment course is recommended, such as orally administered fluconazole followed by a second and third dose 3 and 6 days later, respectively (*van, 2011*).

Other treatments after more than four episodes per year, may include ten days of either oral or topical treatment followed by fluconazole orally once per week for 6 months. About 10-15% of recurrent candidal vulvovaginitis cases are due to non-*Candida albicans* species. Non-*albicans* species tend to have higher levels of resistance to fluconazole. Therefore, recurrence or persistence of symptoms while on treatment indicates speciation and antifungal resistance tests to tailor antifungal treatment (*Shankland, 2009*).

2.1.7 Alternative medicine

Up to 40% of women seek alternatives to treat vaginal yeast infection. Examples of alternative products are herbal preparations, probiotics and vaginal acidifying agents. Other alternative

treatment approaches include switching contraceptives, treatment of the sexual partner and gentian violet. However, the effectiveness of such treatments has not received much study (Fang, 2013). Probiotics (either as pills or as yogurt) does not appear to decrease the rate of occurrence of vaginal yeast infections. No benefit has been found for active infections. Example probiotics purported to treat and prevent candida infections are *Lactobacillus fermentum* RC-14, *Lactobacillus fermentum* B-54, *Lactobacillus rhamnosus* GR-1, *Lactobacillus rhamnosus* GG and *Lactobacillus acidophilus* (Safranek, 2012). There is no evidence to support the use of special cleansing diets and colonic hydrotherapy for prevention.

2.2 Practices contributing to VVC

Vaginal yeast infections are due to excessive growth of *Candida*. This yeast is normally present in the vagina in small numbers. It is not classified as a sexually transmitted infection; however, it may occur more often in those who are frequently sexually active. Risk factors include taking antibiotics, pregnancy, diabetes and HIV/AIDS (Sobel, 2007). Eating a diet high in simple sugar may also play a role. Tight clothing, type of underwear, and personal hygiene do not appear to be factors. Diagnosis is by testing a sample of vaginal discharge. As symptoms are similar to that of the sexually transmitted infections, chlamydia and gonorrhea, testing may be recommended (womenshealth.gov, 2014).

Despite the lack of evidence, wearing cotton underwear and loose fitting clothing is often recommended as a preventative measure. Avoiding douching and scented hygiene products is also recommended (womenshealth.gov, 2014). Treatment is with an antifungal medication. This may be either as a cream such as clotrimazole or with oral medications such as fluconazole (Berger, et al, 2016). Probiotics have not been found to be useful for active infections (Safdar, 2009).

2.2.1 Antibiotic use.

Yeast infections are common in women who take antibiotics. Broad-spectrum antibiotics, which kill a range of bacteria, also kill healthy bacteria in your vagina, leading to overgrowth of yeast organisms. Infections occur in about 30% of women who are taking a course of antibiotics by mouth. Broad-spectrum antibiotics kill healthy bacteria in the vagina, such as *Lactobacillus*. These bacteria normally help to limit yeast colonization. The evidence of the effect of oral contraceptives is controversial (Sobel, 2007).

2.2.2 Increased estrogen levels.

Yeast infections are more common in women with an increased estrogen level. This can include women who are pregnant, or those who are taking high-dose estrogen birth control pills or estrogen hormone therapy according to (Egah, 2010).

In pregnancy, higher levels of estrogen make a woman more likely to develop a yeast infection. During pregnancy, the *Candida* fungus is more common, and recurrent infection is also more likely (Sobel, 2007).

2.2.3 Impaired immune system.

Women with lowered immunity such as from corticosteroid therapy or HIV infection are more likely to get yeast infections. Women with diabetes who have poorly controlled blood sugar levels are at greater risk of yeast infections than women with well-controlled diabetes.

Those with poorly controlled diabetes have increased rates of infection while those with well controlled diabetes do not (Sobel, 2007).

The risk of developing thrush is also increased when there is poor immune function (*Buchanan, Kelsberg and Safrank, 2012*) for example, in condition, such as HIV or AIDS, or receiving chemotherapy. This is because in these circumstances the body's immune system, which usually fights off infection, is unable to effectively control the spread of the *Candida* fungus.

2.2.4 Sexual activity.

Although yeast infections aren't considered sexually transmitted infections, sexual contact can spread the candida fungus. (Nwadioha, 2010).

Sobel, 2007 also urged that while infections may occur without sex, a high frequency of intercourse increases the risk. Personal hygiene methods or tight-fitting clothing, such as tights and long underwear, do appear to increase the risk.

2.2.5 Local factors.

In a study carried out in Serbia and Montenegro by (Daglar, 2010)he concluded that local factors like wearing of panty liners or use of tampons during menstruation, may promote the occurrence of vulvovaginal candidiasis, especially in patients who practice self-medication with antimycotics.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the study area, study design, study population, sample size, inclusion and exclusion criteria, sampling techniques, data collection tools, ethical considerations, limitations and data analysis.

3.1 Study Area and rational

The study was done at Katunguru Seed School which is found in Rubirizi district found in western region of Uganda. Katunguru Seed School is located in Rubirizi district about 120 km from Mbarara city along Mbarara- Kasese highway.

Katunguru Sub County which is located in Rubirizi district is mainly occupied by Banyaruguru who speak Runyaruguru language. However, other tribes like Baganda, Banyankolre, Bakiga and Bakonjo have also migrated to the area. Their main economic activity is fishing as the area is near Kazinga channel which connects Lake George and Lake Edward, the place also has many crater lakes. Farming is only on subsistence method and on very small scale because of fear of losses from wild animals as Katunguru Sub County is surrounded by Queen Elizabeth national park. Katunguru has a government aided health centre III which is directly opposite Katunguru seed secondary school.

This study area was chosen because of its proximity to Katunguru health centre III where the researcher has worked for the past 4 years as the in-charge. This enabled data collection more easy and reliable as he already has a trust of the study population.

Katunguru Seed School is a government aided secondary school in Rubirizi district governed by a Head teacher, Parents-teachers committee, teachers and the prefect's body. Katunguru Seed School has both day and boarding students and has students from senior one to senior four.

3.2 Population

Katunguru Seed School has a population of about 170 Students 76 girls and 94 Boys. It has 20 Teachers and 6 non-teaching staffs. However for this study of factors contributing to the

prevalence of VVC among secondary school girls at Katunguru seed school focused on the 76 girls from senior one up to senior four.

3.3 Study Design and rational

Study used an analytical cross-sectional design to determine the factors contributing to the prevalence of Vulvovaginal Candidiasis among secondary school students at Katunguru seed school in Rubirizi district. This study design was used because of its ability to provide a detailed and meaningful analysis of the study variables in the shortest time possible.

3.4 Sample size estimation

Fishers et al., 1995 was used to determine my sample size

$$n = \frac{Z^2 pq}{d^2}$$

Where:

n=sample size

Z=standard deviation at the required degree of accuracy which at 95% is 1.96

P=proportion of the population with the desired characteristics =0.04

P= 0.04

Q=1-p (proportion of the population without desired characteristics)

Q=1-0.04

Q=0.96

d=degree of error to expected=0.05

$$n = \{(1.96)^2 \times (0.04 \times 0.96)\} / (0.05)^2$$

Sample size=59. This was approximated to 60 respondents for purposes of easy sampling.

3.5 Sampling method

Stratified sampling technique was used, whereby the study population was divided into four stratum or classes of senior one to senior 4 then 15 respondents were selected from each to make the total sample of 60 respondents using simple random sampling technique. Then all sampled participants from the 4 strata were combined to make a sample size of 60 respondents.

3.6. Inclusion criteria

- Girls attending senior one to senior four at Katunguru Seed School in Rubirizi district and had voluntarily consented to participate as respondents were included.

3.7 Exclusion criteria

Girls who do not attend Katunguru Seed School and did not consent voluntarily for other reasons such as absenteeism or sickness were excluded.

3.8 Data collection procedures

Written consent from the Head teacher of Katunguru Seed School was collected, research assistants who had been oriented about the study were used to collect the data from the four stratum consisting of the four classes in the same ratio to make the sample size of 60 respondents and were explained the purpose of the research by the researcher with help of the research assistants. After

explaining the purpose for research and all what is included in the questionnaire, respondents were requested to consent. Using pre-tested questionnaires data was collected from the sampled respondents with guidance of the research assistants. Respondents reserved the right to ask clarifications about any question they did not understand or the right to withdraw from the research.

3.9 Data Analysis and presentation

The data was first be analyzed by use of SPSS then later transferred to Microsoft excel 2013 version to present the data in form of tables, graphs and pie charts.

3.10 Quality Control and management of data

Data collection instruments were pre-tested to check on their reliabilities from another nearby school which had similar characteristics. Adjustments were made where necessary to improve the questionnaires. This was for good coverage of the questions formulated in respect to the study variables and also for simplicity for easy understanding of the respondents. The research assistants were trained so that they can give proper guidance to the respondents. The respondents were closely supervised and requested to put emphasis on completion of the questions on the questionnaires before returning them. The research assistants were also advised to give necessary guidance to the respondents in respect to puzzling questions. Deliberate selection of respondents and substitution of those who did not consented to participate in the study or those who were not available when the research assistants were collecting the data. Respondents were allowed to answer the questions with guidance from the research assistant.

3.12 Limitations of the study

- The poor climatic condition that is to say rain interference, the researcher overcame this limitation by carrying out data collection procedures in the class rooms during rainy days.
- Language problem, especially when translating English into Runyaruguru, the researcher overcame this limitation by recruiting the research assistants who knew the local languages of the area.
- Hesitation by some respondents to give the required information, the procedure was explained to the respondents very well and guided to give all the required information.
- The researcher also encountered the financial constraints; the researcher overcame this limitation by strictly following the budget.

3.13 Ethical Consideration

An introductory letter from the School of Nursing was collected, then through the Head teacher of Katunguru Seed School from whom permission was sought through writings to allow the research to be carried out. The purpose, benefits and the risk factors of the research study were explained to the respondents. Respondents were addressed using simple English language, the questionnaires were written using simple English language and the respondents who agreed to participate in the study were asked to sign the consent. The Participants were not segregated during selection and only those who had signed the consent were considered. The safety and the rights of the respondents were highly considered. The respondents were assured that the research is based on future well-being of the patients.

Participants were informed of their freedom to withdraw from the study without any penalty. Participants were given enough information on which they based their decision to participate in

the study. The Participants were assured of their confidentiality by not using their names for the study but codes were used.

CHAPTER FOUR

DATA PRESENTATION

4.0 Introduction

The study investigated factors contributing to the prevalence of Vulvovaginal candidiasis among girls studying at Katunguru seed secondary school in Rubirizi district.

This chapter basically presents the findings of the study analyzed using Microsoft excel and presented in form of graphs, pie charts and tables following the specific objectives of the study. The sample size of the study population was 60 girls from senior one to senior four. The study variables of interest researched on were age, religion, knowledge and practices contributing to vulvovaginal candidiasis among girls at Katunguru seed secondary school.

4.1 Social demographic characteristics

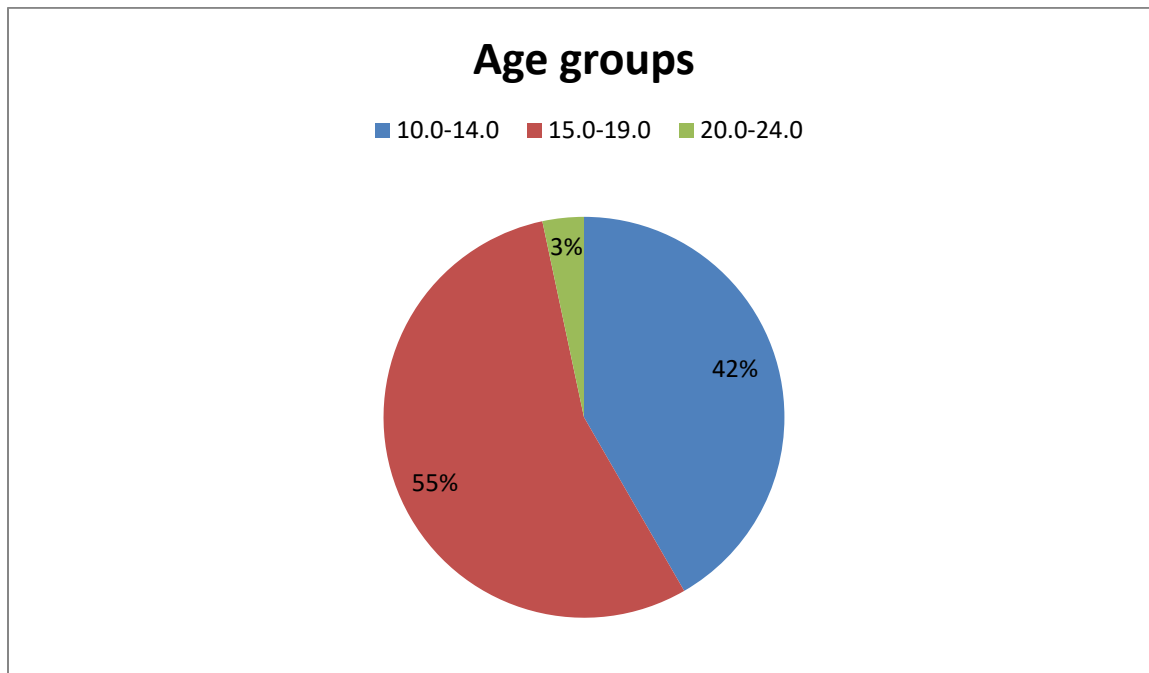


Figure 1: A pie chart showing age distribution of respondents (n=60)

The highest percentage of respondents (55%) was in the age group of 15.0-19.0, followed by 42% in the age group of 10.0-14.0 while the least percentage were of age group 20.0-24.0 with 3%.

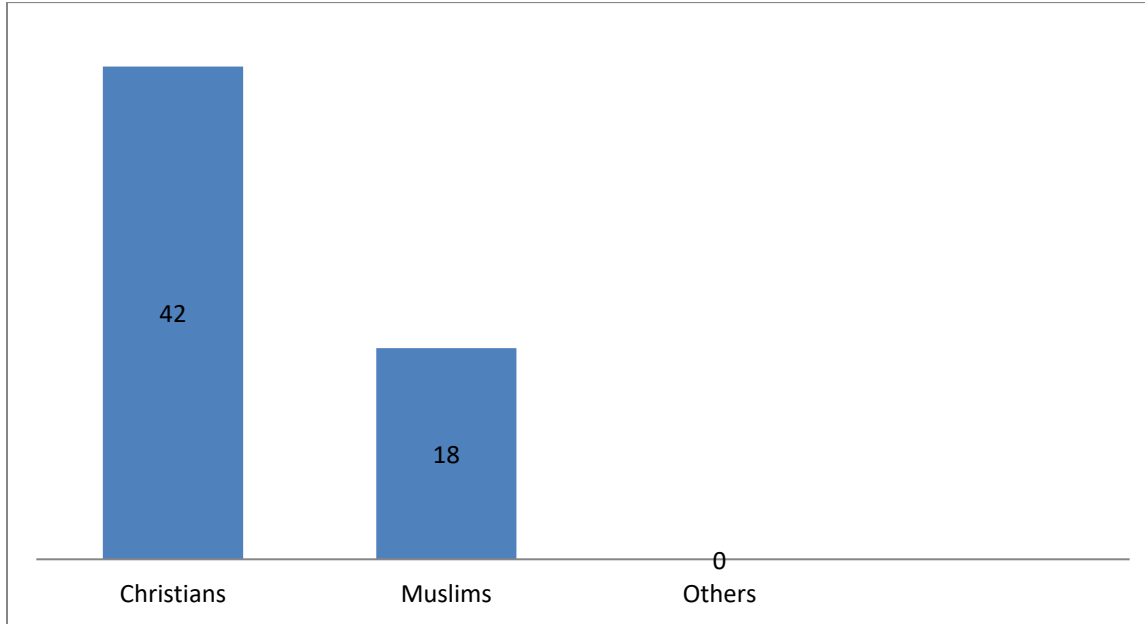


Figure 2: A bar graph showing distribution of respondents according to religion (n=60)

Christians formed the majority with 42 (70%) followed by Muslims with 18 (30%).

Table 1: Showing the distribution of respondents according to marital status

Marital status	Frequency (n=60)	Percentage
Single	60	100%
Married	0	0
Divorced	0	0
Cohabiting	0	0

All the 60 (100%) respondents were single

4.2 The level of awareness about Vulvovaginal candidiasis among girls at Katunguru seed secondary school.

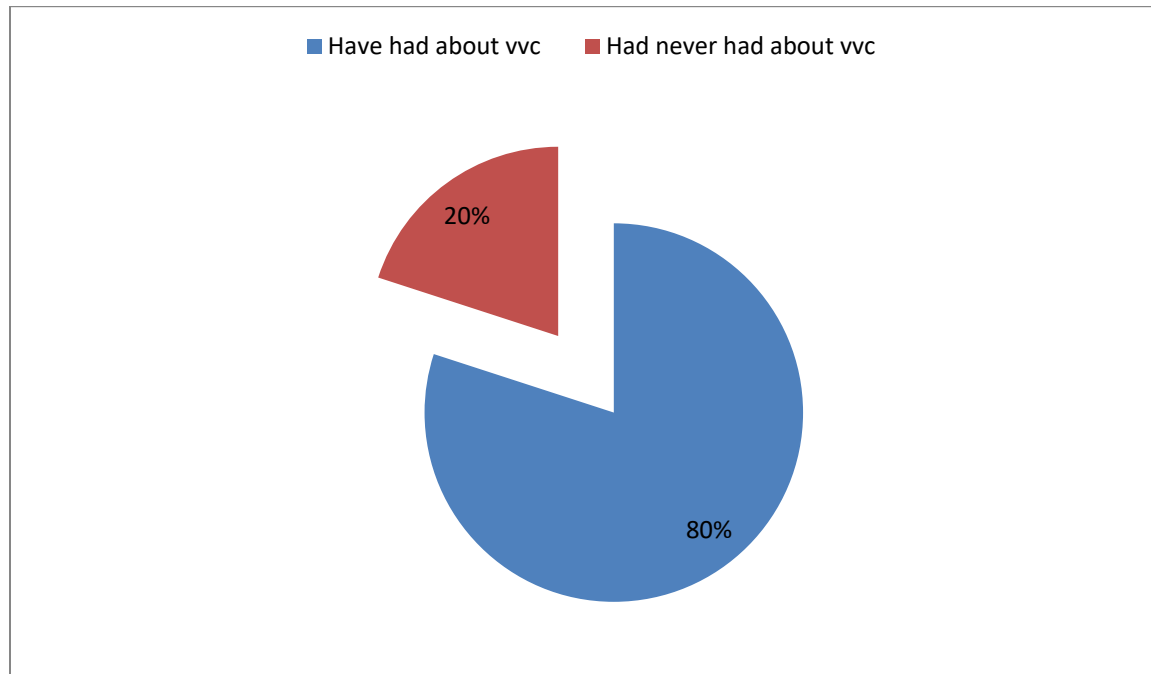


Figure 3:A pie chart showing the number of respondents who had ever had about Vulvovaginalcandidiasis (n=60)

The majority of the respondents, 80% had ever had about Vulvovaginal candidiasis while 20% of the respondents had never had about Vulvovaginal candidiasis.

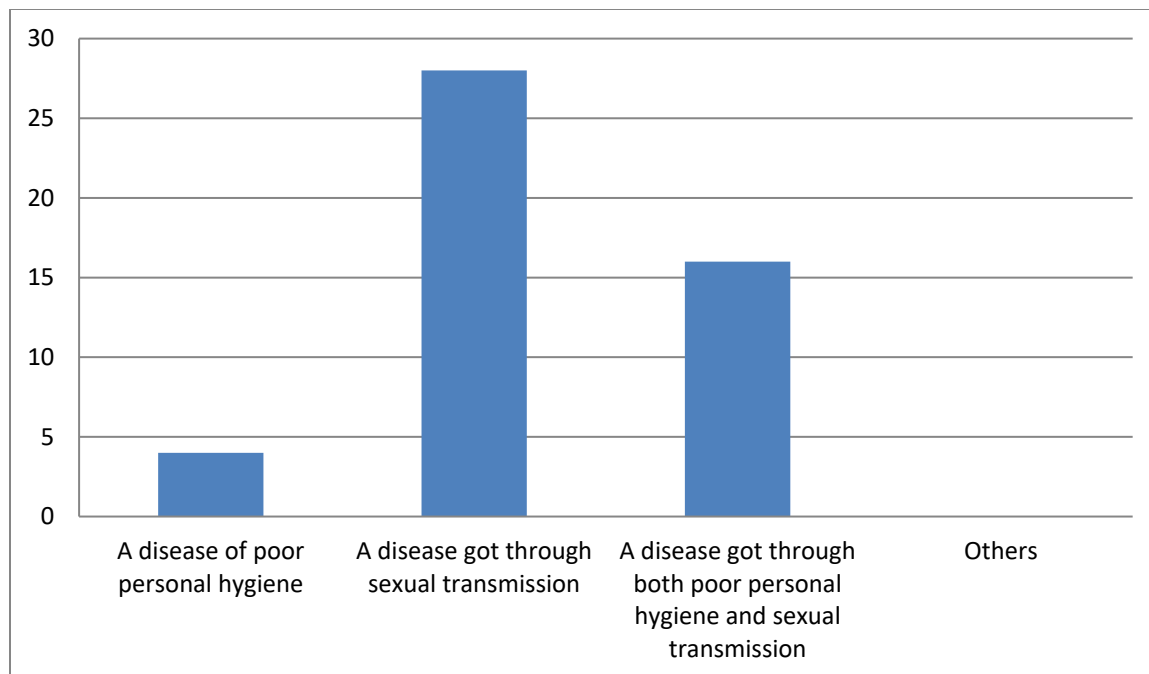


Figure 4: A bar graph showing what respondents knew about Vulvovaginal candidiasis among those who had ever had about VVC (n=48)

Most respondents 28 (58.3%) knew that VVC was a disease got through sexual transmission, while 16 (33.3%) of the respondents knew that it was a disease got through both poor personal hygiene and sexual transmission and the least 4 (8.3%) of respondents knew that it was a disease of poor personal hygiene.

Table 2: Showing respondents' opinion about the cause of Vulvovaginal candidiasis

Cause	Frequency (n=60)	Percentage
Bacterial infections	8	13.3%
Fungal infections	48	80%
Viral infections	4	6.7%

The study findings in table 2 above showed that, a large proportion 48 (80%) of respondents knew the cause of VVC as fungal infection 8 (13.3%) respondents knew the cause was bacterial infections while the least 4 (6.7%) respondents knew the cause was viral infections.

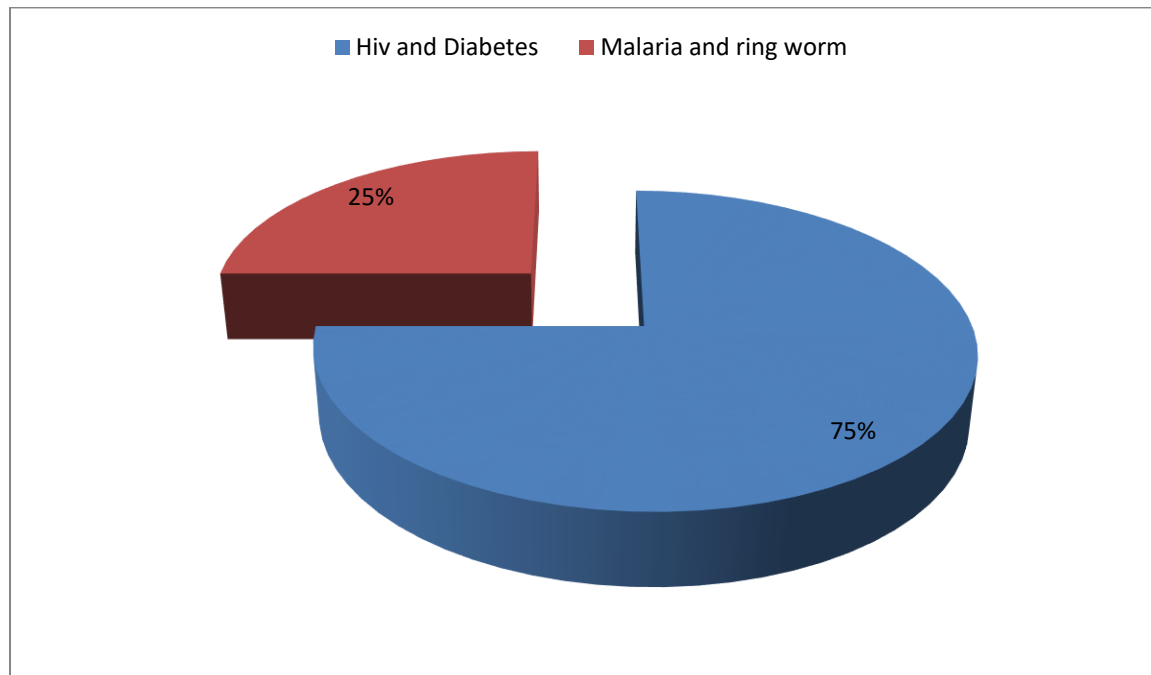


Figure 5 : A pie chart showing respondents opinion about the diseases associated with Vulvovaginal candidiasis (n=60)

Most respondents 75% knew VVC was a disease associated to HIV and diabetes while 25% of the respondents knew it as being associated to malaria and ring worms.

Table 3: Showing what respondents thought were the signs and symptoms of Vulvovaginal candidiasis.

Signs and symptoms	Frequency (n=60)	Percentage
Itching around the private parts and whitish vaginal discharge	40	66.7%
Stomache, fever and diarrhoea	8	13.3%
Headache, abdominal pain	12	20%

More than half 40 (66.7%) of the respondents knew the signs and symptoms of VVC were itching around the private parts and whitish vaginal discharge, followed by 12 (20%) who knew that the signs and symptoms of VVC were headache and abdominal pain while the least 8 (13.3%) knew that the signs and symptoms were stomachache, fever and diarrhea.

Table 4: Showing the risks factors respondents knew that would expose one to be affected with Vulvovaginal candidiasis

Risk factors	Frequency (n=60)	Percentage
Poorpersonalhygiene,multiplesexualpartners, use of soaps for douching, prolonged use of antibiotics	50	83.4%
Sleeping under mosquito net, hand shaking	8	13.3%
Kissing, putting on closed shoes	2	3.3%

Majority of the respondents 50 (83.4%) knew that poor personal hygiene, multiple sexual partners, use of soaps for douching and prolonged use of antibiotics would predispose one to VVC, 8 (13.3%) knew that sleeping under mosquito net and handshaking would expose one to VVC and the least 2 (3.3%) knew that kissing and putting on closed shoes would expose one to VVC.

4.3 Practices contributing to Vulvovaginal candidiasis among girls at Katunguru seed secondary school in Rubirizi district

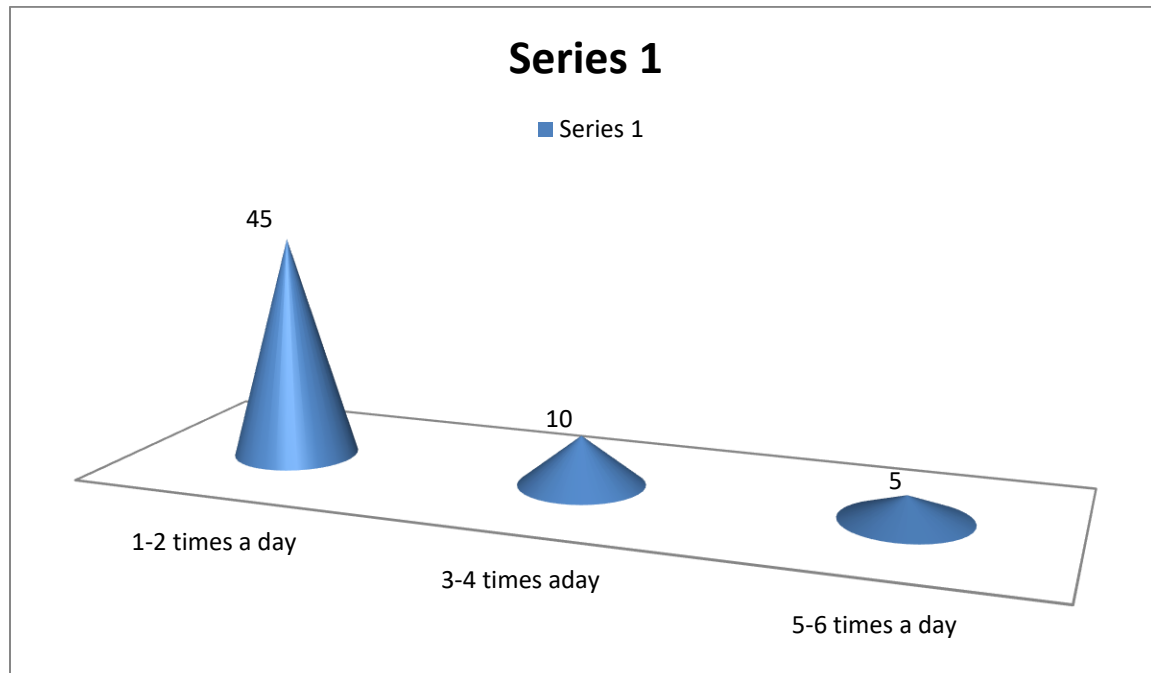


Figure 6: A bar graph showing how often respondents douche a day at Katunguru seed secondary school (n=60)

Majority of the respondents 45 (75%) douched 1-2 times per day followed by 10 (16.7%) those who douched 3-4 times per day and the least were 5 (8.3%) who douched 5-6 times per day.

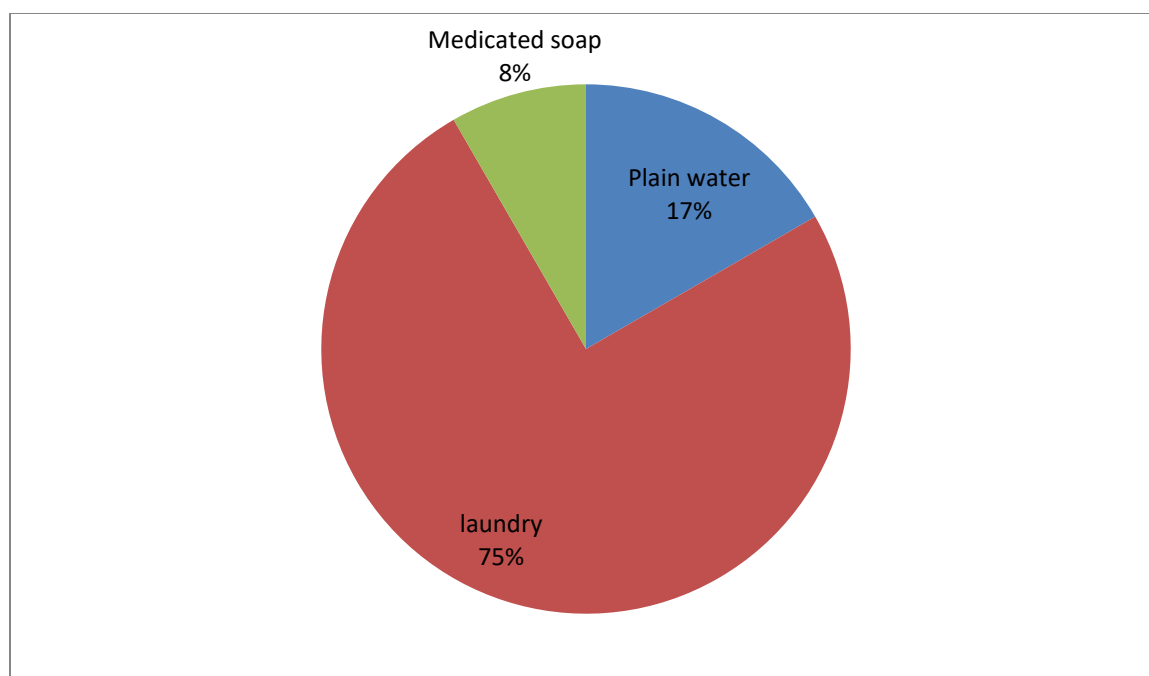


Figure 7: A pie chart showing what respondents use for douching at Katunguru seed secondary school

The majority, 75% respondents use laundry soap followed by those who use plain water with 17% and the least were those who use medicated soap with 8%.

Table 5: Showing how often respondents hang their towels under the sunshine a week

Number of times a towel is hanged a week	Frequency (n=60)	Percentage
1-2 times	50	83.4%
3-4 times	5	8.3%
4-5 times	5	8.3%

Most respondents 83.4% (50) hanged their towels 1-2 times a week while those who hanged their towels 3-4 times and 4-5 times were both 5 (8%).

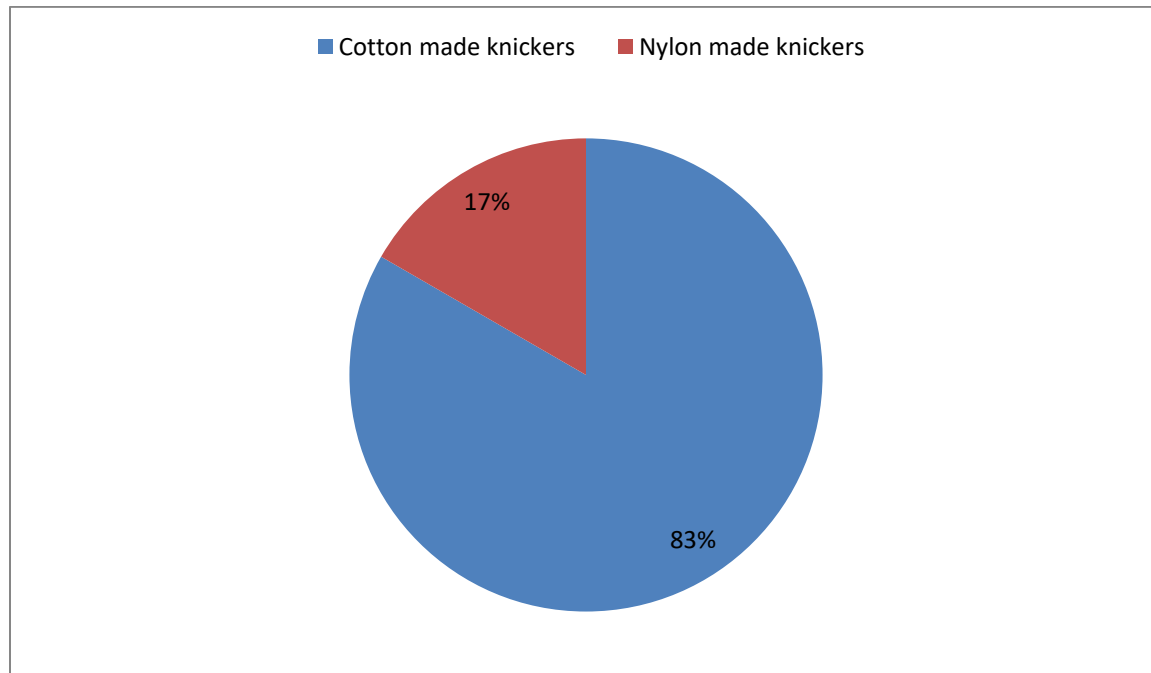


Figure 8: A pie chart showing what type of knickers respondents use at Katunguru seed secondary school

According to the study findings from figure 8 above, a large proportion 83% of the respondents put on cotton made knickers while 17% of the respondents put on nylon made knickers.

Table 6: Showing how best respondents prevent themselves from contracting Vulvovaginal candidiasis

Preventive measures	Frequency (n=60)	Percentage
Wearing cotton under ware, use loose fitting clothing, good personal hygiene, avoid sharing clothes	45	75%
Avoid sharing clothes and sharing food with affected person	5	8.3%
Sleeping under mosquito net	10	16.7%

Among 60 respondents, 45 (75%) would use cotton under ware, loose fitting clothing, good personal hygiene and avoiding sharing clothes to prevent contracting VVC, 10 (16.7%) would sleep under mosquito net and 5 (8.3%) would avoid sharing clothes and sharing food with affected person to prevent themselves from contracting VVC.

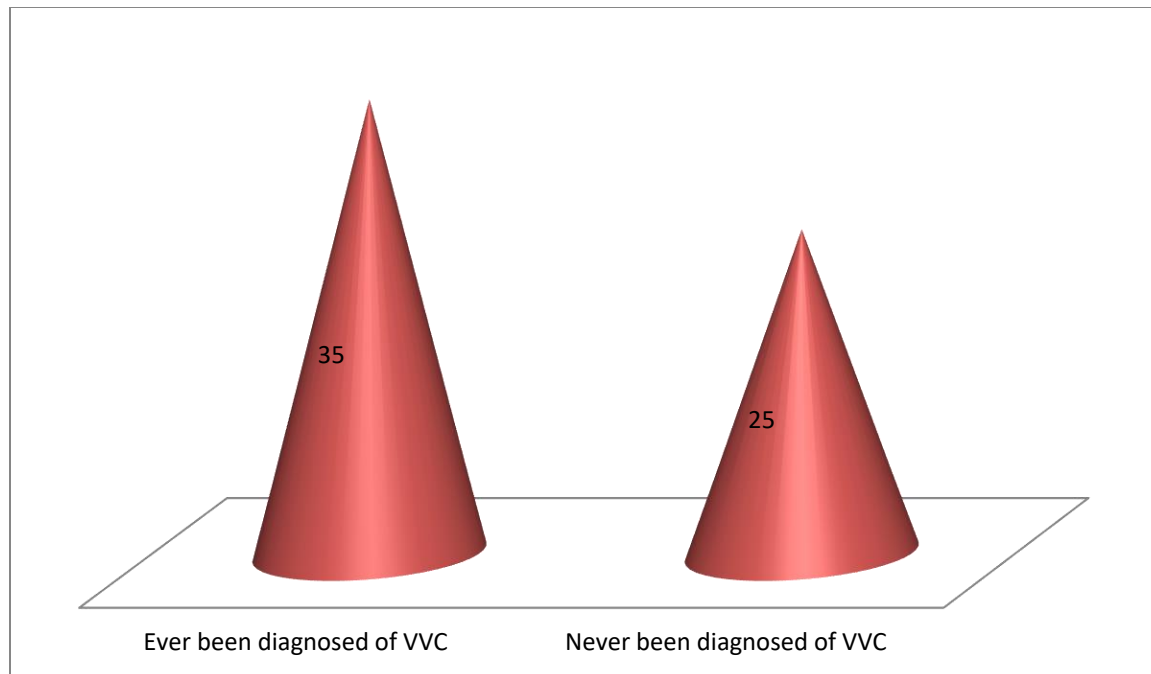


Figure 9: A bar graph showing the number respondents who have ever been diagnosed with Vulvovaginal candidiasis (n=60)

Results from figure 9 above showed that more than half 35 (58.4%) had ever been diagnosed of VVC while 25 (41.6) had never been diagnosed of VVC.

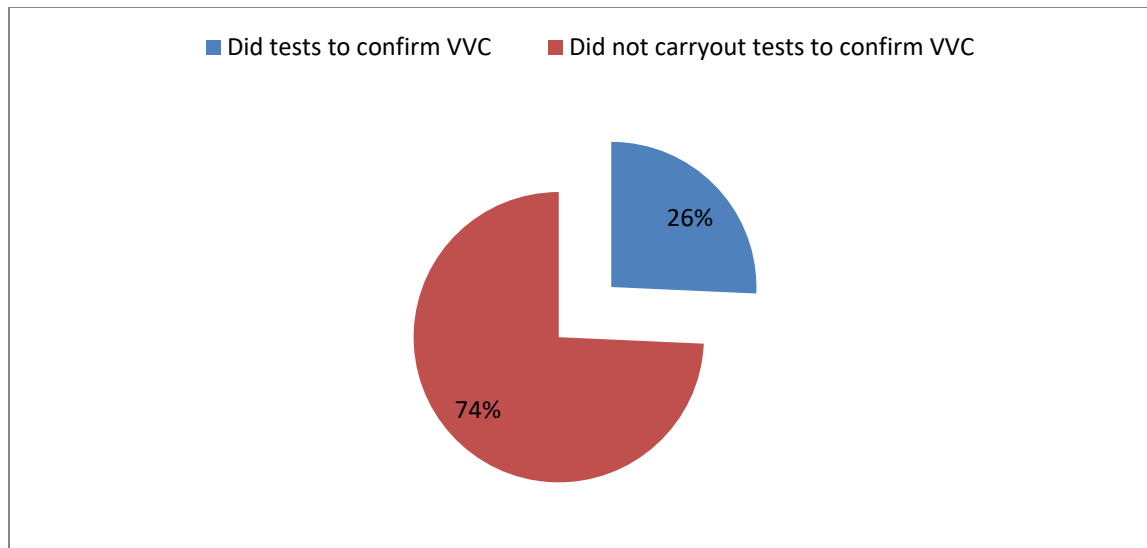


Figure 10: A pie chart showing the number of respondents who had done tests to confirm VVC among those who had ever been diagnosed of VVC

The highest percentage of respondents 74% had not done tests to confirm VVC among those who had ever been diagnosed of VVC while 26% of the respondent had done tests to confirm VVC.

Table 7: Showing the number of respondents who had taken full treatment among those who had ever been diagnosed of VVC:

Kind of treatment taken	Frequency (n=35)	Percentage
Full treatment	7	20%
Not full treatment	28	80%

The research findings showed that 80% of the respondents who had ever been diagnosed of VVC had never taken full treatment while only 20% among those diagnosed had ever taken full treatment for VVC.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents discussions, conclusions and recommendations of the study findings. The discussions were arranged in themes for easy follow up and how the issues were being noted and presented in chapter four and where possible were compared to the results of relevant studies of the similarnature.

5.1 Discussion of study findings

5.1.1 Social – demographic characteristics of girls at Katunguru seed secondary school

The study findings revealed that, the highest percentage of respondents (55%) was in the age group of 15.0-19.0, followed by (42%) in the age group 10.0-14.0 while the least percentage were of age group 20.0-24.0 with 3% . This was because majority of the respondents were between age group 15.0-19.0 and least number of respondents were among age group 20.0- 24.0. This implies that age is a very important factor in the causation of some diseases.

About the religion, the results indicated that, Christians formed majority with 42 (70%) respondents followed by Muslims with 18 (30%) respondents. This is because Katunguru is mostly occupied by Christians.

On marital status the findings showed that, all respondents 60 (100%) were single. This was because all the respondents were young schoolP girls. There was significant statistical relationship

between the prevalence of VVC and the social demographic characteristics among girls at Katunguru seed secondary school.

5.1.2The level of awareness about Vulvovaginal candidiasis among girls at Katunguru seed secondary school

On awareness about VVC, a majority of the respondents, (80%) had ever had about Vulvovaginal candidiasis while (20%) had never had about Vulvovaginal candidiasis. This implies that either majority of girls had ever been affected by VVC or had been informed by a friend or got information about VVC through a health talk while at school. Apparently there were no study references indicating the knowledge about VVC.

It was also found that, more than half 28 (58%) of respondents knew that VVC was a disease got through sexual transmission, while 16 (33%) of the respondents knew that it was a disease got through both poor personal hygiene and sexual transmission while only 4 (8%) of the respondents knew that it was a disease of poor personal hygiene. These results imply that at least all the girls knew the modes of transmission of VVC. According to CDC, 2015 VVC is generally not considered an opportunistic infection and unlike trichomonas vaginitis, it is not considered a sexually transmitted disease because candida spp are considered as normal flora in the vaginal tract and only becomes disease when the vaginal environment is disrupted with human practices like use of antibacterial soaps, multiple sexual partners, poor personal hygiene, prolonged use of antibiotics, oral sexual habits and immunosuppression.

It is also worth to note that, 48 (80%) respondents knew that the cause of VVC was fungal infections, 8 (13%) respondents knew the cause as bacterial infections while the least 4 (7%) of the respondents knew the cause as viral infections. According to sobel, et al, 2007

Vulvovaginal candidiasis (VVC) is an opportunistic fungal or yeast infection of the female lower genital tract, the vulva and the vagina caused by *Candida* spp.

Another finding revealed that, a large proportion (75%) of the respondents knew that VVC was a disease associated to HIV and diabetes while (25%) knew it as being associated to malaria and ring worm. This was consistent with results from the research by (sobel 2007) which showed that HIV and diabetes had a relationship with VVC.

In related findings, a majority 40 (67%) of the respondents knew the signs and symptoms of VVC as itching around the private parts and whitish vaginal discharge, 12 (20%) of the respondents knew of headache and abdominal pain while the least 8 (20%) of the respondents knew of stomach ache, fever and diarrhea assigns and symptoms of VVC. These findings imply that the girls were informed about signs and symptoms of VVC and would easily relate and differentiate symptoms of different diseases. According to (Achkaret al, 2010) Vulvovaginal candidiasis is characterized by curd-like vaginal discharge, itching, and erythema.

About the risk factors contributing to VVC, a majority 50 (83%) knew that poor personal hygiene, multiple sexual partners, use of soaps for douching and prolonged use of antibiotics would predispose one to VVC, 8 (13%) knew that sleeping under mosquito net and handshaking would expose one to VVC and the least 2 (3%) knew that kissing and putting on closed shoes would expose one to VVC. Majority knew the risk factors for VVC because girls get health education from staffs of Katunguru health centreiii and also they have a school nurse who usually educates them about health issues. Sobel, 2015 in his study urged that while infections may occur without sex, a high frequency of intercourse increases the risk. Personal hygiene methods or tight-fitting clothing, such as tights and long underwear, do appear to increase the risk.

5.1.3 Practices contributing to Vulvovaginal candidiasis among girls at Katunguru seed secondary school in Rubirizi district

In this study, most respondents 45 (75%) douched 1-2 times per day, 10 (17%) douched 3-4 times per day and the least 5 (8%) douched 5-6 times per day. The highest percentage of girls douched 1-2 times a day because of the society's norms and being students they only get time during morning and evening hours while going to class and the few who douched 5-6 times may be because of the religion. Some were Moslems and usually clean up when going for prayers.

The results in figure 7 show that, a majority (75%) of the respondents use laundry soap followed by those who use plain water with (17%) and the least were those who use medicated soap with (8%). Most use laundry soap because of society and affordability and least respondents use medicated soap because they can afford it. Some use plain water because they may be aware that it the best option.

As shown by results of Table 5, 50 (83%) of the respondents hanged their towels 1-2 times a week while those who hanged their towels 3-4 times and 4-5 times all tied at 5 (8%). Hanging of towels dries the moisture in the towels which prevents fungal yeast from germinating on the towel.

According to figure 8, the study findings revealed that (83%) of the respondents put on cotton made knickers while (17%) of the respondents put on nylon made knickers. Cotton made knickers help to absorb water and reduce the suitability of environment for fungal infection to grow.

In table 6, among 60 respondents, 45 (75%) would use cotton under ware, loose fitting clothing, good personal hygiene and avoiding sharing clothes to prevent contracting VVC, 10 (16.7%) would sleep under mosquito net and 5 (8%) would avoid sharing clothes and sharing food with affected person to prevent themselves from contracting VVC.

In this study, significant results also showed that more than half 35 (58%) of the respondents had ever been diagnosed of VVC while 25 (41.6) had never been diagnosed of VVC. This was lower because a majority of the respondents were still young in comparison with the findings of CDC, 2015 which affirmed that about (75%) of women are diagnosed of VVC in their life time.

Figure 10 shows that the highest percentage of respondents (74%) had not done tests to confirm VVC among those who had ever been diagnosed of VVC while only (26%) of the respondent had ever done tests to confirm VVC. This was high because Katunguru health centre (iii) does not do tests to confirm diagnoses of VVC rather the clinician bases judgment upon the clinical signs and symptoms to diagnose VVC, this finding correlated with Sobel, et al, 2015 who documents that majority of VVC cases are often clinically diagnosed based on signs and symptoms and are not confirmed by microscopic examination or culture. In addition, the widespread use of over-the-counter antimycotic drugs makes it easy for girls to access drugs without fully being tested.

Lastly the results showed that, of those who had ever been diagnosed of VVC (80%) would not take full treatment while only (20%) among those diagnosed would take full treatment for VVC. Very few respondents took full treatment for VVC when diagnosed this is attributed to the lack of money to afford treatment or poor attitudes towards drugs and treatment.

5.2 Conclusions

The following were drawn as the main conclusions from the study:

- i. All the socio-demographic characteristics of girls (age, marital status, religion and educational level) had some influence on girls' practices towards the occurrence of VVC. There were relationships between social-demographic characteristics and prevalence of VVC at Katunguru seed secondary school.

- ii. Most of the girls had some awareness about VVC, from findings of figure 3,(80%) of girls had ever had about VVC, from findings of table 2, (80%) of the respondents knew the cause of VVC and from findings of figure 5 that(75%)of the girls knew that HIV and Diabetes had a relationship with VVC. Lastly (83%) of girls knew that poor personal hygiene, multiple sexual partners, use of soaps for douching and prolonged use of antibiotics would predispose one to VVC.
- iii. Majority of the respondents had good practices towards the prevention and reducing the prevalence of VVC, findings of figure 6 show that(75%) of the respondents had good douching practices, table 5 show that (83%) of the respondents would hang their towels at least 1-2 times, figure 8 shows that(83%) put on cotton made knickers while figure 10 shows at least (26%) do tests to confirm VVC before taking treatment.However, some respondents had bad practices as shown in Figure 7 that (75%) of respondents use laundry soap for douching, figure 10 shows that (74%) do not do test to confirm VVC before taking treatment while table 7shows that (80%) do not take full treatment when diagnosed of VVC.
- iv. From the findings of the data analysis, the two study questions, level of awareness about VVC and practices of girls contributing to VVC among the girls of Katunguru seed secondary school in Rubirizi district were fully answered.

5.3 Recommendations

To Katunguru Health Centre III

There is great need for health education to explain to the girls issues concerning their health. This should be done at least twice in every term.

- i. The health centre should also emphasize proper test and confirm the diagnoses of diseases before giving treatment.
- ii. The health centre should also emphasize on full treatment for the diagnosed cases.

To the Community

- i. All females, irrespective of their age, tribe, marital status, religion, educational level and employment status, should be encouraged to make visits for prompt tests, diagnosis and treatment of VVC.
- ii. Public forums should be used as a channel to promote good health habits. These include churches, community Sacco's and development groups.

To the government

- i. Staffs in the Ministry of Health in the department of Public health who are concerned with reproductive health should be more aggressive in implementing existing policies.

5.4 Recommendations for further research

- i. Research beyond descriptive study (qualitative) is needed, for example a research including teachers and the whole female staff and also including many other schools should be done.
- ii. A similar study may be done in a different geographical and cultural setting incorporating factors like pregnancy and effects of HIV and Diabetes that were not captured in this research.

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APPENDICES

APPENDIX I: WORK PLAN FOR THE STUDY

Activities	July	August	September	September	October
Proposal writing					
Proposal presentation					
Data collection					
Data analysis					
Report submission					

APPENDIX II: TIME TABLE

ITEM	QUANTITY	AMOUNT
Ream of papers	1	12000
Pens	6	3000
Pencils and Rubber	2@	1500
Internet services	-	50000
Printing and photocopying	-	90000
Transport	-	60000
Lunch	-	60000
Airtime	-	20000

Research assistants	2	100000
Misllaneous		200000
TOTAL		596,000

Source of funding

1. Parents and relatives

1. Personal savings

APPENDIX III: INFORMED CONSENT FORM

Introduction:

My name is Kukundakwe Milton, a Diploma in nursing student of Kampala International University, registration number DNS/E/4980/161/DU. I am conducting a research study on Prevalence of Vulvovaginal Candidiasis among secondary school girls and would appreciate your participation. I would like to ask you some questions in regards to Vulvovaginal Candidiasis. This information will help the policy makers to plan health services and assess whether it is meeting the goals to improve the health of the patients facing VVC.

The questionnaire will take less than 30 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other person(s). Participation in this study is voluntary, you can choose not to answer any individual question or all of the questions.

However, I hope that you will participate in this study since your views are important. At this time, do you have any question about the study?

Respondent Agrees To Be Interviewed (Signature/Thumb print).....

Interviewer's name.....Signature.....

Questionnaire Number.....

APPENDIX IV: QUESTIONNAIRE

A study to assess factors contributing to the Prevalence of vulvovaginal candidiasis among secondary school girls of Katunguru seed school in Rubirizi district.

By Kukundakwe Milton, a student of Diploma of nursing at Kampala international university-western Campus.

Part 1

Demographic data (please tick appropriately)

1. How old are you?

10-14 ☐

15-19 ☐

20-24 ☐

2. What is your religion?

Christian [] Muslim [] others specify.....

3. Marital status

Single [] married [] divorced [] cohabiting

Part 2

Assessment of the level of awareness about vulvovaginal candidiasis at Katunguru seed secondary school.

1. Have you ever heard about candidiasis?

Yes [] No []

2. If yes what do you know about it?

- a) A disease of poor personal hygiene []
- b) A disease got through sexual transmission only []
- c) A disease got through both poor personal hygiene and sexual transmission []
- d) Others specify.....

3. What germ do you think is the cause of vulvovaginal candidiasis?

- a) Bacterial infections
- b) Fungal infections
- c) Viral infections

4. What diseases are associated with vulvovaginal candidiasis?

- a) HIV and Diabetes
- b) Malaria and Ring worm

- 5 What do you think could be the signs and symptoms of vulvovaginal candidiasis?
- a) Itching around the private parts, whitish vaginal discharge
 - b) Stomachache, Fever and Diarrhoea
 - c) Headache, abdominal pain
- 6 What risks do you know that expose one to be affected with VVC?
- a) Poor personal hygiene, multiple sexual partners, use of soaps for douching, prolonged use of antibiotics.
 - b) Sleeping under mosquito nets, hand shaking.
 - c) Kissing, putting on closed shoes.

PART 3

Assessment of practices contributing to VVC among the girls of Katunguru seed secondary school in Rubirizi district.

1. How often do you douche a day?

- a) 1-2 times a day
- b) 3-4 times a day
- c) 5-6 times a day

2. What do you use while douching?

- a) Plain water
- b) Laundry soap

c) Medicated soap

3. How often do you hang your towel under the sunshine a week?

a) 1-2 times a week

b) 3-4 times a week

c) 5-6 times a week

4. Which type of knickers do you use?

a) Cotton made knickers

b) Nylon made knickers

5. How would you prevent contracting of vulvovaginal candidiasis?

i. wearing cotton under ware and loose fitting clothing

ii. Good personal hygiene

iii. Avoid sharing clothing

iv. Sharing food with affected person

v. Sleeping under mosquito net

6 Have you ever been diagnosed of VVC?

a) Yes

b) No

7 If yes, (i).Did you do tests to confirm it was VVC?

a) Yes

b) No

(ii) Did you take full treatment based on the diagnosis?

a) Yes

b) No

APPENDIX V: LETTER OF AUTHORIZATION



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P.O.BOX 71 Bushenyi, Ishaka
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E-mail: akabanyoro@gmail.com
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Office of the Dean - School of Nursing Sciences

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: KUKUNDAKWE MILTON - DNS/E/4980/161/DU

The above mentioned is a student of Kampala International University – School of Nursing Sciences undertaking Diploma in Nursing Science and he is in his final academic year.



He is recommended to carry out his data collection as a partial fulfillment for the award of the Diploma in Nursing Science.

His topic is **FACTORS CONTRIBUTING TO THE PREVALENCE OF VULVOVAGINAL CANDIDIASIS AMONG GIRLS STUDYING AT KATUNGURU SEED SECONDARY SCHOOL IN RUBIRIZI DISTRICT.**

Any assistance rendered to him will be highly appreciated.

Thank you in advance for the positive response.


Nabaliisa Sarah
RESEARCH COORDINATOR

Received on 11th 9-2017



"Exploring the Heights"

Rubirizi district



APPENDIX VI: THE MAP OF RUBIRIZI DISTRICT



APPENDIX VII: SKETCH SHOWING THE MAP OF KATUNGURU SEED SCHOOL.

