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# The incidence of Candidiasis among the Asymptomatic Female Students of the Federal Polytechnic Mubi, Adamawa State, Nigeria

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## ABSTRACT

The incidence of candidiasis among the asymptomatic female students of the Federal Polytechnic Mubi, Adamawa State with objectives to determine the incidence of candidiasis among the asymptomatic female students of the Federal Polytechnic Mubi, Adamawa State. Material used include Incubator, Sabourin Dextrose Agar, Wire loops, Bunsen burner, Microscope and slides, Syringes and Plasma, Sterile Urine Containers, Lactose Phenol Cotton Blue, Culture Plates and Weighing Balance. The bark of Mahogany was collected from traditional practitioners in Mubi local government area, in Adamawa state, Nigeria. Sterile containers were distributed randomly to students attending federal polytechnic Mubi. They were instructed to pass the mid-stream early morning urine. The sample were collected and labeled according to age and sex.

**Keywords:** bark of Mahogany, asymptomatic, candidiasis, Sabourin Dextrose Agar, morning urine, sex and age

## INTRODUCTION

Candidiasis is a fungal or yeast infection. It is found in the lower genital tract, the vulva, and the vagina of females [1]. When this disease is caused by *Candida* species, it is known as candidiasis or moniliasis. Candidiasis can be recurrent or relapsing [2]. This occurs when a female experiences four or more episodes of VVC per year. Asymptomatic infections occur in about 5% of healthy women [3]. Candidiasis remains a common problem worldwide, affecting all strata of society. The absence of rapid, simple, and inexpensive diagnostic tests continues to result in both over diagnosis and underdiagnosis of Candidiasis. *Candida albicans*, non-*albicans* species, and immune suppression have led to the development of recurrent diseases, some of which do not respond to conventional antifungal drugs [4]. According to [5], *Candida* spp. is part of the lower genital tract flora in 20%–50% of healthy women. In line with the studies of [6], *C. albicans* is the most frequent colonizer and is incriminated in most cases of Candidiasis. Over the last ten years, research evidence has demonstrated an increase in the frequency of cases caused by other species of *Candida*. *C. glabrata* is also a leading cause of Candidiasis [7]. About 75% of women will experience at least one episode of VVC during their lifetime. 70 – 75% of healthy adult women have had at least one episode of Candidiasis during their reproductive life, and half of the college women will by the age of 25 years have had one case of Candidiasis diagnosed by a physician [8]. Candidiasis is not a sexually transmitted disease, because it also affects children and women who abstain themselves from sexual relationships. However, it can be transmitted sexually [9]. Diagnosis of Candidiasis should not be based solely on patient history and a genital examination because of its low specificity of symptoms and signs. In addition, other causes like leukorrhea and pruritus vulvae mimic Candidiasis [10]. Therefore, to have a definitive diagnosis of Candidiasis, cultural isolation and identification of *Candida* spp. are crucial. Previous findings have provided data on the prevalence of Candidiasis. It is interesting to note that most previous studies focused on immune-compromised subjects, especially pregnant women, diabetics, subjects on broad-spectrum antibiotic therapy, women on oral contraception with high estrogen content, and HIV-positive subjects, with few studies on otherwise immune-competent women. Interrelationships between *Lactobacillus acidophilus* and other endogenous flora, estrogen, glycogen, vaginal pH, and metabolic byproducts of these microbiomes determine a healthy vagina. *L. acidophilus* produces hydrogen peroxide (as a by-product of

metabolism), which is toxic to pathogens and keeps the healthy vaginal pH acidic. Alterations of the vaginal microflora by invading pathogens or biochemical changes in the environment result in vaginitis [11].

## MATERIALS AND METHODS

### Collection of urine Samples

Sterile containers were distributed randomly to students attending federal polytechnic Mubi. They were instructed to pass the mid-stream early morning urine. The sample were collected and labeled according to age and sex.-

### Direct Examination of Urine Samples

Microscopically examination was carried out to give an early indication of the presence of yeast in urine since the specimens were collected especially urine samples were collected in duplicate. One sample were for wet preparation and the other one for culture. Urine for wet examination were first spun highly in a bucket, centrifuge at 200 per minute for about 5 minutes. About 2mls of the urine deposit were well mixed with about 05mls of strong KOH and then tinged with lactone-phenol cotton blue for the identification of yeasts.

### Isolation of Yeasts

Sabouraud's medium is used as internationally standard and is generally acceptable, the medium was weighted out 6 grams and mixed with 100mls of distilled water in a conical flask (about 200mls volume) the medium was well mixed for about 15 minutes for the powder to completely dissolved. They were then sterilized at 121°C for 15 minutes, the medium was then removed and cooled at the conical flask containing the medium were bearable to the jaw they were then dispensed into culture plates and allowed to solidify. The plates were then divided in the incubator at 37°C for about 30 minutes after flaming briefly the surface of the agar, the culture plates were then ready for incubation.

### Inoculation of Urine Samples

About 0.1mls of concentrated urine were picked up using a flamed and cooled wire loop. The specimens of urine were spread over the surface of the culture plates by streaking in the normal way. The culture plates were placed in the incubator at 37°C for overnight. The plates were ready the next day and the positive were recorded.

### Germ Tube Test

About 90% of yeast isolated in urine culture were candida albicans. They were using germ tube test as follows; a single colony loops and the transferred into about 0.5mls of human serum. This mixture was incubated at 37°C in a water bath for about 3 hours, then mounted under a microscope and viewed using X 40 objective lens. The characteristics budding of *Candida albicans* were clearly seen.

## RESULTS

**Table 1:** Showing the Prevalence of *Candida Albicans* among Female Students Attending the Federal Polytechnic Mubi Based on Age Group (From 15<sup>th</sup> May 2023 to 15<sup>th</sup> August, 2023)

Age Group	Number of Samples Tested	Number of Positive	Number of Negative	Percentage Prevalence of Positive Samples (%)
15-20	20	6	14	30
21-25	20	10	10	50
26-30	20	7	13	35
31-35	20	5	15	25
36 and above	20	4	16	20
<b>Total</b>	<b>100</b>	<b>32</b>	<b>68</b>	<b>32%</b>

## DISCUSSION

Vaginal candidiasis is a common mucosa membrane infection caused predominantly by *Candida albicans*, which can affect significant numbers of otherwise healthy women of childbearing age. Vaginal candidiasis is one of common infections of general medical practice, second only to anaerobic bacterial vaginosis. About three-quarters of all woman suffer at least one episode of this condition during their lifetime. The prevalence of vaginal candidiasis reported by different studies was 14%, 16.5%, 21.31%, and 19%. In our study, the prevalence was found to be 32%. This relatively high prevalence of vaginal candidiasis among female students attending the Federal Polytechnic Mubi, Adamawa State. In our study the higher prevalence of vaginal candidiasis among female students of Federal Polytechnic Mubi, range from age 21-25 years, the number of lowest prevalence of Vaginal *Candidiasis* range from 36-45 years. These findings are not in consonance with the finding of Alo et al, who reported a higher prevalence of *Candida albicans* (33.33%) within the age bracket of 36-45 years, while those between 20 and 25 years had the lowest

prevalence (20.42%). Jackson and Willacy, who reported peak vaginal infections between ages 20 and 40 years, this may be due to high sexual activity, poor personal hygiene the use of contraception, and drug abuse among this age group, most women aged over 46 years have reached menopause and are less or not sexually active. They rarely use contraceptives to prevent pregnancy, and they also sold on misuse drugs. They also have a possible increased level of estrogen and corticoids, and thus are resistant to candida infection. Therefore, for effective control of candidiasis, it is advisable to identify the candida SSP. Alongside clinically symptoms before planning for treatment. All subjects with positive candid-culture results had already been on antibacterial therapy prior to their hospital visit 28 (100%). This finding is in conformity with the fact that prolonged antibacterial use usually affects vaginal bacterial microflora population and biochemical activity (mainly Acidophilus) which thus increase vagina PH as result of reduced CO<sub>2</sub> production. This feature, alongside other factors (such as hormonal factors), encourages candida overgrowth, consequently leading to vulvovaginitis.

### CONCLUSION

There is a need to create awareness of the involvement of *Candida albicans* in genital discomfort, especially vaginal candidiasis, amongst female students with or without notable signs and symptoms. It is worthwhile to consider culture test as adjunctive in combination with clinical symptoms in the definitive diagnosis of vaginal candidiasis. More work is required to build on findings generated from this study.

### RECOMMENDATION

We recommend the presence of candidiasis among female student's apparently healthy individuals should not be neglected, follow-up studies on the appropriate management of asymptomatic candidiasis should be conducted periodically and also, role of antibiotic usage should be reviewed to delineate the cause of antibiotic resistance in recurrent vaginal candidiasis. Furthermore, factors that promote candidiasis among female students should be addressed promptly through extensive public health enlightenment programs.

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