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PREVALENCE AND ASSOCIATED FACTORS OF VAGINAL CANDIDIASIS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINIC. A CROSS-SECTIONAL STUDY AT JINJA REGIONAL REFERRAL HOSPITAL, JINJA CITY.

Linnet Nalumbejja Helga, Samson Wolinga*
St. Francis Schools of Health Sciences Mukono

Abstract

Background

For the good health of both the mother and the baby to be born, pregnant such should be free from disease and disease conditions including vulvovaginal candidiasis. Therefore, this study aims to determine the prevalence and associated factors of vaginal candidiasis among pregnant women attending Jinja Regional Referral Hospital, Jinja City.

Methods

A cross-sectional study was used and it employed closed-ended questionnaires which were divided into two sections A and B each corresponding to socio-demographic characteristics and risk factors associated with the prevalence of genital candidiasis.

Results

The overall prevalence of vaginal candidiasis among pregnant women attending ANC at Jinja Regional Referral Hospital, out of 79 pregnant women sampled, 20(25%)were positive for vaginal candidiasis was 25% among pregnant women, and the associated factors were using pit latrines (55.7%) were more affected with C. albicans compared to those using flush toilets (44.3%), those who were in the category of no changing of pants in a day were also more prone to infection (62%) than those that change(38%) this disagrees

Conclusion

The overall prevalence of vaginal candidiasis among pregnant women attending ANC at Jinja Regional Referral Hospital, out of 79 pregnant women sampled, 20(25%) were positive for vaginal candidiasis and 59(75%) were negative for vaginal candidiasis. Therefore, the overall prevalence of vaginal candidiasis was 25% among pregnant women.

Recommendations

All pregnant women despite of age, marital status, educational level, or religion should be encouraged to make visits for prompt tests, diagnosis, and treatment of vaginal candidiasis.

Keywords: Vaginal Candidiasis, Pregnant Women, Antenatal Clinic, Jinja Regional Referral Hospital, Jinja City
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Corresponding Author: *Linnet Nalumbejja Helga*
St. Francis Schools of Health Sciences Mukono

Background

More than 90% of the infections are caused by an overgrowth of opportunistic pathogenic yeast, Candida Albicans which is a common member of the vaginal environment(Disha & Haque, 2022). For the good health of both the mother and the baby to be born, pregnant such should be free from disease and disease conditions including vulvovaginal candidiasis. This goes a long way in reducing incidences of maternal and child death, abortion, and preterm death.

However, a significant number of pregnant women seeking antenatal care services at JRRH present with VVC-related complaints such as vaginal itching, redness of the vulva, milky vaginal discharge, pain during sexual intercourse, and pain during urination among others. The laboratory data at the hospital mycology, in addition, showed Candidiasis as a common infection among pregnant women.

Moreover, the majority of pregnant women are immunocompromised from several disease conditions notably; HIV/AIDS, cancer, chronic diabetes mellitus, antibiotic therapy, and oral contraceptives all of which predispose them to vulvovaginal candidiasis. Most of these women are illiterate, poor, and young, putting them at more risk.

This vulvovaginal candidiasis poses several complications to these pregnant women such as abortion, pre-term birth, candida chorioamnionitis, emotional stress, and suppression of the immune system. Pregnant women also carry a risk of contaminating their infants from 25 to 65% which has a likelihood of causing invasive neonatal candidiasis. Further evidence reveals that pregnant women with untreated asymptomatic candidiasis have a greater risk of spontaneous preterm birth than healthy women.

In Mbale Regional Referral Hospital, a cross-sectional study conducted among pregnant women revealed that candida was common. The common species associated with vulvovaginal candida included; C. albicans, C.glabrate, and C.krusei (Watsemwa.J.J.Iramiot.J.S., 2019). In Mbale Regional Referral Hospital, a cross-sectional study conducted among pregnant women revealed that candida was common. The common species associated with vulvovaginal candida include; C.albicans, C.glabrata, and C.krusei (Watsemwa.J.J.Iramiot.J.S., 2019). Therefore, this study will determine the prevalence and associated factors of vaginal candidiasis among pregnant women attending Jinja Regional Referral Hospital, Jinja City.

Specific Objectives

- To determine the prevalence of vaginal candidiasis among pregnant women attending antenatal clinic at Jinja Regional Referral Hospital, Jinja City.
- To determine the socio-demographic factors associated with vaginal candidiasis among pregnant women attending ANC Jinja Regional Referral Hospital, Jinja City.
- To determine the most common risk factor associated with vaginal candidiasis among pregnant women attending ANC at Jinja Regional Referral Hospital, Jinja City.

METHODOLOGY

Research Design

A hospital-based cross-sectional study will be used.

Study Area

The study will be carried out at Jinja Regional Referral Hospital in Jinja City found in the Busoga sub-region; the hospital is located in the center of Jinja City, not far from the Source of the Nile. The hospital is located approximately 84 kilometers (52 m) east of Mulago National Referral Hospital. The coordinates of Jinja Regional Referral Hospital are 00°25’52.0″N, 33°12’18.0″E. The economic activities mainly carried out in Busoga areas by Busoga people are Agriculture, especially sugarcane, maize, Fishing, tourism, and others. The study took place between June 2023 and November 2023.

Study Population

The study population will be all pregnant women attending ANC Jinja Regional referral hospital during the study period.

Inclusion Criteria

All pregnant women attending the antenatal clinic, are not critically ill and willing to participate in Jinja Regional Referral Hospital.

Exclusion Criteria

All women who will deliver during the time of the study and those who will become critically ill during the study at the ANC of Jinja Regional Referral Hospital.

Sample Size Determination

The sample size of the study will be determined according to the standard and Leslie (1965)

$$n = \frac{Z^2PQ}{D^2}$$

Where n=samplesize
Z=Standard deviation at 90% confidence interval (1.96)
P= Prevalence of VVC in a previous in Africa (29.2%)
D=allowance sampling error (10%)
Q=population without desired characteristics(1-P)
=79 participants

Sampling Technique

A simple random sampling technique will be used to select participants for the study.
This is because the technique gives an equal chance for all participants to be included in the study.

Sampling Procedure

During the study, the researcher took the names of the people who were willing to participate in the study on a piece of paper some pieces of paper were randomly selected by the respondents, and those people whose names appeared on the papers were picked and included in the study and they were briefed about the study and its intention.

Data Collection Method

Self-administered questionnaires with closed-ended questions and face-to-face interviews will be used to collect data since it’s easier to administer to the respondents and is time-saving.

Data Collection Tools

A closed-ended questionnaire will be used. The questionnaire will be divided into two sections A and B each corresponding to socio-demographic characteristics and risk factors associated with the prevalence of genital candidiasis. Data collection tools will be translated into the local language and translated back into English by people without prior knowledge of the instrument.

Data Collection Procedure

An introductory letter from the St. Francis School of Health Sciences will be taken to the hospital director, who will then introduce me to the charge of the maternity and antenatal clinic. I will then explain the intention of my study to participants who will later fill in the questionnaires and after ensure they are filled and will be kept under lock and key.

SJ Obstetrics and Gynecology Africa
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Study Variables

Study variables	Specific variables
Independent variables	Socio-demographic characteristics; age, sex, gestational age, level of education Risk factors; diabetes, frequency of douching, comorbidity, nature of water , type of toilet
Dependent variables	Prevalence of vulvovaginal candidiasis

Table 1; study Variables

Data Management

After data collection, every questionnaire will be checked for completeness and any gaps will be filled immediately before the participants leave the facility, then the questionnaires will be kept under lock and key and will be accessible to the researcher.

Data Analysis and Presentation

Collected data will be verified using Microsoft Excel 2010 and presented in tables of frequencies and graphs for descriptive statistics.

Reliability

The research proposal development will be under the supervision of the St. Francis School of Health Sciences supervisor. Unclear information will be adjusted. Training of data clerks will be done by the researcher.

Ethical Consideration

A letter of introduction will be obtained from the principal of Allied Health of St. Francis School of Health Sciences to permit the researcher to carry out the study.
Permission will be obtained from the hospital director of Mbale Regional Referral Hospital to gain access to the participants.
All respondents will be selected based on informed consent, the study will be conducted voluntarily information will be kept private and confidential and the anonymity of participants will be kept. The study will be conducted while upholding the professional code of conduct in a manner that does not compromise the scientific inclinations of the research.

RESULTS

Prevalence of vaginal candidiasis among pregnant women attending ANC at JRRH

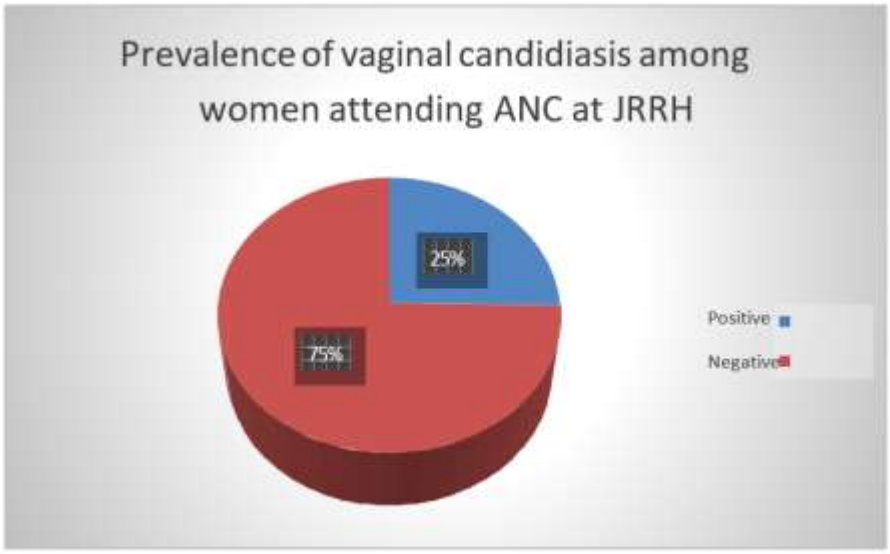

Figure1 is a pie chart representing the overall prevalence of vaginal candidiasis among pregnant women attending ANC at Jinja Regional Referral Hospital, out of 79 pregnant women sampled, 20(25%)were positive for vaginal candidiasis and 59(75%) were negative for vaginal candidiasis. Therefore, the overall prevalence of vaginal candidiasis was 25% among pregnant women.

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Socio-demographic factors n=79

Variable	Category	frequency	percentage
Age	15-19	10	12.6%
	20-24	27	34.2%
	25-30	18	22.8%
	31-35	16	20.2%
	Above 35	8	10.1%
Religion	Protestant	15	19.0%
	Catholic	20	25.3%
	Moslem	17	21.5%
	Born again	24	30.4%
	Others	3	3.8%
What is your occupation?	Employed	16	20.2%
	Unemployed	58	73.4%
	Self employed	5	6.3%
Type of marriage	Polygamous	15	20%
	Monogamous	54	68.4%
What is your level of education?	Primary	20	25.3%
Secondary		43	54.4%
Tertiary		10	12.7%
None		4	5.0%
What is the gestational period	First trimester	20	25.3%
Of the current pregnancy?	Second trimester	35	44.3%
Third trimester		24	30.4%
What is your current residence?	Urban	38	48.1%
Rural		41	51.9%

Table 2 shows the socio-demographic characteristics of respondents. Of the 79 participants who took part in a study conducted in July 2023, Outof 79 the respondents ,20(25%) respondents tested positive for vaginal candidiasis and 59(75%) tested negative for vaginal candidiasis, Majority of the respondents were aged between(20-24) years 27(34.2%), followed by (25-30)years 18(22.8%), followed by (31-35)years 16(20.2%) and respondents above 45 years had the least respondent rate of 0(0.0%), Of the respondents, Born again were majority 24(30.4%) followed by Catholics 20(25.3%), then Moslems 17(21.5%) and protestants with percentage of 15(19%), finally others which were 3(3.8%).

According to the table above,69 of the respondents were married women, followed by those who were single 10(12.7%), the prevalence of vaginal candidiasis was least common in divorced women 1(1.2%). Respondents in monogamous marriages had the highest prevalence of 78(78%) and those in polygamous marriages had the lowest prevalence of 22(22%).

On the other hand, 43(54.4%) of the respondents were at the secondary level,20(25.3%) were at the primary level,10(12.7%) were at the tertiary level and those had never attained any education level were 4(5.0%).

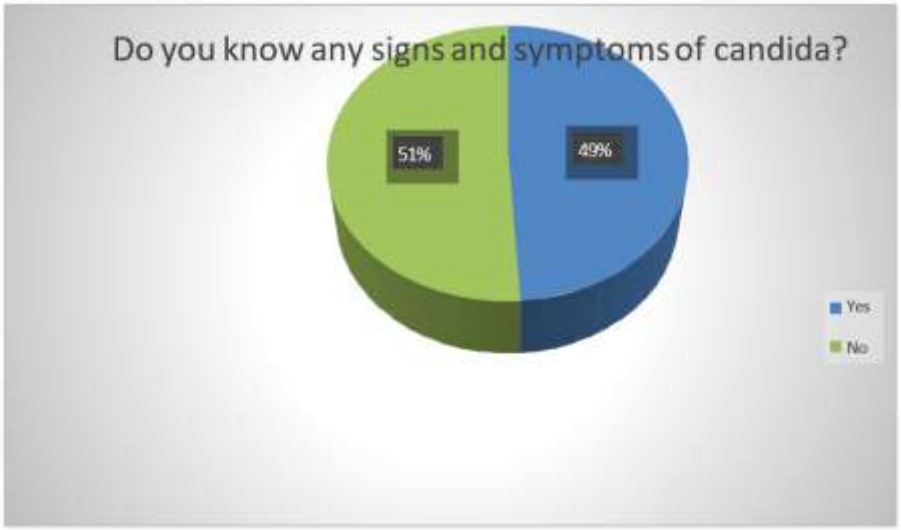
In the above table, respondents who were reported to be in their second trimester were the highest with 35(44.3%) followed by those who were in their third trimester with 24(30.4%) then those in their first trimester with had lowest percentage of 20(25.3%). Table 2 also reported that most of the respondents were from the rural area 41(51.9%) than the urban area which was 38(48.1%).

Risk factors associated with vaginal candidiasis

Variable	Category	Frequency	Percentage
Do you know any signs and symptoms of candida?	Yes No	39 40	49 51
Have you ever had a miscarriage?	Yes No	03 76	3.8 96.2
What type of toilet do you use at home?	Flush toilet Pit latrine	35 44	44.3 55.7
Do you wash pants?	Yes No	79 00	100 00
Do you change your pants in a day?	Yes No	30 49	38.0 62.0
If yes, how many times do you change your pants in a day?	Once Twice Never	24 06 49	80 20
Do you prefer eating sugary foods?	Yes No	40 39	50.6 49.4
Do you use any contraceptives?	Yes No	7 72	8.9 91.1S
How many sexual partners do you have?	1 2 More than 2	56 19 4	70.9 24.1 5.1
Do you have any signs of vaginal candidiasis?	Yes No	48 31	60.8 39.2
If yes, which sign of vaginal candidiasis do you have?	Reddish Itching Vaginal pain d)Burning sensation while urinating or during sex e) Watery or thick discharge	03 11 11 07 16	6.3 23 23 14.6 33.3
	Yes	15	19

Do you frequently douche?	No		
		64	81
Do you have any immune-suppressing diseases like diabetes mellitus and HIV?	Yes	20	25.3
	No	59	74.7

Figure 2.A pie chart showing respondents who knew about the signs and symptoms of vaginal candidiasis (n=79)



The majority of the respondents, 51(51%) didn't know about the signs of vaginal candidiasis while 49(49%) of the respondents knew something about the signs and symptoms of vaginal candidiasis.

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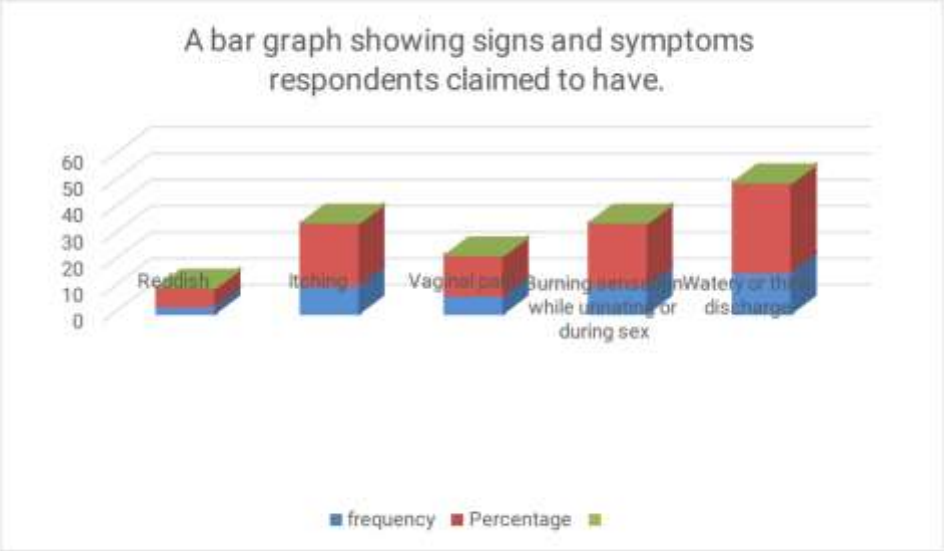
Figure 3 is a bar graph showing the signs and symptoms of vaginal candidiasis respondents claimed to be having. (n=48)



Most of the respondents 16(33.3%) claimed watery or thick discharge as a sign,11(23%) reported that vaginal pain was the sign and the number was the same for itching followed by 7 (14.6%) burning sensation while urinating or during having sex, and lastly 3(6.3%) for redness as a sign.

Discussions

Prevalence of vaginal and diastasis among pregnant women

The objective of this study was to determine the prevalence of vaginal candidiasis among pregnant women attending ANC at JRRH, data analysis, and interpretation revealed that of the pregnant women sampled where 20(25%) tested positive and 59(75%) tested negative for vaginalcandidiasis and there were no other strains for candida identified the prevalence rate was higher among the age group of 20-24years with 27(34.2%) and highest with pregnant in the 2nd trimester with 35(44.3%) this is probably to pregnancy that weakened their immune system due to hormonal imbalances and inadequate sensitization of the pregnant women about the infection this agrees with most of the research but disagrees with (Nahed.G.,2019) whose prevalence was 44.8% and non-C.albicans were 56.6% this also disagrees with (Mushi.F., 2019) where there were 37% non-candida albicans strains were confirmed. However, to relate with (Ocan.M., 2018) where 27.5% and (Mugisha.E., 2013)where 64% of C.albicans species also the research agrees that the majority of the colonization is caused by candida albicans.

Socio-Demographic Characteristics Associated with Vaginal Candidiasis among Pregnant Women

This objective was to assess the socio-demographic factors of vaginal candidiasis among pregnant women attending ANC at JRRH. Data analysis and interpretation revealed the following major findings under this objective. With 79 respondents, the age group that was most diagnosed with vaginal candidiasis was 20-24years 27(34.2%) in the 2nd trimester with 43(54.4%) this is probably due to hormonal imbalances and inadequate sensitization of pregnant women about the infection this agrees with the study done by (Taking. A.W., 2022) where his findings had the highest turnouts of candidiasis among women in their 2nd trimester followed by those in their 3rd trimester and also age bracket between 19-29years.

However, in regards to educational background and occupation, the findings had more secondary women 43(54.4%)followed by primary20(25.3%) with the majority unemployed 58(73.4%) followed by employed 16(20.2%) this could be due to their reluctance to taking of themselves at home and also not being well informed about the infection this disagrees with (Al-Rukeimi, 2020) where illiterate women were more affected than those with primary school education and above and also disagrees with and he had the (Edem. N.E., 2021) highest infected women with the advanced level of education 36% and also of ladies above 35years and were followed by those without any formal education.

This also differs from (Khadijah. Y.A., 2013) who sectioned the occupations for each woman and found teachers to be most infected with vaginal candidiasis followed by housewife which is unemployed according to my context and was the ones most infected with vaginal candidiasis.

Most Common Risk Factor Associated with Vaginal Candidiasis among Pregnant Women

This objective was to determine the most common risk factors associated with vaginal candidiasis among pregnant women attending antenatal clinics at JRRH. Data analysis and interpretation revealed the following findings regarding this objective 3.8% had previous miscarriages this disagrees with (Nahed.G., 2019) where most of the previous miscarriages were caused by C.krusei.

Respondents using pit latrines (55.7%) were more affected with C. albicans compared to those using flush toilets (44.3%), those who were in the category of no changing of pants in a day were also more prone to infection (62%) than those that change(38%) this disagrees with (Takang. A.W., 2022) where all clients using other toilet types apart from water cistern and pit toilets or both were diagnosed of genital mycoticinfestation using water cistern and other toilet types.

The douching(15) respondents were most affected compared to those who were not douching and this agrees with (Heng. S.L., 2018) where the frequency of douching was significantly associated with genitourinary symptoms which were most prevalent in participants who douched several times a week to twice a day.

Also, participants with immune-suppressing diseases like HIV and diabetes were most affected by vaginal candidiasis this agrees with (Jesitus.J., 2022) HIV infection and other immunosuppressive diseases play the leading role in the development of vulvovaginal candidiasis.

Conclusion

This study sought to answer the question which asked about the prevalence and associated factors of vaginal candidiasis among pregnant women attending antenatal clinics at Jinja Regional Referral Hospital. The overall prevalence estimated was 25% which is lower than the prevalence obtained by (Nahed.G., 2019), (Edem. N.E., 2021), (Ocan.M., 2018), and (Mugisha.E., 2013).

The second question was to determine the socio-demographic factors associated with vaginal candidiasis among pregnant women attending ANC at JRRH where most of the respondents affected were between 20-24 years, unemployed, secondary level, and in the second trimester.

According to my last objective, which was to determine the most common risk factors associated with vaginal candidiasis among pregnant attending ANC at JRRH

Recommendations

Arising from the conclusions the following recommendations should be put into place

To the hospital

There is a great way for the hospital to explain to pregnant women issues to do with their health and this should be done through;

The hospitals should be emphasizing full treatment for the confirmed cases.

The hospitals should also emphasize proper tests and confirm the diagnosis of the disease before giving treatment.

To the community

All pregnant women despite of age, marital status, educational level, or religion should be encouraged to make visits for prompt tests, diagnosis, and treatment of vaginal candidiasis.

Public forums should be used as a channel to promote good health habits. These include churches, mosques, developmental groups, and any other groups that could get women into a gathering.

The government

Leaders and all other staff in the Ministry of Health, in the public health department who are concerned with reproductive health should be more aggressive in implementing existing policies.

Limitations of the study

Since I used a cross-sectional study design there was limited time for data collection and the results weren't accurate.

Also using a sample size of 79 was small which affected my final results.

Another limitation was bias among participants as most of them refused to fill out the questionnaires because they wanted to be given money before they filled and this affected my results.

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My sincere acknowledgement also goes to the Jinja RRH where I carried out my research.

LIST OF ABBREVIATIONS

C.albicans: Candida albicans
HR: Hazard Ratio
JRRH: JinjaRegional Referral Hospital
SSA: Sub-Saharan Africa
UAHEB: UgandaAllied Health Examinations Board
VVC: Vulvovaginal Candidiasis
UTI: UrinaryTract Infection
ANC: Antenatal Clinic MOH Ministry of Health
SFRASH: St. Francis School Health Sciences WHO: World Health Organisation
HVS: High Vaginal Swab

SOPs: Standard Operating Procedures

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No source of funding

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No conflict of interest.

REFERENCES

1) Al-Rukeimi, A.-H.-D. a. (2020). Prevalence and risk factors associated with vulvovaginal candidiasis during pregnancy in Sana'a, Yemen.Universal Journal of Pharmaceutical Research, 5 (3), 1-5.
2) Edem.N.E., M. (2021, April 20). Environmental and human behavioral factors associated with vulvovaginal candidiasis among single and married women In Eket.Global Journal of Infectious disease and clinical research.
3) Heng.S.L., Y. (2018). Vaginal Douching in Cambodian Women; Its Prevalence and Association with Vaginal Candidasis.Journal of Epidemiology, 1-70.
4) Jesitus.J. (2022). VVC in pregnacy .
5) Khadijah.Y.A. (2013). Prevalence of vaginal candidiasis among pregnant women attending Al-Hada Military Hospital, Western Region, Taif, Saudi Arabia. International Journal of Science and Research.
6) Mugisha.E. (2013). Species and antifungals susceptibility of candida causing Vulvovaginal candidiasis among pregnant mothers attending antenatal clinic at 42 Mulago National Referral Hospital.Makerere University Institutional Repository.
7) Mushi.F., M. (2019). Candida Vaginitis among symptomatic pregnant women attending antenatal clinics in Mwanza, Tanzania.Open Access.
8) Nahed.G., R. A. (2019). The emergence of Vulvovaginal Candidiasis among Lebanese pregnant women: Prevalence, risk factors, and species distribution.Infectious Diseases in Obstetrics and Gynecology, 2019, 1-8.
9) Ocean.M., T. (2018). Prevalence and Antifungal susceptibility of vaginal candida albicans among Pregnant Women attending Arua Regional Referral Hospital, West Nile Region of Uganda.ACTA Scientific Microbiology, 1 (6), 17-22.
10) Takang.A.W., B. (2022, may 5). Prevalence and factors associated with Trichomoniasis, Bacterial vaginosis, and candidiasis among pregnant women in a regional hospital in Cameroon.Open Journal of Obstetrics and Gynecology, 12, 443-464.
11) Watsemwa.J.J.Iramiot.J.S., K. (2019). Prevalence and antifungal susceptibility patterns of candida isolated on CHROM agar TM candida at a tertiary referral Hospital, Eastern Uganda
12) Disha, T., & Haque, F. (2022). Prevalence and Risk Factors of Vulvovaginal Candidosis during Pregnancy: A Review. *Infectious Diseases in Obstetrics and Gynecology*, *2022*, 6195712. https://doi.org/10.1155/2022/6195712

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