

Characteristics of Vaginal Swab Examination Related to Demography, Host, Enviromental Factors, and Diagnostic Results in RSUD Dr. Soetomo 2020

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Abstract

Background: Indonesia is a tropical country that has high humidity, which causes bacteria to develop easily and one of them can cause infections in the female reproductive organs, namely vaginal discharge. The study aimed to characterized to analyze the characteristics of vaginal swab examination related to demographic, host, environmental factors, and diagnosis results at RSUD Dr. Soetomo, Surabaya. **Methods:** This study was a descriptive study, using secondary data in the form of medical records of patients who performed vaginal swabs at RSUD Dr. Soetomo Surabaya. **Results:** The number of patients who performed vaginal swabs at Dr. Soetomo Surabaya Hospital in 2020 was 56 patients. The highest age range was 31-45 years old which was a productive age. A total of 29 patients (51.7%) had graduated from high school / equivalent, 45 patients (80.3%) were working women. There were 46 patients (82.1%) who were married. The most reproductive state of 40 patients (71.4%) was menstruation. Thirty two patients (57.1%) did not use contraceptive methods. The highest number of sexual partners was one partner as many as 36 patients (64.2%). The diagnosis of bacterial vaginosis was 48 patients (85.7%) others are Candidiasis vaginalis and Trichomoniasis were not found, and 8 patients (14.2%) were found. **Conclusion:** The characteristics of patients who take vaginal swabs at Dr. Soetomo Hospital were women of productive age with the latest high school education, and were married. The most reproductive state was

menstruation and mostly is experienced by patients who do not use contraception with sexual partners totaling one with the most diagnosis results caused by bacterial vaginosis, 48 patients (85.7%) were diagnosed with Bacterial Vaginosis.

Keywords: Vaginal Swab Examination, Vaginal Infection, Gynecology Poly, RSUD Dr. Soetomo

1. Introduction

Vaginal discharge has a different impact, depending on the type of vaginal discharge, including physiological or pathological vaginal discharge. Physiological discharge (normal) has an impact on women's discomfort so that this could affected their self-confidence. Vaginal discharge has a fairly serious impact if not handled properly and quickly. If the vaginal discharge continues continuously, it would disrupt the function of the female reproductive organs, especially in the part of the fallopian tube which could cause infertility in women, in pregnant women it could caused miscarriage and even Fetal Death in the womb (KJDK), congenital abnormalities, and premature birth (Kasdu, 2008).

Normal vaginal discharge (physiological) has some content consisting of mucus fluid with few leukocytes and contains a lot of epithelium in it. This occurs in some individuals with certain conditions such as newborns until around the age of 10 days, in women before and after menstruation, the time around ovulation, physical and psychological fatigue, sexual stimulation or taking hormonal drugs such as birth control pills, in certain diseases such as diabetes, as well as in women who were pregnant. The conditions mentioned above could result in additional vaginal discharge (Prawirohardjo, 2008). Meanwhile, pathological (abnormal) vaginal discharge other than caused by infection is caused by non-infectious factors such as hormonal balance

disorders, stress, chronic fatigue, inflammation of the genitals. , foreign bodies in the vagina, and there were diseases in the reproductive organs such as cervical cancer (Shadin, 2012).

The epidemiological status of vaginal discharge due to infection in Indonesia continues to be worrying. Unlike the case with women in Europe who only experience vaginal discharge by 25%. Indonesian women who had experienced vaginal discharge were quite large and even worrying if they continue and experience an increase of 75% from 118 million women. Based on WHO 2007 data, the prevalence in 2006 was 25%-50% candidiasis, 20%-40% bacterial vaginosis, and 5%-15% trichomoniasis (Aulia, 2012). While research in East Java, the number of women in 2013 who experienced vaginal discharge was 37.4 million people 4 showing 75% experienced by adolescents, one example in the city of Magetan the number of women in 2013 was 855,281 people and 45% could experience physiological vaginal discharge (WHO, 2010). Optimism must be grown in breaking the chain of causes of vaginal discharge that occurs in Indonesia.

How to overcome the cause of the occurrence of a vaginal discharge in women in Indonesia was one form of effort not to increase the number of cases of vaginal discharge every year, we already know the impact felt by women who experience vaginal discharge so that we could prevent it. The existence of this research proposal was one of the latest supporting data to determine the number of women in Indonesia, especially East Java in 2020 who experience vaginal discharge so they had to do a vaginal swab at Dr. Hospital. Soetomo, Surabaya. Objective: Analyzing the relationship between the incidence of Bacterial Vaginosis and demographic factors, host, environment, and diagnosis results at Dr. Soetomo in 2020.

2.Methods

This study used an analytical descriptive study which aims to find out about the characteristics of vaginal swab examinations at Dr. Soetomo Hospital, Surabaya such as the number of patients, demographic factors (age, education, occupation, status), host factors (history of soap use, childbearing age), environmental factors (number of sexual partners), and diagnostic results at Dr. Soetomo Hospital, Surabaya by means of a case study approach. The population in this study was the medical record data of patients who performed vaginal swabs at Dr. Soetomo Hospital, Surabaya in the January–December 2020 period. Sampling in this study used a total sampling technique that had been selected from the study population that met the sample criteria during the January - December 2020 period. The data collected was then processed according to the predetermined sample criteria and then presented in the form of tables and diagrams. After that, an analysis was carried out regarding patients who performed vaginal swabs at Dr. Soetomo Hospital, Surabaya.

3.Results

Characteristics related to vaginal swab examination Demographic, Host, and Environmental factors

Patients Performing Vaginal Swab by Age, Occupation, Marriage, Reproductive Age, Contraceptive method, and Number of sexual partners

Table. 1 Distribution of patients who performed vaginal swabs in RSUD Dr. Soetomo Surabaya by age, education, occupation, marriage, reproductive age, Contraceptive method, and number of sexual partners

	Category	Total category	Percentage category	Total	Percentage
Age	0-15	3	5,3%	56	100%
	16-30	11	19,6%		
	31-45	23	41%		
	46-60	9	16%		
	>60	10	17,8%		
Education	Did not finish elementary school/equivalent	2	3,5%	56	100%
	Elementary school/equivalent	10	17,8%		
	Middle school/equivalent	10	17,8%		
	High School/ Equivalent	29	51,7%		
	Graduated D3/S1	5	8,9%		

	equivalent				
Ocuupation	Work	11	19,6%		
	Doesn't work	45	80,3%	56	100%
Marriage	Not Marriage yet	10	17,8%		
	Marry	46	82,1%	56	100%
Reproductive Age	Pre-Menstruation	-	-		
	Menstruation	40	71,4%		
	Menopause	15	26,7%	56	100%
	No data	1	1,7%		
Contraceptive	Condom	-	-		
	Family Planning Pills	5	8,9%		
	Injection/Implant	4	7,1%		
	IUD	7	12,5%	56	100%
	Do not use	32	57,1%		
	Steril	-	-		
	No data	8	14,2%		
Number of partners	1 Partners	36	64,2%		
	-Negative BV	7	19,4%		
	-Intermediet BV	25	69,4%		
	- Definitive BV	4	11,1%		
	>1 partners	7	12,5%	56	100%
	-Negative BV	-	-		
	-Intermediet BV	6	85,7%		
	-Definitive BV	1	14,2%		
	No data	8	14,2%		
	No partner	5	8,9%		

Patients who performed vaginal swabs were mostly in the age range of 31-45 years as many as 23 patients (41%), followed by the fertile age range of 16-30 years as many as 11 patients (19.6%) and >60 years as many as 10 patients (17.8%), then followed by 40-60 years of age as many as 9 patients (16%), while the fewest were patients with an age range between 0-15 years as many as 3 patients (5.3%). The highest proportion of education was at the high school / equivalent level, namely 29 patients (51.7%), followed by elementary school and junior high school / equivalent as many as 10 patients (17.8%). The education level of D3 / S1 Equivalent graduates was 5 patients (8.9%), and did not graduate from elementary school / equivalent as many as 2 patients (3.5%). There were 45 patients (80.3%) who were not working, The number of working patients who performed vaginal swabs was 11 (19.6%).

Marital status as many as 10 patients (17,8%) were unmarried and 46 patients (82,1%) were married. There were 40 patients with menstruation (71.4%), followed by 15 patients with menopause (26.7%),

while there were 0 cases of pre-menopausal patients and 1 patient (1.7%) with no data or information. The contraceptive method, 5 patients (8.9%) used birth control pills, 4 patients (7.1%) used injections, 7 patients (12.5%) chose IUD, while the most patients 32 patients (57.1%) did not use contraception, and for condoms and sterile contraception, 0 patients. While 36 patients (64.2%) had 1 sexual partner who suffered from Bacterial vaginosis where 25 patients (69.4%) had intermediate bacterial vaginosis, 4 patients (11.1%) were positive Bacterial Vaginosis and 7 patients were negative Bacterial vaginosis and 7 patients (12.5%) had >1 sexual partner, of which 6 patients (85.7%) had intermediate Bacterial Vaginosis, and 1 person (14.2%) was positive for Bacterial vaginosis while 0 cases were negative for Bacterial vaginosis : 5 patients (8.9%) had no partner and 8 patients (14.2%) had no data (Table 1).

Characteristics related to vaginal swab examination Diagnosis Results Patients Performing Vaginal Swabs Based on Various Diagnosis on Vaginal Swabs

The presence of infection could be detected through the stages of the procedure so that it could to find out the various types of diagnosis results. In the following, the authors present data regarding various types of diagnosis data in patients who perform vaginal swabs at Dr. Hospital Soetomo, Surabaya

Table. 2 Distribution of patients who performed vaginal swabs in the obstetrics polyclinic of RSUD DR. Soetomo Surabaya in 2020

based on various types of diagnosis on vaginal swab.

Category	Total Category	Percentage Category	Total	Percentage
Bacterial Vaginosis	48	85,7%		
-Negative BV	8	14,2%		
-Intermediet BV	43	76,7%		
-Definitive BV	5	8,92%		
Vaginal Candidiasis	-	-		

Kinds Of diagnosis	Trichomoniasis	-	-	56	100%
	Malignancy, uterine prolaps, ovarian cyst, etc	8	14,2%		

From these data, 48 patients (85.7%) were diagnosed with Bacterial Vaginosis, where the details of the data were 8 people (14.2%) negative Bacterial Vaginosis, 43 patients (76.7%) were intermediate Bacterial vaginosis and 5 (8.92%) of patients had positive Bacterial Vaginosis, while Candidiasis vaginalis and Trichomoniasis were not found, and 8 patients (14.2%) were found (Table 2).

4. Discussion

Characteristics associated with vaginal swab examination Demographic, Host, and Environmental factors

Patients Performing Vaginal Swabs by Age, Occupation, Marriage, Reproductive Age, Contraceptive method, and Number of sexual partners

Based on the age range group, the largest proportion of patients who performed vaginal swabs was found in the age group 31-45 years, namely 23 cases (41%). The youngest age in this case was 12 years old as many as 1 case while the oldest age was 79 years old as many as 2 cases. Meanwhile, from the test results the value between age and diagnosis results had a value of 0.127 ($p > 0.05$), this means that there was no relationship between age and diagnosis results (vaginal swab examination). Meanwhile, research conducted by Hidayati (2016) in Mojo Andong Boyolali village, the age that had a high prevalence of vaginal discharge was women of perimenopausal age (46-50 years), namely 33 patients (27.3%). The education level of patients who do the largest vaginal swab was high school / equivalent, namely 29 patients (51.7%). Meanwhile, from the results of the value test where the relationship between education and the results of diagnosis had a value

of 0.886 ($p > 0.05$) which means that there was no relationship or relationship between education and the results of diagnosis (vaginal swab examination). This was supported by research conducted by Khuzaiyah (2015) in the Pekalongan district hospital in 2014 that the most patients who experienced vaginal discharge came from junior high school education, namely 17 patients (34.7%). This shows that the level of education had no relationship with the occurrence of vaginal discharge with a lot of variation in education levels.

The results of the value test where the relationship between employment status and diagnosis results had a value of 0.034 ($p < 0.05$). This means that there was a relationship or relationship between employment status and the results of diagnosis (vaginal swab examination). This was supported by research conducted at the Pekalongan Regency Regional Hospital in 2014, it shows that most of the respondents as many as 32 (65.3%) who experienced vaginal discharge did not work (Khuzaiyah et al., 2015). In this study, 46 patients (82.1%) were found to be married. While the results of the value test where the relationship between marital status and diagnosis results had a value of 0.657 ($p > 0.05$). This means that there was no relationship or relationship between marital status and the results of diagnosis (vaginal swab examination). This was in line with the research of Mutmainnah (2012) in the Taeng Village area, Kec. Pallangga as many as 49 people experienced vaginal discharge pathology, namely unmarried.

Reproductive age that caused vaginitis was most common in menstruating patients, namely 40 patients (71.4%). While the results of the value test where the relationship between reproductive age and diagnosis results had a value of 0.475 ($p > 0.05$). This means that there is no relationship between reproductive age and diagnosis results. This was in line with research conducted by Hidayati (2016) in Mojo Andong Boyolali village, which said that reproductive age which had a high prevalence of vaginal discharge could

also occur in perimenopausal women, namely 33 patients (27.3%). In this study, 32 patients (57.1%) did not use contraception. While the results of the value test where the relationship between contraceptive methods and diagnostic results had a value of 0.506 ($p > 0.05$). This means that there is no relationship between contraceptive methods and the results of diagnosis. Research conducted by Khuzaiyah (2016) says that shows that there were almost half (42.9%) of respondents who experience fluor albus using hormonal birth control. In this study, the results of patients who has married once were 36 patients (64.2%). The results of the value test where the relationship between the number of sexual partners and the diagnosis results had a value of 0.218 ($p > 0.05$). This means that there was no relationship between the number of sexual partners and the results of the diagnosis. While Karim and Barakbah's research, (2016) in Soetomo said that as many as 20 patients (60.6%) the most sexual partners.

Characteristics related to vaginal swab examination Diagnosis Result

Patients Performing Vaginal Swabs Based on Various Diagnosis on Vaginal Swabs

Vaginitis or infection in the vagina was divided into several causes including bacterial vaginosis, vulvovaginal candidiasis, trichomoniasis, or co-infection (Gaydos, et al, 2017). In this study the authors obtained data that the most common cause of vaginitis cases was caused by bacterial vaginosis, namely 48 patients (85.7%). In Soetomo in 2012-2014, the most common diagnosis was also caused by bacterial vaginosis, which was 81.8% or 27 patients (Karim and Barakbah, 2016). Bacterial vaginosis was a common cause in women of childbearing or reproductive state so that it causes women to complain of abnormal secretions (Barnes et al., 2017). This was because women of childbearing age are an age group with high sexual activity (Fethers et al., 2009). This was in line with Roby (2019) who said that the main cause of

vaginitis is 70% generally due to bacterial vaginosis, vulvovaginal candidiasis and trichomoniasis with the percentage of each cause from the most common being 40-50% of vaginitis patients due to bacterial vaginosis, 20-25% due to vulvovaginitis candidiasis, and 15-20% due to trichomonas vaginitis.

5. Conclusions

Vaginal discharge from the test results does not has a relationship or relationship with age, educational status, occupation, marriage, reproductive state, contraceptive method, even the number of sexual partners because it is a complex situation where many factors can cause this which could affect one person each other.

6. Recommendations

It was necessary to increase education regarding early detection of vaginal discharge symptoms in Indonesian women, where early detection and initiation of therapy can reduce the impact significantly.

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REFERENCES

- Abrori, Hernawan, A. D., & Ermulyadi. (2017). Faktor yang berhubungan dengan kejadian keputihan patologis siswi SMAN 1 Simpang Hilir Kabupaten Kayong Utara. *Unnes Journal of Public Health*, 6(1), 24–34. <https://doi.org/10.15294/ujph.v6i1.14107>
- Aisyah & Oktariana .2012. Perbedaan Kejadian Ketuban Pecah Dini (KpD) Antara Primipara dan Multipara edisi. 1 . Lamongan : Program Studi Diploma III Kebidanan Universitas Islam Lamongan.
- Anindita, W. dan Martini, S. 2006. Faktor Risiko Kejadian Kandidiasis Vaginalis pada Akseptor KB .*The Indonesian Journal of Public Health*. Vol. 3. No. 1.Juli. 2006. 24-28.

- Angka, A. T., Marlina, Datuan, O., & Tunde, G. F. (2019). Hubungan Pengetahuan dan Sikap Remaja Putri dengan Kebersihan Organ Reproduksi pada Saat Menstruasi di Smp Negeri 27 Makassar. *Junalllmiah Media Bidan*, 4(2), 72–80.
- Aulia.2012. *Serangan penyakit-penyakit khas wanita paling seringterjadi*.Yogyakarta: Buku biru.
- Barnes, P., Vieira, R., Harwood, J., & Chauhan, M. (2017). Self-taken vaginal swabs versus clinician-taken for detection of candida and bacterial vaginosis: A case-control study in primary care. *British Journal of GeneralPractice*, 67(665), e824–e829.
<https://doi.org/10.3399/bjgp17X693629>.
- Bokaie, M., dan khalesi, BZ 2019.[online] Available
at:<<https://www.researchgate.net/publication/332560327> Couple Therapy andVaginismus A Single Case Approach> [Accessed 9 june 2021].
- Daili.(2015). Infeksi Menular Seksual. Balai Penerbitan FKUI : Jakarta.
- Daili., Fahmi, S., Indriatmi, B. 2009. Penyakit Menukar Seksual. Rasio: Balai Penerbit Fakultas Kedokteran Rasio.
- Dhuangga, W. P. (2012). Efektifitas Pendidikan Kesehatan Tentang Hygiene Kewanitaan Terhadap Pengetahuan dan Sikap Remaja Putri dalam Menangani Keputihan. *Jurnal Ilmiah Media Bidan*, 2(2), 116–132.
- Duenhoelter, J.H. 1989. Ginekologi Greenhill, edisi 10, EGC : Rasio.
- Eroschenko, VP. 2008.*diFiore's Atlas of Histology with Functional Correlations* edisi 11 . Philadelphia :Wolters Kluwer Health/Lippincott Williams & Wilkins.
- Fatimah. (2013). Hubungan Antara Pengetahuan dan Sikap Pasien Infeksi Menular Seksual dengan Perilaku Pencegahan Penularan IMS di Wilayah Kerja Puskesmas Kom Yos Sudarso Pontianak. FK Universitas Tanjungpura.
- Fethers, K. A., Fairley, C. K., Morton, A., Hocking, J. S., Hopkins, C., Kennedy, L. J., Fehler, G., & Bradshaw, C. S. (2009). Early sexual experiences and risk factors for bacterialvaginosis.*TheJournal of infectiousdiseases*, 200(11), 1662–1670.
<https://doi.org/10.1086/648092>.

- Gartner, LP., & James, HL. 2009. *Color textbook of histology* edisi 3. Philadelphia: Saunders Elsevier.
- Gaydos, CA., Beqaj, S., Schwebke, JR., dkk .2017. Clinical Validation of a Test for the Diagnosis of Vaginitis, *Obstetrics & Gynecology*.130(1):181–189.
- Herawati, A., Mahdiyah, D., Khatimah, H., & Banjarmasin, A. S. M. (2016). Hubungan Pekerjaan dan Vulva Hygiene dengan Kejadian Keputihan pada Ibu Hamil di Puskesmas Sungai Bilu Banjarmasin. *Dinamika Kesehatan*, 7(2), 279–287
- Hidayati, R., Mulyani, S., & Nugraheni, A. (2016). Hubungan Antara Pengetahuan Tentang Vulva Hygiene Dan Kejadian Keputihan Pada Wanita Perimenopause. Perpustakaan UNS.
- Hull University Teaching Hospitals NHS Trust.2020.Instructions for self Collection of Vaginal Swabs [Hull University Teaching Hospitals NHS Trust.[online] Available at: <[https://www.hey.nhs.uk/pathology/departement of infection/virology/vagianl-swabs/](https://www.hey.nhs.uk/pathology/departement%20of%20infection/virology/vagianl-swabs/)> [Accessed 9 Rasio 2021].
- Isro'in, L., & Andarmoyo, S.(2012). *Buku_Personal Hygiene.pdf*
[http://eprints.umpo.ac.id/2039/1/Buku_Personal Hygiene.pdf](http://eprints.umpo.ac.id/2039/1/Buku_Personal_Hygiene.pdf).
- Karim, A. And barakbah, j., 2016. [online] Repository.unair.ac.id. Available at:<[http://repository.unair.ac.id/95908/3/12.%20STUDI%20RETROSPEKTI F%20VAGINOSIS%20BAKTERIAL.pdf](http://repository.unair.ac.id/95908/3/12.%20STUDI%20RETROSPEKTI%20VAGINOSIS%20BAKTERIAL.pdf)> [Accessed 26 September 2022].
- King Edward Memorial Hospital .2018. *Clinical Practice Guideline: Vaginal Procedures*. Australia.
- Kissanti, Annia. 2008. *Buku pintar wanita : kesehatan dan kecantikan / Annia Kissanti*. Rasio : Araska.
- Korownyk, C., Kraut, R. Y., & Kolber, M. R. (2018). Vaginal self-swabs for chlamydia and gonorrhea. *Canadian Family Physician*, 64(6).
- Lobo RA.2007. Menopause: endocrinology, consequences of estrogen deficiency, effects of therapy, hormone replacement treatment regimens. In: Katz VL, Lentz GM, Lobo RA, Gershenson DM, eds. *Comprehensive Gynecology*. 5th ed. Philadelphia, Pa: Mosby Elsevier: chap 42.[https://dx.doi.org/10.1016/B978- 0-323-02951-3.50045-5](https://dx.doi.org/10.1016/B978-0-323-02951-3.50045-5) diakses tanggal 15 Desember 2015.