



**MICROBIOLOGICAL AGENTS OF VULVOVAGINITES IDENTIFIED BY PAP SMEAR**  
**AGENTES MICROBIOLÓGICOS DE VULVOVAGINITES IDENTIFICADOS PELO PAPANICOLAU**  
**AGENTES MICROBIOLÓGICOS DE VULVOVAGINITES IDENTIFICADOS POR PAPANICOLAU**

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**ABSTRACT**

**Objective:** investigating the prevalence of the main microbiological agents of vulvovaginitis. **Method:** retrospective and documental study performed with 1.510 records from oncotic cytology books. There were analyzed 514 records of women aged 15 to 64 years old. For analysis, it was proceeded the distribution of frequencies and percentages of the variables through the Statistical Package for Social Sciences (SPSS) version 17.0. A research approved by the Research Ethics Committee, CAAE N. 0564.0.126.000-10. **Results:** *Candida albicans* was more prevalent than the other microbiological agents; *Gardnerella vaginalis* obtained the highest percentage (42%) in 2007, when compared to other years, the microorganisms were most prevalent in the age group of 25-34 years old. **Conclusion:** it is encouraged the work of health professionals in view to promote educational actions aimed at raising awareness of women of different ages, about the importance of Pap smear. **Descriptors:** Gynecological Diseases; Exam Pap; Women's Health; Family Health; Health Professionals.

**RESUMO**

**Objetivo:** investigar a prevalência dos principais agentes microbiológicos de vulvovaginites. **Método:** estudo documental e retrospectivo realizado com 1.510 registros dos livros de citologia oncológica. Analisou-se 514 registros de mulheres na faixa etária dos 15 aos 64 anos. Para a análise, procedeu-se à distribuição das frequências e percentuais das variáveis através do programa estatístico *Statistical Package for the Social Sciences* (SPSS) versão 17.0. Pesquisa aprovada pelo Comitê de Ética em Pesquisa, com CAAE nº 0564.0.126.000-10. **Resultados:** a *Candida albicans* foi mais prevalente que os demais agentes microbiológicos; a *Gardnerella vaginalis* obteve o maior percentual (42%) em 2007 quando comparado aos demais anos; os microrganismos foram mais prevalentes na faixa etária de 25-34 anos. **Conclusão:** incentiva-se a atuação dos profissionais de saúde no sentido de promover ações educativas visando à conscientização de mulheres das diversas faixas etárias, sobre a relevância do exame Papanicolaou. **Descritores:** Doenças Ginecológicas; Exame Papanicolaou; Saúde Da Mulher; Saúde da Família; Profissionais Da Saúde.

**RESUMEN**

**Objetivo:** investigar la prevalencia de los principales agentes microbiológicos de vulvovaginitis. **Método:** estudio retrospectivo y documental realizado con 1.510 registros de los libros de citología oncológica. Se analizaron los registros de 514 mujeres de 15 a 64 años. Para el análisis, se procedió a la distribución de frecuencias y porcentajes de las variables a través del paquete estadístico para Ciencias Sociales (SPSS) versión 17.0. La investigación fue aprobada por el Comité de Ética de Investigación, con CAAE No 0564.0.126.000-10. **Resultados:** la *Candida albicans* fue más frecuente que los demás agentes microbiológicos; *Gardnerella vaginalis* mostró el mayor porcentaje (42 %) en 2007 en comparación con otros años, los microorganismos fueron más frecuentes en el grupo de edad de 25-34 años. **Conclusión:** se fomenta el trabajo de los profesionales de salud para promover acciones educativas destinadas a la sensibilización de las mujeres de diferentes edades, sobre la importancia de la prueba de Papanicolaou. **Descritores:** Enfermedades ginecológicas; Papanicolaou examen; Salud de la Mujer; Salud de la Familia; Profesionales de la Salud.

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## INTRODUCTION

Vulvovaginitis or vaginal disorders account for about 70% of gynecological complaints. The most common diseases are bacterial vaginosis (BV), represented mostly by *Gardnerella vaginalis*, vulvovaginal candidiasis (VVC), by *Candida albicans*, and trichomoniasis, by *Trichomonas vaginalis*, which are responsible, respectively, for the majority of complaints of leucorrhoeas nationally and internationally. It is important to remark that the prevalence of these diseases may vary according to location and population.<sup>1</sup>

It is considered that the clinical symptoms resulting from vaginal diseases caused by microbiological agents are an important issue related to health, as profound origin disorders can pass diseases on the health of affected women. In this context, these gynecological problems are relevant to women's health diseases, due to its high frequency and multiplicity of agents, but also for its negative impact on the emotional and reproductive behavior. They are characterized by inflammatory manifestations caused by microbial agents present on the vulva, vagina and/or squamous epithelium of the cervix (the ectocervix), being the clinical symptoms the presence or absence of leucorrhoeas varied staining (white, yellow, gray, green), unpleasant odor, irritation, itching or burning in the vagina or vulva, pain or burning sensation when urinating and pelvic discomfort. Some signs are nonspecific and many genital infections may be asymptomatic.<sup>2</sup>

It is known that for the diagnosis of etiologic agents of vaginal affections it advocates fresh examination with the immediate use of the microscope, followed by the test of potassium hydroxide (KOH) to 10% for evaluation of vaginal pH.<sup>2</sup>In these cases the trader should follow a different behavior for each microbiological results, ie, the clinical symptoms combined with the laboratory results of the microbiological agent determines the best treatment of vulvovaginitis. However, in most public health services, Pap smear complies with secondary diagnoses for these disorders vaginal paper, according to the proposal of the National Program for Cancer Control of Cervical and Breast (PNCCCCUM),<sup>3</sup>due to unavailability of the review fresh with microscope for detection of these microorganisms. It is important to emphasize that such diseases can cause pain or discomforts arising in the course of the same odor, and as a result of pathophysiological conditions that are

involved in the symptoms of these diseases.<sup>4</sup>Soon, services that do not offer that specific exam, something that is fairly normal in the county that the survey was conducted, the Pap becomes extremely important to detect these etiologic agents.

Documentary research retrospective, held at the family health center, in an area of the outskirts of the city of Fortaleza, identified in cervical cytology, not taken from a basic health unit, that consistent vaginal disorders with an inflammatory process were *G. vaginalis* (25,3%) *C. albicans* (10,2%) and *T. vaginalis* (3,1%). Furthermore, in 66.7% of reports of cervical intraepithelial neoplasm type I/HPV, *Gardnerella vaginalis* was present, suggesting a significant association between human papillomavirus DNA and indicative microbiota VB. As for trichomoniasis, this condition can alter cellular result of Pap smear.<sup>5</sup>Therefore, it is noted the importance of diagnoses of these etiological agents of vulvovaginites as essential to reducing losses more impactful to women's health.

Falls inform you that the interest and approach to the subject began with participation in the extension project "Preventing Breast Cancer and Cervical Health Unit in a Family", funded by the Scholarship Program Extension - PROBEX, in conjunction projects approved under the Federal University of Paraíba. The work on this project prompted an investigation of job completion of course that supported the preparation of this article. Thus, realizing the importance of Pap smear for detection of vaginal diseases in this health service, since there is no availability of fresh examination with microscope followed by KOH test, felt the need to conduct a prevalence study major causative microbiological agents of vulvovaginitis, hoping to get a picture of micro generators of gynecological diseases in women attending the health service.

As people committed to public health through outreach activities, we proposed a focused activity in this unit, with the aim of encouraging the resolution of the real issues related to the disease process of community assisted by consolidating education and research as a practice that reverses on social benefit.

The importance of this study lies in getting an overview of the community about the etiological agents of gynecological diseases that occupy a high percentage of clinical complaints, basing himself on the initiative of tracing the financial future of the family health team strategies, which presents a

proximity with very helpful to users of the service and may modify unhealthy lifestyle habits through small actions.

Imbricated in the intimate aspects and possible consequences for sexual health, which can reach the woman in their entirety, nature research aims to investigate the prevalence of the main microbiological agents of vulvovaginitis.

## METHOD

Article compiled from Labor Course Conclusion << Vulvovaginitis evidenced from the Pap smear in a Family Health Unit, in João Pessoa-Paraíba: Educational Proposal >> presenting the Coordination of Undergraduate Nursing's Center for Health Sciences Federal University of Paraíba / UFPB. João Pessoa, PB, Brazil. 2011.

A study of documentary and retrospective type, of quantitative approach, developed in a Family Health Unit of João Pessoa - PB, where is developed the National Program of Cancer Control of Cervical and Breast Cancer, the "Viva Mulher" (Live women, in Portuguese).

We worked with secondary data, in which the information was taken from the books of records cytology. The survey looked at the period from 2004 to 2009; they were collected in the months of December 2010 and January 2011. This period is justified by the fact that the years 2004 to 2009 being the oldest and the newest, respectively, compared to the complete annual records of a healthcare unit obeying the proposal of the research project, when referred for consideration by the ethics committee.

It should be emphasized that this is just a family health unit, integrated four-unit complex. We chose to investigate only one unit, for the period of records present in the cytology of this book was the longest since the other units had only the annual records of the years 2008 and 2009.

It must be said again that the results of microbiological agents were taken directly from the book referring to pap smear Nurse Family Health Unit, so do not follow the direct laboratory diagnosis, nor ask another collection of material for confirmation of the award, because it is a retrospective study in which we use secondary data through the printed results stemmed from laboratory to the health unit.

We know that women sought his exam results, on average fifteen days after the collection of cervical material in place result in the opening of the nurse, which recorded the laboratory report in that book room. In this book, there were columns for: personal

data (name, age, address...), name of the health worker responsible for his home and laboratory report.

According to our routine, with positive laboratory result for microbiological agents *C. albicans*, *G. vaginalis* and *T. vaginalis*, women should be referred to the medical service and this prescribes a specific drug therapy every vaginal disorder associated with clinical complaints.

The factor that strengthens the bound drug therapy in laboratory report is that the women of this community, most providers are family and sometimes relegate their health in the background at the expense of labor, due to the need to maintain their lives and relatives.

A request to repeat the Pap smear, for confirmation of the etiologic agent, although, it could rarely met due to work activities. Therefore, in this study, when we speak of the etiologic agent, refer to the corresponding IPV existed since the treatment after the laboratory report as routine treatment.

The team has been doing this, despite recommendations and control behaviors and prevention of gynecological complaints for vulvovaginitis and vaginal discharge, which calls for the use of other methods for confirmation of gynecological disease, such as vaginal pH test.<sup>1</sup>In service is preferable to treatment instead of waiting for the disease to develop with clinical manifestations, since the Pap smear is the only method of detection of these microbial agents that service due to lack of health care.

There were analyzed 1.510 records. However, the inclusion criteria of the sample consisted of the records in the column for the laboratory report revealed only the microbiological pathogens *Candida albicans*, *Gardnerella vaginalis* and *Trichomonas vaginalis*, a total of 514 results. These records were reviewed three times by five researchers. Therefore, to confirm all the results obtained in this study, there were fifteen revisions of the investigated material.

The exclusion criteria were that the column of laboratory report presented: a) missing results, with 115 samples, those who were not recorded in the book b) unsatisfactory collection for analysis, with four records c) microbiological standard normal, totaling 877 records. The latter exclusion criterion took into account the presence of cocci, bacilli and lactobacilli, since according to the Brazilian classification for cervical and recommended conduct reports, these reports are considered normal findings, part of the vaginal microbiota and

does not characterize infection requiring treatment.<sup>6</sup>

We investigated the prevalence, as this is a measure of frequency of occurrence of a condition, indicating the strength with which the disease persists in the population, that is, the number of cases.<sup>7</sup> In this research, we do not require the same woman owned recurrence microbiological agent or not, being included only cases of existence of such agents, because in our design, each collection of material related how another lab results, following the concept of prevalence, with regard to the frequency of the event.

The positive microbiological reports were seen as individual queries, even if the woman has played once a year, repeating during the six years of the retrospective study, it was considered more a result that met our inclusion criteria, as transcribed only laboratory reports and age over the years, to make the analysis of data.

To execute the research criteria established in Resolution N° 196/96, which regulates research in humans and access to personal customer data for research purposes.<sup>8</sup> The operational stages of the research were conducted under authorization of the City Health Department were of João Pessoa/PB, the Board of Health District Health V, the responsible for the Integrated Family Health Unit, as well as the authorization of the nurse of the Family Health Unit where the data were collected.

The certificate of approval was issued by the Committee of Ethics in Research of the University Hospital Lauro Wanderley N. 731/10, with CAAE n° 0564.0.126.000-10. It was maintained secrecy about personal aspects of each customer, using only age and

the presence of microbiological gynecologic disease-causing agent, preventing the identification of any woman.

The collected information was duly recorded in pre-coded form for entering data into the computer and then entered into a database created in the Statistical Package for Social Sciences (SPSS) version 17.0. For the analysis proceeded to the distribution of frequencies and percentages of the variables collected.

## RESULTS

The search in the records of oncotic cytology revealed that 1.510 women underwent cytological material in the collection period from 2004 to 2009. It was found that 514 women had positive results for microbiological agents causing vulvovaginitis given the inclusion criteria established. Therefore, the distribution of the main etiological agents of vulvovaginitis evidenced in the research show that from this total, 367 women (71,4%) had microbiological results as *Candida albicans*, 128 (25,0%) had *Gardnerella vaginalis* and 19 women (3,6%) had *Trichomonas vaginalis*.

In order to observe the microbial distribution along the studied period, we proceeded to the analysis of records per year. It is possible to observe that in all the years analyzed, the *C. albicans* was more prevalent than other etiological agents of vaginal disorders. Also, in 2007 occurred 41 records (32%) of *Gardnerella vaginalis*, the highest percentage compared to the other years of the prevalence of this microorganism, while *C. albicans* and *T. vaginalis* occurred more in 2008, with 88 records (24,0%) and 07 records (36,9%) respectively (Table 1).

Table 1. Annual distribution of microbiological agents those cause vulvovaginitis evidenced in the research (N = 514)-João Pessoa, 2011.

Year/ Vulvovaginitis	<i>Candida albicans</i> (n)	(%)	<i>Gardnerella vaginalis</i> (n)	(%)	<i>Trichomonas vaginalis</i> (n)	(%)
2004	33	9,0	10	7,8	03	15,7
2005	65	17,7	17	13,3	0	0
2006	69	18,8	03	2,4	01	5,3
2007	65	17,7	41	32,0	03	15,7
2008	88	24,0	30	23,5	07	36,9
2009	47	12,8	27	21,0	05	26,4
Total	367	100	128	100	19	100

In Table 2, we find that all microbiological agents were more prevalent in the age group of 25-34 years old, followed by the age group 16-24 years old, with predominance in both

age groups, the etiologic agent *Candida albicans* after *Gardnerella vaginalis* and *Trichomonas vaginalis*.

**Table 2.** Distribution of microbiological agents those cause vulvovaginitis regarding the age group (N = 514)-João Pessoa, 2011.

Age/ Vulvovaginitis	<i>Candida albicans</i> (n)	(%)	<i>Gardnerella vaginalis</i> (n)	(%)	<i>Trichomonas vaginalis</i> (n)	(%)
≤15 years old	06	1,6	02	1,6	0	0
16-24	152	41,4	36	28,1	04	21,1
25-34	163	44,4	50	39,1	08	42,1
35-44	34	9,3	30	23,4	04	21,1
45-54	08	2,2	10	7,8	03	15,7
55-64	04	1,1	0	0	0	0
≥65	0	0	0	0	0	0
Total	367	100	128	100	19	100

## DISCUSSION

The Ministry of Health argues that the main vulvovaginitis is vulvovaginal candidiasis, bacterial vaginosis, and trichomoniasis, according to the order of occurrence in Pap smear,<sup>1</sup> corroborating to our findings. Similarly, a study similar to this prevalence, using secondary data from a period of two years, in the city of Patos-Paraíba, showed that the most frequent etiologic agent was *Candida sp*, with 60,7% of cases, followed by the agents before mentioned.<sup>9</sup>

Another documentary study conducted in four units that are part of the Integrated Family Health Unit in which this investigation was occurred, it concluded that in a period of two years, the *C. albicans* was the vaginal microorganism causing the most prevalent gynecological disorders ascribed to this community service,<sup>4</sup> confirming the pattern found in our studies. However, other studies argue *Gardnerella vaginalis* as the holder of the clinical signs and microbiological diagnostics,<sup>5,10,11</sup> showing that differences in the prevalence of diseases in different parts of the country.

In relation to candidiasis, a disease caused by the agent *C. albicans* synthetic fabric underwear, rather than parts of cotton fibers, may cause heating and subsequent intimal region moisture, affecting the genital region and the discomfort caused by increasing vulvovaginitis, as garments of this material promotes the growth of microorganisms in the vagina.<sup>12</sup> Thus, the healthcare team must be aware of the guidelines related to the prevention of candidiasis, as this is configured as the most prevalent disease in women who use the service, considering the treatment used after microbiological diagnosis.

We highlight the role of nurses regarding nursing consultation which is ideal to identify aspects of the life history and women's health as well as to collect the cytopathological material and detection of vaginal disorders, since the Pap smear is the examination for this diagnosis at this health service. Furthermore, the consultation provides an opportunity to recognize factors

that contribute to the emergence of these infections and conducting orientations prevention, recovery and rehabilitation of the client. It is worth noting that women with vulvovaginitis are affected by unpleasant symptoms such as itching, burning or odor those may be identified by nurses during the anamnesis.

It should be noted that these symptoms caused by vaginal disorders can impair sexual dynamics of the couple. In this respect, it is important to emphasize that in addition to physical damage, discomfort and embarrassment affect mainly the emotional and psychological condition of the patient and his partner. Based on this, the nursing professional must create a suitable environment to host the patient or couple, act in ways to listen to their complaints avoiding judgments of moral value and stimulate both use preventive measures to avoid recurrences after treatment.

Regarding the annual distribution, in 2008 there was a greater amount of women diagnosed with etiological agents of vulvovaginitis. This year the Health System in Brazil completed twenty years of operation and campaigns were launched to further development/implementation of actions aimed at women's health by states and municipalities, further emphasizing the control of cervical and breast cancer as one of the priorities of the Covenant for Life.<sup>13</sup>

As a reflection of this incentive, there was a greater use of financial resources stemmed from the Federal Government to the city of João Pessoa directed to healthcare, over the previous year.<sup>14</sup> This suggests that there was a prioritization of financial resources in the health field by federal, state and municipal bodies over the years, to intensify efforts to organize services, provide material resources and strengthen the improvement of quality of life through the development of strategies and actions in health, including pap smear.

It is necessary recognizing that government incentives through national media campaigns for preventive examinations, as well as the provision of physical inputs needed to skilled care on the part of managers may contribute

to the accession of women to the pap smear, assisting the prevention of gynecological diseases in this service, and especially of cervical cancer that is the primary function of this type of examination. It is important to emphasize that the gaps in the health system are embedded in a much more complex environment than we imagine, often blaming health professionals about disability services, an easier alternative to justify the calamity of national health. However, they are small actions of governmental bodies which affect a whole pattern of illness.

In relation to age, with regard to sexual activity, the study revealed a significant increase in sexually active women aged 25-34 and 16-24.<sup>15</sup> Thus, it is understood that among various causal factors of vulvovaginitis as a result of microbial proliferation, highlights the multiplicity of sexual,<sup>2</sup> although only *T. vaginalis* can be considered a sexually transmitted infection.

It is believed that the large number of records of women aged cited is due to greater care with intimate health, since it suggests that they are in full exercise of sexual activity. It is noteworthy that exposures resulting from sexual intercourse without condom use increases the risk of STIs, among which is trichomoniasis, revealing eight cases in the age group of 25-34 years old.

Regarding age, it realized a reduction of the records of women aged over 45 who sought health services for gynecological care. In this regard, it is known that hormonal changes stemmed from menopause, postmenopausal phase, which usually happens around 48 to 50 years of age, can lead to the decline of sexual activity.<sup>16</sup> Additionally, there are other important factors not performing the Pap smear, such as lack of knowledge about cervical cancer,<sup>17</sup> the fear related to the procedure and outcome, or shame and embarrassment upon examination.<sup>18,19,20</sup>

In Brazil, the Pap smear is a screening strategy of the recommended cervical cancer by the Ministry of Health, primarily for women of 25-59 years old, due to the increased risk of developing precursor intraepithelial lesions of this cancer.<sup>1</sup> deduce that by virtue of compliance with health goals, women over sixty are the margin of this strategy, and tracking and active search for users in senescence little action performed by professionals due to epidemiological data generated on the risk of developing the disease. Therefore, it is worth noting that screening women in all age groups to perform the Pap smear should be a conscious responsibility of staff in the health unit of the

present study. It is important to pay attention to the prevention of injuries in relation to gynecological aspects, since both vulvovaginitis, as cervical cancer, are problems that can directly influence the well-being of women in different stages of life.

We emphasize the Pap smear for the diagnosis of microbiological agents in this health unit, as the only test available to women who have clinical symptoms consistent with vulvovaginitis in that community. However, we emphasize that this exam has the specific role of trace neoplastic cervical cells, but can be used for services that do not have the fresh examination with a microscope, which is a reality in almost all the health facilities in the municipality João Pessoa, but different from the reality of other cities.

Health promotion should be carried through intersectoral partnerships, popular participation and collective accountability for quality of life. This requires engagement and interest by civil society and the state, transcending activities and individual decisions. However, health professionals should lead the woman in order to sensitize it to the act of performing the screening test, becoming a concern in everyday life and their health practices,<sup>11</sup> extrapolating the medicalization of care and incorporating education promotion health.<sup>21</sup>

Regarding the promotion of health, emphasizes the importance of nurses in the implementation of educational and preventive campaigns with women in different age groups, on how to prevent vulvovaginitis and the importance of the diagnosis of generating agents of these diseases, as well as the cancer screening cervical, aiming at expanding women's body self, but also the capacity for autonomy, accountability and awareness about their health.

Realizes the need to involve all staff in conjunction with government bodies, educational institutions and society in the development of strategies aimed at building knowledge from reality, belief and culture of these women, aiming primarily changes behavior can be controlled. From this perspective, minimum shares, how to investigate cases of existing generators microbiological agents vaginal disorders, allows to produce important work of professionals as to prevent vulvovaginitis information, based on health guidelines that substantially improve the inner condition of these women.

## CONCLUSION

The importance of the Pap smear, not only for prevention and early diagnosis of cervical cancer and precursor lesions, but also a strong ally for the detection of some vaginal affections, particularly in the health services those are not available the fresh examination with microscope followed of KOH test.

It is believed that after finding the pap smear is directly linked to the sexually active, the suggested age range of highest and lowest prevalence of vaginal disorders. Moreover, with respect to comprehensive care to women, health actions should not be limited to achieving goals, and yes, cover all stages of life, with the aim of reducing health problems in the field of sexuality.

We emphasize redemption and confirmation of the importance of actions and research projects developed by university extension services in public health, for the purpose of academic qualification, as the possibility of improving public health through changes in life habits harmful to health. We point out the lack of scientific studies those focus on the vaginal disorders, making it difficult to literary research grant in question. Thus, further research should be encouraged to collaborate with the scientific community in the intention of providing knowledge and modifying professional practices.

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