

**Title: Prevalence and associated factors of abnormal cervical smears in women with abnormal vaginal discharge**

1: dr munazza yousaf

Mbbs fcps gynea , meduical offier merf

2: dr unzilla umer

Mbbs fcps gynea , trainee registrar government hospital nishterabad

3: dr iqra shams

Mbbs fcps

4: dr farhat rehaman

Associate professor, mbbs-mphill physiology and hod bkmc-mm/mti

Corresponding author

Name: drt unzilla umer

Designation: Mbbs fcps gynea , trainee registrar government hospital nishterabad

Email: unzila.yasir@gmail.com

Contact:03339447793

## Abstract

**Objective:** to determine the prevalence of abnormal cervical smears and the features of women who report abnormal vaginal discharge that are associated with them. The study set out to evaluate the associations between abnormal cervical smears and factors such as age, parity, smoking status, partner's HPV status, and oral contraceptive pill (OCP) use history.

**Methodology:** Three age groups of participants were identified: 30–40 years old, 40–50 years old, and 50–60 years old. Information was gathered regarding parity, the partner's HPV status, smoking habits, and past OCP use. We obtained cervical smears and examined them for anomalies. After stratifying the data according to the previously described variables, statistical analysis was done to ascertain the significance of any correlations between these variables and the frequency of abnormal cervical smears.

**Result:** In 29.8% of the women, abnormal cervical smear results were discovered. All age groups (27.5% for 30–40 years, 26.8% for 40–50 years, and 33.8% for 50–60 years) and parity levels (30.3% for 1-3 pregnancies and 28.6% for 4-6 pregnancies) had comparable rates of abnormal smears. Nonetheless, a noteworthy correlation was discovered between a partner's HPV status and abnormal cervical smear results; specifically, abnormal smears were identified in 47.1% of women whose partners had HPV positive status, as opposed to 26% of women whose partners had HPV negative status ( $p=0.015$ ). Regarding history of OCP use ( $p=0.171$ ) and smoking status ( $p=0.643$ ), no significant relationships were discovered.

**Conclusion:** Age, parity, smoking status, and history of OCP usage are not substantially correlated with abnormal cervical smears; however, the partner's HPV status is. This emphasizes how crucial it is to take a partner's HPV status into account when developing screening and preventative plans for cervical health. Additional investigation is required to examine the fundamental causes and create focused therapies aimed at lowering the incidence of cervical anomalies.

**Key words:** cervical cancer, cervical smear, pap smear, human papilloma virus, oral contraception.

## Introduction:

The second most frequent malignancy in women worldwide is cervical cancer. Because screening programs for early pathology diagnosis are properly implemented, the incidence of cervical cancer is declining in developed nations. If detected early, the ailment is considered preventable. A screening test called a Pap smear is used to identify precancerous abnormalities in the cervix. The Pap smear, also known as the Papanicolaou screening test, was created by Dr. George Papanicolaou in order to identify aberrant cervical cytology<sup>1-2</sup>. For this reason, it is a reliable and perfect screening approach for the diagnosis of invasive disease. The lack of screening options, low levels of awareness, and inadequate education are to blame for the high prevalence of cervical cancer observed in poor nations. Lack of awareness of early signs, illiteracy, and incorrect conceptions all contribute to a lower inclination to screen. 4. Cervical cancer may not present with any bothersome symptoms in its early stages. As the malignancy worsens, the women may have post-coital bleeding, painless bleeding, and vaginal discharge. Vaginal discharge is typically quite smelly, voluminous, and may contain blood<sup>3-6</sup>. It is well recognized that the human papilloma virus is the cause of cervical cancer. Prolonged smoking is one more risk factor for cervical cancer. The World Health Organization has created a risk assessment method to detect cervical infections in women who report having vaginal discharge. Cytological regression is predicted when women with mild to moderate dyskaryosis retest for high-risk HPV after six months. According to one study, 60.42% of individuals with abnormal smear results also had vaginal discharge. "Any part of the upper or lower genital tract may cause vaginal discharge; it can be pathological or normal physiological, but the presence of it can be very concerning and embracing for women." Although it may vary on the ovarian cycle, physiological discharge is more noticeable during ovulation<sup>7-8</sup>. Another study conducted by the World Health Organization found that women who have been positive for the human papilloma virus and have used oral contraceptives for a prolonged period may be more susceptible to cervical cancer. The human papilloma virus is the only known cause of cervical cancer, yet very little is known about it in the general public<sup>9-10</sup>.

#### Material and methods:

After ethical approval from the hospital this descriptive cross-sectional study was carried from Jan 2023 to Dec 2023 at gynae ward and opd Hayatabad medical complex Peshawar. The requirement for inclusion was All women presenting with vaginal discharge to the gynecology outpatient department; patients aged 20 to 60; patients who agreed to participate in the trial and provide informed consent; and patients who were pregnant, had menstrual bleeding or were in the early stages of puberty, had obvious cervical cancer, or had undergone a total hysterectomy were excluded from the study. Patients who met the requirements for inclusion were chosen by means of sequential non-probability sampling. Every patient who was involved was informed about the procedure's goal, how the data was used, and when the study was published. The patients provided written, informed consent. Demographic details such as name, age, sex, and address were noted. A comprehensive history was obtained, and a thorough physical examination was carried out. SPSS version 24.0 was used for data entry and analysis. Age and parity were determined using the means and SDs. Risk factors, HPV-positive individuals, smoking, OCP (oral contraceptive pill) use, and abnormal vaginal smears are examples of categorical variables. The normal vaginal smear was categorized based on smoking, age, parity, risk factor, and partner's I-IPV infection. and OCP utilization. The chi square test was used after stratification while maintaining P Value.

**Results:**

188 patients who were presented with abnormal vaginal discharge were included in the study. The sample's mean age was  $47.7 \pm 8.2$  years. Three distinct age groups were created by us (table 1). Table 1 shows that the sample's mean parity was  $2.9 \pm 1.5$ . Table 1 shows that 18.1% of women stated that their partners had HPV positive status. Table 1 shows that 16% of women reported smoking in the past, and Table 1 shows that 34% of women had previously used OCP. In 29.8% of the women, an abnormal cervical smear was found (table 1). We categorized the abnormal cervical smear results based on factors such as age, parity, partner's HPV status, smoking status, and past use of OCP.

**Table 1:**

variables		Frequency	percentages
age	30-40	40	21.3%
	40-50	71	37.8%
	50-0	77	41%
parity	1-3	132	70.2%
	4-6	56	29.8%
Partner with hpv	yes	34	18.1%
	no	154	89.9%
smoking	Yes	30	16%
	no	158	84%
Ocp use	yes	64	34%
	no	124	66%
Abnormal cervical smear	Yes	56	29.8%
	no	132	70.2%

**Table 2:**

Different stratification	Abnormal smear		P-value	
	yes	no		
age	30-40 year	11(27.5%)	29(72.5%)	0.608
	40-50 year	19(26.8%)	52(73.2%)	
	50-60 year	26(33.8%)	51(66.2%)	
parity	1-3	40(30.3%)	92(69.7%)	0.812
	4-6	16(28.6%)	40(71.4%)	
Partner with hpv	yes	16(47.1%)	18(52.9%)	0.015
	no	40(26%)	114(74%)	
smoking	yes	10(33.3%)	20(66.7%)	0.643
	no	46(29.1%)	112(70.9%)	
History of ocp use	yes	15(23.4%)	49(76.6%)	0.171
	no	41(33.1%)	83(66.9%)	

**Discussion:**

the average age of the participants in the 188 women in the study who presented with abnormal vaginal discharge was 47.7 years, with an 8.2 year standard deviation. Three age groups of women were identified: 30–40 years, 40–50 years, and 50–60 years. Of these, the 50–60 year olds made up the largest group (41%). cervical cancer ranks second most common in women and is the most common cancer among women living in underdeveloped nations. Women who are of reproductive age frequently experience cervical infections, which are linked to vaginal discharge concerns<sup>11-12</sup>. The number of pregnancies a woman has had is known as her mean parity, and it was 2.9 with a standard deviation of 1.5. Furthermore, 16% of the women had smoked in the past, 34% had previously taken oral contraceptive pills (OCP), and 18.1% of the women indicated that their partners had tested positive for HPV. 29.8% of the participants in this group had abnormal cervical smears. The results were further categorized by the study according to age, parity, partner's HPV status, smoking status, and past OCP use. Cervical infections are one of the many risk factors for cervical intraepithelial neoplasia and cervical cancer because aberrant vaginal flora can produce carcinogenic nitrosamines. Moreover, the epidemiologic aspects of bacterial vaginosis are comparable, including cervical intraepithelial neoplasia<sup>13-14</sup>. There was a reasonable amount of consistency in the distribution of abnormal cervical smears among the age groups: 27.5% in the 30–40-year group, 26.8% in the 40–50 year group, and 33.8% in the 50–60 year group. With a p-value of 0.608, these modifications were not statistically significant. In a similar vein, parity did not reveal a statistically significant difference, with abnormal smears seen in 30.3% of women with 1-3 pregnancies and 28.6% of those with 4-6 pregnancies (p=0.812). Notably, abnormal cervical smears were substantially correlated with the partner's HPV status. With a p-value of 0.015, suggesting statistical significance, women with partners who tested positive for HPV had a greater rate of abnormal smears (47.1%) than women whose partners tested negative for the virus (26%). On the other hand, there was no statistically significant association found between abnormal cervical smears and smoking status or OCP use history. Abnormal smears were seen in 33.3% of smokers and 29.1% of non-smokers (p=0.643). In terms of OCP use, abnormal smears were found in 23.4% of women who had previously used OCP, compared to 33.1% of women who had never used OCP (p=0.171). Cervical intraepithelial neoplasia may develop as a result of bacterial vaginosis and vaginal discharge. Numerous research have been conducted on this topic, but the outcomes have been mixed. One of the most prevalent gynecological symptoms worldwide is vaginal discharge. A screening test called a Pap smear uses uterine cervix cells. George Papanicolaou developed the Pap test, which is a rapid, easy, and painless cervical screening test. Using a wooden scraper, a sample of cells is removed from the area inside and around the cervix for this test. The cells are then put on a glass slide, fixed in fixative, and sent to a lab for analysis<sup>15</sup>. The study shows that a significant correlation was discovered with partner's HPV status, although age, parity, smoking status, and OCP use did not significantly affect the prevalence of abnormal cervical smears. This emphasizes how crucial it is to consider a partner's HPV status when developing screening and preventative plans for cervical abnormalities. The results point to the need for additional study to investigate the underlying mechanisms relating a partner's HPV status to cervical health and to create focused therapies.

**Conclusion:**

The partner's HPV status is a major determinant in the prevalence of abnormal cervical smears, while age, parity, smoking status, and OCP use do not seem to have a significant effect. This research highlights the significance of partner HPV status consideration in cervical health screening and preventive measures, as well as the necessity of comprehensive sexual health education. To understand the mechanisms underlying this link and create focused therapies to lower the incidence of cervical anomalies, more study is necessary.

Author acknowledgement: There are some limitations to this study that should be acknowledged, even though it offers insightful information about the frequency and contributing causes of abnormal cervical smears. The cross-sectional approach and 188 women's very small sample size restrict the findings' capacity to be generalized and established a causal relationship. Furthermore, recall bias may affect self-reported information on a partner's history of smoking, OCP usage, and HPV status. Additionally, results may be influenced by unmeasured confounding variables like sexual behaviour and genetics. Additionally, the study did not take vaccination status or distinctions between HPV subtypes into account, which could have yielded more detailed information. Notwithstanding these drawbacks, we sincerely thank each participant, our colleagues, and the medical personnel at the participating clinics for their essential efforts.

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