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## SEXUAL ACTIVITY AND BEHAVIOR OF WOMEN WITH PRECANCEROUS LESIONS OF THE VULVA

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### Abstract

**The aim** of the study was to study the characteristics of sexual relations and sexual behavior of healthy women and women with precancerous lesions of the vulva. **Materials and methods.** In total, 258 women with lesions of the vulva aged from 25 to 70 years and 60 gynecologically healthy women (30 under the age of 50 and 30 after 50 years) were included in the study. Patients with precancerous lesions were divided into 4 groups: 87 women with high-grade intraepithelial neoplasia of the vulva (VHSIL) (Group 1 - G1), 154 - with differentiated vulvar intraepithelial neoplasia (dVIN) (Group 2 - G2), 9 - with Paget's disease (Group 3 – G3), 8 - melanoma *in situ* of the vulvar skin (Group 4 - G4). Healthy women were divided into groups CG1 and CG2 according to age <50 years and ≥ 50 years. Sexual activity and behavior were assessed. **Results.** According to the obtained data, the interviewed women did not differ significantly in age at the start of sexual life, but the average number of sexual partners in patients with VHSIL ( $6.10 \pm 0.26$ ) exceeded that of women with dVIN ( $3.71 \pm 0.15$ ) by 1, 64 times ( $p < 0.01$ ), with Paget's disease of the vulva ( $2.56 \pm 0.70$ ) - 2.38 times ( $p < 0.01$ ),

with melanoma *in situ* ( $3.80 \pm 0.62$ ) – 1.61 times ( $p < 0.01$ ), CG1 ( $1.20 \pm 0.09$ ) – 5.08 times ( $p < 0.01$ ). When assessing the frequency of sexual activity, it was found that at the time of the survey, 1 (1.15%) women of group G1, 45 (29.22%) of group G2, 2 (22.22%) of group G3 and 1 (12.50%) of group G4. All women of the CG1 group indicated the presence of sexual relations, and only 4 (13.33%) women of the CG2 group did not have sexual relations.

**Conclusions.** The conducted study showed that compared to healthy women, women with precancerous lesions of the vulva have an increased total number of sexual partners and a reduced frequency of current sexual activity, vaginal sex, and satisfaction with sexual activity.

**Ключові слова:** **vulvar squamous intraepithelial neoplasia; high-grade intraepithelial neoplasia of the vulva; differentiated intraepithelial dysplasia of the vulva; Paget's disease of the vulva; melanoma of the skin of the vulva; sexual activity and behavior.**

According to the 2020 WHO classification, vulvar premalignancies include human papillomavirus-dependent high-grade vulvar squamous intraepithelial neoplasia (VHSIL), differentiated vulvar intraepithelial dysplasia (dVIN), and vulvar Paget's disease grade Ia [1]. In recent years, attention has been drawn to these diseases for two reasons. First, they have a fairly high risk of malignancy: 32.8% for dVIN, up to 19% for Paget's disease, and 5.7% for VHSIL [2-5]. Secondly, according to the data of large international studies, the frequency of vulvar intraepithelial neoplasia is increasing, especially in young women [6-8]. Literary data on the peculiarities of the sexual behavior of this category of patients are almost non-existent.

Therefore, **the purpose of this study** was to study the peculiarities of the sexual behavior of healthy women and women with precancerous lesions of the vulva.

#### **Research materials and methods**

To solve the task, a study of the anamnesis and characteristics of sexual behavior of patients with precancerous lesions of the vulva and gynecologically healthy women who sought medical help at the National Cancer Institute (Kyiv, Ukraine) and the "Verum" clinic (Kyiv, Ukraine) was conducted. in 2017–2023

In total, 286 women with lesions of the vulva aged from 25 to 70 years and 60 gynecologically healthy women (30 under the age of 50 and 30 after 50 years) were included in the study. Patients with lesions of the vulva were divided into 4 groups: G1 - 87 women with VHSIL; G2 - 154 women with DVIN, G3 - 9 patients with Paget's disease of the vulva grade Ia (adenocarcinoma *in situ* of the skin of the vulva), G4 - 8 women with melanoma *in situ* of the skin of the vulva. Healthy women were divided into groups CG1 and CG2

according to age <50 years and  $\geq$  50 years. Patients were included in the study after obtaining written informed consent in accordance with the principles of the Helsinki Declaration of Human Rights, the Council of Europe Convention on Human Rights and Biomedicine, and the relevant laws of Ukraine. The diagnosis was established on the basis of anamnesis of the disease, complaints, clinical examination, vulvoscopy and the results of morphological examination of pathologically changed tissues.

The data were obtained as a result of anamnesis collection and self-filling by women of a specially developed questionnaire about their sexual life and behavior.

Statistical processing and data analysis were carried out using the software Statistica 7.0 for Windows and Microsoft Excel. The work uses standard methods of descriptive and comparative analysis. Mean (M), the deviation of standard error of the mean ( $\pm$ SEM). The reliability of parametric values was assessed according to the Student's criterion. Comparison of non-parametric features was performed using the analysis of linkage tables using the Pearson Chi-square test. Odds ratio (OR), 95% confidence interval (95% CI) were determined. The obtained data were presented as OR [95% CI]. A value of  $p < 0.05$  was considered statistically significant.

### **Research results and their discussion**

Age at the onset of sexual life in patients with VHSIL ( $17.43 \pm 0.22$  years), dVIN ( $17.06 \pm 0.14$  years), melanoma *in situ* ( $19.00 \pm 0.60$  years), CG1 ( $17.73 \pm 0.41$  years) and CG2 ( $17.13 \pm 0.37$ ) did not statistically significantly differ from each other. The age of onset of sexual life in women with Paget's disease of the vulva was probably higher compared to that in groups G4, G5, G8, CG2 -  $21.00 \pm 0.47$  years.

If the women did not differ significantly in age at the start of sexual life, the average number of sexual partners in patients with VHSIL ( $6.10 \pm 0.26$ ) exceeded that in women with dVIN ( $3.71 \pm 0.15$ ) by 1.64 times ( $p < 0.01$ ), with Paget's disease of the vulva ( $2.56 \pm 0.70$ ) – 2.38 times ( $p < 0.01$ ), with melanoma *in situ* ( $3.80 \pm 0.62$ ) – 1.61 times ( $p < 0.01$ ), CG1 ( $1.20 \pm 0.09$ ) – 5.08 times ( $p < 0.01$ ). The average number of sexual partners in patients with dVIN was greater than in women with Paget's disease of the vulva by 1.45 times ( $p < 0.01$ ), CG2 ( $1.37 \pm 0.12$ ) by 2.71 times ( $p < 0.01$ ) and did not differ from the similar indicator in the group with melanoma *in situ*.

VHSIL is considered a disease associated with human papillomavirus. It is quite clear that the more sexual partners, the higher the probability of infection with any sexually transmitted infections. Our data are consistent with the data of other authors, who include the presence of several sexual partners as risk factors for VHSIL [9].

In terms of marital status, the groups of women with precancerous lesions of the vulva and controls were homogeneous (Table 1).

Table 1 - Marital status of women of the studied groups, n (%)

Group	Unmarried	Married/ civil marriage/ stable relationship	Divorced
G1 (VHSIL), n=87	2(2,30) <sup>2</sup>	78 (89,66) <sup>2</sup>	7 (8,05)
G2 (dVIN), n=154	23 (14,94) <sup>1</sup>	115 (74,68) <sup>1</sup>	16 (10,39)
G3 (Paget's disease of the vulva), n=9	1 (11,11)	8 (88,89)	0 (0,00)
G4 (melanoma <i>in situ</i> ), n=8	1 (12,50)	5 (62,50)	2 (25,00)
CG1, n=30	0 (0,00)	26 (86,67)	4 (13,33)
CG 2, n=30	1 (3,33)	26 (86,67)	3 (10,00)
Note. <sup>1,2</sup> – statistically significant difference with the indicators of the groups G1, G2 (p<0,05).			

When assessing the frequency of sexual activity, it was found that at the time of the survey, 1 (1.15%) women of group G1, 45 (29.22%) of group G2, 2 (22.22%) of group G3 and 1 (12, 50%) of group G4. All women of the CG1 group testified to the presence of sexual relations, while 4 (13.33%) patients of the CG2 group did not have sexual relations.

The frequency of sexual inactivity in women with VHSIL was 25.41 times lower than that in the group with dVIN (OR 0.0282 [0.0038-0.2085], p<0.01), in the group with Paget's disease of the vulva - by 19.32 times (OR 0.0407 [0.0033-0.5064], p<0.02), with melanoma *in situ* – by 10.87 times (OR 0.0814 [0.0046-1.4455 ], p>0.05).

The frequency of sexual activity less than once a week was the highest in the group with Paget's disease of the vulva - 7 (77.78%) women (OR<sub>3-1</sub> 14.4118 [2.7445-75.6786], p<sub>3-2</sub>>0,05, p<sub>3-4</sub>>0.05, OR<sub>3-c2</sub> 6.0455[1.0631-34.3780], p<0.05); in the group with VHSIL, such activity was noted in 17 (19.54%) people (OR<sub>1-2</sub> 0.1870 [0.1008-0.3471], p<sub>1-2</sub> <0.01; OR<sub>1-3</sub> 0.0694 [0,0132-0.3644], p<sub>1-3</sub><0.01; OR<sub>1-4</sub> 0.4048 [0.0880-1.8624], p<sub>1-4</sub>>0.05; OR<sub>1-c1</sub> 7.0429 [0.8952-55.4101], p<sub>1-c1</sub> >0.05); in the group with dVIN – in 87 (56.49%) women (p<sub>2-3</sub>>0.05, p<sub>2-4</sub>>0.05, (OR<sub>2-c2</sub> 2.2429 [0.9997-5.0319], p<sub>2-c2</sub> <0.05) The frequency of sexual activity less than once a week in the group with melanoma *in situ* (3 (37.50%)) did not statistically significantly differ from the other studied groups (Table 2).

Table 2 - Frequency of sexual activity of women with precancerous lesions of the vulva at the time of examination according to questionnaire data, n (%)

Characteristics	Group					
	G1 (VHSIL), n=87	G2 (dVIN), n=154	G3 (Paget's disease of the vulva), n=9	G4 (melano- ma <i>in situ</i> ), n=8	CG1, n=30	CG2, n=30
Never at the moment	1 (1,15) 2,3	45 (29,22) <sup>1</sup>	2 (22,22) 1	1 (12,50)	0 (0,00)	4 (13,33)
Less than once a week	17 (19,54) 2,3,c1	87 (56,49) 1,c2	7 (77,78) 1,c2	3 (37,50)	1 (3,33)	11 (36,67)
At least once a week	67 (77,01) 2,3,c1	19 (12,34) 1,2,c2	0 (0,00) <sup>1,4,c2</sup>	4 (50,00) 2,3	29 (96,67)	14 (46,67)
Not specified	2 (2,30)	3 (1,95)	0 (0,00)	0 (0,00)	1 (3,33)	1 (3,33)
Note. <sup>c1, c2, 1, 2, 3, 4</sup> – statistically significant difference with the indicators of the groups CG1, CG2, G1, G2, G3, G4 (p<0,05).						

As can be seen from the table. 2, 67 (77.01%) people with VHSIL had sex at least once a week (OR<sub>1-2</sub> 23.8026 [11.9047-47.5919], p<sub>1-2</sub><0.01; p<sub>1-3</sub>< 0.01; p<sub>1-4</sub>>0.05; OR<sub>1-c1</sub> 0.1155 [0.0148-0.9019], p<sub>1-c1</sub><0.04); 19 (12.34%) women with dVIN (p<sub>2-3</sub>>0.05; OR<sub>2-4</sub> 0.1407 [0.0325-0.6101], p<sub>2-4</sub><0.01; OR<sub>2-c2</sub> 0.1608 [0.0678-0.3813], p<sub>2-c2</sub><0.01); none of the women with Paget's disease of the vulva had intercourse at least once a week (p<sub>3-2</sub><0.02; p<sub>3-c2</sub> <0.01). Women with melanoma *in situ* (4 (50.00%)) had sexual intercourse at least once a week 1.54 times more often than women with dVIN (OR 7.1053 [1.6389-30.8031], p<0.01) and compared with Paget's disease of the vulva (p<0.02). In groups CG1 and CG2, 29 (96.67%) and 14 (46.67%) patients, respectively, had sex at least once a week.

According to the type of current sexual activity, statistically significant differences were registered only in relation to vaginal sex. Women with VHSIL engaged in vaginal sex more often than women with dVIN by 1.49 times (OR 4.2692 [2.1840-8.3455], p<0.01), than with Paget's disease of the vulva by 1.53 times (OR 4.5538 [1.0780-19.2374], p<0.04). Compared to the control, vaginal sex in the G4 group was 1.18 times less frequent - 74 (85.06 %) versus 30 (100 %) (p<0.02) and in the G5 group 1.40 times less - 88 (57, 14%) versus 24 (80.00%) (OR 0.3333 [0.1289-0.8618], p<0.03) (Table 3).

Table 3 - Type of current sexual activity of women with precancerous lesions of the vulva at the time of examination according to questionnaire data, n (%)

Type of current sexual activity *	Groups					
	G1 (VHSIL), n=87	G2 (dVIN), n=154	G3 (Paget's disease of the vulva), n=9	G4 (melanoma <i>in situ</i> ), n=8	CG1, n=30	CG2, n=30
Vaginal sex	74 (85,06) 2,3,c1	88 (57,14) 1,c2	5 (55,56) 1	7 (87,50)	30 (100)	24 (80,00)
Oral sex	10 (11,49)	18 (11,69)	2 (22,22)	1 (12,50)	4 (13,33)	7 (23,33)
Anal sex	9 (10,34)	14 (9,09)	2 (22,22)	1 (12,50)	2 (6,67)	2 (6,67)
Masturbation	27 (31,03)	39 (25,32)	0 (0,00)	1 (12,50)	8 (26,67)	5 (16,67)
Tools for orgasm	5 (5,75)	12 (7,79)	1 (11,11)	0 (0,00)	4 (13,33)	3 (10,00)
Never / infrequently	19 (21,84) 5,6	59 (38,31) 4,k2	5 (55,56) 4,k2	2 (25,00)	2 (6,67)	4 (86,67)
Notes. 1. <sup>c1, c2, 1, 2, 3, 4</sup> – statistically significant difference with the indicators of the groups CG1, CG2, G1, G2, G3, G4 (p<0,05); 2. * – types are not mutually exclusive (participants may indicate more than one type of sexual activity).						

Statistically significant differences in the quality of current sexual activity were revealed. 19 (21.84 %) people of the G1 group were never or rarely satisfied with their current sexual activity (OR<sub>1-2</sub> 0.3826 [0.2098-0.6977], p<sub>1-2</sub><0.01; OR<sub>1-3</sub> 0.0349 [0.0041-0.2969], p<sub>1-3</sub>>0.05; OR<sub>1-c1</sub> 8.1029 [1.0355-63.4082], p<sub>1-c1</sub><0.05); 65 (42.21%) women of group G2 (OR<sub>2-3</sub> 0.0913 [0.0111-0.7480], p<sub>2-3</sub>>0.05; p<sub>2-4</sub>>0.05; OR<sub>2-c2</sub> 6.5730 [1.9118-22.5993], p<sub>2-c2</sub><0.01); 8 (88.89 %) patients of the G3 group (p<sub>3-4</sub><0.05; OR<sub>3-c2</sub> 72.0000 [6.5527-791.1272], p<sub>3-c2</sub><0.01), 4 (50.00 %) patients of the G4 group (OR<sub>4-c2</sub> 9.0000 [1.4458-56.0240], p<sub>4-c2</sub><0.02), 1 (3.33 %) woman of the CG1 group and 3 (10.00 %) of the CG2 group ( table 4).

Sometimes or generally, 65 (74.71%) women with VHSIL were very satisfied with the quality of their current sexual activity (OR<sub>1-2</sub> 2.3362 [1.3097-4.1670], p<sub>1-2</sub><0.01; p<sub>1-3</sub><0.01; p<sub>1-4</sub>>0.05; OR<sub>1-c1</sub> 0.2110 [0.0464-0.9590], p<sub>1-c1</sub><0.05); 86 (55.84%) women with dVIN (p<sub>2-3</sub><0.01; p<sub>2-4</sub>>0.05; p<sub>2-c2</sub>>0.05); none of the persons with Paget's disease of the vulva (p<sub>3-4</sub><0.02; p<sub>3-c2</sub><0.01); 4 (50.00%) patients with melanoma in situ (p<sub>4-c2</sub>>0.05); 28 (93.33%) people in the CG1 group and 22 (73.33%) in the CG2 group (see Table 4).

Table 4 - Quality of the current sexual activity of women with precancerous lesions of the vulva at the time of examination according to questionnaire data, n (%)

Characteristics	Groups					
	G1 (VHSIL), n=87	G2 (dVIN), n=154	G3 (Paget's disease of the vulva), n=9	G4 (melano- ma <i>in situ</i> ), n=8	CG1, n=30	CG2, n=30
The quality of current sexual activity at the moment						
Never or rarely satisfied	19 (21,84) 2,3,c1	65 (42,21) 1,3,c2	8 (88,89) 1,2,c2	4 (50,00)	1 (3,33)	3 (10,00)
Sometimes or generally very satisfied	65 (74,71) 2,3,c1	86 (55,84) 1,3,c2	0 (0,00) 1,2,4,c2	4 (50,00) 3	28 (93,33)	22 (73,33)
Not specified	4 (4,60)	3 (1,95)	1 (11,11)	0 (0,00)	1 (3,33)	5 (16,67)
Note. <sup>c1, c2, 1, 2, 3, 4</sup> – statistically significant difference with the indicators of the groups CG1, CG2, G1, G2, G3, G4 (p<0,05).						

According to the frequency of orgasm in women with precancerous lesions of the vulva, differences between groups were found only in the never/infrequent category. 19 (21.84 %) women with VHSIL never or rarely experienced orgasm against 1 (3.33 %) patients in the CG1 group (OR<sub>1-c1</sub> 8.4769 [1.0826-66.3767], p<sub>1-c1</sub><0.05). 59 (38.31 %) persons with dVIN did not experience or infrequently experienced orgasm 1.75 times more often than women with VHSIL (OR<sub>2-1</sub> 1.9223 [1.0524-3.5114], p<sub>2-1</sub><0,04); 1.45 times less often than women with Paget's disease of the vulva (p<sub>5-6</sub>>0.05); 2.87 times more often than CG2 patients (4 (13.33%)) (OR<sub>2-c2</sub> 3.6524 [1.2159-10.976], p<sub>2-c2</sub><0.03) (Table 4.5).

Among women with melanoma in situ, 2 (25.00%) did not experience orgasm or rarely experienced orgasm, which did not have statistically significant differences with other groups (see Table 5).

Table 5 - Frequency of orgasm in women with precancerous lesions of the vulva at the time of examination according to questionnaire data, n (%)

Characteristics	Groups					
	G1 (VHSIL), n=87	G2 (dVIN), n=154	G3 (Paget's disease of the vulva), n=9	G4 (melano- ma <i>in situ</i> ), n=8	CG1, n=30	CG2, n=30
Never / infrequently	19 (21,84) 1,2	59 (38,31) 1,c2	5 (55,56) 1,c2	2 (25,00)	2 (6,67)	4 (13,33)
Sometimes	24 (27,59)	49 (31,82)	2 (22,22)	4 (50,00)	5 (16,67)	8 (26,67)
Always	42 (48,28) 1,3,c1	43 (27,92) 1,3,c2	1 (11,11) 1	0 (0,00) c2	21 (70,00)	14 (46,67)
Not specified	3 (3,45)	3 (1,95) <sup>c2</sup>	1 (11,11)	0 (0,00)	2 (6,67)	4 (13,33)
Note. <sup>c1, c2, 1, 2, 3, 4</sup> – statistically significant difference with the indicators of the groups CG1, CG2, G1, G2, G3, G4 (p<0,05).						

## Conclusions

Compared to healthy women, women with precancerous lesions of the vulva have an increased total number of sexual partners and a reduced frequency of current sexual activity, vaginal sex, and satisfaction with sexual activity. The lowest frequency of sexual activity was noted in women with dVIN, the lowest frequency of vaginal sex, the quality of current sexual activity and the presence of orgasm in women with Paget's disease of the vulva.

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**Informed Consent Statement:** Written informed consent for treatment, use of the patients' personal data and their use was obtained from all examined women.



**Data Availability Statement:** All information is publicly available, data on a specific patient can be obtained upon request from the author.

**Conflict of Interest:** The author no conflict of interest.

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