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# The Effect of Genital Warts on Men's Depression and Sexual Functions

## Genital Siğillerin Erkeklerin Depresyonu ve Cinsel İşlevleri Üzerindeki Etkisi

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***ÖZET***

**Amaç:** Bu çalışma, insan papilloma virüsü enfeksiyonuna bağlı depresif durumun cinsel olarak aktif erkeklerde cinsel işlevleri nasıl etkilediğini gözlemlemek için tasarlanmıştır.

**Gereç ve Yöntemler:** 2020-2022 yılları arasında XXX Hastanesine başvuran ve fizik muayene ile genital siğil (GS) tanısı alan 77 primer erkek hasta çalışmaya dahil edildi. Hastalar siğillerin sayısı ve büyüklüğüne göre (küçük boy ve büyük boy) iki gruba ayrıldı. Hastalardan Hastane Anksiyete Depresyonu (HAD) ölçeği ve Uluslararası Erektil Fonksiyon İndeksi (IIEF-5) formlarını doldurmaları istendi. İki grubun verileri karşılaştırıldı ve analiz edildi.

**Bulgular:** Yaş ortalaması 39,7±10,3, VKİ kg/m2 27,0±7,2 idi. Siğil boyutlarına göre 2 gruba ayrılan hastalar normal dağılım gösterdi. Küçük siğil boyutu grubundaki hastaların %13'ünde ve büyük siğil boyutu grubundaki 21 hastanın %52,5'inde HAD skala kısmı anormal bulundu (p<0,0001). IIEF-5 ölçeği değerlendirmesine göre, küçük boy grubunda 5 hastanın %13,5'inde, büyük boy grubunda ise 19 hastanın %47,5'inde ciddi cinsel işlevlerin olduğu görüldü (p<0,0001). Kronik hastalığı olan 2 grup arasında anlamlı fark gözlenmedi (p=0,263).

**Sonuçlar:** Anksiyete ve depresyon GS tanısı konulan hastalarda tanı anından itibaren ortaya çıkmakta ve belirgin hale gelmektedir. Bu konunun dikkatle incelenmesi ve gerektiğinde psikiyatri konsültasyonlarının yönetime dahil edilmesi gerekebilir.

**Anahtar Kelimeler:** Genital siğil, Anksiyete, Depresyon, Seksüel fonksiyon

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*Approval was received for this study from the Health Sciences University Şişli Hamidiye Etfal Training and Research Hospital Clinical Research Ethics Committee (04.04.2023/3851). The ethical rules of the Declaration of Helsinki were followed in the study protocol.*

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***ABSTRACT***

**Objective:** This study was designed to observe how the depressive state due to human papilloma virus infection affects sexual functions in sexually active men.

**Material and Methods:** Between 2020-2022, 77 primary male patients who applied to the XXX Hospital and diagnosed with genital warts (GW) by physical examination were included in the study. The patients were divided into two groups according to the number and the size of the warts (small size vs. larger size). The patients were asked to fill out the Hospital Anxiety Depression (HAD) scale and International Index of Erectile Function (IIEF-5) forms. The data of the two groups were compared and analyzed.

**Results:** The mean age was 39.7±10.3, BMI kg/m2 27.0±7.2. Patients divided into 2 groups in terms of wart sizes showed normal distribution. The HAD scale part was found to be abnormal in 13% of patients in small wart size group and 52.5% of 21 patients in larger wart size group ($p<0.0001$). According to the evaluation of the IIEF-5 scale, it was observed that 13.5% of 5 patients in small size group and 47.5% of 19 patients in larger size group had severe sexual functions ($p<0.0001$). No significant difference was observed between the 2 groups with chronic diseases ($p=0.263$).

**Conclusion:** Anxiety and depression appear and become evident in patients diagnosed with GWs from the moment of diagnosis. It may be necessary to examine this issue carefully and to involve psychiatry consultations in the management when necessary.

**Keywords:** Genital wart, Anxiety, Depression, Sexual function

## INTRODUCTION

Anogenital warts are one of the most common venereal diseases, caused by Human Papilloma Viruses (HPV) and transmitted sexually. It is easily transmittable. HPV, causing cutaneous and mucosal infection, is responsible for the formation of various lesions ranging from benign exophytic lesions such as anogenital warts to invasive skin cancers. Apart from disturbing visible lesions, HPV infections create a risk of invasive cancer and can lead to negative psychosocial effects such as conflict with cultural and religious beliefs, and questioning of one's own gender and sexual orientation (1).

There are 100 types of HPV, 40 of which infect the genital area, and types 6,11,16, 18 are the most common. Types 16 and 18 are associated with cervical and anal cancers, while 6 and 11 are responsible for genital warts and are in the low risk group (1). In 2013, Patel et al. reported the annual prevalence of GWs in the world as 160-289 per 100,000 in men and women (2, 3). The age groups with the highest incidence of GW in men and women are 25-29 and 20-24, respectively (4).

The most common factors affecting the incidence of genital wart (GW): age, gender, education level, race, marital status, age at first sexual contact, new sexual partner, number of sexual partners, condom use, smoking, family history, socioeconomic status, other sexually transmitted infections, oral contraceptive pills and alcohol consumption (2,5,6). According to some studies, HPV and GWs have many physical and psychological effects on patients. Among the first reactions of patients are anger, depression, isolation, shame and guilt (7).

GWs can affect sex life, self-image, self-esteem, emotions, daily activities and quality of life due to pain and discomfort, anxiety and depression (8,9,10). Almost all studies indicate that GWs threaten people's sexual health and cause marked changes in their sex lives (10). In our study, we aimed to investigate the anxiety and depression caused by wart sizes and diameters on patients after the diagnosis of the disease and its effects on sexual function.

## MATERIAL AND METHODS

The study was approved by the ethics committee of Şişli Etfal Training and Research Hospital with the decision number 3851. Between the years 2020-2022, 79 patients aged 17-49 who were diagnosed with

primary genital warts during physical examination in the Urology outpatient clinic of Sisli Etfal Training and Research Hospital were evaluated. The inclusion criteria were to have primary genital warts diagnosed within the past 1 month. Two patients were excluded from the study because they had previously undergone cryotherapy for genital warts. All patients who accepted the study were informed about the study and their consent was obtained. All patients were evaluated by specialist physicians with more than 10 years of experience in andrology. Demographic data of the patients were extracted. They were divided into two groups according to the number of warts and wart sizes in the genital area. Patients were asked to fill out Hospital Anxiety Depression ("HAD", consisting of 14 questions) and International Index of Erectile Function ("IIEF-5", consisting of 5 questions) scales forms. The patients were grouped and evaluated based on the lesion sizes and number of lesions. The analysis were performed using SPSS software for Windows, version 23. Descriptive statistics were used to describe the demographic data of the patients. Distributions of the continuous variables were analysed with Shapiro-Wilk test. Continuous variables were defined as mean ± standart deviation (SD) and as median and interqurtile range (IQR). Intergroup analysis of continuous variables were performed with Mann Whitney-U test. Categorical variables were defined as frequencies (n) and percentages (%) and intergroup analysis were performed with Pearson's Chi-Square test. A p value of <0.05 was accepted as statistically significant.

## RESULTS

While the mean age of 77 patients was 39.7+/-10.3, the mean BMI kg/m2 was 27.03+/- 7.23. Height (cms) 164+/- 8.1, Weight (kgs) 73.7+/-16.7, Body surface area (m2) 1.79+/- 0.21. The classification of patients according to their educational status revealed that 36.4% of them only had primary education, while 63.6% of them had at least high school level education. While 54.5% of the patients were smokers, 45.5% were non-smokers (Table 1).

The patients with larger wart size were older (39.5 vs. 34 years, p<0.001). There was no significance about the median BMI indexes of the patient groups (p=0.533). No significant difference was observed between the 2 groups with chronic diseases (p<0.09). Wart size was significantly larger in smokers (p<0.001). However, it was determined that the presence of comorbidity did not create a statistically significant difference in terms of wart size (p=0.263). In terms of wart sizes, there is a significant difference in HADS and IIEF-5 scoring. The wart size was found to be highly significant and the hospital anxiety depression scale was evaluated as abnormal (p<0.0001). The evaluation of the IIEF 5 scale depicted that the patients' sexual functions were severely affected (p<0.0001) (Table 2).

**Table 1.** Demographic and clinical features (n=77)

| | |
|---|---|
| Age, mean ± SD | 39.7 ± 10.3 |
| BMI (kg/m$^2$), mean ± SD | 27.0 ± 7.2 |
| Comorbidities, %<br>Hypertension<br>Diabetes mellitus<br>Hyperlipidemia | <br>20.8<br>18.2<br>16.9 |
| Level of education, %<br>High school or higher<br>Primary school | <br>63.6<br>36.4 |
| Smoking status, n (%)<br>Smoker<br>Non-smoker | <br>42 (54.5)<br>35 (45.5) |
| Wart size (cm), n (%)<br>< 2cm<br>> 2cm | <br>37 (48.1)<br>40 (51.9) |

**Table 2.** Intergroup comparison according to ward number and size

| | Number of genital warts < 5 or size < 2 cm (n=37) | Number of genital warts > 5 or size > 2 cm (n=40) | P value |
|---|---|---|---|
| Age (years), median (IQR) | 34 (22-38) | 39.5 (36-44) | <0.001 |
| BMI (kg/m$^2$), median (IQR) | 27.3 (22.4-32) | 29.8 (22.5-32.6) | 0.533 |
| Smoking status, n (%) | | | <0.001 |
| Smoker | 3 (8.1) | 32 (80) | |
| Non-smoker | 34 (91.9) | 8 (20) | |
| Comorbidities, n(%) | | | 0.263 |
| Absent | 10 (27) | 6 (17.6) | |
| Present | 27 (73) | 34 (82.4) | |
| HADS, n(%) | | | <0.001 |
| Normal | 25 (67.6) | 11 (27.5) | |
| Moderate | 7 (18.9) | 8 (20) | |
| Abnormal | 5 (13.5) | 21 (52.5) | |
| IIEF-5, n (%) | | | <0.001 |
| Severe | 5 (13.5) | 19 (47.5) | |
| Moderate | 4 (10.8) | 10 (25) | |
| Mild-Moderate | 7 (18.9) | 7 (17.5) | |
| Mild | 6 (16.2) | 2 (5) | |
| Absent | 15 (40.5) | 2 (5) | |

Abbreviations: BMI, body mass index; HADS, Hospital anxiety depression scale; IIEF, International index of erectile function.

Also, there was a significant relationship between education level and wart size (p<0.015). Wart size was found to be smaller in individuals with higher education level. This result may be associated with increased awareness and earlier admission to the hospital as the level of education increases.

## DISCUSSION

Genital warts are also named *condyloma acuminata* or *venereal warts*. Its morphology enables easy diagnosis of HPV infection by direct examination. It is usually observed in areas including external genitalia, perineum, perianal, inguinal fold and adjacent areas such as mons pubis. They can be seen as discrete, sessile, flat-surfaced, exophytic, papillomatous lesions (11).

Although genital warts are seen quite frequently in the society, the degree of change in the quality of life of the patient and the psychosocial effects of the disease shall be reckoned in the management, as they are equally significant as the number and appearance of the lesions. As with most sexually transmitted diseases, the psychosocial impact of genital warts is greater than the physical illness (12).

In many studies, it has been shown that genital warts affect the sexual life of individuals, cause anxiety and stress related to the disease, and negatively affect the quality of life of the person (13, 14). Although there are many studies measuring the psychosocial effect of abnormal Pap smear results, there are few studies investigating the relationship between the size and number of genital warts and the anxiety and sexual functions of patients (15). There are also studies in the literature investigating the effect of genital warts on quality of life. The negative effects of genital warts on quality of life have been shown in previous studies using different questionnaires in various centers. These reports showed that the disease causes anxiety, anger, embarrassment, discomfort, pain and deterioration in social function and sexual life in patients (16). In two different survey studies conducted on patients with genital warts, it was reported that the most significant effect on quality of life was in the dimension of anxiety/depression (17). In another study, it was revealed that the disease has negative effects on psychological and social life. In our study, we demonstrated that HADS and IIEF scores increased significantly as the wart size increased. It has been

observed that the size of the wart affects the psychosocial life and sexual functions negatively. According to the IIEF score, 47.5% of 19 patients with large warts and 13.51 percent of 5 patients with small warts had severe ED. In 52.5% of 21 patients with large warts and 13.5% of 5 patients with small warts, HADS resulted as abnormal.

The risk of cancer caused by the disease in men and their partners is an important factor that causes anxiety. In a study, it was reported that 2/3 of the patients experienced anxiety due to the risk of cancer. The fear and anxiety levels were observed to be higher in patients that have incomplete and/or incorrect information on the issue (18).

HPV infections occur in all age groups, genders and races. While benign cutaneous warts are most common in childhood, anogenital warts are common in adulthood and are considered to be the most common sexually transmitted infection (19). A study based the gender's role on the quality of life of genital wart patients, female patients was significantly more affected than male patients (16). However, since male patients are more often to apply to urology outpatient clinic, we excluded female patients in this study. We included sexually active male patients between the ages of 17 and 49 with genital warts, as this group constitutes a considerable part of our daily urology practice. The mean age was 39.7+/-10.3 in our study. In most studies, it has been reported that the risk of genital wart formation increases among smokers. This was thought to be due to the immunosuppression caused by smoking. In a retrospective case-control study in Sydney, it was found that smoking has a very significant dose-response effect in men. It was found that those who smoke more than 10 cigarettes a day are twice as likely to have genital warts than those who do not smoke, while those who smoke less than 10 cigarettes a day show less risk (20). In another study, because the immune system is suppressed by smoking (the risk is five times higher), viral clearance is more difficult and recurrence is more likely. There was a 27% increased risk of genital wart development in smokers compared to non-smokers (21). In our study, a significant correlation was found between genital wart size and smoking. While larger sized warts were detected in smokers, smaller sized warts were observed in non-smokers. Moreover, we depicted warts were more common in patients with chronic diseases, but there was no significant difference between wart size groups. ($p<0.263$) In most studies, chronic diseases and immunodeficiency have been associated with the progression or recurrence of latent warts (20, 21).In the study, a significant relationship was observed between education level and wart size ($p<0.035$) Wart size was observed to be smaller in individuals with higher education level. This is thought to be due to the shorter waiting time for admission to the hospital and higher awareness.

It is known that the studies investigating anxiety and depression in this patient group are not sufficient in the literature. Therefore, we think that our study will contribute to the literature. In addition, our study also has some limitations. Our main limitations are the relatively small number of patients and the fact that the duration and amount of smoking of the patients were not included in the study. There is need for more comprehensive studies on the duration and amount of smoking.

## CONCLUSIONS

This study provides current evidence on the relationship between wart size and changes in sexual function in men with genital warts. Although the results of most studies indicated that men with genital warts of varying sizes experienced sexual dysfunction, anxiety, and depression; differences in the design and population of the studies made it difficult to identify specific pathologies such as libido or arousal disorders, which were the root cause in men. Based on the findings of this review, further research in this area is recommended in the future. Quality of life is adversely affected especially in psychosocial and sexual aspects, causing psychosocial comorbidities and changes in sexual life in patients. Inadequate and often incorrect information about the risk of developing cancer and the contagious nature of the disease place additional burdens on negative moods. The issue of overcoming these factors with correct information and guidance imposes important duties on physicians. Taking into account the findings of this specific study

as well as similar studies in determining the patient management and treatment requirements, patient satisfaction and treatment success, and thus the quality of the health service provided will eventually increase.

**Conflict of Interest:** The authors declared no conflict of interest regarding this article.

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