

A Clinicodemographic Analysis of Patients with Genital Warts Treated at Sohag University Hospital, Egypt

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Abstract

Objectives: This study aimed to evaluate the demographic features, clinical presentations, sexual aspects, and possible risk factors of genital warts (GWs) among patients treated at Outpatient Clinics of the Dermatology, Venereology, and Andrology Department, Faculty of Medicine, Sohag University, Egypt. **Patients and Methods:** In a prospective cross-sectional clinical study, it conducted on 85 patients with clinically evident GWs. All patients were subjected to clinical assessments included a detailed medical history and full general and local examinations. All patients were investigated to exclude other sexually transmitted diseases (STDs). **Results:** This study included 85 patients with clinically evident GWs; 65 (76.5%) were male and 20 (23.5%) were female. Of male patients, 44.5% were university graduate, 73.8% were urban, 90.8% were smoker, 64.6% had a single sexual partner, 75.4% preferred intravaginal sex, 100% were circumcised, 80% had occasional history of condom use, and 95.4% had a history of illegal sexual relation. Of female patients, 40% were university graduate, 55% were suburban, 100% were nonsmoker, 45% had a single sexual partner, 65% preferred intravaginal sex, 100% were circumcised, 50% had an occasional history of partner use of condom, and 35% had a history of illegal sexual relation. All patients had neither other STDs nor warts in other body sites. **Conclusion:** Like all STDs, GWs have important effects on the health of society and quality of life. So, awareness of clinical presentations, sexual aspects, and possible risk factors of GWs leads to the use of effective protection measures and decrease the cost of treatment.

Key words: Genital warts, human papillomaviruses, sexually transmitted diseases

INTRODUCTION

Genital warts (GWs) are the most common sexually transmitted diseases (STDs); occurring particularly among young people of both sex.^[1]

The human papillomaviruses (HPV) are the causative agents for GWs. There are more than 120 distinct subtypes of HPV have been identified, and about 40 different subtypes are capable of infecting the anogenital area.^[2,3]

The prevalence of HPV infection has increased over the past four decades.^[4] About 79 million patients are currently infected with HPV, and about 14 million patients aged 15–59 years become newly infected with genital HPV annually in the United States.^[5]

HPV is a highly infectious virus and is transmitted predominantly through oral, anal, and genital sexual contact, although rare instances of vertical transmission and autoinoculation have been reported.^[6] The main risk factors for GWs infection are younger age, early coitarche, number of lifetime sexual partners, unprotected intercourse, low socioeconomic status, and smoking.^[7]

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GWs negatively impact economic status and quality of life, attributable to anxiety, embarrassment, shame and lack of sexual activity and enjoyment.^[8]

The incubation period of GWs is ranging anywhere from 3 weeks to 8 months before clinical manifestation. On an average, physical symptoms begin 2–3 months after initial contact.^[9]

GWs can present as a solitary keratotic papule or plaque but are more frequently found in large number. Often GWs begin as small, nondistinctive 1–2 mm flesh-colored papules on the skin. Instead of, GWs may grow as large as several inches in diameter, leading to the painful disruption of normal intercourse and childbirth. The warty contour may vary in color and appearance, ranging from white to pink, purple, red, or brown and from flat to cerebriform or verrucous.^[10] The most common affected sites with GWs are vulva, perineum, anus, vagina, cervix, penis, scrotum, and urethra.^[11]

The careful clinical history taken and physical examinations are sufficient for the accurate diagnosis of GWs. The use of a 3%–5% acetic acid solution (the acetowhite test) may be helpful in promoting wart visualization. Biopsy is rarely needed to achieve a proper diagnosis, yet it is often required for lesions suspected of being malignant or having an increased malignant potential.^[11]

Till date, knowledge about the demographic characteristics, clinical presentations, and possible risk factors of patients with GWs in Egypt is lacking. Hence, this study aimed to evaluate the demographic features, clinical presentations, sexual aspects, and possible risk factors of GWs among patients treated at Outpatient Clinics of the Dermatology, Venereology, and Andrology Department, Faculty of Medicine, Sohag University, Egypt.

PATIENTS AND METHODS

In a prospective cross-sectional clinical study, it conducted on 85 patients with clinically evident GWs. Those patients were enrolled from whom seeking medical advice at the Outpatient Clinics of Dermatology, Venereology, and Andrology at Sohag University Hospital, Egypt, between September 2013 and May 2018. Informed consent was obtained from each patient after full explanation for the possible benefits and risks of this research.

All patients were subjected to preliminary assessment included a detailed medical history taken (age, sex, marital status, education level, occupation, residence, socioeconomic level, smoking history, history of medical illness, number of partners,

type of preferable sex, circumcision, condom use, onset, course and duration of GWs, number of the of GWs, morphology of GWs, affected sites of GWs, mode of transmission of GWs, others STDs, partner affection with GWs, and warts in other sites).

All patients were subjected to full clinical general and local examinations, included 1) site, number and the morphology of GWs, 2) signs of other STDs, 3) warts in other body areas.

The diagnosis of GWs was confirmed in all patients by two dermatologists based on an established clinical diagnosis of the GWs.

All patients were investigated to detect antibodies against other STDs as human immunodeficiency virus, hepatitis B and C, gonorrhoea and syphilis.

All patients were treated by cauterization (electrocautery, cryosurgery or carbon dioxide laser) of entire lesions of GWs.

Statistical analysis

Statistical analysis was performed using the IBM Statistical Package for Social Sciences, version 20.0 (SPSS Inc., Chicago, IL, USA). Quantitative variables were presented as the mean \pm standard deviation, and qualitative variables were presented as frequency and percentages. Student *t*-test was used for comparison between quantitative variables of the study groups. $P < 0.05$ was considered statistically significant.

RESULTS

This study included 85 patients with clinically evident GWs; 65 (76.5%) were male and 20 (23.5%) were female. The mean age of male patients was 28.29 ± 5.15 and mean age of female patients was 26.95 ± 5.63 . There was no significant difference in the mean ages of the males and females ($P = 0.82$). Forty-nine (73.8%) of male patients were single and 12 (60%) of female patients were married [Table 1].

Of male patients, 27 (44.5%) were university graduate and 13 (20%) were secondary school. Of female patients, 8 (40%) were university graduate and 6 (30%) were secondary school. Of male patients, 28 (43.1%) were employer and 13 (20%) had a private work. Of female patients, 17 (85%) were not working [Table 1].

Forty-nine (73.8%) of male patients were urban and eleven (55%) of female patients were suburban. Forty (61.5%) of male patients had medium socioeconomic levels and eight (40%) of female patients had low socioeconomic levels. Fifty-eight (90.8%) of male patients were smoker

Table 1: The demographical features and risk factors of patients with genital warts

	Males patients with GWs (n=65)	Females patients with GWs (n=20)
Percentage	76.5	23.5
Age (mean±SD)	28.29±5.15	26.95±5.63
P	0.82	
Marital status, n (%)		
Single	48 (73.8)	0
Married	17 (26.2)	12 (60)
Divorced	0	8 (40)
Education, n (%)		
No	12 (18.5)	2 (10)
Primary	7 (10.8)	1 (5)
Elementary	6 (9.2)	3 (15)
Secondary school	13 (20)	6 (30)
University graduate	27 (44.5)	8 (40)
Occupation, n (%)		
No work	3 (4.6)	17 (85)
Worker	10 (15.4)	0
Farmer	3 (4.6)	0
Private work	13 (20)	2 (24)
Driver	8 (12.3)	0
Employer	28 (43.1)	1 (1.2)
Residence, n (%)		
Urban	48 (73.8)	6 (30)
Suburban	17 (26.2)	11 (55)
Rural	0	3 (15)
Socioeconomic level, n (%)		
Low	14 (21.5)	8 (40)
Medium	40 (61.5)	8 (40)
High	11 (16.5)	4 (20)
Smoking, n (%)		
No	6 (9.2)	20 (100)
Yes	59 (90.8)	0
History of medical illness, n (%)		
No	65 (100)	20 (100)
Yes	0	0

Data were expressed as mean±SD and number and percentage. Student t-test was used for comparison between quantitative variables of the study groups. P<0.05 was considered statistically significant. GWs: Genital warts, SD: Standard deviation

and twenty (100%) of female patients were nonsmoker. Sixty-five (100%) of male patients and twenty (100%) of female patients had no history of medical illness [Table 1].

Of male patients with GWs, 42 (64.6%) had a single sexual partner and 20 (30.8%) had multiple sexual partners. Of female patients with GWs, 9 (45%) had a single sexual partner and 6 (30%) were denied to have sexual partner. Of male patients with GWs, 49 (75.4%) preferred intravaginal sex and 16 (24.6%) preferred mixed sex. Of female patients with GWs, 13 (65%) preferred intravaginal sex and 7 (35%) preferred mixed sex [Table 2].

In this study, all the male and female patients with GWs were circumcised [Table 2].

Sixty-two (95.4%) of male patients and seven (35%) female patients with GWs had a confirmed history of illegal sexual relation [Table 2].

Of male patients with GWs, 52 (80%) had occasional history of condom use, and 10 (15.4%) had confirmed the history of condom use. Of female patients with GWs, 10 (50%) had an occasional history of partner use of condom and 7 (35%) had no history of partner use of condom [Table 2].

Forty-one (63%) of male patients and 17 (85%) of female patients had a history of gradual onset of GWs. Sixty-five (100%) of male patients and 20 (100%) of female patients had a history of the progressive course of GWs [Table 2].

The mean duration of the GWs of male patients was 3.35 ± 1.30 and mean duration of the GWs of female patients was 2.95 ± 0.57. Of male patients with GWs, 55 (84.6%) had 11–20 GWs and 7 (10.8%) had 2–10 GWs. Of female patients with GWs, 15 (75%) had 11–20 GWs. Of male patients with GWs, 65 (100%) had papular GWs. Of female patients with GWs, 17 (85%) had papular GWs and 3 (15%) had plaque GWs [Table 2].

Of male patients, the affected sites of GWs were penis, scrotum, suprapubic, perianal and periurethral. Of female patients, the affected sites of GWs were vulva, suprapubic, labia, clitoris, perianal and periurethral. Sixty-two (95.4%) of male patients and seventeen (85%) female patients had a confirmed history of partner affection with GWs. All patients had neither other STDs nor warts in other body sites [Table 2].

All patients had negative antibodies against other STDs as human immunodeficiency virus, hepatitis B and C, gonorrhea, and syphilis.

DISCUSSION

To the best of our knowledge, this was the first study aimed to evaluate the demographic features, clinical presentations, sexual aspects, and possible risk factors of GWs among patients treated at Outpatient Clinics of the Dermatology, Venereology, and Andrology Department, Faculty of Medicine, Sohag University, Egypt.

In this study, GWs were more common in male 65/85 (76.5%) than in female patients 20 (23.5%) which was consistent with Tas *et al.*^[12] who reported that 183 patients with GWs

Table 2: The clinical presentations and sexual aspects of patients with genital warts

	Males patients with GWs (n=65), n (%)	Females patients with GWs (n=20), n (%)
Number of sexual partners		
Query	3 (4.6)	6 (30)
Single	42 (64.6)	9 (45)
Multiple	20 (30.8)	5 (25)
Type of preferable sex		
Intravaginal	49 (75.4)	13 (65)
Anal	0	0
Oral	0	0
Mixed	16 (24.6)	7 (35)
Circumcision		
No	0	0
Yes	65 (100)	20 (100)
History of illegal sexual relation		
No	0	7 (35)
Query	3 (4.6)	6 (30)
Yes	62 (95.4)	7 (35)
Condom use		
No	3 (4.6)	7 (35)
Occasionally	52 (80)	10 (50)
Yes	10 (15.4)	3 (15)
Onset of GWs		
Acute	24 (37)	3 (15)
Gradually	41 (63)	17 (85)
Course of GWs		
Progressive	65 (100)	20 (100)
Stationary	0	0
Regressive	0	0
Duration of the GWs (mean±SD/months)	3.35±1.30	2.95±0.57
Number of GWs		
1	0	2 (10)
2-10	7 (10.8)	2 (10)
11-20	55 (84.6)	15 (75)
>20	3 (4.6)	1 (5)
Morphology of GWs		
Papular	65 (100)	17 (85)
Plaque	0	3 (15)
Affected sites of GWs	Penis, scrotum, suprapubic, perianal and periurethral	Vulva, suprapubic, labia, clitoris, perianal and periurethral
Others STDs		
No	65 (100)	20 (100)
Yes	0	0
Partner affection with GWs		
No	3 (4.6)	3 (15)
Yes	62 (95.4)	17 (85)
Warts in other sites		
No	65 (100)	20 (100)
Yes	0	0

Data were expressed as mean±SD and number and percentage. GWs: Genital warts, SD: Standard deviation, STDs: Sexually transmitted diseases

out of 273 (67%) were men and with Tamer *et al.*^[13] who found that 88% of the patients with GWs were males. In our community, most of the female patients with genital lesions usually seek medical advice in gynecology clinics but male patients frequently visit venereology clinics.

In the current study, the mean age of male patients with GWs was (28.29 + 5.15) while the mean age of female patients with GWs was (26.95 + 5.63). There is no statistically significant relationship between the mean age of both sexes who acquiring the infection of HPV ($P = 0.82$). GWs

incidence peaked in a younger age group among females than male patients in this study. Men in this age group in our community are possibly the most likely sexual partners of women aged 21–31 years. According to Kraut *et al.*^[14] the peak incidence of GWs among males was from 25 to 29 years, but among females, incidence generally peaked in 20 years.^[15]

In this study, GWs were common among single male patients (73.8%), this finding matched with that of Tamer *et al.*^[13] GWs were common among married female patients (60%) as the extramarital relation is always not allowed in our community for women.

In the current study, 64.5% of male patients with GWs and 70% of female patients with GWs had graduated from high school and university level. This finding matched with that of Adebowale *et al.*^[16] This study reported that the prevalence of GWs increases with increasing level of education which reflects that a greater awareness of the disease leading to a higher level of early detection and seeking medical advice.

In this study, 43.1% of male patients were employers, and 20% had private work. Tas *et al.*^[12] found that GWs were more common in self-employed patients (54.6%). Okesola and Fawole^[17] reported that the highest incidence of GWs was found among petty traders while the lowest was found among the business executives and applicants.

This study found 17/20 (85%) of female patients with GWs were housewives. This finding was consistent with Tas *et al.*^[12] who reported that 57.7% of female patients with GWs were housewives.

In this study, 73.8% of male patients with GWs were from urban areas while 55% of female patients were from suburban areas. Kraut *et al.*^[14] reported that the higher incidence of GWs was in city-states. Rural areas in our community have social constraints enforced by strong family relations and religious beliefs. Hence, the prevalence of GWs is rare in rural areas.

This study found that 61.5% of male patients with GWs were of a middle social class and 40% of female patients with Anogenital warts were of low socioeconomic class; this finding matched with that of Tas *et al.*^[12]

The current study reported that 90.8% of male patients with GWs were current smokers. Tobacco is considered the most commonly used addictive substance in Egypt. The effect of smoking on the development of GW has been investigated, and it was found to be higher among patients with GW according to Gaester *et al.*^[18] Smoking has deleterious effects on both

systemic and local immunity, which may lead to increase the susceptibility to HPV infection and the development of GWs.^[17]

None of our patients had any history suggestive of chronic medical illness. Tas *et al.*^[12] found that the occurrence of GWs was associated with diabetes mellitus in 9.8% of the patients.

In this study, 64.6% of male patients with GWs had a single sexual partner and 30.8% had multiple sexual partners whereas 45% of female patients had single partner which was not in agreement with Patel *et al.*^[2] and Kaderli *et al.*^[7] who found that the number of sexual partners was an important risk factor in the development of GW.

In this study, 75.4% of male patients with GWs and 65% of female patients preferred vaginal intercourse which was similar to Okesola and Fawole who found that 97% of patients with GWs, the nature of their sexual intercourse was vaginal.^[17]

In this study, all the male and female patients with GWs were circumcised. So, circumcision was not associated with a decreased incidence of GWs. The role of circumcision in reducing the incidence of GWs is still not clear, but many countries are expanding access to voluntary medical male circumcision to reduce HIV prevalence and this may provide additional benefit in reducing HPV prevalence.^[19]

In this study, all the patients with GWs were heterosexual because the number of homosexual and bisexual individuals in our community is mostly nil due to strict religious beliefs which were consistent with Tas *et al.*^[12] who found that 98.9% of the patients with GWs were heterosexual.

In this study, 95.4% of male patients and 35% of female patients with GWs had confirmed the history of illegal sexual relation. This study found that higher prevalence of illegal intercourse among males with GWs. This finding could be explained by the high cost of marriage these days that represents an economic load in our country but lower prevalence among females because illegal sexual relationships are less frequent among women in our country.

In the current study, 80% of male patients with GWs had an occasional history of condom use and 15.4% of male patients had confirmed the history of condom use whereas 50% of female patients with GWs had occasional history of partner use of condom. Tamer *et al.*^[13] reported that no significant differences between the use of condom and development of GWs among the patient and control groups. Wen *et al.*^[20] showed that condom use serves as a barrier by preventing

direct contact and the risk of HPV transmission can be reduced by regular condom use.

This study found that GWs had gradual onset in 63% of male patients and 85% of female patients. All of the patients had a history of the progressive course of GWs. The mean duration of GWs in male patients (3.35 ± 1.30) was longer than female patients (2.95 ± 0.57).

In this study, 84.6% of male patients and 75% of female patients had 11–20 GWs. The most common clinical form of GWs was papular (100%) of male patients and (85%) of female patients. These findings were consistent with Oriol^[10] who reported that GWs can present as a solitary keratotic papule or plaque, but are more frequently found in large number.

In this study, the affected sites of GWs in male patients were penis, scrotum, suprapubic, perianal and per-urethral. In females, GWs were found in the suprapubic, vulva, labia, clitoris, per-urethral and perianal regions. This finding was consistent with Batista *et al.*^[21] who reported that GWs typically presented on the moist tissues of the anogenital area, although they may occasionally develop in the mouth or the throat after oral sexual contact with an infected partner.

This study reported that 95.4% of male patients and 85% of female patients with GWs had a history of partner affection with GWs and had not any warts in other body sites. Oriol^[10] found that GWs develop in approximately two-thirds of those have sexual contact with patients having GWs.

In this study, all the patients had not other STDs; this finding was different from that obtained in another study by Gaester *et al.*^[18] who found that HIV infection was an important risk factor in the development of GWs, but HIV infection is rare in our community.

CONCLUSION

Like all STDs, GWs have important effects on the health of society and quality of life. Hence, awareness of clinical presentations, sexual aspects, and possible risk factors of GWs leads to the use of effective protection measures and decrease the cost of treatment.

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Conflicts of interest

There are no conflicts of interest.

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