

# Clinicoepidemiological Profile and Sexual Behavior Pattern of Patients with Anogenital Warts

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## Abstract

**Introduction:** Anogenital wart (AGW) is the infection of the anal and genital mucosa and their adjoining areas by the Human Papilloma Virus (HPV) 6, 11. Genital HPV infections are transmitted primarily through sexual contact.

**Objective:** This study was designed to determine clinical characteristics, sexual behavior patterns, and epidemiologic factors associated with AGW.

**Materials and Methods:** A hospital-based descriptive cross-sectional study was conducted on patients diagnosed with AGW attending the Department of Dermatology and Venereology, Bir Hospital, between November 2019 and December 2020.

**Results:** A total of 77 patients (58 males and 19 females) diagnosed with AGW were studied. The warts were more common in married individuals (62.3%). The most common sites of warts were penis (84.5% males) and vulva (57.9% females), followed by perianal skin and perineum in both males and females. Of the various morphologies, dome-shaped warts were most common (58.6% in males and 73.7% in females). The individuals with extramarital contacts were at significantly more risk of AGW than those without such contacts ( $P = 0.001$ ). AGW cases were seen more frequently in patients with syphilis and Human Immunodeficiency Virus (HIV) (7.8% and 2.6%, respectively) compared to the general population.

**Conclusion:** Genital warts were more common in 16 – 25 years of age, mostly married and polygamous. Genital warts (GWs) have essential effects on the health of society and quality of life. Hence, awareness of the clinical presentations, sexual aspects, and possible risk factors of GWs leads to the use of adequate protection measures.

**Key words:** Clinical; Condylomata Acuminata; Epidemiology; Human Papilloma Virus

## Introduction

Wart is caused by Human Papilloma Virus (HPV) infection, and can affect both skin and mucous membranes.<sup>1</sup> Anogenital wart (AGW) is the infection of the anal and genital mucosa and its adjoining areas. The terms "Condylomata Acuminata" and "anogenital warts" are generally used interchangeably, however, the former is defined by distinctive histology.<sup>2</sup> Out of 120 HPV subtypes, 40 can infect the anogenital area. Fifteen of 40 subtypes have a high chance of developing into cancer. Anogenital warts are caused by subtypes 6 and 11, which are low risk subtypes.<sup>3, 4</sup> Genital HPV infections are transmitted primarily through

sexual contact.<sup>2</sup> The main risk factors for genital wart infection are younger age, early coitarche, number of lifetime sexual partners, unprotected intercourse, low socioeconomic status, and smoking.<sup>5</sup> Underlying Human Immunodeficiency Virus (HIV) infection may increase the incidence and prevalence of genital warts.<sup>2</sup> AGW has significant negative psychological impacts. Patients with AGW often experience stigmatization,

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social isolation, anxiety, depression, guilt, concerns about future fertility and risk of cancer.<sup>6,7</sup> Understanding the predisposing clinicoepidemiological profile and other risk factors is essential for the prevention and control of AGW. Considering the dearth of knowledge in Nepal regarding AGW, the present study could be an important work in finding the risk behavior patterns of the patients with AGW and ultimately helpful in devising public health programmes.

### Materials and Methods

This hospital-based descriptive cross-sectional study was conducted in Bir Hospital between November 2019 and December 2020. A total of 77 patients who presented to the dermatology OPD and only those patients were diagnosed AGW were included in the study after obtaining their written informed consent individually. AGW was diagnosed based on patient history and clinical examinations by a certified dermatologist. The patient history, physical examination findings, and laboratory reports were recorded in the proforma prepared for the study. Clinical details include number of warts, their location, and morphology, while demographic information of the patient includes age, gender, occupation, education level, and sexual history. Syphilis seropositivity was determined by analyzing corresponding Venereal Disease Research Laboratory (VDRL) and Treponema pallidum hemagglutination (TPHA) test results. VDRL, TPHA, and HIV test reports

were also used in the interpretation of results. All statistical analyses were performed using SPSS version 16. A descriptive analysis and a Chi-square test were used, and  $p < 0.05$  was considered statistically significant.

### Results

#### Overview of AGW patients amongst males and females

A total of 77 patients comprising 75.3% males and 24.7% females, diagnosed with AGW were studied (Table 1). The age group composition of patients was as follows: 16 – 25 years (41.4% males, 52.6% females), 26 – 35 years (34.5% males, 36.8% females), 36 – 45 years (17.2% males, 10.6% females), 46 – 55 years (5.2% males) and above 55 years (1.7% males). The most common age of presentation was 16 – 25 years in both males and females, with the mean age of occurrence  $27.26 \pm 7.02$  and  $30.13 \pm 9.7$  years in females and males, respectively (Table 1). The mean age of first sexual contact was also recorded almost similar in both sexes. Thirty-five (89.7%) of the 39 married men had extramarital contact, and 5 (38.5%) of the 13 married women patients had extramarital contact. Hence, out of 52 married cases, 40 (51.9%) cases had extramarital contact, while 12 (15.6%) cases did not. This finding is statistically significant with the P value of 0.001, which signifies that individuals with extramarital contact are more at risk of acquiring AGW.

Particulars	Males	Females
Number of patients	58 (75.3%)	19 (24.7%)
Most AGW prevalent age group (yrs)	16 – 25	16 – 25
Mean age of AGW occurrence (yrs)	$30.13 \pm 9.7$	$27.26 \pm 7.02$
Mean age of first sexual contact (yrs)	$18 \pm 3.32$	$18.3 \pm 2.8$
Extramarital contact in married patients	35 (89.7%)	5 (38.5%)

**Table 1.** General overview of AGW amongst males and females

### Socioeconomic profile of AGW patients

Anogenital warts were present in people with various jobs, including students, business people, housewives, drivers, security guards, farmers, cooks, painters, engineers, dancers, and accountants. Of those who worked in various occupations, students comprised the majority of cases with 20 (26%), while migrant workers, dancers, welders, dental assistants, and accountants had the fewest occurrences with 1 (1.3%) in each category. Anogenital warts were more common amongst married individuals comprising 48 (62.3%) of cases, and less common amongst widow/widower and secondmarriage clients 1 (1.3%) case. Anogenital warts were prevalent among School Leaving Certificate (SLC) graduates and university graduates 25 (32.4%)

and less prevalent among uneducated people 2 (2.6%). The study shows that increasing education increases the frequency of anogenital wart. Thirty-one (40.3%) complained of pruritus, and only 1 (1.3%) complained of associated pain, while the majority 45 (58.4%), did not complain of any associated symptoms. The most common site where anogenital wart occurred was penis 42 (72.4%), and the least common site was perineum 1 (1.7%), in males. The most common site where anogenital wart occurred was vulva 9 (47.4%), followed by perianal skin 5 (26.3%), multiple sites (cervix, vagina, vulva) 4 (21.1%), and the least common site was perineum 1 (5.2%), in females.

Characteristics	Particulars	Males	Females
Sites of AGW	Penis/Vulva	72.4%	47.4%
	Multiple sites	25.9%	21.1%
	Perianal skin	-	26.3%
	Perineum	1.7%	5.2%
Surface changes	No associated surface changes	94.8%	94.8%
	Macerated changes	5.2%	5.2%
	Secondary infection change	-	-
Morphology	Dome-shaped	58.6%	73.7%
	Filiform	19%	5.3%
	Plaque	22.4%	21%
Case presentation	<3 months of occurrence of lesion	74.1%	79%
	>3 months of occurrence of lesion	25.9%	21%
Investigations	VDRL/TPHA	6.9%	10.5%
	HIV I & II	1.7%	5.2%

**Table 2:** Clinical characteristics of AGW

Altogether three different morphologies, such as dome-shaped, filiform and plaque were recorded (Figures 1, 2, 3). Of them, dome-shaped morphology was the commonest (58.6% cases in males and 73.7% cases in females), followed by plaque (22.4% cases in males and 21% cases in females), and filiform (19% cases in males and 5.3% cases in females).

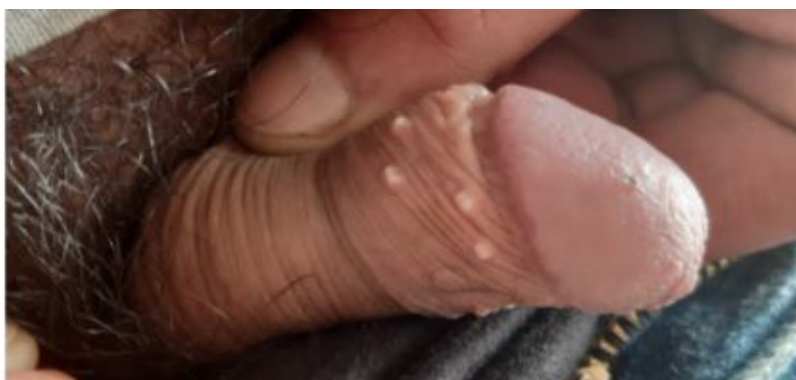
In most of the cases, 73 (94.8%) there was no associated surface changes, while only 3 (3.9%) showed macerated changes, and 1 (1.3%) showed secondary infection change. Maximum number of cases presented early within < 3 months of the occurrence of the lesion in 43 (74.1%) males and 15 (79%) females.



**Figure 1:** Pink coloured large verrucous plaque involving outer prepuce of penis



**Figure 2:** Brownish verrucous plaque over vulva



**Figure 3:** Few dome shaped verrucous papules over inner prepuce of penis

## Discussion

Genital wart is a fairly common sexually transmitted infection. Although AGW is not life-threatening, it causes significant psychological distress on patients' part and generates a sizable financial burden. Moreover, one STI often co-occurs with another. Thus having a genital wart justifies checking for additional STIs. If not treated on time, it grows in number.

Out of 77 patients included in our study, males (75.4%) were affected more than females (24.6%), with a male:female ratio of 3:1. Most other studies also showed similar findings in which males outnumber females. Our findings are similar to a study done by ElHamd et al., Barua et al. in which 85 patients (76.5% male and 23.5% females) and 93 patients (76.3% males and 23.7% females) participated in the study, respectively.<sup>8</sup>

<sup>2</sup> 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. This may be the reason behind gender differences.

Our study found the maximum number of cases in the age group 16–25 years which is similar to the study by Tsen-Fang et al., who found the highest prevalence of AGW in 20–24 years old patients.<sup>9</sup> This finding can be attributed to the age at which sexual activity just begins and individuals are immature in selecting their partners.

In our study, the mean age of first sexual intercourse was (18.14± 3.19) years, similar to the study done by Tamer et al., (19.07± 3.27) years. Being sexually active from an early age and having a high number of sexual partners are risk factors for the development of genital warts.<sup>10</sup>

In the current study, 25 (32.4%) of the patients were educated at the university level, 17 (22%) had graduated from high school, and the rest had lower education degrees. This finding is consistent with the study done by Tamer et al., who found 56% were educated at the university level and 33.5% at the high school level.<sup>10</sup> This study reported that the prevalence of GWs increases with increasing education levels, reflecting a greater awareness of the disease leading to a higher level of early detection and seeking medical advice.

In this study, the affected sites of GWs in males in decreasing order of frequency were penis 42 (72.4%), followed by perianal skin 8 (13.8%), multiple sites 7 (12.1%), and perineum 1 (1.7%); while in females the most common site involved was vulva 11 (57.9%), followed by perianal skin 5 (26.3%), multiple sites (vulva, vagina, cervix) 4 (21.1%) and perineum 1(5.3%). This finding is in contrast to the study done by Tas et al., who found the pubis (43.2%), followed by the penis (12%) as the frequent sites in males; and the perianal region (48.9%), followed by the vulva (11.1%) as the frequent sites in females.<sup>11</sup>

The current study showed that 56 (72.7%) patients had GW of size 1–5 mm while 10 (12.9%) had GW of size 5–10 mm, and 11 (14.3%) had wart size >10 mm. This finding can be explained by early seeking medical treatment after acquisition of genital warts.

The most common morphology of GWs was dome-shaped 48 (62.4%), followed by plaque 17(22%) and filiform 12 (15.6%). Similar to the study by El-Hamd et al., in Egypt, papular (dome and filiform) was the most frequent morphology present in 85% patients, followed by plaque in 15% patients.<sup>8</sup>

Most patients in our study were polygamous, 60 (77.9%) who had sex with girl friend/boy friend or friends/colleagues or commercial sex workers in addition to their spouses. This finding is similar to a study done by Barua et al., who found the majority i.e., 70% of patients with AGW, were polygamous, and only 30% had a monogamous sexual relationship.<sup>2</sup>

In the current study, only 5 (6.5%) had a history of regularly using condoms, while the majority, 48 (62.3%) of patients with GWs had an occasional history of condom use, followed by 24 (31.2%) who never used condoms at all. This finding is consistent with the study done by El-Hamd et al., in Egypt who found only 15.4% of patients had a history of consistent use of condoms and majority 80% gave a history of occasional use of condoms.<sup>8</sup> It is believed that HPV is transmitted by skin-to-skin contact and that condoms provide a barrier to transmission of HPV from infected areas of skin.

This study found that with increasing duration, the number of AGWs increases, as suggested by our findings in which about 60% of individuals with age of more than nine-month duration had > 10 warts, and none of them of the same duration had few warts. However, the finding was not statistically significant (p=0.355).

All patients were checked with "VDRL; TPHA", where 7.8% had coexistent syphilis, which is almost 4.6 times higher than the prevalence of syphilis in the general population (1.7%).<sup>12</sup> This finding is similar to a study done by Paudel et al., who found 8.9% cases of syphilis amongst all STIs.<sup>13</sup>

While analyzing HIV status in patients with AGW, 2 (2.6%) were positive for HIV serology which is 18.6 times higher than the prevalence of HIV in the general population, which is 0.14%.<sup>14</sup> Amongst other coexistent STIs, syphilis was the most common in our study, which is similar to Mueller et al., and Barua et al.<sup>15, 2</sup> Hence, patients with AGW should be evaluated and, if required, tested for syphilis and HIV.

## Limitations of the study

The study included only participants visiting a single dermatology clinic as cases. The subjective complaints and sexual history is based upon the patients' explanation.



## Conclusion

AGW is more common in males than females. The lower proportion of females suggests unreported community cases who can act as infection reservoirs. Youths in their early twenties had more AGW. Hence, college-level education requires sex education so that they can practically implement safe sex practices. Also, to prevent malignant transformation, diagnosing any carcinogenic virus strains early on is important. The national immunization program should include immunizations against the human papillomavirus.

## Recommendations

Owing to the presumed high prevalence of patients with AGWs in Nepal, population-based multicenter studies with large sample size is required to understand the epidemiological and clinical aspects of AGWs.

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## References

1. Thappa DM, Senthilkumar M, Laxmisha C. Anogenital warts-an overview. *Indian J Sex Transm Dis.* 2004;25(2):55–66.
2. Barua JK, Ghoshal L, Biswas SK, Tripathi R, Banerjee S, Bandyopadhyay D. A study of clinicoepidemiological and risk behaviour profile of patients with anogenital warts attending an urban STI clinic of Eastern India. *J Pakistan Assoc Dermatology.* 2018;28(1):17–23.
3. Patel H, Wagner M, Singhal P, Kothari S. Systematic review of the incidence and prevalence of genital warts. *BMC Infect Dis.* 2013;13(1):39. <https://doi.org/10.1186/1471-2334-13-39>
4. Tyring SK. Human papillomavirus infections: epidemiology, pathogenesis, and host immune response. *J Am Acad Dermatol.* 2000;43(1):S18–26. <https://doi.org/10.1067/mjd.2000.107807>
5. Kaderli R, Schnüriger B, Brügger LE. The impact of smoking on HPV infection and the development of anogenital warts. *Int J Colorectal Dis.* 2014;29(8):899–908. <https://doi.org/10.1007/s00384-014-1922-y>
6. Lawrence S, Walzman M, Sheppard S, Natin D. The psychological impact caused by genital warts: has the Department of Health's choice of vaccination missed the opportunity to prevent such morbidity? *Int J STD AIDS.* 2009;20(10):696–700. <https://doi.org/10.1258/ijsa.2009.009120>
7. Lacey CJN, Woodhall SC, Wikstrom A, Ross J. 2012 European guideline for the management of anogenital warts. *J Eur Acad Dermatology Venereol.* 2013;27(3):e263-70. <https://doi.org/10.1111/j.1468-3083.2012.04493.x>
8. El-Hamd MA, Aboeldahab S. A clinicodemographic analysis of patients with genital warts treated at Sohag University Hospital, Egypt. *J Integr Nephrol Androl.* 2018;5(2):74–9. [https://doi.org/10.4103/jina.jina\\_8\\_18](https://doi.org/10.4103/jina.jina_8_18)
9. Tsai T-F, Kothari-Talwar S, Yee K, Kulkarni A, Lara N, Roset M, et al. Estimating the burden of genital warts in Taiwan. *Sex Health.* 2017;14(6):485–91. <https://doi.org/10.1071/SH17013>
10. Tamer E, Çakmak SK, İlhan MN, Artüz F. Demographic characteristics and risk factors in Turkish patients with anogenital warts. *J Infect Public Health.* 2016; 9(5):661–6. <https://doi.org/10.1016/j.jiph.2015.12.009>
11. Tas B, Turker K, Balci E. Risk-factors and awareness of HPV in Turkish people with anogenital warts in Bagcilar district: a cross-sectional study. *Arch Iran Med.* 2016;19(10):715–19. PMID: 27743437
12. Sgaier SK, Mony P, Jayakumar S, McLaughlin C, Arora P, Kumar R, et al. Prevalence and correlates of Herpes Simplex Virus-2 and syphilis infections in the general population in India. *Sex Transm Infect.* 2011; 87(2):94–100. <https://doi.org/10.1136/sti.2010.043687>
13. Paudel S, Parajuli N, Dahal S, Paudel S. Sexually Transmitted Infections in A Tertiary Hospital of Kathmandu: A Retrospective Study. *NJDVL.* 2021;19(2):44-8. <https://doi.org/10.3126/njdvl.v19i2.37686>
14. MOHP Nepal. Annual Health Report 2018.
15. Mueller SM, Menzi S, Kind AB, Blaich A, Bayer M, Navarini A, et al. Sexually transmitted coinfections in patients with anogenital warts—a retrospective analysis of 196 patients. *JDDG J der Dtsch Dermatologischen Gesellschaft.* 2020;18(4):325–32. <https://doi.org/10.1111/ddg.14060>