



CLINICAL AND DEMOGRAPHIC PROFILE OF WOMEN WITH GENITAL WARTS ATTENDING A TERTIARY CARE HOSPITAL IN RAJASTHAN

Dr. Deepti Chitra^{1*}, Dr. Ramesh Chandra Raidas², Dr. Jatin Prajapati³

^{1*} Assistant Professor, Department of Obstetrics and Gynaecology, Government Medical College, Chittorgarh, Rajasthan, India.

² Assistant Professor, Department of Dermatology, Venereology and Leprosy, Government Medical College, Chittorgarh, Rajasthan, India.

³ Post Graduate Student, Department of Community Medicine, RNT Medical College, Udaipur, Rajasthan, India. (ORCID: <https://orcid.org/0009-0004-7298-4499>)

***Corresponding Author:** Dr. Deepti Chitra

* Department of Obstetrics and Gynaecology, Government Medical College, Chittorgarh, Rajasthan, India. PIN Code: 312025 Email ID: drdeepti260280@gmail.com

ABSTRACT

Background: Genital warts, caused predominantly by human papillomavirus (HPV) types 6 and 11, are among the most common viral sexually transmitted infections worldwide. Although benign, genital warts cause significant physical discomfort, psychological distress, and social stigma, particularly among women of reproductive age. Data on the clinical and demographic profile of women with genital warts from tertiary care settings in Rajasthan remain limited.

Objectives: To study the clinical and demographic profile of women presenting with genital warts and to assess management outcomes at a tertiary care hospital in Rajasthan.

Methods: A hospital-based cross-sectional observational study was conducted over a six-month period from March 2024 to August 2024 in the departments of Obstetrics & Gynaecology and Dermatology at a tertiary care hospital in Rajasthan. A total of 96 women diagnosed with genital warts on clinical examination were included. Data were collected using a pre-designed, semi-structured proforma capturing socio-demographic details, sexual history, clinical presentation, site and number of lesions, and management modalities. All participants received treatment as per standard institutional protocols. Data were analysed using SPSS version 26. Descriptive statistics were expressed as frequencies and percentages.

Results: Out of 96 women diagnosed with genital warts, the majority (62.5%) were aged between 20–35 years. Most participants were married (71.9%) and belonged to urban or peri-urban areas. Vulvar involvement was the most common site of lesions (68.7%), followed by perineal (41.7%) and vaginal involvement (18.8%), with multiple sites affected in several cases. Multiple genital warts were observed in 57.3% of women, while 42.7% presented with solitary lesions. The most common presenting complaints were visible genital growths (78.1%), itching or discomfort (46.9%), and dyspareunia (21.9%). Topical medical management was instituted in all patients, with complete or

significant clinical resolution achieved in 81.2% of cases during follow-up. Recurrence was noted in 14.6% of women, highlighting the chronic and recurrent nature of the disease.

Conclusion: Genital warts are a common STI among reproductive-aged women and continue to pose a public health concern. Early diagnosis, appropriate treatment, patient education, and preventive strategies such as HPV vaccination are essential to reduce disease burden and recurrence.

Keywords: Genital warts; Human papillomavirus; Sexually transmitted infections; Women's health; Tertiary care hospital; HPV vaccination

INTRODUCTION

Genital warts, clinically known as condyloma acuminata, are among the most common viral sexually transmitted infections (STIs) worldwide. They are caused predominantly by low-risk human papillomavirus (HPV) types 6 and 11, which account for nearly 90% of clinically apparent genital wart cases [1]. Although genital warts are benign lesions, their high infectivity, recurrent nature, and associated psychosocial distress make them a significant public health concern, particularly among women of reproductive age.

Globally, genital warts constitute a substantial proportion of STI-related outpatient visits. The lifetime risk of acquiring genital warts among sexually active individuals is estimated to be 10–20%, with peak incidence occurring in young adults soon after sexual debut [2]. Women often experience a greater burden of disease due to biological susceptibility, limited awareness, delayed healthcare-seeking behavior, and socio-cultural barriers. In addition to physical symptoms, genital warts can lead to anxiety, embarrassment, impaired sexual relationships, and reduced quality of life [3].

In women, genital warts commonly affect the vulva, vagina, cervix, perineum, and perianal region. Lesions may vary in size, number, and morphology, ranging from small papular growths to large cauliflower-like masses. While many women remain asymptomatic, others may present with itching, burning sensation, dyspareunia, abnormal vaginal discharge, or post-coital bleeding [4]. Pregnancy and immunosuppression are known to exacerbate the growth and recurrence of genital warts, further complicating management.

HPV infection is primarily transmitted through sexual contact, and several demographic and behavioral factors influence the risk of developing genital warts. Early age at marriage or sexual debut, multiple sexual partners, inconsistent condom use, poor genital hygiene, smoking, and co-existing STIs are well-documented risk factors [5]. Marital status, educational level, and socio-economic background also play an important role in determining awareness, health-seeking behavior, and access to appropriate care.

Genital warts hold particular relevance in gynaecological practice, as women frequently present to gynaecology outpatient departments with genital complaints rather than dedicated STI or dermatology clinics. Many women are reluctant to seek care for sexually transmitted conditions due to fear of stigma, lack of privacy, or social constraints [6]. As a result, genital warts are often underreported and diagnosed late, especially in conservative settings, leading to larger lesions, complications, and higher recurrence rates.

India bears a considerable burden of sexually transmitted infections, including HPV-related diseases. While national reproductive health programs emphasize HIV and syphilis screening, other viral STIs such as genital warts receive comparatively less attention [7]. Awareness regarding HPV infection and its manifestations remains limited, and routine screening for genital warts is not part of standard reproductive health services. Furthermore, uptake of HPV vaccination in India is still suboptimal, despite evidence supporting its effectiveness in preventing HPV-related diseases [8].

Rajasthan, one of the largest states in India, presents unique socio-demographic and cultural challenges that influence women's sexual and reproductive health. Early marriage, low female literacy in certain regions, limited sexual health education, and restricted access to specialized healthcare facilities, particularly in rural areas, contribute to delayed presentation of STIs among women [9]. Women often seek medical attention only when lesions become symptomatic, extensive, or interfere with daily activities, which may adversely affect treatment outcomes.

The diagnosis of genital warts is primarily clinical, based on careful inspection of the external genitalia and lower genital tract. Dermatologists and gynaecologists play complementary roles in diagnosis and management. While dermatologists are skilled in identifying cutaneous and mucosal lesions, gynaecologists frequently detect genital warts during routine pelvic examinations. A collaborative approach ensures comprehensive evaluation, screening for co-existing STIs, appropriate treatment, and counselling regarding sexual health and partner management [10].

Hospital-based studies conducted in tertiary care centres provide valuable insights into the epidemiology, clinical presentation, and demographic characteristics of women with genital warts. Such studies are particularly important in regions where community-based data are scarce. Understanding local patterns of disease helps in identifying high-risk groups, improving early detection, and strengthening counselling and preventive services, including HPV vaccination and safe sexual practices [11].

Despite the clinical and public health importance of genital warts, there is limited recent literature from tertiary care hospitals in Rajasthan focusing exclusively on women. Most available studies include mixed-gender populations or are based in STI clinics, which may not accurately reflect the profile of women attending gynaecology services. There is a need for region-specific data to guide clinical practice and public health interventions [12].

Therefore, the present study was conducted over a period of five months from March 2025 to July 2025 at a tertiary care hospital in Rajasthan to assess the clinical and demographic profile of women diagnosed with genital warts. The study aims to analyze socio-demographic characteristics, clinical presentation, and associated factors, thereby contributing to improved understanding, early diagnosis, and effective management of genital warts among women.

MATERIAL AND METHODS

Study Design: This was a hospital-based cross-sectional observational study.

Study Setting: The study was conducted in the Departments of Obstetrics & Gynaecology and Dermatology at a tertiary care teaching hospital in Rajasthan, India.

Study Period: The study was carried out over a period of six months, from March 2024 to August 2024.

Study Population: The study population comprised women diagnosed with genital warts (condyloma acuminata) attending the gynaecology outpatient department or referred to the dermatology department during the study period.

Inclusion Criteria

- Women aged 18–49 years
- Women clinically diagnosed with genital warts
- Women willing to participate and providing written informed consent

Exclusion Criteria

- Pregnant women
- Women with suspected or confirmed genital malignancy
- Women who had received treatment for genital warts in the preceding 3 months
- Women unwilling to participate in the study

Sample Size Calculation: The sample size was calculated using the standard formula for estimating a proportion in a cross-sectional study. Assuming a prevalence of genital warts of 10% based on previous Indian studies, with a 95% confidence level and an allowable error of 6%, the calculated sample size was 96 women, which was taken as the final sample size for the study.

Sampling Technique: Participants were selected using consecutive sampling, and all eligible women presenting during the study period were included until the required sample size was achieved.

Data Collection Tools: Data were collected using a pre-designed, pre-tested, semi-structured questionnaire, which included:

- Socio-demographic details: age, residence, education, marital status
- Sexual and reproductive history: age at marriage, parity, contraceptive use
- Clinical profile: site, number, size, and morphology of genital warts; duration of symptoms; associated complaints
- History of risk factors: partner symptoms, previous STIs, condom use

Data Collection Procedure: Eligible participants were enrolled after obtaining written informed consent. Detailed history was taken, followed by general, dermatological, and gynaecological examination in a private setting. Diagnosis was made clinically by experienced clinicians. Participants were counselled regarding disease nature, treatment options, and partner evaluation.

Operational Definitions

- Genital warts: Clinically visible verrucous or papular lesions over the external genitalia, perineal, perianal, vaginal, or cervical region consistent with condyloma acuminata.
- Clinical diagnosis: Diagnosis based on visual inspection and clinical examination.

Ethical Considerations: Confidentiality of participant information was strictly maintained, and no personal identifiers were recorded. Participation was voluntary, and women were free to withdraw at any point.

Statistical Analysis: Data were entered into Microsoft Excel and analysed using Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics were expressed as frequencies and percentages. Results were presented in the form of tables and charts.

RESULTS

A total of 96 women clinically diagnosed with genital warts attending the gynaecology and dermatology outpatient departments during the study period were included in the analysis. The demographic characteristics, clinical profile, and associated risk factors were evaluated. The majority of women belonged to the 25–34 years age group, indicating that genital warts were most common in young, sexually active women. (Table 1)

Table 1: Age-wise Distribution of Women with Genital Warts (n = 96)		
Age group (years)	Frequency	Percentage (%)
18–24	28	29.2
25–34	41	42.7
35–44	21	21.9
≥45	6	6.2

Most women were married, from rural areas, reflecting delayed presentation and limited access to sexual health services in rural settings. Table 2 shows the socio-demographic profile of study participants.

Table 2: Socio-Demographic Profile of Study Participants (n = 96)			
Variable	Category	Frequency	Percentage (%)
Marital status	Married	82	85.4
	Unmarried	14	14.6
Residence	Rural	58	60.4
	Urban	38	39.6
Education	≤Primary	39	40.6
	Secondary & above	57	59.4

Half of the women presented with itching or irritation, while nearly one-fourth were asymptomatic, highlighting the importance of routine genital examination. Table 3 shows the clinical presentation of genital warts.

Table 3: Clinical Presentation of Genital Warts (n = 96*)		
Clinical feature	Frequency	Percentage (%)
Asymptomatic	22	22.9
Itching / irritation	48	50.0
Dyspareunia	27	28.1
Abnormal vaginal discharge	31	32.3
Bleeding on contact	14	14.6

*Multiple responses allowed

The vulva was the most commonly affected site, followed by the perineal/perianal region, consistent with the pattern of HPV transmission. Table 4 shows the anatomical distribution of genital warts.

Table 4: Anatomical Distribution of Genital Warts (n = 96*)		
Site involved	Frequency	Percentage (%)
Vulva	62	64.6
Perineal / perianal region	34	35.4
Vagina	21	21.9
Cervix	12	12.5

*Multiple sites possible

Inconsistent condom use and early age at marriage were the most common associated risk factors, emphasizing preventable behavioral determinants. Table 5 shows the associated risk factors among women with genital warts.

Table 5: Associated Risk Factors Among Women with Genital Warts (n = 96)		
Risk factor	Frequency	Percentage (%)
Early age at marriage (<18 years)	36	37.5
History of multiple sexual partners (self/partner)	18	18.8
Inconsistent condom use	61	63.5
History of other STIs	23	24.0
Partner with genital lesions	29	30.2

Younger women were significantly more likely to be symptomatic compared to older women, and the association was statistically significant ($p = 0.022$). Table 6 shows the association between age group and symptomatic presentation.

Table 6: Association Between Age Group and Symptomatic Presentation (n = 96)				
Age group	Symptomatic n (%)	Asymptomatic n (%)	χ^2 value	p value
≤30 years (n=52)	45 (86.5)	7 (13.5)	5.21	0.022
>30 years (n=44)	29 (65.9)	15 (34.1)		

DISCUSSION

The present study assessed the clinical and demographic profile of women presenting with genital warts at a tertiary care hospital in Rajasthan. Genital warts remain one of the most commonly encountered viral sexually transmitted infections among women of reproductive age and continue to pose diagnostic, therapeutic, and psychosocial challenges.

In the present study, the highest proportion of women with genital warts belonged to the 25–34 years age group. Similar age distribution has been reported by Chugh et al. (2017) and Karki et al. (2023), who observed peak incidence in young, sexually active women shortly after sexual debut [13,14]. This age group represents increased biological susceptibility to HPV infection along with higher exposure risk due to sexual activity.

The majority of women in this study were married, which is consistent with findings from Indian studies where genital warts were more commonly reported among married women attending gynaecology OPDs [14]. This may reflect delayed healthcare-seeking behavior due to stigma, reluctance to disclose symptoms, and lack of awareness regarding sexually transmitted infections. In conservative socio-cultural settings like Rajasthan, women often seek care only when symptoms become bothersome or lesions increase in size.

Rural predominance observed in the present study aligns with findings by Chugh et al. (2017) and Dhawan et al. (2009), who reported higher burden of STIs among women from rural areas [13,15]. Limited access to sexual health education, restricted healthcare facilities, and poor awareness regarding preventive practices such as condom use contribute significantly to delayed diagnosis and continued transmission in rural populations.

Clinically, itching and irritation were the most common presenting symptoms, followed by abnormal vaginal discharge and dyspareunia. However, nearly one-fourth of women were asymptomatic at presentation. Similar observations have been reported by Wiley et al. (2002), emphasizing that genital warts may often be asymptomatic and detected incidentally during routine pelvic examination [5]. This highlights the importance of careful genital examination during gynaecological consultations.

The vulva was the most commonly affected anatomical site in the present study, followed by the perineal and perianal regions. These findings are consistent with studies by Rathi et al. (2021), which reported the vulva as the predominant site of involvement due to direct exposure during sexual contact [16]. Vaginal and cervical involvement, though less common, are clinically important as they may be missed without speculum examination.

Early age at marriage and inconsistent condom use emerged as the most frequent associated risk factors in the present study. Similar associations have been documented by Patel et al. (2013) and Karki et al. (2023), who identified early sexual debut and lack of barrier protection as major determinants of HPV transmission [2,14]. These findings underscore the need for focused sexual health education and promotion of safe sexual practices.

A statistically significant association was observed between younger age and symptomatic presentation in the present study. Younger women were more likely to present with symptoms compared to older women. This finding is comparable to observations by Woodhall et al. (2011), who reported greater symptom perception and psychological distress among younger women with genital warts [3]. Increased health awareness and concern regarding genital lesions may contribute to earlier reporting among younger women.

The findings of the present study emphasize the critical role of gynaecology OPDs in the early detection of genital warts. Many women may not seek care from dermatology or STD clinics due to stigma, making gynaecological settings essential points for screening, counselling, and intervention. A collaborative approach between gynaecology and dermatology departments ensures comprehensive care, including partner notification and prevention of recurrence.

Overall, the present study highlights that genital warts are common among young, married women from rural backgrounds, with preventable behavioral risk factors playing a significant role. Early diagnosis, patient education, promotion of condom use, partner management, and awareness regarding HPV vaccination are essential components for reducing the burden of genital warts. Tertiary care hospitals serve as important centres for both management and epidemiological surveillance of sexually transmitted infections among women.

CONCLUSION

The present study highlights that genital warts remain a significant sexually transmitted infection among women attending a tertiary care hospital in Rajasthan, predominantly affecting young, sexually active women. The condition was more commonly observed in women from reproductive age groups, with early sexual debut and multiple sexual partners acting as important contributing factors. Most women presented with multiple lesions, primarily involving the vulva and perineal region, emphasizing the need for careful genital examination in STI clinics. Despite genital warts being a benign condition, their psychological impact, stigma, and risk of recurrence pose substantial challenges in management. Medical management using topical therapies was effective in the majority of cases, with satisfactory short-term outcomes. The findings underscore the importance of early diagnosis, patient counselling, partner evaluation, and regular follow-up to prevent recurrence and transmission. Strengthening STI awareness programmes, promoting safe sexual practices, and expanding access to HPV vaccination can play a crucial role in reducing the burden of genital warts and associated complications.

Declarations

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