

# Impact of multiple extragenital warts on quality of life in immune-competent Egyptian adults: a comparative cross-sectional study

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**Background:** Extragenital warts (E-GWs) are common benign skin lesions caused by human papilloma virus. Surprisingly, there is no clear data about the impact of multiple E-GWs on quality of life in immune-competent adult patients in comparison to GWs, which have been frequently reported to exhibit a strong negative impact on life quality.

**Patients and methods:** This cross-sectional study investigated the impact of multiple E-GWs on quality of life in immune-competent adults as they are more commonly encountered in daily practice than their genital counterpart in the Egyptian population. Hundred patients with multiple E-GWs (aged 18–67 years, 46 females, 54 males) and 100 patients with multiple GWs (aged 18–55 years, 56 females, 44 males) were included. Cause for immune suppression in the patients was not known. A hard copy of the validated Arabic (Egypt) version of Dermatology Life Quality Index (DLQI) questionnaire was used with permission.

**Results:** The DLQI total scores range was 5–14 with a mean of  $11.2 \pm 2.5$  in GWs and 1–24 with a mean of  $13.0 \pm 5.8$  in E-GWs, which are statistically significant ( $P=0.009$ ). To our knowledge, this is the first study to evaluate the impact of E-GWs on life quality of immune-competent adults.

**Conclusion:** E-GWs can have a very strong negative impact on patients' daily life. We highly encourage all treating physicians to use the "bio-psycho-social" model when facing patients with E-GWs in an attempt to secure the best life quality for our patients.

**Keywords:** HPV, DLQI, warts

## Introduction

Viral warts are common lesions caused by human papilloma virus (HPV) that can affect genital and extragenital sites. Currently, different lines of therapy are available; however, there is no best single effective treatment.<sup>1</sup> Moreover, warts can be very painful depending on their location, socially unacceptable particularly on visible areas and recalcitrant to therapy with subsequent impairment of patients' daily life.<sup>2–4</sup> Clinically, the appearance of warts is variable and depends to some extent on the type of HPV involved and the anatomical site, e.g., warts on hands and feet (HPV 1, 2, 4, 27, and 57), plane warts (HPV 3, 10), and genital warts (GWs; HPV 6, 11, 16, 18).<sup>5</sup>

Lots of published studies highlighted the negative impact of GWs on psychological well-being and quality of life of affected individuals in different populations.<sup>6–8</sup> On the other hand, the common incidence of extragenital warts (E-GWs) in our daily practice justifies the need for defining its effect on quality of life for our patients. Surprisingly to our knowledge, there are no previous reports measuring the impact of E-GWs on patients' quality of life in immune-competent adults.

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Herein, we aimed to evaluate the impact of E-GWs versus GWs on patients' quality of life in immune-competent adults.

## Patients and methods

### Ethical approvals

A formal permission to use the validated Arabic (Egypt) version of Dermatology Life Quality Index (DLQI) questionnaire was obtained kindly from Professor Andrew Y Finlay, Department of Dermatology, Cardiff University School of Medicine, Heath Park, Cardiff, UK. The Institutional Review Board and ethical committees of Zagazig University Hospitals approved this study. All subjects gave a written informed consent before enrollment in this study.

### Patients

This study included 100 patients with clinically diagnosed multiple E-GWs and 100 heterosexual patients with multiple GWs. All patients were immune-competent with no history of any cause for immune suppression and recruited from outpatient clinic at Dermatology, Venereology and Andrology Department at Zagazig University Hospitals. The enrolled patients underwent complete history taking including age, sex, involved sites and number of lesions. Patient inclusion criteria were adults ( $\geq 18$  years), suffering from multiple lesions and immune-competent. Patient exclusion criteria were illiterates or patients with disabilities who will be unable to read or understand the questionnaire, solitary lesions, immunocompromised patients and associated both genital/E-GWs. All visiting patients who fitted the study criteria were invited to participate and answer a given hard copy of the questionnaire. The recruitment period started on July 2015 and ended on March 2017.

### Questionnaire

#### DLQI scoring algorithm

This questionnaire includes 10 questions, each with a maximum score of 3. Thus, the maximum score for DLQI is 30, which describes the maximum influence on skin-related quality of life. The scoring of each question is as follows: not at all or not relevant or unanswered = 0, a little = 1, a lot = 2 and very much or prevented work or studying = 3.

#### DLQI severity scoring

The meaning of DLQI scores is as follows: (0–1) = no effect at all on patient's life, (2–5) = small effect, (6–10) = moderate effect, (11–20) = very large, (21–30) = extremely large effect. The 10 questions cover 6 aspects of life, which are symptoms and feelings = questions 1 and 2, daily activities

= questions 3 and 4, leisure = questions 5 and 6, work and school = question 7, personal relationships questions 8 and 9, and treatment = question 10.

### Statistical analysis

Data were checked, entered and analyzed using SPSS version 19. Data were expressed as mean  $\pm$  SD for quantitative variables, and as number and percentage for categorical variables. Chi-squared ( $\chi^2$ ) test or Fisher's exact test, *t*-test and ANOVA (*F* test) were used when appropriate.  $P < 0.05$  was statistically significant. Using Epi-Info 6 program and, supposing that quality of life impaired in 50% of patients with E-GWs, while in 31.8% of patients with GWs with power of 80% and confidence interval of 95%, the sample size was determined as 100 of patients in each group.

### Results

This study included 100 patients with multiple E-GWs (46 females and 54 males) and 100 patients with multiple GWs (56 females and 44 males). Both groups included immune-competent adult subjects without any cause for immune dysfunction. In E-GW group, the age of the subjects ranged from 18 to 67 years with a mean of  $38 \pm 13.3$  years, while in the GW group, it ranged from 18 to 55 years with a mean of  $29.5 \pm 8.8$  years. Apparently, there was a significant statistical difference regarding age between the 2 groups ( $P < 0.001$ ), which reflects the fact that GWs are more common in more sexually active younger age groups. Also, there was a significant ( $P < 0.001$ ) statistical difference regarding the number of lesions between the two groups with more numerous lesions in GWs group, which is known to have a highly infectious nature even in immune-competent subjects. The most common predilection sites for E-GWs were feet (45%) > hands (41%) > face (14%). Table 1 summarizes the demographic and clinical data of all subjects. The DLQI total score range was 5–14 with a mean of  $11.2 \pm 2.5$  in the GW group and 1–24 with a mean of  $13.0 \pm 5.8$  in the E-GW group, which is statistically significant ( $P = 0.009$ ) as illustrated in Table 2 and Figure 1. Table 3 and Figure 2 explain the individual scores for each of the 10 DLQI questions with a significant statistical difference between the 2 studied groups regarding (Q1, 2, 3, 4, 6, 7, 8, and 9 " $P < 0.001$ ") and (Q5 " $P = 0.004$ "). Q10 scores did not show a significant difference between the two groups ( $P = 0.08$ ).

In DLQI, Q1 and Q2 cover the symptoms and feelings accompanying the disease. According to the studied groups, E-GWs are more symptomatic and annoying to patients. Plantar warts lesions were associated with pain or burning in

**Table 1** Demographic and clinical data

	Genital warts (n=100)		Extragenital warts (n=100)		t	P
<b>Age (years)</b>						
$\bar{x} \pm SD$	29.5 $\pm$ 8.8		38 $\pm$ 13.3		5.3	<b>&lt;0.001</b>
Range	18–55		18–67			
<b>Sex</b>	n	%	n	%	$\chi^2$	P
Male	44	44.0	54	54.0	2.0	0.15
Female	56	56.0	46	46.0		
<b>Lesions number</b>					t	P
$\bar{x} \pm SD$	12.6 $\pm$ 4.96		6.5 $\pm$ 3.1		10.5	<b>&lt;0.001</b>
Range	8–23		2–16			
<b>Lesions sites</b>	n	%	n	%		
Genital	100	100.0	0	0.0		
Face	0	0.0	14	14.0		
Hands	0	0.0	41	41.0		
Feet	0	0.0	45	45.0		

**Note:** Bold text indicate the statistically significant p-values.

**Abbreviations:** n, number;  $\bar{x}$ , mean.

**Table 2** DLQI total scores results in genital versus extragenital warts

DLQI scores	Genital warts		Extragenital warts		t	P
$\bar{x} \pm SD$	11.2 $\pm$ 2.5		13.0 $\pm$ 5.8			
Range	5–14		1–24		2.63	<b>0.009</b>
<b>DLQI total score</b>	n	%	n	%	$\chi^2$	P
No effect	0	0	5	5.0		
Small	12	12.0	9	9.0		
Moderate	16	16.0	9	9.0	15.45	<b>0.003</b>
Very large	72	72.0	69	69.0		
Extremely large	0	0	8	8.0		

**Note:** Bold text indicate the statistically significant p-values.

**Abbreviations:** DLQI, Dermatology Life Quality Index; n, number;  $\bar{x}$ , mean.

most cases (73%) and some patients reported onset of pain after aggressive surgical excisions, which may be explained by disturbed healing and innervation. Also, many patients were embarrassed about their E-GWs, especially on visible sites as hands and face.

**Patient Quote 1:** “Doc, I hope you can help me to get rid of my warts. I am a teacher and when I am standing it really hurts as if I am standing on a punch of stones or nails for hours”!!

**Patient Quote 2:** “Well, it is embarrassing even if people do not tell you in face, you can see that look, if you know what I mean! I feel they think that I am filthy”.

Q3 and Q4 focus on impairment of daily activities. Plantar warts pushed many patients to avoid walking or standing for long times and to use more comfortable footwear because of pain. Furthermore, some patients with hand warts reported using gloves to avoid infecting others or to hide their disease at work.

**Patient Quote 3:** “I work in a bakery and its part of my job to use gloves however, I am afraid if my boss may kick me out because of these warts in my hands. So, I always keep my gloves to be safe”.

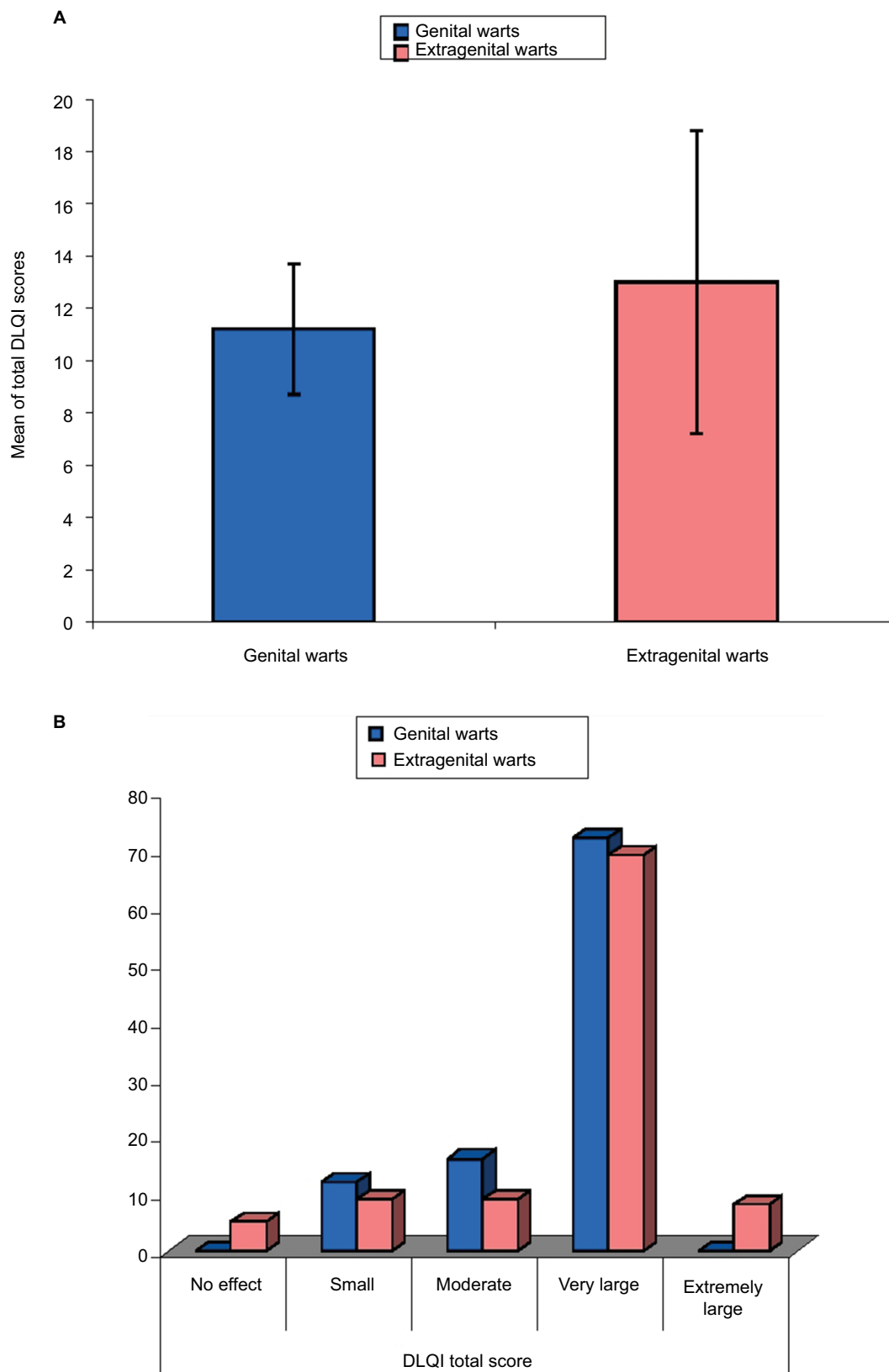
Q5 and Q6 ask about the effects on leisure times. Male patients with plantar warts suffered the most; as soccer ball is very popular in Egypt, it was very hard to play without pain or discomfort. Many patients just avoided social activities that may induce more pain or embarrassment as in case of facial or hand warts.

**Patient Quote 4:** “Imagine that it was my wedding and I was waiting to have the best pictures with my wife and all what I can think about is my facial warts”!

**Patient Quote 5:** “I was very happy to be engaged! So, I captured a picture for my hand and the shining ring to post on Facebook, but I had to edit the photo 1st to “virtually” cure my ugly warts”.

Q7 is about effects on work or school. Many patients with E-GWs experienced skipping some working days for different reasons such as pain or psychological frustrations about treatment ineffectiveness.

**Patient Quote 6:** “I have tried every knowns treatment for my warts, but nothing really works! Just thinking about my problem made me to cancel going for work yesterday”.



**Figure 1** DLQI total score results in genital versus extragenital warts.

**Notes:** (A) Total scores: the mean for scores is 11.2 ± 2.5 in genital warts and 13.0 ± 5.8 in extragenital warts, which is statistically significant ( $P = 0.009$ ), (B) detailed total scores.

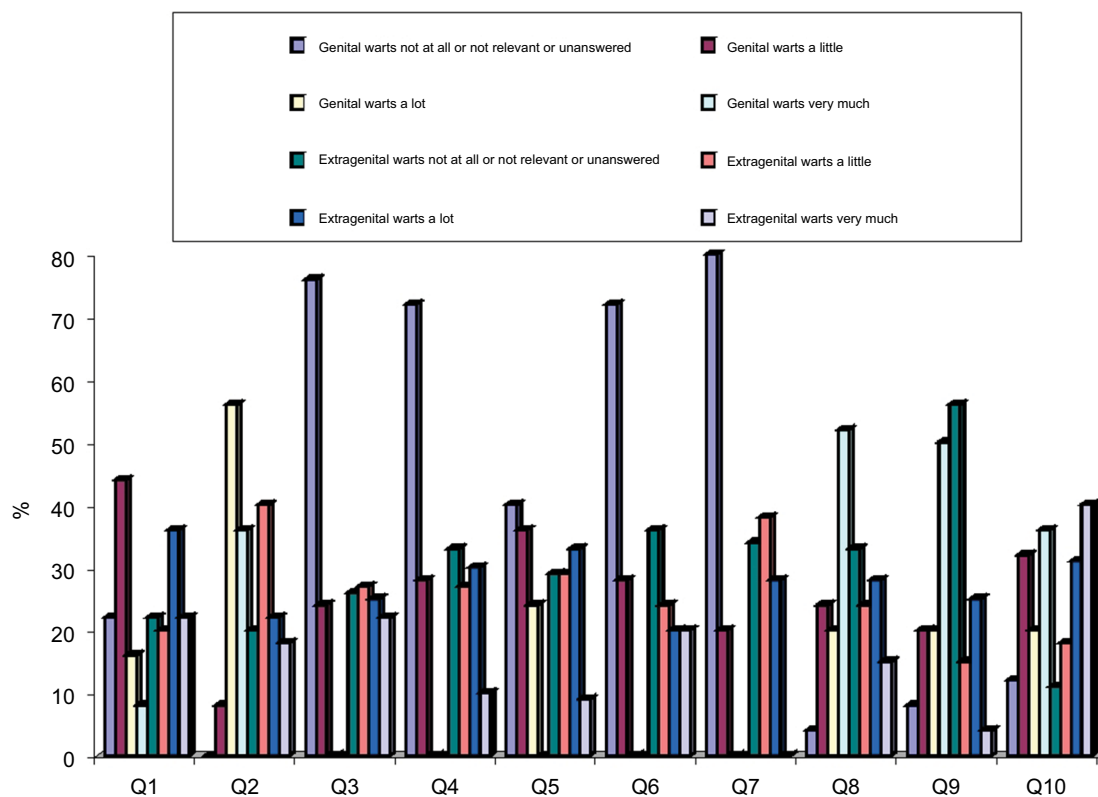
**Abbreviation:** DLQI, Dermatology Life Quality Index.

**Table 3** DLQI 1–10 questions and answers between the study groups

Question number “Q”	Genital warts n=100				Extragenital warts n=100				P-value $\chi^2$ test
	Not at all or Not relevant or Unanswered %	A little %	A lot %	Very much %	Not at all or Not relevant or Unanswered %	A little %	A lot %	Very much %	
Q1	22	44	16	8	22	20	36	22	<0.001
Q2	0	8	56	36	20	40	22	18	<0.001
Q3	76	24	0	0	26	27	25	22	<0.001
Q4	72	28	0	0	33	27	30	10	<0.001
Q5	40	36	24	0	29	29	33	9	0.004
Q6	72	28	0	0	36	24	20	20	<0.001
Q7	80	20	0	0	34	38	28	0	<0.001
Q8	4	24	20	52	33	24	28	15	<0.001
Q9	8	20	20	50	56	15	25	4	<0.001
Q10	12	32	20	36	11	18	31	40	0.08

**Note:** Bold text indicate the statistically significant p-values.

**Abbreviation:** DLQI, Dermatology Life Quality Index.



**Figure 2** DLQI 1–10 questions and answers between the study groups.  
**Abbreviation:** DLQI, Dermatology Life Quality Index; Q, question.

Q8 and Q9 inquire about interpersonal relationships. E-GWs exhibited significant impairment of personal relationships as hand shaking or kissing/cuddling of own kids. Furthermore, E-GWs affected love partners and their sexual lives, e.g., patients with facial warts were worried about infection transmission by touching or kissing, and patients with hand or feet warts also were concerned about infecting their partners during sexual and non-sexual activities.

**Patient Quote 7:** “You know, after having warts on my face I decided to be careful when playing with my own kid! That really hurts”!

**Patient Quote 8:** “My friend seemed very suspicious when he asked about the pumps on my hands as I told him those are just “my warts”! Then I was just struggling when he asked, are not these infectious”???

Q10 asks about treatment and its reflection on quality of life. It seems that both GW and E-GW treatment limitations

and inadequacy affected both groups at a similar extent without a significant statistical difference ( $P=0.08$ ).

## Discussion

E-GWs are caused by HPV. They are extremely common and benign in nature. E-GWs can resolve spontaneously by natural immunity but this might take months or years to occur.<sup>3</sup> However, the search for a cure, cosmetic disfigurement, social stigmatization, prevention of viral transmission in the community, symptoms as disabling pain are logical justifications for treating cutaneous warts.<sup>9</sup> Unfortunately up to date, there is no such curative or surely effective treatment. This can be explained by the fact of current lacking a specific antiviral drug against HPV. Therefore, most treatment options may be tried as an attempt to increase clearance rates and prevent recurrences.<sup>10</sup>

On the other hand, GWs are well known to negatively impact emotional well-being and life quality of affected patients. Intimacy problems, sense of guilt or shame have been repeatedly reported among patients with GWs.<sup>11</sup> GWs are not always benign as E-GWs because they are associated with increased cervical cancer risk, especially in immunocompromised patients, which adds more dysfunction to life quality.<sup>12</sup> Qi et al had emphasized on the importance to establish psychosocial support systems for patients suffering from GWs by re-directing our approach toward a “bio-psycho-social” model instead of just a “biomedical” one.<sup>13</sup>

Surprisingly, the present study using DLQI E-GWs demonstrated a more significant impairment of patients' life quality in comparison to GWs in Egyptian patients. Actually, in the original description of DLQI by Finlay and Khan, patients with viral warts recorded a more severe negative impact on life quality than patients with other dermatoses, like acne vulgaris.<sup>14</sup> However, we could not find enough further data in the literature regarding the impact of E-GWs on immune-competent patients' life quality. In a study by Zachariae et al, they reported an increase in number of warts and skin tumors in renal transplant recipients “immune-compromised”.<sup>3</sup> Additionally, using DLQI it was found that the tumors impaired patients' quality of life to a greater extent than viral warts themselves. This is very much expected keeping in mind the known benign course of E-GWs when compared to different skin cancers.

Based on our findings, we strongly agree with Finlay and Khan to use DLQI for evaluating patients with viral warts in routine daily practice. Hopefully, this will create a more effective patient-centered approach.<sup>14</sup> Also, we can suggest to extent the abovementioned recommendations by Qi et al

about GWs to E-GWs based on their higher and statistically significant impact on patients' quality of life.<sup>13</sup>

## Conclusion

E-GWs represent the benign pathway for HPV in comparison to genital ones that carry a potential malignant risk. However, E-GWs can have a very strong negative impact on patients' daily life. Subsequently, we highly recommend considering, and acknowledging, the harmful influences of E-GWs on patients' quality of life. As a start, the treating physicians should use the “bio-psycho-social” model when facing patients with E-GWs in an attempt to secure the best life quality for the patients keeping in mind that our obligation is to treat patients as a whole, not just the warts.

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## Disclosure

The author reports no conflicts of interest in this work.

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