

# Can laser treatment improve quality of life of hirsute women?

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**Background:** Hirsutism can have negative impacts on psychosocial aspects of women's lives and reduce their quality of life (QOL). The aim of this study was to assess the QOL of these women during laser treatment.

**Patients and methods:** Eighty-eight women with unwanted facial hair underwent laser therapy. Each patient completed a questionnaire consisting of a modified Dermatology Life Quality Index (DLQI) and visual analog scale (VAS) before the first, third, and fifth sessions of laser therapy. Interval between the sessions was 4–6 weeks. Statistical analyses were done using SPSS software version 18.

**Results:** The DLQI scores before treatment, and at third and fifth sessions were  $7.75 \pm 2.36$ ,  $5.55 \pm 1.88$ , and  $4.14 \pm 0.64$ , respectively ( $P < 0.0001$ ). Also, VAS scores had a decreasing trend between the first and second treatment sessions as the mean patient VAS score fell from  $10 \pm 0.04$  to  $5.53 \pm 2.41$  ( $P < 0.0001$ ). The DLQI scores were significantly different according to areas of hair growth and number of involved areas. There were no significant differences with regard to response to treatment and mean of DLQI score according to the level of education, marital status, and employment status.

**Conclusion:** Hair removal with laser therapy can improve the QOL in hirsute women. Also, socioeconomic status does not affect the satisfaction rate of laser therapy for hair removal.

**Keywords:** hirsutism, laser, quality of life, satisfaction, psychosocial

## Introduction

Hirsutism is defined as the growth of terminal hair in male androgen-dependent areas of women.<sup>1</sup> The prevalence of hirsutism varies from 5% to 32% in different parts of the world and seems to be due to racial differences.<sup>2–7</sup> The presence of hirsutism is a distressing symptom with a negative impact on psychosocial aspects and quality of life (QOL).<sup>8–11</sup>

Cosmetic procedures and drug therapy are used in the treatment of hirsutism.<sup>12</sup> The basis of treatments in hirsutism is reduction of excess hair. The choice of a method depends on patient preference, adverse effects, degree of hirsutism, level of distress, previous treatments, and cost.<sup>13</sup>

The long-pulse alexandrite laser with wavelength of 755 nm is an effective laser for hair reduction.<sup>14–16</sup> The aim of this study was to evaluate the effect of hair reduction in QOL of hirsute women during laser treatment.

## Patients and methods

The study was approved by the local institutional review board of Guilan University of Medical Sciences. In this clinical study, 170 women who were referred to the laser treatment center in Guilan, 96 with facial hirsutism, were enrolled in this study.

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Eight patients discontinued the study and lost to follow-up, and 88 women completed the treatment.

The study was conducted in three phases: before laser therapy and before third and fifth sessions of treatment. The interval between sessions was 4–6 weeks. A written consent was obtained from each patient participating in this study. Pregnant patients, patients who used any medication to control hair growth, patients who used psychotherapeutic drugs during laser treatment, and patients younger than 18 years were excluded.

## Measuring tool

All patients were asked to complete a modified Dermatology Life Quality Index (DLQI) and visual analog scale (VAS) before the first, third, and fifth sessions of laser therapy. The DLQI is calculated by summing the score of each question in the range between 0 and 30. The higher the score the more the QOL is impaired. The VAS consisted of a 10 cm horizontal line with the terms “no hair” (0) and “the hairiest ever” (10) at opposite ends; patients were asked to mark exactly where they thought they were on the line. The DLQI was analyzed as follows: 0–1= no effect at all on patient’s life, 2–5= small effect on patient’s life, 6–10= moderate effect on patient’s life, 11–20= very large effect on patient’s life, 21–30= extremely large effect on patient’s life.<sup>17,18</sup>

## Treatment

The patients then underwent a programmed laser therapy at 4–6-week intervals using the 755 nm long-pulsed alexandrite laser (Cynosure Apogee, Westford, MA, USA) with the Zimmer Cryo 5 cooling device. The settings used were determined by the Fitzpatrick skin type of each patient. A fluence of 20 J/cm<sup>2</sup> was used for types I and II, with 20 ms pulse duration and a 15 mm spot size; a fluence of 14 J/cm<sup>2</sup> was used for types III and IV, with 40 ms pulse duration. The fluence was changed in the range of 2–5 J/cm<sup>2</sup> in each session of treatment based on the patient’s tolerance.

## Statistical analyses

Statistical analyses were done using SPSS software version 18. All data were statistically analyzed by Student’s *t*-test and repeated measure analysis of variance (ANOVA). Statistical significance was set at  $P < 0.05$ .

## Results

Among women with facial hirsutism referred for laser therapy, 88 women with a mean age of 29.2±0.6 years were evaluated. More than half of them had academic education

**Table 1** Demographic data and number of areas involved, of participants

Variable	Number	Percentage
<b>Age (years)</b>		
18–27	48	54.5
28–37	31	35.2
>37	9	10.3
<b>Marital status</b>		
Married	41	46.6
Single	43	48.9
Other	4	4.5
<b>Educational level</b>		
Diploma	41	46.6
Bachelor or higher	47	53.4
<b>Employment</b>		
Housewife	22	25
Unemployed	31	35.2
Employee	35	39.8
<b>Number of areas involved</b>		
1	24	27.3
2	15	17
3	18	20.5
4	31	35.2

and 47.7% were married. Approximately 73% of the patients suffered from hirsutism in more than one area. Patients’ demographics data are shown in Table 1.

In almost all patients, hirsutism had moderate to severe effect on patients’ lives, and mean score of DLQI before the treatment was 7.75±2.36. Repeated measure analysis showed that the DLQI and VAS scores were significantly different not only between the beginning and the end of treatment but also between the third and the fifth sessions of treatment ( $P=0.0001$ ; Table 2).

The mean DLQI scores according to the areas of hair growth, including cheek, parotid, mental, and submental regions, were reduced significantly during the three phases of study, but after comparison of the means between the areas, patients with mental and submental involvement had higher satisfaction rate to treatment in comparison with cheek and parotid areas ( $P < 0.01$ ; Table 3).

Using one-way ANOVA, significant difference was determined between the mean DLQI scores based on the number of

**Table 2** Mean Dermatology Life Quality Index (DLQI) and visual analog scale (VAS) during three phases of treatment

Variable	Before treatment	Before third session	Before fifth session	P-value
DLQI (mean ± SD)	7.75±2.36*	5.55±1.88 <sup>#</sup>	4.14±0.64	0.0001*
VAS (mean ± SD)	10±0.04*	7.07±2.26 <sup>#</sup>	5.53±2.41	0.0001* <sup>#</sup>

**Notes:** \*Before treatment is significantly different from after treatment (before third session and fifth session); <sup>#</sup>difference between third and fifth session is significant.

**Table 3** Mean Dermatology Life Quality Index (DLQI) during three phases of treatment according to treated area

Treated area (no)	Before treatment	Before third session	Before fifth session	P-value
Cheek (35)	9.57±8.5	7.34±7.73	5.28±6.22	0.001
Parotid (49)	8.67±7.61	7.08±6.8	4.49±6.42	0.0001
Mentum (80)	7.87±6.52	5.52±6.06*	4.08±4.81*	0.0001
Submental (66)	8.09±6.68	6.18±6.42#	4.13±5.05#	0.0001

**Notes:** \*Before treatment is significantly different from after treatment (before third session and fifth session); #difference between third and fifth session is significant.

areas involved in the beginning of treatment, so the patients with more than three involved regions had significantly higher mean DLQI scores than other groups (Table 4).

There were no significant differences with regard to response to treatment and mean of DLQI scores according to the level of education, marital status, and employment status.

## Discussion

Several studies have been conducted. However, some indicated improvements in QOL, while others showed no significant difference.<sup>18–20</sup> In the study conducted by Loo and Lanigan, there had been a major improvement in DLQI score at 1–2 months but longer term benefit was not observed.<sup>20</sup>

It is important to recognize patients' perceptions of the severity of their hirsutism because their perception of facial hirsutism can differ greatly from doctors, nurses, and the wider population.<sup>19</sup>

The current study showed improvement in QOL as well as reduction of unwanted hair based on VAS after treatment by using alexandrite laser. The study did show that there was an average reduction in total DLQI of 3.6 points, indicating that laser hair removal therapy does have an impact on patients' QOL.

The higher satisfaction rate of laser therapy in patients with mental and submental involvement may be due to more effective treatments in these regions.

**Table 4** Mean Dermatology Life Quality Index (DLQI) during treatment according to number of areas involved

Number of areas involved	Before treatment	Before third session	Before fifth session
1	6.2±5.1	3.2±3.1	3.2±3
2	7±2.8	6±4.6	3.9±3.6
3	7.1±3.1	4.1±3.7	2.8±2.4
4	9.6±3.9*	7.9±7.9*	5.6±4.6*

**Notes:** Using repeated measure analysis of variance; \*Four involved regions are significantly different from all other groups (before treatment, before third session and before fifth session) P-value =0.016.

Studies show that social fear in hirsute women can influence their participation in social activities.<sup>9,10</sup> In our study, level of education and employment status were not feasible factors in improvement of DLQI in hirsute women.

## Conclusion

It seems that laser therapy in hirsute women without any psychiatric disorders can result in improvement in QOL and increase of social and interpersonal activities. Also, socio-economic status does not affect the response to treatment and mean of DLQI score in hirsute women.

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## Disclosure

The authors report no conflicts of interest in this work.

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