

## Original Article

# Quality of Life in Patients with Cutaneous Leishmaniasis

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## Abstract

**Background:** Leishmaniasis is a zoonotic infection caused by a protozoa belonging to the genus *Leishmania*. Its clinical manifestations range from a self-healing cutaneous leishmaniasis (CL) to lethal visceral leishmaniasis. We aim to examine the quality of life of patients with CL in Kerman, Iran.

**Methods:** In this cross-sectional study we evaluated 124 patients with CL. The Dermatology Life Quality Index (DLQI) questionnaire was used for measuring quality of life. Data on demographics and characteristics of the lesions also were collected. Mann-Whitney U-test and Kruskal-Wallis were used for data analyses.

**Results:** The mean DLQI score was  $5.87 \pm 5.96$ . We observed the highest effect in the symptoms and feelings domains; the lowest effect was seen in the treatment domain of the DLQI. There was no significant difference in DLQI scores between men and women. Patients with ulcerated lesions had lower quality of life ( $P < 0.05$ ).

**Conclusion:** CL significantly affects the quality of life of patients. Further studies are suggested to examine the effect of its treatment on the quality of life in these patients.

**Keywords:** Cutaneous leishmaniasis, Dermatology Life Quality Index, quality of life

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## Introduction

Leishmaniasis is a vector-borne disease caused by a protozoa that belongs to the genus *Leishmania*. This is one of the most neglected diseases. Its global prevalence is 12 million with 350 million people at risk.<sup>1,2</sup> The clinical manifestations of leishmaniasis range from a benign cutaneous leishmaniasis (CL) to lethal visceral leishmaniasis.<sup>3,4</sup> CL is the most common form of leishmaniasis that is endemic in over 80 countries and is considered a major public health problem in the Eastern Mediterranean Region (EMR) of the World Health Organization (WHO), including Iran.<sup>5–7</sup> In Iran the prevalence of CL varies based on the geographical region, ranging from 1.8% to 37.9%.<sup>8</sup>

CL has very different clinical manifestations depending on the condition of the host's immunity and the species of parasite.<sup>1</sup> Most CL cases are subclinical; however, other lesions characterized by papules or ulcers heal spontaneously but most often leave permanent scars in exposed areas of the body, such as the face, hands, and feet.<sup>9</sup> The lesions are usually asymptomatic and painless unless there is a secondary infection.<sup>9,10</sup>

CL such as other neglected diseases can cause stigma and disability.<sup>11</sup> Although it is not life threatening, its disfiguring lesions and scars can severely affect the social and psychological functioning of the affected individuals causing anxiety, depression, decreased body satisfaction and low quality of life.<sup>12,13</sup> We aimed

to study the quality of life of patients with CL in Kerman, South-east Iran.

## Patients and Methods

In this cross-sectional study, patients over 16 years of age with CL who referred to the Leishmaniasis Clinic supervised by the Department of Dermatology at Kerman Medical School were enrolled by the convenience sampling method. We included only those patients who did not have any chronic or other skin diseases. The questionnaires were anonymous and verbal consent was obtained from each participant. The confidentiality of information was ensured, according to the EC recommendation.

Data were collected by two questionnaires, one questionnaire that included demographic data and clinical features of the lesions such as type, size, location, condition, activity of the lesions, and previous treatment. The second questionnaire was the Dermatology Life Quality Index (DLQI) questionnaire that measured quality of life.

The DLQI is a self-administered, generic dermatology-specific questionnaire that measures the impact of skin diseases on health-related quality of life in patients. It covers six domains (symptoms and feelings, leisure, daily activities, work and school, personal relationships, exercise and treatment) during the previous seven days. Scores range from 0 (no effect on quality of life) to 30 (maximum effect). A higher score shows a worse quality of life. DLQI is also divided into five parts based on the acquired score: no effect, low effect, moderate effect, high effect, and very high effect.<sup>14</sup> DLQI has been translated into Persian; its validity and reliability have been previously confirmed.<sup>15</sup>

Data were analyzed using SPSS 17.0 software (SPSS Inc., Chicago, IL, US). Quantitative variables were reported as mean  $\pm$  SD and qualitative variables as frequency and percentages. The Kol-

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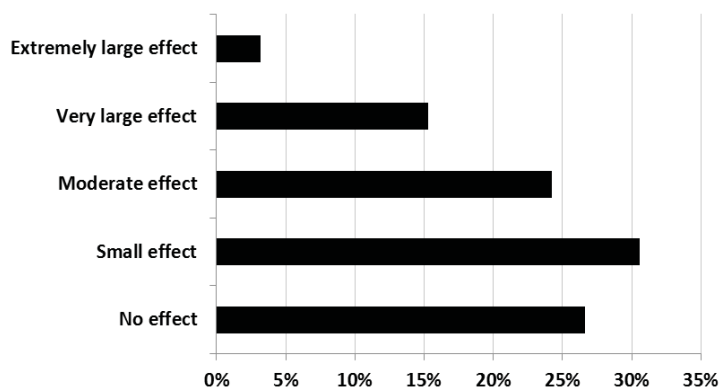
**Table 1.** Sociodemographic and disease characteristics of patients and Dermatology Life Quality Index (DLQI) scores.

Variables	N (%)	DLQI scores		
		Mean $\pm$ SD	Median (IQR)	P-value
Sex				
Female	78 (62.9)	6.40 $\pm$ 6.70	4 (1–8)	0.46*
Male	46 (37.1)	4.98 $\pm$ 4.35	4 (1–8)	
Marital status				
Single	38 (30.6)	5.68 $\pm$ 5.09	14.5 (1–9.25)	0.92*
Married	86 (69.4)	5.95 $\pm$ 6.33	4 (1–7)	
Level of education				
Below diploma	65 (52.4)	6.68 $\pm$ 7.16	4 (1–10)	0.75**
Diploma	40 (32.3)	4.9 $\pm$ 4.34	3.5 (2–7)	
College	19 (15.3)	5.16 $\pm$ 3.79	6 (2–7)	
Occupation				
Housekeeper	71 (57.3)	6.14 $\pm$ 6.81	4 (1–7)	0.79*
Employee	53 (42.7)	5.51 $\pm$ 4.61	5 (2–8)	
Lesion location				
Head and neck	20 (16.1)	3.95 $\pm$ 4.82	2 (0.25–6)	0.08**
Upper extremities	89 (71.8)	6.43 $\pm$ 6.25	5 (2–8)	
Lower extremities	15 (12.1)	5.13 $\pm$ 5.18	4 (1–7)	
Lesion type				
Papular	16 (12.9)	2.56 $\pm$ 3.63	1 (0.25–3.5)	0.015**
Nodular	62 (50.0)	5.60 $\pm$ 5.08	5 (2–7)	
Plaque	40 (32.3)	7.55 $\pm$ 7.33	6 (2–11)	
Other	6 (4.8)	6.33 $\pm$ 6.38	5 (1.5–10.5)	
Lesion appearance				
Ulcerative	77 (62.1)	6.90 $\pm$ 6.18	6 (2.5–10)	0.002*
Non-ulcerative	47 (37.9)	4.19 $\pm$ 5.20	2 (1–6)	
Lesion activity				
Active	117 (94.4)	5.81 $\pm$ 5.95	4 (1–8)	0.70*
Scar	7 (5.6)	6.85 $\pm$ 6.49	6 (1–13)	
Treatment history				
Under treatment	118 (95.2)	5.93 $\pm$ 6.02	4 (1–8)	0.65*
Without treatment	6 (4.8)	4.67 $\pm$ 4.76	3.5 (0.75–8.5)	

SD = Standard deviation, IQR = Inter-quartile range, \*Mann-Whitney U-test, \*\* Kruskal-Wallis test

**Table 2.** Dermatology life quality index (DLQI) scores in patients with cutaneous leishmaniasis (CL).

DLQI domains	Mean $\pm$ SD	Minimum	Maximum
Symptoms and feeling	2.07 $\pm$ 1.50	0	6
Daily activities	1.12 $\pm$ 1.47	0	6
Leisure	1.02 $\pm$ 1.44	0	6
Work and school	0.51 $\pm$ 0.84	0	3
Personal relationships	0.70 $\pm$ 1.25	0	6
Treatment	0.45 $\pm$ 0.78	0	3

**Figure 1.** Effect of cutaneous leishmaniasis (CL) on quality of life in patients.

mogorov-Smirnov test was used for evaluation of normality of the DLQI scores. The Mann-Whitney U-test was used for the comparison of DLQI scores between the two groups, Kruskal-Wallis was applied for the comparison among multiple groups and the Mann-Whitney U-test with Bonferroni correction was used as a *post hoc* test. For all analyses,  $P < 0.05$  was considered statistically significant.

The Ethics Committee of the Deputy of Research, Kerman University of Medical Sciences, Kerman, Iran approved this research.

## Results

Overall, 124 patients with a mean age of  $36.9 \pm 14.9$  years (range: 16–80 years) participated in this study. Other socio demographic and disease characteristics of the patients are presented in Table 1.

Duration of the disease ranged from 1 to 204 months. Excluding the one case that had a duration of 204 months, the mean disease duration was  $9.09 \pm 9.54$  months. In half of the patients, the duration of disease was less than six months. In most patients (94%)

the lesions were in the active phase. In 62% of the patients the lesions were ulcerative; the nodule was the most common type of lesion (Table 1).

DLQI scores ranged from 0–30 with a mean  $\pm$  SD of  $5.87 \pm 5.96$ . Based on the obtained scores, the disease had moderate effect in 30 (24.2%) patients, high effect in 19 (15.3%) patients and very high effect in 4 (3.2%) patients (Figure 1). The highest effect was seen in the symptoms and feelings domains; the lowest effect was observed in the treatment domain of the DLQI (Table 2).

We found no significant difference between men and women in quality of life ( $P = 0.46$ ). There was no significant difference between patients with respect to their level of education ( $P = 0.75$ ), marital status ( $P = 0.92$ ) and occupation ( $P = 0.79$ ; Table 1).

The activity ( $P = 0.70$ ) and location ( $P = 0.08$ ) of the lesions and treatment history ( $P = 0.65$ ) did not significantly affect quality of life (Table 1). However, their appearance ( $P = 0.002$ ) and type of lesions ( $P = 0.015$ ) had a significant effect on patients' quality of life. Patients with ulcerated lesions had lower quality of life. Quality of life in patients with papular lesions was better than those with nodular ( $P = 0.003$ ) and plaque ( $P = 0.005$ ) lesions (Table 1).

## Discussion

To the best of our knowledge a few studies have been performed on the quality of life in patients with CL. We only located studies by Yanik et al. in Turkey and a randomized clinical trial by Nilforoushzadeh et al. in which the quality of life of CL patients before and after medical intervention was compared.<sup>13,16</sup>

In the present study the mean DLQI score was  $5.78 \pm 5.96$ , where as in the study by Nilforoushzadeh et al. it was  $10.6 \pm 5.7$  prior to medical intervention.<sup>16</sup> The difference might be due to the specific conditions of subjects in the Nilforoushzadeh et al. study.

In the present study, the quality of life of 42.7% of patients was significantly affected by their disease. Published reports about dermatological diseases have shown that these diseases negatively impact quality of life of affected individuals; CL would not be an exception.<sup>17</sup>

According to the DLQI, CL had the maximum effect on the patients' quality of life with regards to symptoms (itching, soreness, pain, or burning sensations) and emotions (as embarrassment or self-consciousness). According to Yanik et al., patients with CL have psychiatric problems such as anxiety and depression. Reduced self-esteem in these patients negatively affects their quality of life.<sup>13</sup> Other studies, too, have emphasized the deleterious impact of CL on psychological and social aspects of life.<sup>11,12,18</sup>

Based on the scores of DLQI, the quality of life of our patients did not differ significantly with respect to the patients' sex, marital status, occupations, and educational levels.

Only appearance and type of lesions affected patients' quality of life. Patients with an ulcerous appearance of their lesions had lower quality of life, which agreed with a report by Yanik and colleagues.<sup>13</sup> Patients with papular lesions had higher quality of life, which might have been due to the fact that papular lesions are usually smaller than other lesions and are seen more frequently in early stages of the disease.

Although there are few studies about the quality of life in patients with CL our results seem to be consistent with the findings of other studies in relation to quality of life in common dermatological diseases. Ghajarzadeh et al. have reported mean DLQI scores of  $12.8 \pm 6.1$  for psoriasis,  $6.4 \pm 5.5$  for alopecia and  $8.4$

$\pm 6.9$  for vitiligo.<sup>19</sup> Aghaei et al. reported a mean DLQI score of  $10.3 \pm 5.2$  for psoriasis<sup>20</sup> and Safizadeh et al. in two separate studies have reported mean DLQI scores of  $6.42 \pm 4.7$  for acne and  $6.90 \pm 4.48$  for melisma.<sup>21,22</sup> The results of these studies have confirmed that CL patients have over all better condition and their quality of life is less affected by their disease.

This study has two limitations. First, there was no specific tool for evaluating disease severity, thus we did not compare this item in our analysis. Second, considering the socio-cultural structure of Iran, generalizing the results of this study to other countries should be done cautiously.

Since CL is endemic in several countries, it is necessary to perform more studies about the quality of life and problems of patients with this disease.

## Conclusion

In this study CL has shown a deleterious effect on quality of life in affected patients. More studies are warranted to assess the impact of treatment of CL on different aspects of quality of life, particularly among those with ulcerous lesions.

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