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## THE BURDEN OF LICHEN SIMPLEX CHRONICUS: A LOOK AT QUALITY OF LIFE

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**Abstract:** Lichen Simplex Chronicus (LSC) is a widespread dermatological condition characterized by skin lichenification due to persistent scratching, predominantly affecting adults with a slight female predisposition. The exact pathogenesis of LSC remains unclear, but it is associated with skin barrier disorders and psychological factors, notably stress, which exacerbate pruritus. While LSC is not life-threatening, it imposes a significant psychosocial burden, impacting patients' quality of life (QoL). Studies have shown that LSC patients often struggle with social skills, interpersonal relationships, sleep disturbances, and sexual dysfunction. The World Health Organization's QoL definition serves as the study's theoretical framework, encompassing individuals' perceptions of their life in the context of culture, health, psychological well-being, social relationships, and environment. Understanding the multifaceted impact of LSC on patients' QoL is crucial for comprehensive care and management.

**Keywords:** Lichen Simplex Chronicus (LSC), Quality of Life (QoL), Skin disorders  
Psychosocial impact, Pruritus

### 1. Introduction

Lichen Simplex Chronicus (LSC) is a common skin disorder characterized by lichenification of skin as a result of excessive scratching [1]. LSC is distributed worldwide and affects adults with a mild preference for females [2]. Pathogenesis of this dermatosis is not well distinguished. Disorders of skin barrier are described as a trigger or enhance pathological symptoms of LSC [3]. On the other hand, in the pathogenesis of LSC an important role have psychological factors. Recent evidence has indicated that psychological stress is associated with exacerbation of different skin conditions, including LSC. It has been proven that psychological disorders are closely connected with severity of pruritus sensation.

Although neurodermatitis is not life threatening, it can produce an important psychosocial burden. Patients with LSC tend to have poor social skills or interpersonal resources and a lack of flexibility. Neurodermatitis may be associated with sleep disturbance and sexual dysfunction [4]. All these data indicates a negative impact of LSC on patients' quality of life (QoL). One study has investigated QoL of patients with LSC, indicating that the disease had a very large impact on patients' QoL [5]. For the purpose of the study, the QoL-definition of World Health Organization (WHO) is accepted as a theoretical frame: "Quality of life is defined as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. It is a broad-ranging concept affected in a complex way by the persons' physical health, psychological state, and level of independence, social relationships, and their relationship to salient features of their environment [6].

### 2. Materials and Methods

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### 2.1 Settings and sample

The study was conducted among 190 non-hospitalized adult patients (106 female and 84 male; mean age  $57.17 \pm 14.45$  years; range 22-98 years) who visit dermatology unit in Medical Center “Sveta Anna” Varna, within the period of January 2013 and January 2015. The following inclusion criteria have been: one or more lichen plaques, highly pruritic, accumulation of normal skin lines, excoriations.

Individuals with psychiatric disorders and/or those using antidepressants have been excluded. Diagnosis was based on clinical observation and patient’s history data. Socio demographic data is presented in Table 1.

Characteristic	Patients
Gender n (%)	
Male	84(44.21%)
Female	106(55.78%)
Employment status n (%)	
Employed	68(35.78%)
Unemployed	37(19.47%)
Students	6(3.15%)
Retired	79(41.57%)
Education n (%)	
Primary	8(4.21%)
Secondary	104(54.73%)
> Secondary	78(41.05%)
Address n (%)	
Urban	154(81.05%)
Rural	36(18.94%)
Age	22 - 98 (57.17 )

**Table 1: Socio-Demographic characteristics**

Disease duration in months	Frequency	(%)
12	77	40.5
13-24	65	34.2
25 - 36	19	10.0
37+	22	11.6
Total	183	96.3
Don't know	7	3.7
total	190	100.0

**Table 3: Disease duration**

Stage of disease severity	Frequency	(%)
Stage 0	0	0
Stage I	10	0.52
Stage II	41	21.57
Stage III	118	62.10
Stage IV	20	10.52
Total	190	100.0

**Table 2: Disease severity**

### 2.2 Methods

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To evaluate the influence of LSC on patients' QoL the DLQI is applied. DLQI was the first dermatology-specific QoL instrument developed in 1994. DLQI comprises 10 items, giving a sum score ranging between 0 and 30. Ten questions (Q1 to Q10) concerning symptoms, embarrassment, shopping/daily activities, clothes, and social/leisure. This validated questionnaire has been used in over 40 different skin conditions in over 80 countries and is available in over 90 languages. Its use has been described in over 1000 publications including many multinational studies. The DLQI is the most frequently used instrument in studies of randomized controlled trials in dermatology. High DLQI scores imply low QoL.

Individual DLQI-instrument was provided to the patients during the routine consultation. Every patient was given oral instructions on how to fill the questionnaire. The patients were asked to fill in the questionnaires at home. Completed questionnaires were turned back at the next visit. The patients did not report difficulties in filling the questionnaire, which is a proof of its practical application in the routine clinical use.

The severity of illness for each patient was rated by Dermatology Index of Disease Severity (DIDS) as 1 of 5 stages: 0, no evidence of clinical disease; I, limited disease; II, mild disease; III, moderate disease; and IV, severe disease. More information was collected in addition to DLQI, including socio-demographic data (age, gender, social status, and work status), disease-related characteristics (duration).

The statistical analysis was performed with SPSS v.21.0 for Windows. Hypotheses were tested using  $\chi^2$ -criteria (for the descriptive profile data). Logistic regression analysis has been used to examine the independent effects of the explanatory variables on DLQI. Construct validity was tested by factor analysis. Reliability of the instrument was assessed by average inter-item correlation and Cronbach's alpha. Results with  $p < 0.001$  were interpreted as statistically significant.

### 3. Results and Discussion

Here are reported the findings from the DLQI - survey that is part of a wider project on LSC. As was pointed out, Table 1. shows the socio-demographic characteristics of the patients sample.

Mean age is  $57.17 \pm 14.45$  years; range 22-98 years. The disease duration ranges from 6 to 60 months ( $18.64 \pm 4.51$ ) (Table 2.). No patient was diagnosed to be in stage 0 and IV; 10(0.52%) patients were in stage I; 41(21.57%) were in stage II;

118(62.10%) in stage III (see Table 3.). DLQI score for LSC was 8.58 (median 8.00; IQR 3.00-19.00). Consequently, LSH moderately affects the QoL of the patients. Patients scored between 2 and 5 were only 16.8%, while 57.9% of the samples were scored between 6 and 10. Further, 25.3% of the patients were scored between 11 and 20 (Table 4). Scores for the DLQI are given in Tables 5. And 6 The LSC patients scores are significantly low for all items ( $p < 0.001$ ) except Q1 (symptoms), Q2 (feelings), Q9 (sexual difficulties) and Q10 (treatment). Among patients with LSC, the lowest score was for Q3 (shopping), Q6 (sport) and Q8 (relationships). Scores for the six domains of DLQI were compared also (Fig.1); DLQI scores were significantly low for all domains except domain 1 (symptoms and feelings) and domain 6 (treatment).

No strong relationship between patients' QoL and disease-related (duration and stage) ( $p = 0.004$ ) and social characteristics (urban/rural and level of education) ( $p = 0.194$ ) could be found. QoL, as reported, is negatively changed in every LSH patient. Generally, QoL of most of (57.9%) our patients was moderately affected. The mean DLQI score in our study was 8.58. Severe itching is a prominent feature of LSC, but it was determined that presence and intensity of itching did not depend on age, gender, and duration of disease ( $p = 0.004$ ). The impact of LSC on sexual function is mild. An explanation could be that although DLQI includes a question about sexual life(Q9), it does not specifically evaluate sexual problems. Gender-specific sexual function scales will be needed in a future study. Question 1 (symptoms) and domain 1(symptoms and feelings) had the biggest impact on LSC patients ( $p < 0.001$ ), which indicates that controlling of itching will improve QoL to a great extent.

Range of score	frequency	%
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0-1	0	0
2 – 5	32	16.8
6 – 10	110	57.9
11 – 20	48	25.3
21-30	0	0.0
<b>total</b>	<b>190</b>	<b>100</b>

**Table 4: Distribution according DLQI- score**

	DLQI		
	median	range	p-value*
Q1	2.00	2.00-3.00	<0.001
Q2	2.00	1.00-2.00	<0.001
Q3	0.00	0.00-1.00	<0.001
Q4	1.00	0.00-1.00	<0.001
Q5	1.00	0.00-1.00	<0.001
Q6	0.00	0.00-0.00	0.182
Q7	1.00	0.00-1.00	<0.001
Q8	0.00	0.00-0.00	0.155
Q9	1.00	0.00-2.00	<0.001
Q10	2.00	1.00-2.00	<0.001

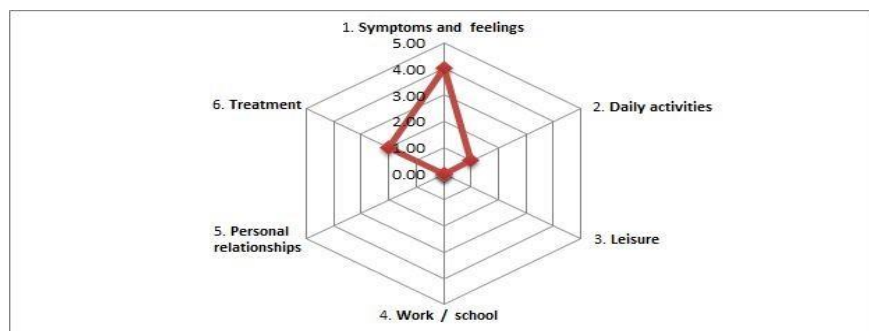
**Table 5: Scores of the 10 Questions answers**

	DLQI		
	Median	range	p-value*
1. Symptoms & feelings	4.00	3.00-5.00	<0.001
2. Daily activities	1.00	0.00-2.00	<0.001
3Leisure	0.00	0.00-1.00	<0.001
4. Work/school	1.00	0.00-1.00	<0.001
5. Personal relationship	1.00	0.00-2.00	<0.001
6. Treatment	2.00	1.00-2.00	<0.001

**Table 6: Six dimensions' scores**

**Figure 1: Distribution of patients' score according DLQI-domains**

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The use of a standardized instrument like DLQI in different cultures allows international comparisons. The results of our study can be compared with previous reported studies according to which QoL of most of patients (32.9%) were moderately affected, with DLQI score 9.34 [8] or even higher -11.95 [5]. The specific point was that in both studies patients do not report to be bothered by the process of treatment while Bulgarian patients reported that the most negative impact on their QoL along with pruritus Q1 (symptoms), has the process of treatment- Q10 (treatment) (median 2.00, range 1.00-2.00)(p-value <0.001).

This is the first study in Bulgaria, which aims to measure the impact of LSC on QoL for both male and female patients. Few studies investigating LSC in both males and females have been found in literature [5, 8]. LSC as a skin disease has been researched mainly among females as far as it affects genital region and leads to sexual dysfunction. On the other hand, DLQI is a general dermatology-specific quality of life instrument but has been used mainly for psoriasis patients.

### 4. Conclusion

QoL is a patient outcome measure, which gives essential information to the physician regarding patient's physical, mental and social functioning. LSC affects negatively the QoL of the patients. Therefore, a study of their self-reported health status alongside with the clinical investigation is a necessary precondition for successful therapeutic results. These facts underline the essential role of QoL assessment in every patient's path because it is becoming more and more important not only "how long" but also "how" you live. There was a limitation in this study as far as QoL of patients was assessed once and not in dynamics, before and after treatment. This could be an issue in the planning of a future research study. DLQI has proven to be a simple and practical questionnaire technique for routine clinical use.

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