

## Quality of Life Assessment in Patients with Idiopathic and Inducible Chronic Urticaria

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### ABSTRACT

**Objective:** To determine impact on quality of life (QoL) in patients of Chronic Urticaria (CU) and to compare it between Idiopathic and Inducible Chronic Urticaria.

**Study Design:** Cross-sectional study.

**Place and Duration of Study:** Department of Dermatology, Pakistan Emirates Military Hospital, Rawalpindi, Pakistan over a period of four months starting from Sep to Dec 2024.

**Methodology:** A total of 150 patients were recruited for this study. The quality of life was noted as per operational definition of Dermatology Life Quality Index (DLQI). Data was analyzed using Statistical Package for the Social Sciences (SPSS.25). Descriptive statistics were calculated for both qualitative and quantitative variables.

**Result:** The mean age of participants was 41.1±18.0 years, with a female predominance. The data were normally distributed. Subtypes of urticaria were as follows: Idiopathic urticaria 84(56%) and inducible urticaria 66(44%). Quality of life was affected in both subtypes; however, the difference between them was not statistically significant.

**Conclusion:** This study confers that chronic urticaria has a huge effect on the quality of life in chronic urticaria patients along with significant psycho-social limitations. The effect on quality of life was found to be higher in idiopathic urticaria as compared to inducible urticaria, but statistically insignificant.

**Keywords:** Chronic urticaria, Dermatology Life Quality Index, Idiopathic CU, Inducible CU.

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### INTRODUCTION

Urticaria is a diverse skin disorder determined by visible itchy wheals (hives), angioedema, and sometimes both at the same time.<sup>1</sup> Based on duration, urticaria can be divided into two subtypes, if the duration of urticaria is ≤6 weeks it is known as acute urticaria (AU) and if the symptoms last greater than six weeks the term chronic urticaria (CU) is used. AU is commonly reported in children whereas, CU is common in adults.<sup>2</sup> Giordano-Labadie et al reported that with a yearly incidence of 1.4%, CU affects 0.5-1% of the general population.<sup>3</sup> CU is defined as appearance of erythematous pruritic papules and plaques which re-occur at irregular intervals. Currently, the term CU includes both spontaneous idiopathic chronic urticaria (where patient does not identify any causative factor) as well as inducible chronic urticaria (where patient clearly identify the causative factors). Both subtypes can occur concurrently in one patient. CU damages the patient's self-esteem, routine activities and interpersonal

relationships.<sup>4</sup>

The effect of CU on quality of life is not only associated with its clinical severity but also linked with discomfort and stigmatization it causes, emphasizing the importance of skin diseases in quality of life. Patients with CU face many psychological difficulties including anger, frustration, poor self-esteem, anxiety and depression.<sup>1-3</sup> Currently, a growing stream of literature is investigating the impact of various skin diseases on the quality-of-life of the patients. Many studies used generic and disease specific questionnaires and proved that CU has statistically significant effect on patient's quality of life.<sup>5</sup> Cherrez-Ojeda *et al.*, investigated the psychological impact of CU on patients in Turkey using Minnesota Multiphasic personality inventory (MMPI) and found that scores for hysteria, depression, hypochondriasis, psychopathic deviance, psychasthenia, paranoia, social introversion and schizophrenia are higher in sample group as compared to control group.<sup>6</sup> In different geographical regions we can witness a wide range (4.8-13.6) of impact of CU on quality of life of patients. This wide range demonstrated unclear psychological and emotional sufferings in the patients of CU.

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The rationale of this study is deeply rooted in its context and nature of the disease. Previous research has been done where few studies only investigated female patients and others focused in male patients, also with great heterogeneity among the degree of quality of life affected by idiopathic CU and inducible CU.<sup>7,8</sup> However, in Pakistan the investigation of the impact of CU on quality of life requires substantial research.

### METHODOLOGY

This cross-sectional study was conducted at a Dermatology Department of Pakistan Emirates Military Hospital Rawalpindi, Pakistan over a period of four months starting from September 2024 to December 2024. By using WHO calculator sample size was calculated to be 150 with the confidence level of 95% and margin of error 5%.<sup>6</sup> Sampling was done using convenient sampling technique.

**Inclusion Criteria:** Male and female patients of chronic urticaria aged 18 to 75 years were included in the study.

**Exclusion Criteria:** Patient with contact and acute urticaria, patients with anxiety and depression, pregnant females, patients having any other skin disorders or serious systemic illness that could also affect a person's quality of life, were excluded from the study.

Ethical approval (ref# A/28/ERC/184/24) was obtained from ethical committee of the hospital. Patients fulfilling the inclusion criteria were included in the research and written informed consent was taken from them after explaining the purpose of study. 150 patients were selected with CU by using convenient sampling technique. After finding a patient with CU, an interview of 5-10 minutes was conducted with each patient to record demographic and clinical data. Afterwards, patients were selected with the duration of symptoms exceeding six weeks. We defined the patient as a case of idiopathic chronic urticaria who does not identify any causative factor and the patient who clearly identifies the causative factors is considered as a case of inducible chronic urticaria. Then Dermatology Life Quality Index (DLQI) questionnaire was provided to the patients and were guided how to fill it. The quality of life was noted as per operational definition on DLQI.

DLQI is a 10- item questionnaire intended for use in adults aged 16 and older. It is straightforward and can be simply given to the patient to fill

independently, without requiring further explanation.<sup>9</sup> The DLQI score is determined by adding up the scores for each question, with a possible range of 0 to 30. A higher score indicates a greater impact on quality of life. Additionally, the DLQI score can be represented as a percentage of maximum possible score of 30.<sup>10</sup>

Statistical Package for the Social Sciences (SPSS) version 25 was used to analyze the data. Normality of quantitative data was assessed prior to analysis. Age and DLQI score were found to be normally distributed and were expressed as Mean±SD. Qualitative variables such as gender and subtype of chronic urticaria were presented as frequency and percentage. DLQI scores were also categorized into defined groups for comparison. A *p*-value of ≤0.05 was considered statistically significant.

### RESULTS

The mean age of participants was 41.1±18.0 years, with a female predominance. The data were normally distributed. Subtypes of urticaria were as follows: Idiopathic urticaria 84(56%) and Inducible urticaria 66(44%). There were 92(61.3%) married patients while 58(38.7%) were unmarried. Mean DLQI score of the 150 participants was 10.4+6.6 indicating an overall moderate effect on quality of life. The distribution of DLQI categories among all patients is illustrated in Figure-1.

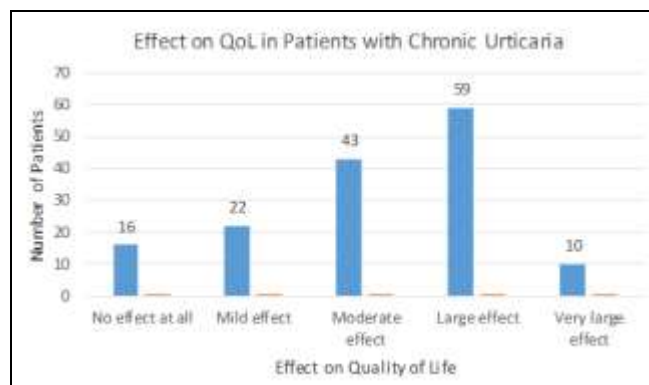


Figure: Effect on Quality of Life in Patients with Chronic Urticaria (n=150)

Table-I presents the effect on quality of life in both subtypes of chronic urticaria (idiopathic and inducible). Although quality of life was impaired in both subtypes; however, the difference between them was not statistically significant (*p*=0.823).

### DISCUSSION

In our study, mean age of the participants was 41.1±18.0 years, and it was observed that females were

## Idiopathic and Inducible Chronic Urticaria

**Table-I: Comparison of DLQI Categories Between Idiopathic and Inducible Chronic Urticaria (n = 150)**

Type of CU	No effect at all (0-1)	Small effect (2-5)	Moderate effect (6-10)	Very large effect (11-20)	Extremely large effect (21-30)	Total	p-value
Idiopathic CU	10(6.7%)	12(8.0%)	21(14.0%)	35(23.3%)	6 (4.0%)	84(56.0%)	0.823
Inducible CU	6(4.0%)	10(6.7%)	22(14.7%)	24(16.0%)	4 (2.7%)	66(44.0%)	
Total	16(10.7%)	22(14.7%)	43(28.7%)	59(39.3%)	10(6.7%)	150(100.0%)	

Comparison of QOL category distribution between idiopathic and inducible chronic urticaria. No statistically significant difference was noted ( $p = 0.823$ ). CU: chronic urticaria, DLQI: Dermatology Life Quality Index

Stratification was done based on age, gender and marital status to assess association with DLQI scores

**Table-II: Age Group-Wise Distribution of DLQI categories (n = 150)**

Age Group (years)	No effect (0-1)	Mild effect (2-5)	Moderate effect (6-10)	Very large effect (11-20)	Extremely large effect (21-30)	Total	p-value
18-30	7(4.7%)	9(6.0%)	19(12.7%)	27 (18.0%)	3 (2.0%)	65 (43.3%)	0.493
31-45	3(2.0%)	2(1.3%)	5(3.3%)	6 (4.0%)	4 (2.7%)	20 (13.3%)	
46-60	3(2.0%)	7(4.7%)	6(4.0%)	12 (8.0%)	2 (1.3%)	30 (20.0%)	
61-75	3(2.0%)	4(2.7%)	13(8.7%)	14 (9.3%)	1 (0.7%)	35 (23.3%)	
Total	16(10.7%)	22(14.7%)	43(28.7%)	59 (39.3%)	10 (6.7%)	150 (100.0%)	

Frequency and percentage distribution of QOL categories across different age groups. The differences among age groups were not statistically significant ( $p = 0.493$ )

**Table-III: Gender-wise Distribution of DLQI categories (n = 150)**

Gender	No effect (0-1)	Mild effect (2-5)	Moderate effect (6-10)	Very large effect (11-20)	Extremely large effect (21-30)	Total	p-value
Male	5 (3.3%)	12 (8.0%)	14 (9.3%)	15 (10.0%)	4 (2.7%)	50 (33.3%)	0.174
Female	11 (7.3%)	10 (6.7%)	29 (19.3%)	44 (29.3%)	6 (4.0%)	100 (66.7%)	
Total	16 (10.7%)	22 (14.7%)	43 (28.7%)	59 (39.3%)	10 (6.7%)	150 (100.0%)	

Frequency and percentage distribution of QOL categories among male and female participants. No statistically significant difference was observed between groups ( $p = 0.174$ )

**Table-IV: Marital Status-wise Distribution of DLQI categories (n=150)**

Marital Status	No effect (0-1)	Mild effect (2-5)	Moderate effect (6-10)	Very large effect (11-20)	Extremely large effect (21-30)	Total	p-value
Married	10 (6.7%)	14 (9.3%)	28 (18.7%)	32 (21.3%)	8 (5.3%)	92 (61.3%)	0.551
Unmarried	6 (4.0%)	8 (5.3%)	15 (10.0%)	27 (18.0%)	2 (1.3%)	58 (38.7%)	
Total	16 (10.7%)	22 (14.7%)	43 (28.7%)	59 (39.3%)	10 (6.7%)	150 (100.0%)	

Frequency and percentage distribution of QOL categories among married and unmarried participants. No statistically significant association

predominant i.e., 100 females (66.7%) vs. 50 males (33.3%). Male to female ratio in our study was 1:2. The overall mean DLQI score was  $10.4 \pm 6.6$ , while for female patients it was  $11.1 \pm 7.3$ . Although the mean DLQI score was higher in females as compared to males, the difference was not statistically significant. Chronic urticaria is an inflammatory skin disease but the burden it causes to patients' Quality of Life is underestimated and under studied in Pakistan.<sup>11</sup> It greatly affects quality of life as well as sleep quality in patients.<sup>12</sup>

However, Maria Regina Cavaiani Silveiras *et al.*, in their study reported that the mean age of patients was 41.8 years, which is very close to our study finding, and they reported female predominance.<sup>13</sup> Another study also showed female predominance where one-third (34.8%) of the participants were male and two-third (65.2%) were

females.<sup>14</sup> Weller *et al.* also reported female predominance in their study and our mean DLQI score is comparable to their mean DLQI score.<sup>15</sup>

Silveiras *et al.*, reported the mean DLQI score in their study as  $13.5 \pm 5.34$ . This score was higher than that of our study which was  $10.4 \pm 6.6$ . The possible reason could be improved health awareness, better medical facilities, and a higher education level making people better informed of their symptoms and how these symptoms affect their daily routine.<sup>13</sup>

A study conducted on 100 patients presented DLQI score varying from 0-20 and mean of  $10.42 \pm 4.09$  which is very close to our study findings.<sup>16</sup> On contrary, the mean DLQI score came out to be lower in Japan (mean score = 4.8).<sup>17</sup> In current study, the DLQI score was in close match with a study done by Maurer *et al.*, where he found DLQI score  $8.3 \pm 6.9$ . Comparable

mean values were observed in another study carried out in China (mean DLQI score >9.5).<sup>18,19</sup>

Categorically, DLQI score indicated that 16(10.7%) patients had DLQI score 0-1 meaning no effect on their life, 22(14.6%) patients had DLQI score 2-5 showing mild effect on their life, 43(28.7%) patients had DLQI score 6-10 indicating moderate effect on their life, 59(39.3%) patients DLQI score was 11-20 showing very large effect on their life and 10(6.7%) patients DLQI score was 21-30 meaning extremely large effect on their life. It was also noted that DLQI categories showed no significant correlation with patients' age, gender or marital status.

Healthcare professionals should focus more on CU-QOL patients to gain a deeper insight into the disease impact on each individual. Additionally, it is important to assess patients using comprehensive methods such as Urticaria Activity Score over 15 days (UAS-15), total IgE, and the presence of angioedema, to accurately identify key factors influencing CU-QOL.

This study has some limitations as well. Small sample size and cross sectional design make it unable to determine the fluctuations in DLQI score over the course of disease. Also, certain comorbidities could be studied with the potential to affect quality of life.

### CONCLUSION

Chronic urticaria has a huge impact on patients' QOL along with significant psycho-social limitations. DLQI score found to be higher in idiopathic urticaria as compared to inducible urticaria, but statistically insignificant. Females tend to experience a higher severity of chronic urticaria compared to males.

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### Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

SS & SSM: Data acquisition, data analysis, critical review, approval of the final version to be published.

NAM & MWS: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

AN & S: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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