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**The Impactof Disease Severity and Treatment in Patients of Psoriasis on Quality of Life**

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**ABSTRACT**

**Background:** Psoriasis is a common inflammatory dermatosis with significantly challenging clinical needs in patient management. Given its chronicity and social stigmatization, the burden on health-related life quality is substantial. The objective of this study was to assess psychosocial and financial impact of disease severity and treatment modalities on patients’ life quality.

**Methodology:** A total of 93 clinically diagnosed patients with Psoriasis were included in this cross-sectional study. Quality of life was assessed through Dermatology Life Quality Index (DLQI) scoring system and disease severity by Psoriasis area severity index (PASI) respectively. Treatment modalities were evaluated by filling out a brief questionnaire. Descriptive analyses were presented as mean ± SD for symmetrically distributed variables while median with interquartile range (IQR) were reported for non-symmetrically distributed variables. Association was determined by Chi-square test considering p-value ≤0.05 as significant.

**Results:** There were 47.3% male and 52.7% female patients. The Median DLQI score was 6.00 with an IQR of 7. Topical treatment was used in the majority of patients currently (60%). Quality of life ( QoL) for 41.9% of cases was mildly affected. Rest of the cases were affected more severely, consisting of 47.3% with moderate and 10.8% with severe impact on quality of life. Significant association of DLQI scores was found with disease severity and current treatment modalities.

**Conclusion:** Different therapies along with disease severity, remarkably affect QoL among psoriasis patients.

**KEYWORDS**

Disease Severity ,Impact, Psoriasis , Quality of Life**,** Treatment

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**Introduction**

Psoriasis is a spectrum of chronic debilitating inflammatory dermatoses which is multi factorial in etiology and complex in pathogenesis. It can occur at any age but most commonly present before 35 years of age. 1 It is a cause of significant health burden in Asia especially China due to its large population size.2

Psoriasis affects many parts of the skin including scalp, nail, mucosal surfaces and joints. It can be seen in many clinical types, namely chronic plaque Psoriasis, Guttate Psoriasis, Pustular psoriasis, Nail psoriasis, Scalp Psoriasis, Inverse Psoriasis and Psoriatic Arthritis. Treatment options available for different types of Psoriasis fall into two main categories that are topical and systemic agents. Phototherapy is yet another treatment modality that is best suited for patients with moderate psoriasis and with contraindications to systemic agents. Biologicals have taken over the lead during the last few years for their targeted action and long-term effects.3 Combination therapy (topical + systemic) is shown to be more efficacious and associated with significant improvement of QoL as compared to topical therapy alone.4

Evidence based literature suggests that steroids, vitamin D analogues and tazarotene either alone or in combination are the cornerstone treatment for mild psoriasis.5

Generally, moderate to severe disease warrants the commencement of systemic agents for disease control. Methotrexate (MTX), cyclosporin A, and retinoids are traditional systemic treatment options for psoriasis. Among these agents, Methotrexate is the most commonly prescribed medicine and is used with great success for patients having moderate to severe disease.6

Biological agents are a preferred treatment option worldwide when treating moderate to severe disease, refractory disease, and skin disease associated with significant joint involvement. In biologics, tumor necrosis factor alpha and interleukin (IL) inhibitors are the most widely used agents. Ustekinumab (IL 12-23 inhibitor) causes significant improvement in DLQI scores and other parameters of physical functioning specially in patients with coexisting Psoriatic arthritis.7

Besides the aforementioned therapies, Secukinumab (IL 17 inhibitior) is a newer biological agent and is considered better in terms of improvement of QoL, alleviation of symptoms and sustained clearance of the lesions at week 52.8

Although the impairment of QoL related to psoriasis has been vastly studied in the available literature, treatment modalities for this disease with respect to their impact on QoL have not been taken into consideration.

Therefore, the current study aims to evaluate effects of the disease severity along with available treatment options on health-related life quality. It will be helpful in limiting the use of certain drugs having major adverse effects on QoL. Additionally, compliance and adherence of patients to the treatment will be maximized.

**Methodology**

This cross-sectional study was conducted in the department of Dermatology, Aga Khan hospital, Karachi. A total of 93 patients attending OPD from November 2018 to April 2019 were enrolled**.** The sample size was calculated by using the efficacy of treatment on psoriasis as 41%,9 95% confidence interval, and 10% error of estimation. Participants were recruited through a consecutive sampling strategy. Inclusion criteriacomprised of all cases of Psoriasis aged 18–70 years, on treatment for at least 3 months, and patients willing to take part in the study. Patients with suspicious diagnoses and not receiving any treatment were excluded. The approval from the ethical review committee of the hospital was obtained (ERC number: 5442-MED-ERC-18). Written and informed consent was taken from the willing study participants.Quality of life and disease severity were assessed through DLQI scoring system and PASI respectively. Treatment modalities categorized into past and current treatments were evaluated by filling out a brief questionnaire. Data Confidentiality was maintained throughout the study and patient identification was not disclosed.

Statistical Package for Social Science SPSS (Release 20.0, standard version, copyright © SPSS; 1989-02) was used for data analyses.  Descriptive statistics were presented as frequency and percentages for qualitative variables i.e., gender, PASI scores, treatment modalities and type of psoriasis. Chi-square test was used to find out the association between categorical variables. The analysis using multinomial logistic regression was carried out by taking dermatology life quality index (DLQI) to be mild (0-5), moderate (6-10) and severe (>10) as the outcome variable. Stratification with respect to previous treatment, current treatment modalities, disease severity and psoriasis type was done to observe effect of these modifiers on the outcome. P-value of ≤0.05 was considered as significant statistically.

**Results**

The overall mean age of patients was 39 + (SD) years. There were 44 (47.3%) male and 49 (52.7%) female patients. Treatment modalities were categorized into past and current treatments. Furthermore, current treatments were divided into topical, topical and systemic combined and others (phototherapy and biologics). The majority of patients reported the use of topical treatment in the past as well as the current treatment modality (53% and 60% respectively). Most common type of psoriasis was Chronic Plaque Psoriasis 68 (73%). The frequency of mild and severe disease was equal . These findings are depicted in table 1

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| **TABLE I: Descriptive analysis showing frequency of variables (n=93)** |
| **Variable** | **No of patients (percentage)** |
| **Gender** |  |
| Male | 44 (47.3) |
| Female | 49 (52.7) |
| **Previous Treatment** |  |
| Both topical and systemic | 40 (43.0) |
| Topical | 49 (52.7) |
| Others | 2 (2.2) |
| Systemic | 1 (1.1) |
| None | 1 (1.1) |
| **Current Treatment** |  |
| Both topical and systemic | 23 (24.7) |
| Topical | 56 (60.2) |
| Others | 14 (15.1) |
| **Psoriasis Types** |  |
| Palmoplantar Keratoderma | 15 (16.1) |
| Chronic Plaque Psoriasis | 68 (73.1) |
| Erythroderma Psoriasis | 2 (2.2) |
| Pustular Psoriasis | 2 (2.2) |
| Guttate Psoriasis | 2 (2.2) |
| Chronic plaque Psoriatic+ Arthritis | 2 (2.2) |
| Scalp Psoriasis | 2 (2.2) |
| **PASI severity** |  |
| Mild | 38 (41) |
| Moderate | 17 (18) |
| Severe | 38(41) |

In our study, 39 (41.9%) cases were mildly compromised with QoL, 44(47.3%) cases were moderately affected and in 10 (10.8%) cases, QoL was severely impaired. The results showed significant association of DLQI scores with current treatment modalities (p=0.003) with maximum deterioration caused by combined topical, systemic and physical modalities while topicals alone were responsible for mild to moderate impairment of QoL. Statistically significant association was also found between disease severity and impact on QoL (p=0.014). However, no positive association was observed with psoriasis type (p=0.32) or previous treatment (p=0.635) respectively. The detailed results of these associations are represented in Table 2.

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| **TABLE:II Frequency of DLQL score severity according to treatment modalities and type of psoriasis (n=93)** |
| **Variable** | **Severe** **N (%)** | **Moderate** **N (%)** | **Mild** **N (%)** | **P value** |
| **Current Treatment** |  |  |  |  |
| Topical | 2 (20) | 24 (54) | 30 (76) | **0.003\*** |
| Others | 6 (60) | 5 (11) | 3 (7.69) |
| Both Topical and Systemic | 2 (20) | 15 (34.09) | 6 (15.38) |
| **Previous Treatment** |  |  |  |  |
| Both Topical and Systemic | 2 (20) | 17 (38.6) | 21 (53.8) | 0.635 |
| Topical | 7 (70) | 25 (56.8) | 17 (43.59) |
| Others |  | 2 (4.4) | - |
| Systemic | 1 (10) | - | - |
| None | - | - | 1 (2.5) |
| **Type of Psoriasis** |  |  |  |  |
| Palmoplantar Keratoderma | - | 8 (17.3) | 9 (23) | 0.32 |
| Chronic Plaque Psoriasis | 8 (80) | 29 (63) | 28 (80) |
| Erythrodermic Psoriasis | 1 (10) | 1 (2.1) | - |
| Pustular Psoriasis | - | 2 (4.3) | - |
| Guttate Psoriasis | - | 2 (4.3) | - |
| Chronic plaque+Psoriatic Arthritis | 1 (10) | 1(2.1) | 1 (2.5) |
| Scalp Psoriasis | - | 1(2.1) | 1 (2.5) |
| **Gender** |  |  |  |  |
| Male | 7(15) | 17(38) | 20 (45) |  0.29 |
| Female | 3 (6) | 27 (55) | 19 (38) |
| **PASI severity** |  |  |  |  |
| Mild | 3 (30) | 13(30) | 22(56) | **0.014\*** |
| Moderate | 2(20) | 24(54) | 12(31) |
| Severe | 5(50) | 7(16) | 5(13) |
| ***Significance level <0.05, \* Significant variable.*** |

 On assessment of DLQI tool, it was found that 35% of subjects denied any symptom including itch, soreness or stinging. Although psoriasis was not an obstacle in carrying out leisure activities and sports in majority, however, more than 40% of the patients were embarrassed about their disease, found it difficult to clothe themselves and had problems with their treatment applications and attending work/study (Figure 1).

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**Figure 1: DLQI ten questions response classification**

**Discussion**

Psoriasis has substantial and detrimental effects on the quality of life. Most important factors are severity, site of involvement, presence of psoriatic arthritis and others resulting in stigmatization, lack of self-esteem, social rejection and absenteeism from work and schools.10. More than half of respondents in a study from American population reported that psoriasis had a moderate to severe impact on their daily life.11 The majority of patients in the study were on topical treatment as in our study. The reason for worsening of QoL was non adherence to topical treatment which was related to forgetfulness and lack of ease of application. This observation is pertinent as our patients also reported similar reasons. Also, around 70% of our patients with severe impairment of life quality had moderate to severe disease.

Generally,topical medications are indicated for mild disease. With moderate to severe disease, scalp and nails involvement or DLQI ≥10,commencement of systemic therapy is necessary.12 This is contrary to our findings. Of those who were exclusively on topical therapy currently, only 2(4%) were severely affected on their life quality and 30(76%) demonstrated only mild impairment of QoL. This observation pinpoints the idea that systemic therapy might be the cause of impaired life quality due to the diverse adverse effects on overall body functions.

The financial burden of extensive therapeutic agents also plays a role in altering life quality of patients with psoriasis. Cost-conscious patients may alter their medication administration in an attempt to lower the expense either by reducing dosing frequency or stopping treatment altogether. In a recent study, topical treatment combined with systemic non biological agents was more cost effective than that combined with biological agents.13 This is quite similar to our study as majority of our patients having DLQI≥10 (60%) were on other treatments than topical or conventional systemic combined with topicals. Those treatments were phototherapy and biological agents. Being a low-income country, our study participants had serious financial constraints in getting optimal treatment for this disease. This observation is also evidenced by an Indian study, in which phototherapy led to reduction in severity of disease but failed to improve QoL in psoriatic patients.14 They used Narrowband UVB therapy similar to what we have given to our patients, so the results are comparable. Biological agents were among the current treatment modality in patients with severe impairment of QoL. However, biological agents have been recognized as the preferred therapy in improving QoL.15 This may be grounded in the fact that biological agents are given for a long period and the results are assessed at least at weeks 12 and 24 respectively in order to know their exact efficacy and our patients were still under treatment during the study period. Hence, we can say that phototherapy and biological therapy can only provide delayed improvement of severe disease but are unable to upgrade health related life quality rapidly due to delayed onset of action.

The current study shows a significant influence of the affected body surface area (BSA) on QoL, identified by PASI scores. We observed that the greater the disease severity, the more was the impairment of QoL. Half of the patients with severely impaired life quality were found to have severe disease (PASI scores >10). Similarly, majority of patients having mild impairment of QoL had mild disease severity. These results are consistent with those reported by several other authors.16, 17, 18 This study has significantly elaborated on the quality of life being affected more by systemic treatment modalities than by the disease itself. The limitation was a single center study with relatively small sample size, conducted in an urban setting hence cannot be utilized for generalization of the results to larger populations.

Treatment of psoriasis must be tailored according to individual patient’s risks and vulnerabilities. Optimal therapy can only be achieved by taking the patient perception of illness into account. Long-term psychological support is warranted alongside the conventional therapy.

**Conclusion**

Disease severity, complex and multiple treatment modalities impair quality of life significantly in Psoriasis patients.

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