Quality of Life in Patients with Psoriasis in Northern Taiwan

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- **Background:** Psoriasis has a significant negative impact on quality of life. The aim of this study was to identify factors associated with the quality of life of patients with psoriasis in Taiwan.
- **Methods:** A retrospective study analyzing data from psoriasis patients who visited the outpatient clinics in the Department of Traditional Chinese Medicine, Chang Gung Memorial Hospital at Taipei, Taoyuan and Keelung from July 2009 to January 2010 was performed.
- **Results:** A total of 480 patients who had completed the assessment of disease severity and the dermatology life quality index (DLQI) questionnaire were analyzed. Of these patients, 67.5% were men. The mean score on the DLQI was 9.16 \pm 6.3 and 67% of all patients reported a moderate to extremely large impact on their quality of life (DLQI > 6). A higher psoriasis area and severity index (PASI), younger age and initial lesions on the nails significantly negatively impacted patients' quality of life. Smoking, alcohol intake and gender were also weakly correlated.
- **Conclusion:** The clinical severity, age and site of initial lesions are associated with negative impacts on the quality of life of patients with psoriasis. These findings provide significant new insights into factors that affect the life quality of patients with psoriasis in Taiwan.

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Key words: psoriasis, dermatology life quality index (DLQI), psoriasis area and severity index (PASI)

Psoriasis is a chronic inflammatory skin disease characterized by raised, well-demarcated, erythematous plaques with adherent silvery scales. Classic psoriasis vulgaris has a predilection for certain areas such as the elbows, knees and scalp. Although not life-threatening or contagious, psoriasis substantially affects health-related quality of life (HRQoL) and has negative psychological and social implications.⁽¹⁾

Ethnic factors appear to influence the preva-

lence of psoriasis. The condition affects 2%-11% of the Caucasian population but only 0.3% of the Mongoloid population.^(2,3) In fact, the worldwide incidence of psoriasis varies considerably. Reasons for such variations range from racial to geographic and environmental.⁽⁴⁾ For example, psoriasis tends to be more frequent at higher latitudes than lower latitudes.⁽⁵⁾ A recent epidemiological study of psoriasis in Taiwan reported the mean one-year prevalence

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rate of psoriasis was 0.19%.⁽⁶⁾ One possible explanation for the relatively lower occurrence of psoriasis compared with that in Caucasian populations might be the lower frequency of the HLA-Cw6 gene in the Taiwanese population.⁽⁷⁾

Generally, a diagnosis of psoriasis is based on the appearance of the skin. People with psoriasis typically have sharply demarcated chronic erythematous plaques covered by silvery white scales, which most commonly appear on the elbows, knees, scalp, umbilicus and lumbar area.⁽⁸⁾ Sometimes, a skin biopsy or scraping may be needed to rule out other disorders and to confirm the diagnosis.

Most accepted treatments for psoriasis were developed empirically or found by chance. Treatments for psoriasis range from topical therapies for mild disease to phototherapy or systemic therapies for more widespread disease. These treatments improve the quality of life for most patients by ameliorating lesions and decreasing itching, pain and discomfort. However, patients' psychosocial suffering due to psoriasis is usually neglected. Numerous studies with a variety of questionnaires report a significant negative impact on HRQoL in patients with psoriasis.⁽⁹⁻¹¹⁾ Patients with a worse HRQoL experience a greater impact on work productivity and employment- related limitations relative to symptom severity. Therefore, the severity of psoriasis may be better defined in clinical practice by its impact on the HRQoL than by the psoriasis area and severity index (PASI).(12)

In previous studies, the HRQoL for patients with psoriasis was evaluated by self-assessment questionnaires that were either generic, dermatology-specific, or disease-specific.⁽¹³⁾ The dermatology life quality index (DLQI) is a dermatology-specific measure and is reportedly more sensitive to improvements in psoriasis-related symptoms than generic health status measures and has a positive correlation with the PASI.^(14,15)

Several studies of psoriasis in Taiwan have been reported including biological therapy trials, traditional Chinese herbal therapies, and genetic analysis.⁽¹⁶⁻²²⁾ However, the quality of life of patients with psoriasis in Taiwan has not been previously studied. The aim of this study was to evaluate the disease severity and HRQoL of patients with psoriasis in Taiwan. We conducted a retrospective chart review of 1472 patients with psoriasis and the factors that affect their life quality were identified.

METHODS

Patients

This study was a retrospective chart review and data analysis from the records of patients with psoriasis who visited the outpatient clinics of the department of traditional Chinese medicine, Chang Gung Memorial Hospital at Taipei, Taoyuan and Keelung between July 2009 and January 2010. The patients enrolled were limited to those who had been diagnosed with psoriasis by at least one dermatologist based on clinical presentation or biopsy.

Patients below the age of 20 years, and those with severe medical diseases that may affect their life quality including malignant disease, chronic obstructive pulmonary disease, heart failure, liver cirrhosis or end stage renal disease were excluded from the study. Patients with severe psychiatric disorders, mental disorders, seizures, organic brain disease, or other skin diseases (such as eczema, dermatophytoses, pityriasis rubra pilaris, mycosis fungoides, lichen simplex chronicus) were also excluded.

The data analyzed in the study included epidemiological and psoriasis-related records, and were recorded during the patients' initial visit to our clinic. The epidemiological records included age, gender, co-morbid diseases, regular medication, smoking and alcohol intake, allergy history and employment status. In some cases, data on prior smoking habits was difficult to evaluate; therefore, only data on current smoking habits were considered. The psoriasisrelated records included age at onset, duration, site of initial lesions, triggers and exacerbating factors, diagnosis by biopsy, family history of psoriasis, therapeutic history (Western or Chinese medicine), body surface area (BSA), PASI and DLQI.

Clinical measures

In our outpatient clinic, the patients underwent a physical examination to assess the severity of psoriasis (BSA and PASI) by a well-trained research fellow (TY Lin, or CY Liang) with confirmation by a senior physician (YK Lin). A "Rule of Nines" method was used to estimate the BSA. PASI assessment combines assessment of the severity of lesions (the degree of erythema, scaling and induration) and the area affected into a single score in a range of 0 (no disease) to 72 (maximal disease). Composite photographs from our previous study were used as examples to rate and score scaling, erythema, and induration on a scale of 0-4 with 0 indicating none, 1 mild, 2 moderate, 3 severe and 4 very severe (Fig. 1).⁽¹⁹⁾ The severity of psoriasis according to the PASI was defined as mild (PASI < 7), moderate (PASI 7-12), and severe (PASI > 12).⁽²³⁾ Feldman suggests that if patients have at least 10% body surface area involvement and a PASI score \geq 12 they have severe disease.⁽¹²⁾

Health-related quality of life assessment

In this study, HRQoL was assessed with a dermatology-specific instrument (DLQI). Patients were asked to complete a Chinese translation of the DLQI in our clinic. The DLQI is a self-reported questionnaire to measure how much a skin problem has affected the life of the patient over the previous 7 days. It consists of 10 questions, 6 sections and 1 overall summary score. Each question has 4 alternative answers: "not at all", "a little", "a lot", or "very much", with scores of 0, 1, 2 and 3, respectively. The 6 sections cover symptoms and feelings (questions 1 and 2), daily activities (questions 3 and 4), leisure (questions 5 and 6), work/school (question 7), personal relationships (question 8 and 9) and treatment (question 10). The DLQI is calculated by summing the score of each question resulting in a maximum of 30 and a minimum of 0. The higher the score, the more the quality of life is impaired. A



Fig. 1 Clinical photographic examples to rate scaling (A-E), erythema (F-J) and induration (K-O). Source: Clinical assessment of patients with recalcitrant psoriasis in a randomized, observer-blind, vehicle-controlled trial using indigo naturalis.⁽¹⁹⁾

Chang Gung Med J Vol. 34 No. 2 March-April 2011 DLQI score of 0-1 is interpreted as no effect at all on patient's life, 2-5 as a small effect, 6-10 as a moderate effect, 11-20 as a very large effect, and 21-30 as an extremely large effect.⁽²⁴⁾

Statistical analysis

All data were expressed as mean (standard deviation, SD) or as a percentage. The PASI and BSA were grouped into tertiles to examine how the DLOI varied among the three tertile groups. Tertiles are two points which divide an ordered distribution into three equal parts. Continuous variables among groups were compared using analysis of variance (ANOVA) with post-hoc Scheffe's multiple comparisons. Multiple linear regression with forward selection was used to analyze the relationships between the dependent variables (DLQI scores) and independent variables (patient characteristics, history and severity of psoriasis). Residual analysis was performed in the final multiple linear regression to check whether the assumptions of multiple linear regression were met. Index influence plots (plotting Cook's distance vs. ID) were made to check the outline or influence on the multiple linear regression. The significance level of this study was 0.05. All analyses were performed using Statistical Analysis Software (SAS) version 9.1.

RESULTS

Patient characteristics

A total of 1,472 patients with psoriasis were enrolled in this study. Only 480 patients with psoriasis completed the BSA, PASI and DLQI questionnaire. As shown in Table 1, 67.5% of all patients were men. The age of the patients ranged from 20 to 88 years with a mean of 42.8 ± 14.8 years. Among the 480 patients, 25.8% were active smokers and 21.7% regularly drank alchohol. Smoking was more common in men (37.0%) than women (2.6%) and drinking was also more common in men (28.7%) than women (7.1%). Concomitant medical conditions and regular medication were reported by 27.3%; of these, 7.3% had diabetes, 14.6% hypertension, 7.8% hepatitis and 14% other diseases. The mean PASI was 10.5 (SD = 9.9) with a range of 0 to 44.7 and the mean BSA was 20.0% (SD = 21.5%) with a range of 0-100%. In addition, most patients (70%) came from northern Taiwan including Taipei

Table 1. Patient Characteristics ($n = 480$)
Characteristics

Age, years	
Mean (SD), range	42.8 (14.8), 20 - 88
Gender, No. (%)	
Men	324 (67.5%)
Smoking, No. (%)	
Men	120 (37.0%)
Women	4 (2.6%)
Alcohol intake, No. (%)	
Men	93 (28.7%)
Women	11 (7.1%)
Employed, No. (%)	340 (70.8%)
Allergy history, No. (%)	48 (10%)
Concomitant diseases, No. (%)	131 (27.3%)
Diabetes 7.3% / Hypertension 14.6% /	
Hepatitis 7.8% / Other 14%	
PASI, Mean (SD), range	10.5 (9.9), 0 - 44.7
BSA, %, Mean (SD), range	20.0 (21.5), 0 - 100

Abbreviations: PASI: psoriasis area and severity index; BSA: body surface area involved; SD: standard deviation.

county (28.8%), Taipei city (20.2%), Taoyuan county (17.1%) and Keelung city (3.5%) (data not shown).

The psoriasis-related history of the patients is summarized in Table 2. Psoriasis first occurred before 40 years of age in the majority (71.3%) of patients with a mean age at onset of 32.0 (SD = 16.1) years. The initial site of psoriatic lesions was the scalp in 49.8%, the arms in 25.0%, the legs in 17.7%, the trunk in 10.8%, the nails in 5.8%, and multiple regions in 2.5%. Only 84 (18.9%) patients had a diagnosis of psoriasis by skin biopsy and about 112 (25.5%) of patients had a family history of psoriasis. Almost all patients (97.2%) had been treated with western medicine and 60.4% had been treated with Chinese medicine for their psoriasis. Stress, irregular sleep habits, and seasonal weather changes were the three main factors that were perceived to trigger and aggravate psoriasis.

History of psoriasis	n	%
Age at onset, years		
< 19	97	(21.8%)
20-29	131	(29.4%)
30-39	90	(20.2%)
40-49	54	(12.1%)
50-59	46	(10.3%)
Above 60	28	(6.3%)
Mean (SD)	32.0 (16.1)	(000,00)
Duration, years		
< 1	33	(7.3%)
1-5	124	(27.4%)
6-10	121	(26.7%)
Above 10	175	(38.6%)
Mean (SD)	11.1 (9.3)	· /
Site of initial lesions*		
Head	239	(49.8%)
Arms	120	(25.0%)
Legs	85	(17.7%)
Trunk	52	(10.8%)
Nails	28	(5.8%)
Multiple body areas	12	(2.5%)
Others	8	(1.7%)
Trigger factors*		× /
Stress	151	(31.5%)
Irregular sleep habits	146	(30.4%)
Seasonal weather changes	89	(18.5%)
Sickness	63	(13.1%)
Diet	47	(9.8%)
Other	45	(9.4%)
Unknown	95	(19.8%)
Exacerbating factors*		
Irregular sleep habits	209	(43.5%)
Seasonal weather changes	206	(42.9%)
Stress	197	(41.0%)
Diet	83	(17.3%)
Sickness	76	(15.8%)
Other	21	(4.4%)
Unknown	43	(9.0%)
Diagnosis by biopsy		
No	361	(81.1%)
Yes	84	(18.9%)
Family history of psoriasis		
No	327	(74.5%)
Yes	112	(25.5%)
Western medicine therapeutic history		
No	12	(2.9%)
Yes	409	(97.2%)
Chinese medicine therapeutic history		
No	120	(39.6%)
Yes	183	(60.4%)

Table 2. History of Patients with Psoriasis (n = 480)

Abbreviations: SD: standard deviation; *: multichoice.

DLQI scores

The HRQoL was assessed with the DLQI questionnaire and the detailed DLQI scores are summarized in Table 3. The mean DLQI score was 9.16 (SD = 6.3). There were 45, 113, 150, 143 and 29 of the 480 patients scoring 0-1, 2-5, 6-10, 11-20, and 21-30, respectively. This indicates that 9.4%, 23.5%, 31.3%, 29.8%, and 6% of all patients indicated "no effect at all", "small effect", "moderate effect", "very large effect", or "extremely large effect" on their life. The section for symptoms and feelings had the highest score while the section for personal relationships (sexual difficulty) had the lowest score.

Factors that affect the DLQI

The data in Table 4 show the correlations between the DLQI and age and site of initial lesions, as well as disease severity. We used the PASI and BSA score tertiles to group the patients to examine how the DLQI varied. In univariate analysis, a higher PASI score and BSA involvement, younger age, and initial lesions on the nails or on multiple regions were statistically significantly associated with the DLQI.

Independent variables significantly associated with the DLQI were entered into multiple linear regression analysis. PASI, age, and initial lesions on the nails were included in the final model and explained 15.1% variation in the DLQI (Table 5).

DISCUSSION

Psoriasis is a distressing, recurrent disease that significantly impairs quality of life and has no permanent cure. It represents a lifelong burden for affected patients. Various environmental factors have been suggested as aggravating psoriasis including physical trauma, stress, withdrawal of systemic corticosteroids, excessive alcohol consumption, and smoking but few have shown statistical significance. A comparative study reported reduction in physical functioning and mental functioning comparable with that seen in cancer, arthritis, hypertension, heart disease, diabetes and depression.⁽²⁵⁾ Depending on the severity and location of outbreaks, individuals may experience significant physical discomfort and some disability. In this present study, we first evaluated factors that impact the quality of life in patients with psoriasis in Taiwan. The results revealed higher PASI

Table 3. DLQI Scores of Patients with Psoriasis (n = 480)

Question	Mean (SD)
Symptoms and feelings	2.63 (1.46)
1. Over the last week, how itchy, sore, painful or stinging has your skin been?	1.35 (0.84)
2. Over the last week, how embarrassed or self conscious have you been because of your skin?	1.28 (0.89)
Daily activities	1.84 (1.55)
3. Over the last week, how much has your skin interfered with you going shopping or looking after your home or garden?	0.88 (0.83)
4. Over the last week, how much has your skin influenced the clothes you wear?	0.96 (0.91)
Leisure	1.73 (1.54)
5. Over the last week, how much has your skin affected any social or leisure activities?	1.02 (0.88)
6. Over the last week, how much has your skin made it difficult for you to do any sport?	0.71 (0.84)
Work and school	0.84 (1.07)
7. Over the last week, has your skin prevented you from working or studying?	0.84 (1.07)
If "no", over the last week how much has your skin been a problem at work or studying?	
Personal relationships	1.18 (1.39)
8. Over the last week, how much has your skin created problems with your partner or any of your close friends or relatives?	0.65 (0.79)
9. Over the last week, how much has your skin caused any sexual difficulties?	0.53 (0.81)
Treatment	0.93 (0.93)
10. Over the last week, how much of a problem has the treatment for your skin been, for example by making your home messy, or by taking up time?	0.93 (0.93)
Total*	9.16 (6.3)

Abbreviations: DLQI: dermatology life quality index; SD: standard deviation.

*: Distribution of the sum of the DLQI scores revealed 45 patients scored 0-1, 113 scored 2-5, 150 scored 6-10, 143 scored 11-20, and 29 scored 21-30.

scores, younger age, and initial lesions on the nails significantly negatively impacted patients' quality of life. Smoking, alcohol intake and gender were weakly correlated with quality of life.

Our data showed the mean DLQI score was 9.19 (SD = 6.2) and the mean PASI score was 10.5 (SD = 9.9), roughly in line with previous cross-sectional studies (Table 6). In the DLQI questionnaire, our study also showed higher scores for the section of symptoms and feelings, and lower scores for sexual problems, also in agreement with previous research.⁽²⁶⁻²⁸⁾ Interestingly, over half of patients had moderate to severe psoriasis according to the above definition of psoriasis severity^(12,23) and 67% of patients had a moderate to extremely large effect on their life (DLQI > 6). The results of this study confirm that clinical severity is related to quality of life in patients with psoriasis, which is consistent with

previous studies showing that DLQI scores have a positive correlation with PASI scores.⁽¹⁵⁾ However, some studies reported weak correlations between clinical severity and quality of life.^(29,30) This variation may have occurred because patients with a worse HRQoL have greater dissatisfaction with their current treatment compared with those with a better HRQoL.⁽³¹⁾

Age is another important factor affecting the quality of life in patients with psoriasis. A greater impact of psoriasis on physical health has been found in older patients, but a greater impact on psychosocial aspects has been found in younger ones.^(9,29,32) Interestingly, we observed that younger patients had higher DLQI scores in this study. This finding was consistent with the Lundberg study in Nordic countries in which elderly patients reported less impairment in quality of life compared with younger

	No. of	Mean of	p value	
	Patient	DLQI (SD)		
Age, years			0.0340	
20-29	84	9.80 (6.69)*†		
30-39	97	10.33 (5.87)*		
40-49	59	8.19 (5.81)†		
50-59	87	8.07 (5.92)*		
Above 60	54	7.72 (6.32) [†]		
Missing	99	9.79 (6.75)*†		
Site of initial lesions				
Nails			0.0461	
No	452	9.02 (6.25)*		
Yes	28	11.46 (6.85)*		
Multiple regions			0.0227	
No	468	9.05 (6.17)*		
Yes	12	13.25 (9.82)*		
PASI (range)			< 0.0001	
Tertile 1 (0-4)	151	6.58 (5.31)*		
Tertile 2 (4.1-10.7)	163	8.97 (5.61)*		
Tertile 3 (10.9-44.7)	166	11.69 (6.81)‡		
BSA (%)			< 0.0001	
Tertile 1 (0-5)	152	6.61 (5.19)*		
Tertile 2 (6-19)	146	8.94 (5.87)†		
Tertile 3 (20-100)	182	11.47 (6.66)‡		

Table 4. Univariate Analysis of the DLQI among Patients with Psoriasis (n = 480)

Table 5. Multiple Linear Regression of DLQI Scores of Patients

 with Psoriasis

	Regression coefficients	Standard error	p value	Cumulative R ²	
Intercept	7.73	0.72	< 0.0001		
PASI (range)				10.91%	
Tertile 1 (0-4)	Reference				
Tertile 2 (4.1-10.7)	2.40	0.67	< 0.0001		
Tertile 3 (10.9-44.7)	5.34	0.67	< 0.0001		
Age (years)				13.95%	
20-29	Reference				
30-39	-0.44	0.88	0.6186		
40-49	-2.39	1.00	0.0171		
50-59	-2.78	0.91	0.0024		
Above 60	-2.94	1.03	0.0045		
Missing	-0.89	0.88	0.3085		
Initial lesions on nails				15.14%	
No	Reference				
Yes	2.95	1.15	0.0105		

Abbreviations: DLQI: dermatology life quality index; PASI: psoriasis area and severity index.

Abbreviations: DLQI: dermatology life quality index; PASI: psoriasis area and severity index; BSA: body surface area involved; SD: standard deviation.

*, †, ‡: Scheffe's multiple comparisons, different and same symbol represents a difference and no difference between groups, respectively.

patients.⁽²⁹⁾ However, another study in Italy showed that older patients with psoriasis had worse life quality.⁽³³⁾ This difference could mean that the impact of the age factor on the quality of life of patients with psoriasis may vary in in different countries and further study is necessary to explain this diversity.

Nail psoriasis affects 10-78% of patients with psoriasis and 80-90% of patients with psoriasis experience nail changes during their lives.⁽³⁴⁾ This often represents a significant cause of distress because of the visible localization of the lesions and the chronic

course of the disease. Nail psoriasis shares the chronic course of its skin counterpart with occasional flare-ups and remission. However, unlike the advances in the treatment of skin psoriasis during recent years, therapy for psoriatic nails remains a challenge. The present study revealed that initial psoriatic lesions on the nails may be significantly associated with higher DLQI scores. Our study supports previous reports in which patients with nail-involved psoriasis had a significantly impacted quality of daily life.⁽³⁵⁾

Cigarette smoking and alcohol may be triggering factors and, in addition, complicate the treatment of patients with psoriasis. Excessive alcohol intake and smoking are more common in patients with psoriasis, particularly in those who are severely affected, compared with that in the general population.⁽³⁶⁾ A limitation of our study was a lack of a general population for control, so we could not confirm whether the prevalence of smoking and alcohol intake in our study was greater than in the general population. Furthermore, no assessment of the correlation

Country	Duration of study	No. of Patients	Mean Age (y, SD)	Men (%)	Duration of psoriasis (y, SD)	Onset of psoriasis (y, SD)	Mean DLQI score (SD) (SD)	Mean PASI score	Reference
Germany	2004-2005	1511	50.5 (14.9)	57.8	17.6 (14.5)	33.5 (17.6)	8.6	12.0	(38)
USA	2005	332	42.7 (11.5)	38.8	_	_	10.8 (7.1)	9.5 (8.9)	(31)
Italy	2000-2001	359	46.0 (16.3)	57.4	12.0 (11.6)	34.0 (17.4)	8.7 (6.0)	-	(39)
Germany	2007	2009	44.3	-	_	_	7.5	10.4	(40)
Italy	2000-2002	900	_	60	12.1 (11.9)	33 (17.2)	8.8 (6.1)	8.2 (5.6)	(27)

Table 6. Cross-sectional Studies of DLQI and PASI in Patients with Psoriasis

Abbreviations: DLQI: dermatology life quality index; PASI: psoriasis area and severity index; SD: standard deviation.

between disease severity and smoking habits or alcohol intake in patients with psoriasis was performed in this study. A study in Nordic countries showed a weak but positive correlation between cigarette smoking and impaired psoriasis-related quality of life measures.⁽³⁷⁾ Our results showed no significant correlation between smoking habits or alcohol intake and impaired psoriasis-related quality of life. A possible explanation for this difference may be that our definitions of smoking and alcohol intake were ambiguous and may be a limitation of this analysis.

Although previous reports suggested that psoriasis is equally common in male and female Caucasians,⁽²⁾ the mean one-year prevalence of psoriasis in Taiwan was higher in men than in women (0.23% v.s. 0.16%).⁽⁶⁾ One report from mainland China also showed that psoriasis is more common in men than in women.⁽³⁾ The proportion of men was higher than that of women in this study (67.5% v.s. 32.5%). Taken together, the prevalence of psoriasis in Taiwanese men appears to be higher than in Taiwanese women, which is opposite that in Caucasians. One explanation for this higher prevalence could be that poor life behavior, poor diet control, more cigarette smoking and higher alcohol intake in Taiwanese men increases the risk of developing psoriasis. It is necessary to identify the determinants of the increased prevalence of psoriasis in men in further studies. In addition, previous studies have shown women to be more likely than men to report impairment of psoriasis- related quality of life,⁽³³⁾ and it is believed that women generally report greater psychological disease severity, but men have higher PASI scores than women.⁽²⁹⁾ In fact, women have more invested in appearance and tend to be less satisfied with their body image in general. However, the gender factor was weakly associated with the DLQI scores in our study. This different observation may be be affected by ethnic, cultural or other factors, but the evidence is insufficient and further investigation is warranted.

There are several limitations in the present study. First, our sample may not be representative because the subjects analyzed in this study were confined to a single physician in northern Taiwan and only 32.6% (480/1472) of records were used in this study. Hence, selection bias is inevitable. Second, this study design lacks a comparative or control population and it is unknown whether most patients with psoriasis in Taiwan have negative impacts on their life quality. Finally, many factors were not considered in this study, including compliance with medical regimens, the choice of treatment and the response to therapy, all of which may affect clinical severity and HRQoL in patients with psoriasis.

In conclusion, the present data suggest that the clinical severity, age and site of initial lesions are associated with the quality of life of patients of psoriasis. The observations reported here provide significant new insights into factors impacting the life quality of patients with psoriasis in Taiwan, but the study was limited in several ways that might be addressed in further research.

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REFERENCES

- Ramsay B, O'Reagan M. A survey of the social and psychological effects of psoriasis. Br J Dermatol 1988;118: 195-201.
- 2. Raychaudhuri SP, Farber EM. The prevalence of psoriasis in the world. J Eur Acad Dermatol Venereol 2001;15:16-7.
- 3. Yip SY. The prevalence of psoriasis in the Mongoloid race. J Am Acad Dermatol 1984;10:965-8.
- 4. Faber EM, Nall ML. The natural history of psoriasis in 5600 patients. Dermatologica 1974;148:1-18.
- Braathen LR, Botten G, Bjerkedak T. Prevalence of psoriasis in Norway. Acta Derm Venereol Suppl 1989;142:5-8.
- Chang YT, Chen TJ, Liu PC, Chen YC, Chen YJ, Huang YL, Jih JS, Chen CC, Lee DD, Wang WJ, Lin MW, Liu HN. Epidemiological study of psoriasis in the national health insurance database in Taiwan. Acta Derm Venereol 2009;89:262-6.
- Chang YT, Tsai SF, Lee DD, Shiao YM, Huang CY, Liu HN, Wang WJ, Wong CK. A study of candidate genes for psoriasis near HLA-C in Chinese patients with psoriasis. Br J Dermatol 2003;148:418-23.
- Schön MP, Boehncke WH. Psoriasis. N Engl J Med 2005;352:1899-912.
- Krueger G, Koo J, Lebwohl M, Menter A, Stern RS, Rolstad T. The impact of psoriasis on quality of life: results of a 1998 National Psoriasis Foundation patientmembership survey. Arch Dermatol 2001;137:280-4.
- Lewis VJ, Finlay AY. Two decades experience of the Psoriasis Disability Index. Dermatology 2005;210:261-8.
- Augustin M, Zschocke I, Lange S, Seidenglanz K, Amon U. Quality of life in skin diseases: methodological and practical comparison of different quality of life questionnaires in psoriasis and atopic dermatitis. Hautarzt 1999;50:715-22.
- Feldman SR. A quantitative definition of severe psoriasis for use in clinical trials. J Dermatolog Treat 2004;15:27-9.
- Bhosle MJ, Kulkarni A, Feldman SR, Balkrishnan R. Quality of life in patients with psoriasis. Health Qual Life Outcomes 2006;4:35.
- 14. Revicki DA, Willian MK, Menter A, Saurat JH, Harnam N, Kaul M. Relationship between clinical response to therapy and health-related quality of life outcomes in patients with moderate to severe plaque psoriasis. Dermatology 2008;216:260-70.
- 15. Basra MK, Fenech R, Gatt RM, Salek MS, Finlay AY. The Dermatology Life Quality Index 1994-2007: a comprehensive review of validation data and clinical results. Br J Dermatol 2008;159:997-1035.
- Huang PH, Liao YH, Wei CC, Tseng YH, Ho JC, Tsai TF. Clinical effectiveness and safety experience with ale-

facept in the treatment of patients with moderate-tosevere chronic plaque psoriasis in Taiwan: results of an open-label, single-arm, multicentre pilot study. J Eur Acad Dermatol Venereol 2008;22:923-30.

- Tsai TF, Liu MT, Liao YH, Licu D. Clinical effectiveness and safety experience with efalizumab in the treatment of patients with moderate-to-severe plaque psoriasis in Taiwan: results of an open-label, single-arm pilot study. J Eur Acad Dermatol Venereol 2008;22:345-52.
- Lin YK, Wong WR, Chang YC, Chang CJ, Tsay PK, Chang SC, Pang JH. The efficacy and safety of topically applied indigo naturalis ointment in patients with plaquetype psoriasis. Dermatology 2007;214:155-61.
- Lin YK, Chang CJ, Chang YC, Wong WR, Chang SC, Pang JH. Clinical assessment of patients with recalcitrant psoriasis in a randomized, observer-blind, vehicle-controlled trial using indigo naturalis. Arch Dermatol 2008;144:1457-64.
- 20. Lin YK, Leu YL, Yang SH, Chen HW, Wang CT, Pang JH. Anti-psoriatic effects of indigo naturalis on the proliferation and differentiation of keratinocytes with indirubin as the active component. J Dermatol Sci 2009;54:168-74.
- 21. Chang YT, Chou CT, Yu CW, Lin MW, Shiao YM, Chen CC, Huang CH, Lee DD, Liu HN, Wang WJ, Tsai SF. Cytokine gene polymorphisms in Chinese patients with psoriasis. Br J Dermatol 2007;156:899-905.
- 22. Chang YC, Wu WM, Chen CH, Hu CF, Hsu LA. Association between P478S polymorphism of the filaggrin gene and risk of psoriasis in a Chinese population in Taiwan. Arch Dermatol Res 2008;300:133-7.
- Schmitt J, Wozel G. The psoriasis area and severity index is the adequate criterion to define severity in chronic plaque-type psoriasis. Dermatology 2005;210:194-9.
- 24. Hongbo Y, Thomas CL, Harrison MA, Salek MS, Finlay AY. Translating the science of quality of life into practice: What do dermatology life quality index scores mean? J Invest Dermatol 2005;125:659-64.
- 25. Rapp SR, Feldman SR, Exum ML, Fleischer AB Jr, Reboussin DM. Psoriasis causes as much disability as other major medical diseases. J Am Acad Dermatol 1999;41:401-7.
- Bhosle MJ, Kulkarni A, Feldman SR, Balkrishnan R. Quality of life in patients with psoriasis. Health Qual Life Outcomes 2006;4:35.
- Wahl AK, Mork C, Lillehol BM, Myrdal AM, Helland S, Hanestad BR, Moum T. Changes in quality of life in persons with eczema and psoriasis after treatment in departments of dermatology. Acta Derm Venereol 2006;86:198-201.
- Mazzotti E, Barbaranelli C, Picardi A, Abeni D, Pasquini P. Psychometric properties of the Dermatology Life Quality Index (DLQI) in 900 Italian patients with psoriasis. Acta Derm Venereol 2005;85:409-13.
- Zachariae R, Zachariae H, Blomqvist K, Davidsson S, Molin L, Mørk C, Sigurgeirsson B. Quality of life in 6497

Nordic patients with psoriasis. Br J Dermatol 2002;146: 1006-16.

- Fortune DG, Main CJ, O'Sullivan TM, Griffiths CE. Quality of life in patients with psoriasis: the contribution of clinical variables and psoriasis-specific stress. Br J Dermatol 1997;137:755-60.
- 31. Schmitt JM, Ford DE. Work limitations and productivity loss are associated with health-related quality of life but not with clinical severity in patients with psoriasis. Dermatology 2006;213:102-10.
- 32. Lundberg L, Johannesson M, Silverdahl M, Hermansson C, Lindberg M. Health-related quality of life in patients with psoriasis and atopic dermatitis measured with SF-36, DLQI and a subjective measure of disease activity. Acta Derm Venereol 2000;80:430-4.
- 33. Sampogna F, Chren MM, Melchi CF, Pasquini P, Tabolli S, Abeni D. Age, gender, quality of life and psychological distress in patients hospitalized with psoriasis. Br J Dermatol 2006;154:325-31.
- 34. Ortonne JP, Baran R, Corvest M, Schmitt C, Voisard JJ, Taieb C. Development and validation of nail psoriasis quality of life scale (NPQ10). J Eur Acad Dermatol Venereol 2009;24:22-7.
- 35. de Jong EM, Seegers BA, Gulinck MK, Boezeman JB,

van de Kerkhof PC. Psoriasis of the nails associated with disability in a large number of patients: results of a recent interview with 1,728 patients. Dermatology 1996;193: 300-3.

- Gerdes S, Zahl VA, Weichenthal M, Mrowietz U. Smoking and alcohol intake in severely affected patients with psoriasis in Germany. Dermatology 2009;220:38-43.
- Davidsson S, Blomqvist K, Molin L, Mørk C, Sigurgeirsson B, Zachariae H, Zachariae R. Lifestyle of Nordic people with psoriasis. Int J Dermatol 2005;44:378-83.
- 38. Augustin M, Kruger K, Radtke MA, Schwippl I, Reich K. Disease severity, quality of life and health care in plaquetype psoriasis: a multicenter cross-sectional study in Germany. Dermatology 2008;216:366-72.
- Mazzotti E, Picardi A, Sampogna F, Sera F, Pasquini P, Abeni D. Sensitivity of the Dermatology Life Quality Index to clinical change in patients with psoriasis. Br J Dermatol 2003;149:318-22.
- 40. Radtke MA, Reich K, Blome C, Kopp I, Rustenbach SJ, Schäfer I, Augustin M. Evaluation of quality of care and guideline-compliant treatment in psoriasis. Development of a new system of quality indicators. Dermatology 2009;219:54-8.

台灣北部乾癬病人的生活品質

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- 背景: 乾癬會對病人的生活品質造成明顯的負面影響,本研究目的為找出會影響台灣乾癬病人生活品質的相關因子。
- **方法**:本研究爲回溯性分析西元 2009 年 7 月至西元 2010 年 1 月在長庚紀念醫院台北、桃園和基隆院區中醫門診就醫的乾癬病人資料。
- 結果: 我們分析有完整的疾病嚴重度評估和皮膚病生活品質量表 (DLQI) 之 480 個病人資料,男性占 67.5%, DLQI 的平均分數為 9.16±6.3,其中有 67% 病人的生活品質受到中度至非常大程度的影響 (DLQI > 6)。在乾癬面積和嚴重度指數 (PASI) 較高的、年紀較輕的和初發病灶在指甲的病人生活品質會受到明顯的負面影響,抽菸、喝酒和性別與病人生活品質關聯性則較弱。
- 結論: 乾癬臨床症狀的嚴重程度、病人年齡及初發病灶位置會使病人的生活品質受到負面 影響,這個發現對影響台灣乾癬患者生活品質的相關因素提供了新的看法。 (長庚醫誌 2011;34:186-96)
- 關鍵詞:乾癬,皮膚病生活品質量表 (DLQI),乾癬面積嚴重度指標 (PASI)

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