

Comparative study of the impact of chronic urticaria, psoriasis and atopic dermatitis on the quality of life

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Work conducted in 266 offices of dermatology in France

Summary

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Background A better management of chronic skin disorders (CSDs) requires a knowledge of their impact from the patient's point of view.

Objectives To determine which aspects of the patient's life are mainly impaired in the different CSDs, and provide comparative references to estimate better the real impact of the different CSDs.

Patients and methods A prospective cross-sectional and matched study of 1356 adult outpatients to compare the health-related quality of life (HRQL) profile in chronic urticaria (466 CU), psoriasis (464 PSO) and atopic dermatitis (426 AD), using the VQ-Dermato, a multidimensional instrument in French validated for CSDs.

Results After adjustment for confounders, HRQL dimensions were differently affected in the three CSDs. The 'physical discomfort' dimension was more degraded in AD and CU than in PSO ($P < 0.001$), and 'leisure activities' more in PSO than in CU ($P < 0.001$). 'Self-perception' and 'treatment-induced restrictions' dimensions were much less affected in CU than in PSO and AD ($P < 0.001$). In PSO, the 'daily living activities' dimension was much less impaired than in CU and AD ($P < 0.001$). No aspect of HRQL was really spared in AD.

Conclusions The comparison shows that CU, PSO and AD are characterized by completely different qualitative profiles of impact on HRQL, which are influenced by their clinical characteristics and usual treatment options. It underlines the severe impairment of CU which is often underestimated.

Chronic skin conditions may alter the health-related quality of life (HRQL) in different ways, such as pruritus, visibility and treatment-induced restriction. Different skin disorders probably have different effects on the various components of the quality of life such as daily functioning, occupation, leisure, psychological status or social life. Therefore, the impact of different disorders can be qualitatively different, thus defining a more or less typical HRQL profile for each chronic skin disorder (CSD). Little is known about the profile of the most frequent CSDs, which in fact characterize each skin disease from the patient's point of view. A better knowledge of these profiles is certainly important for an improved management of these disorders.

To confirm the reality of different HRQL profiles and characterize them, a relevant approach is to compare several typical CSDs with an instrument designed to assess separately the different components of the HRQL. Among the CSDs, chronic urticaria (CU), psoriasis (PSO) and atopic dermatitis (AD) are

particularly representative and meaningful. Indeed, they are highly frequent, and they are familiar to most physicians. They have very different clinical features and interfere with patient well-being.¹⁻⁴ A number of instruments can be used to measure health status and quality of life from the patient's point of view^{5,6} and only a few HRQL dermatology-specific instruments have been developed.⁷⁻¹⁰ All HRQL tools are closely related to the language and culture of the population in which they were generated and validated.

VQ-Dermato is an instrument that explores separately seven components of the quality of life. It has been validated for the measurement of HRQL in adults with CSDs.¹⁰ It is also the only dermatology-specific HRQL tool in French, generated from the point of view of patients only. Because of these three characteristics, it was thus very well adapted for a study aimed at characterizing the HRQL profile of several CSDs in a French population.

We thus designed a study to compare and characterize the HRQL profile of three of the most frequent different skin disorders, CU, PSO and AD, using VQ-Dermato, a sensitive and multidimensional HRQL instrument. We expected that comparing clinical and HRQL profiles would also permit a better understanding of the link between the clinical profile and the HRQL profile of a skin condition. Such a comparison between CSDs was also a way to appraise better their impact on HRQL by providing comparative references with the same measurement tool.

Herein we present the results of this prospective matched survey comparing the HRQL of CU, PSO and AD, in a large sample of patients consulting dermatologists in hospital and private practice settings in France.

Patients and methods

General design of the study and main objective

This cross-sectional prospective study was designed to compare and characterize the average HRQL profile of CU, PSO and AD in typical adult outpatients looking for dermatological advice, using VQ-Dermato, a validated seven-dimension HRQL instrument.¹⁰ This study was performed by a representative sample of dermatologists in France, enrolling age- and sex-matched consecutive patients.

Investigators

Dermatologists who were contacted to participate were drawn from a random list of 469 among the 3907 French dermatologists (random fraction 12%), stratified by administrative areas all over France. Of those dermatologists contacted, 266 agreed to participate.

Patient inclusion criteria

Patients had to be between 18 and 58 years of age, and to consult for one of the three following disorders: CU, PSO or AD. The diagnoses of CU, PSO and AD were based on the clinical expertise of the dermatologists. Only patients considered as typical cases by the dermatologists could be enrolled. However, patients not fulfilling at least one of the Hanifin and Rajka¹¹ major criteria for AD were to be excluded from the AD group. Only idiopathic chronic types of urticaria and active forms of PSO and AD were included. Urticaria was considered to be 'chronic' when it was responsible for multiple flare-ups for at least 3 months. PSO or AD were judged 'active' when they had caused patient complaint or consultation in the last 3 months.

Recruitment and matching

Any investigator had to recruit clusters of three patients, one with CU, one with PSO and one with AD, matched by sex and age (two large age classes: 18–38 years, 39–58 years). They first enrolled the first CU case fulfilling inclusion criteria,

and then had to enrol the first suitable-for-matching case of PSO and AD.

Data collection

Interview and examination of patients

Whatever the condition, i.e. CU, PSO or AD, investigators recorded descriptive data about the patient, the severity of the disorder and the usual treatments.

The following data were collected at the interview with each patient: sociodemographics (age, sex, occupational and familial status), date of first manifestation since birth, date of the first manifestation of the present flare-up, history of atopy (asthma, allergic rhinitis, AD), history of any other skin disorders, assessment of the impact of the disorder on sleeping, a 0–100 visual analogue scale to assess pruritus, presence of scratching lesions, list and efficacy of treatments commonly used to treat the disorder, and criteria for AD.¹²

Subjective impression of severity was rated by the physicians as minimal/moderate/severe/very severe by reference to the cases of the same disorder seen in their daily practice. Each case of CU, PSO and AD was thus rated compared with usual cases of CU, PSO and AD, respectively. The physicians also assessed the visibility of lesions.

Health-related quality of life assessment

VQ-Dermato (Table 1) is the only French questionnaire that was developed from the point of view of patients. It has been validated¹⁰ in terms of content and construct validity, reliability, reproducibility, internal consistency, responsiveness and acceptability in a population of 231 patients with 12 categories of CSDs including CU, PSO and AD who were recruited and followed in hospital and private practice in France. VQ-Dermato comprises 28 items, allowing the computation of seven dimensions: self-perception (seven items: questions 14, 15 and 20–24 in Table 1), daily living activities (four items: questions 1, 2, 7 and 8), mood state (five items: questions 13 and 16–19), social functioning (five items: questions 3 and 9–12), leisure activities (three items: questions 4–6), treatment-induced restrictions (two items: questions 25 and 26) and physical discomfort (two items: questions 27 and 28). Each question is given equal weighting. For each individual, the score of each of the seven dimensions is obtained by computing the mean of the item scores of the dimension. A missing scale score is substituted if over one-half of the items in each scale are missing. If one-half or fewer items are missing, a person-specific estimate (mean of present items) is substituted for the missing items. All scales are linearly transformed to a 0–100 scale, with 100 indicating the worst quality of life, and 0 the most favourable. 'VQ-Dermato index' is an overall score calculated from the seven dimensions of VQ-Dermato, a weight being attributed to each dimension according to its contribution to the variance.¹³

Table 1 VQ-Dermato validated in French, with an indicative and abbreviated translation in English

Durant les 4 dernières semaines, votre maladie a-t-elle entraîné des difficultés (During the last 4 weeks, did your skin condition affect, restrict or interfere with):

- 1 pour marcher, pour vous déplacer? (the way you walk or move?)
- 2 pour vous occuper de votre maison (ménage, cuisine, petits travaux d'entretien...)? (your housework—housekeeping, cooking, maintenance...?)
- 3 pour faire votre toilette, vous raser, vous maquiller? (your personal care—washing, shaving, applying make-up?)
- 4 dans le choix de vos habits? (vous n'avez pas pu mettre certains habits ou ceux que vous souhaitiez) (your choice of clothes? you could not wear some of your clothes or the clothes you wished)
- 5 pour vos loisirs (sports, expositions au soleil, musique, bricolage ...)? (your recreation time—sports, sun exposure, music, gardening, do-it-yourself ...?)
- 6 pour profiter du soleil, vivre au soleil? (the way you enjoy sun? your life in the sun?)
- 7 pour vous concentrer (travail, lecture)? (your ability to concentrate on working, reading?)
- 8 pour dormir? (sleeping)

Votre maladie vous a-t-elle gêné(e) dans: (Were you embarrassed because of your skin condition in):

- 9 votre vie sociale (sorties au restaurant, au cinéma, café, bar, chez le coiffeur ou chez les commerçants.)? (your social life—going out to a restaurant, cinema, bar, hairdressers, shopping?)
- 10 vos relations avec vos proches (famille, ami)? (your relationship with your family and friends?)
- 11 votre vie affective avec votre conjoint ou partenaire? (your emotional or affectionate life with your spouse or partner?)
- 12 votre activité sexuelle avec votre conjoint ou partenaire? (your sexual relationship with your spouse or partner?)

Du fait de votre maladie, avez-vous (During the last 4 weeks, because of your skin condition did you feel)

- 13 ressenti de la fatigue? (tired?)
- 14 éprouvé le besoin de cacher votre maladie de peau? (that you had to hide your skin disease, using make-up or clothes?)
- 15 eu le sentiment d'être 'dévisagé(e), voire rejeté(e), par les autres? (that people were staring at you or rejecting you?)
- 16 été stressé(e), énervé(e)? (stressed, irritated?)
- 17 été découragé(e)? (discouraged?)
- 18 été angoissé(e)? (anxious?)
- 19 été agressif(ve), irritable (difficultés à supporter les autres)? [aggressive, irritable (Was it difficult to tolerate others)?]
- 20 eu le sentiment d'être différent(e) des autres? (different from the others?)
- 21 eu le sentiment d'être sale, repoussant(e)? (dirty, repulsive?)
- 22 eu le sentiment d'être seul(e), isolé(e)? (alone, isolated?)
- 23 eu le sentiment d'être diminué(e), de manquer de confiance en vous-même? (diminished, lacking self-confidence?)
- 24 manqué de confiance en l'avenir? (not enough confidence in the future?)

Durant les 4 dernières semaines, jugez-vous que le(s) traitement(s) de votre maladie ont été: (During the last 4 weeks, was the treatment of your skin disease):

- 25 contraignant(s)? (restricting?)
- 26 désagréable(s)? (uncomfortable?)

Durant les 4 dernières semaines votre maladie a-t-elle entraîné: (During the last 4 weeks, did your skin condition cause):

- 27 des démangeaisons? (itching?)
- 28 des brûlures, des picotements, des tiraillements ou toute autre forme de douleur? (burning, prickling, or any other type of pain?)

Five Likert scale responses:

'jamais, rarement, parfois, souvent, toujours'—'never, seldom, sometimes, often, always' for questions 1–8, 13–24, 27 and 28
 'pas du tout, un peu, modérément, beaucoup, extrêmement'—'not at all, a little, somewhat, very much, extremely' for questions 9–12, 25 and 26

Statistical analyses

Data were analysed using SAS software (version 8.1; SAS Institute Inc., Cary, NC, U.S.A.). For all tests, the α risk was set to 0.05. The population retained for analysis included all the patients for whom all HRQL dimensions could be calculated as defined above. The qualitative variables were expressed by frequency and percentage, whereas quantitative data were presented by mean $\pm$ SD.

A comparative study of the impact of CU, PSO and AD on the different dimensions of VQ-Dermato was performed using multifactorial analyses of variance, adjusted for the subjective impression of severity of the disorder (in three groups, combining very severe and severe groups), sex (despite sex-matching, exclusion of incomplete observations could have an impact on the distribution), and age (age-matching was based

on very large classes (20 years) to facilitate inclusions, but could not guarantee a perfect matching). Post hoc tests were computed when a global significance was achieved, using the Tukey–Kramer procedure.

Results

Patients studied were those looking for the medical advice of dermatologists representative of the dermatologists in France. Among the 469 dermatologists contacted, 266 actually participated (57%). Their age, sex and public/private distribution was statistically similar to that of the general population of dermatologists in France. Among the 266, 64% of investigators recruited at least six patients. These 266 dermatologists recruited 1356 patients: 466 with CU, 464 with PSO and 426 with AD matched for age, sex and

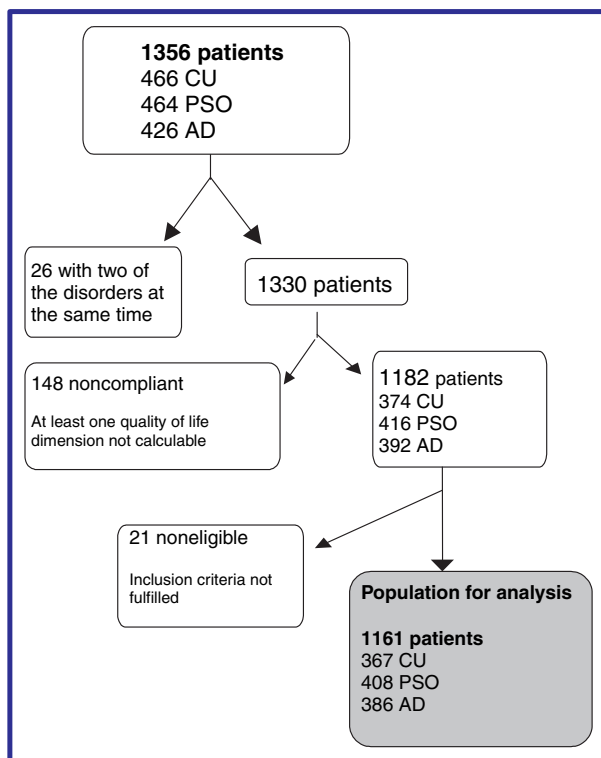


Fig 1. Flow chart of the survey. CU, chronic urticaria; PSO, psoriasis; AD, atopic dermatitis.

severity. A total 195 patients were excluded (14.4%), mainly because HRQL data were not fully completed (see Fig. 1, flow chart). Finally, 1161 were retained for the analysis: 367 with CU, 408 with PSO and 386 with AD. All 1356 recruited patients agreed to complete the HRQL questionnaire. After exclusion of the 26 patients with two of the

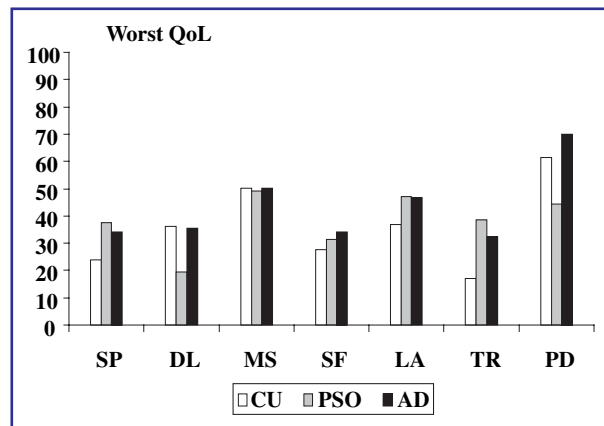


Fig 2. Comparison of each VQ-Dermato dimension scores in chronic urticaria (CU), psoriasis (PSO) and atopic dermatitis (AD). SP, self-perception; DL, daily living activities; MS, mood state; SF, social functioning; LA, leisure activities; TR, treatment-induced restrictions; PD, physical discomfort.

disorders simultaneously, missing data ranged between 2.7% and 5.9% for each of the 28 questions, and between 2.8% and 7.7% for each of the seven dimensions, which represents a good acceptability of the HRQL questionnaire for patients recruited on the basis of first patient seen. The highest rate of missing data was for the 'treatment' dimension. The total number of patients with at least one dimension not calculable was 148 (Fig. 1).

There was no significant sex difference between the groups (CU 130 female/237 male, PSO 170/238, AD 151/235), although there was a clear-cut majority of females in the whole study (710 female/451 male). The age-matching based on large classes (20 years) resulted in a small, although

Table 2 Clinical characteristics of the disorders

	CU (n = 367)	PSO (n = 408)	AD (n = 386)	P-value
Age of first manifestation (%)				
≤ 8 years/9–18/19–38/> 38	0.9/13.6/57.2/29.3	9.0/30.3/48.1/12.6	59.3/14.6/21.4/4.7	< 0.001 ^a
Previous manifestation of the disorder (%)	78.5	95.1	98.4	< 0.01 ^a
Severity of the disorder (%)				
Minimal/moderate/severe/very severe	5.2/54.3/38.8/1.7	6.6/47.2/40.7/5.5	7.0/34.0/45.3/13.7	< 0.01 ^a
No. of lesions at examination (%)				
No/a few/several/a lot	23.0/28.6/25.4/23.0	0.2/20.6/32.8/46.4	1.1/25.1/35.7/38.1	< 0.01 ^a
Usual number of lesions (%)				
Very few/some/several/a lot	9.6/36.5/35.0/18.8	17.1/34.2/33.7/15.0	15.5/39.2/28.5/16.8	< 0.05 ^a
Visibility of lesions (%)				< 0.001 ^a
By the relatives/by anybody	85.1/47.7	92.8/57.1	93.6/66.8	
As above (according to investigator)	(80.3/38.8)	(96.0/50.6)	(93.1/60.9)	
Pruritus (visual analogue scale)				
Median/mean (95% CI)	75/71.4 (69.2–73.6)	31.2/39.67 (36.6–42.8)	76/69.97 (67.7–72.2)	= 0.001 ^b
Interference with sleeping (%)				
Never/rarely/often/every night	14.6/35.7/42.6/7.1	48.2/29.2/18.5/4.2	10.5/33.0/46.5/10.0	= 0.001 ^a

^a χ^2 test; ^bKruskal–Wallis. The sum of categories is not always 100% due to missing data.

Table 3 Comparison of VQ-Dermato dimension scores in chronic urticaria (CU), psoriasis (PSO) and atopic dermatitis (AD) after adjustment for age, sex and severity

	mean $\pm$ SD			ANOVA ^a			
	CU, n = 367	PSO, n = 408	AD, n = 386	Global ^a	Post-hoc tests		
					CU vs. PSO	PSO vs. AD	CU vs. AD
SP	23.8 $\pm$ 21.8	37.4 $\pm$ 24.7	34.2 $\pm$ 24.6	< 0.001	< 0.001	< 0.001	< 0.01
DL	36.2 $\pm$ 20.4	19.3 $\pm$ 19.4	35.5 $\pm$ 21.3	< 0.001	< 0.001	< 0.001	< 0.01
MS	50.3 $\pm$ 25.5	49.3 $\pm$ 25.2	50.1 $\pm$ 25.5	NS	—	—	—
SF	27.5 $\pm$ 22.9	31.3 $\pm$ 23.7	34.1 $\pm$ 23.5	< 0.01	< 0.05	NS	< 0.001
LA	36.7 $\pm$ 28.1	47.2 $\pm$ 29.3	46.7 $\pm$ 27.9	< 0.001	< 0.001	< 0.01	NS
TR	17.0 $\pm$ 20.7	38.6 $\pm$ 26.0	32.5 $\pm$ 26.4	< 0.001	< 0.001	< 0.001	< 0.001
PD	61.4 $\pm$ 23.7	44.4 $\pm$ 28.2	69.8 $\pm$ 21.3	< 0.001	< 0.001	< 0.001	< 0.01

SP, self-perception; DL, daily living activities; MS, mood state; SF, social functioning; LA, leisure activities; TR, treatment-induced restrictions; PD, physical discomfort; NS, not significant. ^aAfter adjustment for sex, age and severity of the disorder.

statistically significant, difference in the mean age: CU (37 $\pm$ 11, median 36), PSO (39 $\pm$ 11, median 38) and AD (34 $\pm$ 11, median 33). The marital status (single/couple) was similar in the three groups. As to the occupational status, the main difference between the groups was a large number of students in the AD group (21% vs. 12% in CU and 8% in PSO).

Table 2 shows the characteristics of each disorder. AD more often started early in life and CU more often later. CU was more often a disorder of recent onset than PSO or AD. The distribution of the three disorders in severity subgroups were significantly although not highly different with more severe and very severe forms in PSO than in CU, and in AD than in PSO. The lesions were more often visible in PSO and AD than in CU. Pruritus was noted to be much higher in CU and AD than in PSO. Sleeping was more often impaired in CU and AD than in PSO.

The scores of most VQ-Dermato dimensions differ significantly between CU, PSO and AD, with a typical HRQL profile for each group (Fig. 2; Table 3). Before and after adjustment on the potential confounding factors such as sex, age and subjective impression of the severity of the disorder, most of the dimension scores differed significantly in the three groups. Patients with CU had significantly lower scores than those with PSO and AD in three dimensions: 'self-perception', 'social functioning' and 'treatment-induced restrictions'. They also reported a significantly lower score than those with PSO in the 'leisure activity' dimension. Patients with PSO showed lower mean scores than other patients in two dimensions: 'daily living activities' and 'physical discomfort'. AD patients tended to have higher scores than those with PSO for 'daily living activities' and 'physical discomfort' dimensions. Only the 'mood state' dimension was not affected differently in any of the groups. The mean overall VQ-Dermato index was significantly lower in CU (36.93 $\pm$ 16.19) and in PSO (38.88 $\pm$ 17.95) than in AD (44.62 $\pm$ 18.25) ($P < 0.0001$), but not significantly lower in CU than in PSO.

Discussion

Using a multidimensional dermatology-specific HRQL instrument we showed that CU, PSO and AD are not only characterized by their clinical features, but also by their HRQL profiles. Indeed, the various dimensions of the HRQL were very differently affected by CU, PSO and AD.

This qualitative comparison for the multiple aspects that define patient well-being and functioning was possible because the VQ-Dermato is a multidimensional instrument in French,¹⁰ like the Dermatology Quality of Life Scales (DQLS) (seven dimensions)¹⁴ in English, both very similar in their multidimensional construct to the generic HRQL instruments such as the Short-Form 36 (SF36),¹⁵ Nottingham Health Profile (NHP)¹⁶ or Sickness Impact Profile (SIP).¹⁷ Other dermatology-specific instruments such as the Dermatology Life Quality Index (DLQI),⁷ Dermatology-Specific Quality of Life (DSQL)⁸ or Skindex^{9,18} provide a more global assessment of the HRQL impact. Although less well-known than the English instruments,¹⁹ VQ-Dermato has gone through a complete validation process.

The overall HRQL impairment, although similar in PSO and AD,^{20,21} tends to be more severe in AD, as suggested by the higher 'VQ-Dermato index' in AD, than in CU or PSO. However, the difference between the impact on HRQL in these three disorders is more qualitative than quantitative. Using the multidimensional aspects of VQ-Dermato, we show that CU, PSO and AD have clearly different profiles of impact on HRQL. Compared with CU, both PSO and AD share common HRQL characteristics: they impact more on self-perception, on social life and on leisure activities and they require treatments which undoubtedly impair HRQL more than CU treatments. Compared with patients with CU and AD, patients with PSO are less afflicted by skin discomfort and are also less affected in their daily activities. The psychological impact is obvious in the three skin diseases but does not appear different in any of the three.

The comparison between these HRQL profiles and the well-known clinical profiles of the three disorders support the

intuitive impression that 'general rules' may account for the HRQL impairment in patients with skin disorders. The contrast between low 'self-perception' scores in CU and high scores in PSO suggests that permanence of the disease and visibility of lesions are highly responsible for problems of self-image. The contrast between low 'daily activity' score in PSO and high scores in CU and AD suggests that pruritus is the dominant factor that interferes with everyday life. High 'leisure activity' score in PSO underlines that the visibility of lesions is a major impairment in our society, which values sport, health and the aesthetic of the body. From a practical point of view, it underlines the importance, from the patient's point of view, to clear skin lesions 'even' on hidden skin sites, especially before a holiday period. The contrast between the high 'treatment-induced restrictions' scores in PSO and AD and low scores in CU, and the even higher score in PSO than AD confirm that topical treatments, which have so many advantages from the medical point of view, can be highly restrictive from the patient's point of view.

This study prompted us to reconsider the severity of CU. While it is widely accepted that PSO and AD may severely affect quality of life, CU is often considered to be a minor disorder. We clearly demonstrate that CU severely impairs HRQL,²² at the same level as PSO or AD on certain dimensions.

Patients in the study can be considered as representative of typical patients between 18 and 58 years of age seen in an every day dermatological practice in France, although the age-matching on the basis of first patient with CU certainly skewed the usual age distributions for PSO and AD. HRQL profiles can be attributed to the disease characteristics themselves as all potential confounders (relative severity, age and sex) were taken into account in the design of the study and/or in the analysis.

It is now widely accepted that it is important to assess the severity of disorders from the subjective point of view of the patient, but physicians rarely appreciate what a result on a HRQL instrument really means, mainly because they do not have any reference system. The comparative study of several highly common skin disorders, which are meaningful to dermatologists, provides a reference system and thus may help physicians to have a more tangible view of HRQL measurements.

Finally, this comparative study using a sensitive multidimensional HRQL tool suggests that most skin disorders can be characterized not only by a specific clinical profile, but also by a specific HRQL profile. Each HRQL profile is not only a copy²³ derived from the clinical profile but another definition of the disorder reflecting its qualitative interference with the patient's life.

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