Quality of Life in Patients with Psoriasis: A Systematic Literature Review

John de Korte, Mirjam A. G. Sprangers,* Femke M. C. Mombers, and Jan D. Bos
Departments of Dermatology and *Medical Psychology, Academic Medical Center, University of Amsterdam, Amsterdam, the Netherlands

Data on physical, psychological, and social functioning of patients with psoriasis have been presented in many studies. The introduction of quality-of-life questionnaires has made it possible to systematically compare these data across studies. The aim of this study was to present an overview of quality-of-life data and to describe the relationship between demographic and clinical variables and quality of life in patients with psoriasis. Computerized bibliographic databases were screened for publications from January 1966 to April 2000. Predefined selection criteria were used to identify quality-of-life studies in psoriasis. Two investigators independently assessed and, subsequently, agreed on inclusion. Data were extracted on the objectives, methods, sample characteristics, and results of the studies. A total of 118 publications were found. Seventeen studies met the inclusion criteria. Patients with psoriasis reported physical discomfort, impaired emotional functioning, a negative body and self-image, and limitations in daily activities, social contacts and (skin-exposing) activities, and work. More severe psoriasis was associated with lower levels of quality of life. There was a tendency that higher age was associated with slightly lower levels of physical functioning and slightly higher levels of psychological functioning and overall quality of life. Sex and quality of life were found to be unrelated.

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Health-related quality of life reflects patients' subjective evaluation of the impact of disease and/or treatment on their physical, psychological, and social functioning and well-being. It is a comprehensive construct, especially relevant in the study and management of diseases affecting patients' daily lives (Fitzpatrick *et al*, 1992; Guyatt *et al*, 1993; Essink-Bot and de Haes, 1996; Testa and Simonson, 1996; Doward and McKenna, 1998). Health care in chronic disease is increasingly directed toward both a decrease of physical symptoms and an increase of quality of life. The number of outcome studies that include quality-of-life assessment is rapidly growing (Faust, 1998; Finlay, 1994; Kurwa and Finlay, 1995; Marks, 1996; McKenna and Stern, 1996; Fleischer *et al*, 1997; Wall *et al*, 1998; Gupta *et al*, 1999;).

Psoriasis is a chronic skin disease affecting physical, psychological, and social functioning. Dermatologic treatment of psoriasis has become increasingly effective, but—until now—can only result in a temporary remission of physical symptoms. A challenge to the patients is therefore to cope with psoriasis in everyday life. A challenge to dermatologic care is to realize long-lasting remittance of physical symptoms as well as a substantial improvement of quality of life.

For many years, studies have been published on the psychological and social aspects of psoriasis (Wittkower, 1946; Susskind and McGuire, 1959; Goldsmith *et al*, 1969; Baughman and Sobel, 1971; Coles, 1975; Stankler, 1981; Matussek *et al*, 1985; Gupta *et al*, 1987; Ramsay and O'Reagan, 1988) Nevertheless, it is only for about a decade that these studies have become more uniform in their research methodology. This uniformity is particularly increased by the development and use of quality-of-life questionnaires. Application of these questionnaires enables comparisons of quality-of-life data across patients with psoriasis, as well as comparisons with data of patients with other (skin) diseases and the general population.

The aim of this study is to present an overview of the quality of life of patients with psoriasis as reported with these questionnaires. Additionally, data will be presented on the relationship between demographic and clinical variables and quality of life.

Abbreviations: DLQI, Dermatology Life Quality Index; PDI, Psoriasis Disability Index; SF-36, MOS 36-Item Short-Form Health Survey; SIP, Sickness Impact Profile.

Results

A total of 118 publications were extracted. Seventeen studies met the inclusion criteria (Finlay, 1994; Finlay *et al*, 1990; Root *et al*, 1994; Finlay and Coles, 1995; Gupta and Gupta, 1995; Kurwa and Finlay, 1995; Koo, 1996; Nichol *et al*, 1996; O'Neill and Kelly, 1996; Fleischer *et al*, 1997; Fortune *et al*, 1997; McKenna and Stern, 1997; Wall *et al*, 1998; Gupta *et al*, 1999; Rapp *et al*, 1999; Wahl *et al*, 1999a, b; these studies are represented in the tables by Arabic numerals 1–17). The primary objectives of these studies were to describe quality of life; to test the psychometric

performance of quality-of-life questionnaires; to examine the relation between demographic, clinical, and/or psychological variables and quality of life; and to determine the efficacy of dermatologic treatment. The variability between the studies was large with respect to study design, sample characteristics, disease severity, and measures (Table I). Twelve studies were cross-sectional. In these studies quality of life was assessed before, during, or after treatment. In the longitudinal, outcome studies quality of life was assessed before and after treatment or during follow-up. Two population-based studies included patients not undergoing treatment. The sample size of the studies ranged from 20 to 877 patients, the male:female ratio from 80:20 to 41:59, and the mean age from 43 to 56 y. Disease severity ranged from clear to severe. Quality of life was measured by means of 14 different questionnaires: six generic, applicable to all diseases, and eight disease-specific. Of these, three generic and five disease-specific questionnaires assessed concepts related but not identical to quality of life, such as disability, stress, and distress.

Quality of life

Overall quality of life The overall scores of four questionnaires were presented in more than one study, thereby enabling comparisons across studies: the DLQI, the PDI, the SF-36, and the SIP. The mean overall DLQI scores were 23.4 and 46.3, and the mean overall PDI scores ranged from 16.5 to 44, both on a scale from 0 (no disability) to 100 (maximum disability). DLQI and PDI scores can be compared with each other, and DLQI-scores with scores of patients with other skin diseases (Finlay, 1998). Nevertheless, the absence of formal reference values or norm scores, and the variability of the scores, preclude a straightforward interpretation. A relationship with disease-severity scores could neither be determined.

The mean overall SF-36 scores, represented by a physical component summary score and a mental component summary score, ranged from 41.2 to 55.5 and 45.2 to 50.9, respectively (Table II). A score of 50 reflects an average quality of life in the general population. Physical quality of life in patients with psoriasis was significantly lower than that of the general population in two studies and significantly higher than that in another two studies. Mental quality of life in patients with psoriasis was significantly lower than that of the general population in three studies and significantly higher than that in one study. The mean overall SIP scores, ranged from 8.9 to 10.2. Although formal comparisons with population norms were not made, these scores indicate a lower level of quality of life in patients with psoriasis than in that of the general population (Rodin and Voshart, 1987; Jacobs *et al*, 1990).

Physical functioning The assessment of physical functioning encompassed issues such as physical symptoms, physical functioning and/or mobility, daily activities, vitality, and sleep and rest (Table III). Physical symptoms or complaints most frequently reported were itching, scaling, and/or pain. Physical functioning and/or mobility, covering activities such as walking, carrying, climbing stairs, and daily work, were found to be impaired. Specific daily activities affected by psoriasis were home management (problems with work around the house or garden), clothing (having to wear special clothes and/or having to change or wash clothes more often), and bathing (having to take more baths than usual). Finally, both vitality (energy, vigor, and absence of fatigue) and sleep and rest (sleeping, sitting, and napping during the day) were found to be adversely affected.

Psychological functioning The assessment of psychological functioning encompassed issues such as general mental health, emotions, body, and self-image and psoriasis-related concern (Table III). Patients reported impaired general mental health (anxiety, depression, loss of behavioral or emotional control, and psychological well-being) and a wide range of emotional reactions, such as shame, embarrassment, self-consciousness, anxiety, anger, helplessness, and depression. Negative effects of psoriasis on body and self-image (feeling unclean, feeling physically unattractive and/or sexually undesirable, and adverse effects on physical appearance, self-esteem, and self-confidence) were reported. Finally, patients reported "preoccupation with psoriasis" and with "worries or concern about psoriasis."

Social functioning The assessment of social functioning encompassed issues such as social contacts and activities, skin-exposing social activities, sports, sexual behavior, hairdressing, personal relationships, and work and career (Table III). Social contacts and activities such as contacts with family, friends, and neighbors; activities in groups; physical recreation and activities; going out socially; and going to public places were found to be adversely affected. Patients also reported limitations with skin-exposing social activities, such as communal swimming, sunbathing, going to the beach, and using communal changing facilities. Additionally, problems with sport activities, sexual activities, and visits to the hairdresser were reported. Personal relationships, such as relationships with family, relatives, and friends, as well as the establishment of social contacts and new friendships, appeared to be impaired. Finally, work and career were affected, for instance, by time needed off work, physical limitations, conflicts, loss of wages, and/or unemployment.

Relations between age, sex, disease severity, and quality of life

Age and sex Data on the relationship between age, sex, and quality of life and/or disability were presented in eight studies. Associations between age and quality of life and/or disability were generally weak and, in some cases, inconsistent. Few data were statistically tested. Correlation coefficients ranged from -0.30 to $+0.18$ (Table IV). Higher age appeared to be associated with slightly lower levels of physical functioning and disability and slightly higher levels of psychological functioning and overall quality of life. Associations between sex and quality of life and/or disability were very weak, inconsistent, and/or absent. Few correlation coefficients were presented, all being very low (0.00–0.15). It appeared that sex and quality of life and/or disability were unrelated.

Table I. Included studies: study design, sample characteristics, disease severity, and measures

Study	Study design	1. Sample-size 2. Male:female ratio 3. Mean (SD) age (years)	Mean (SD) disease severity	Quality-of-life measures, including measures on related concepts
1. Finlay (1994)	Uncontrolled outcome study on effects of cyclosporine A. Assessments at baseline and after 12 wk of treatment.	1. 57	PASI[a] baseline, 17.0 (NA)[b]	PDI
		2. NA	PASI 12 wk, 5.4 (NA)	SIP
		3. NA		
2. Finlay and Coles (1995)	Descriptive study of patients starting systemic therapy or being admitted to the hospital for treatment.	1. 369	Mean (SD), NA	PDI
		2. 50:50	Severity as described by investigators: severe	
		3. 46.8 (17.2)		
3. Finlay *et al* (1990)	Descriptive study of consecutively recruited in- and outpatients.	1. 32	Median PASI, 5.5 (range, 2–24)	PDI
		2. 47:53		SIP
		3. Median, 36 (range, 14–73)		
4. Fleischer *et al* (1997)	Uncontrolled experimental study on effects of commercial tanning bed treatment. Assessments at baseline and after 6 wk of treatment.	1. 20	PASI baseline, 7.96 (1.77)	Brief Symptom Inventory (BSI)
		2. 80:20	PASI 6 wk, 5.04 (2.5)	Perceived Stress Scale (PSS)
		3. 43.0 (14.8)	SAPASI,[c] baseline, 11.8 (4.4)	Psoriasis Disability Scale (PDS)
			SAPASI, 6 weeks: 7.9 (7.7)	Psoriasis-Related Stressor Scale (PRSS)
5. Fortune *et al* (1997)	Descriptive study of consecutively recruited patients receiving treatment at a psoriasis specialty clinic.	1. 150	PASI 8.8 (7.2)	PDI
		2. 50:50	Patient-based severity on a 10-point scale (0 = clear, 10 = very severe), 6.5 (2.6)	Psoriasis Life Stress Inventory (PLSI)
		3. 42.7 (15.4)		
				SF-36
6. Gupta and Gupta (1995)	Descriptive study of consecutively recruited in- and outpatients.	1. 215	Patient-based severity on a 10-point scale (0 = clear, 10 = very markedly), 5.9 (2.8)	Psoriasis-Related Life Events (study-specific)
		2. 49:51		
		3. Male, 47.0 (15.3);female, 49.1 (16.5)		
7. Gupta *et al* (1999)	Uncontrolled study on effects of narrow-band ultraviolet B phototherapy. Assessments at baseline and at a review after 3 months.	1. 100	Median PASI baseline, 5.7 (range, 1.8–23.1)	PDI
		2. 53:47		
		3. Median: 36 (range: 18–72)	Median PASI, 3 mo, 2.7 (range, 1–10)	
8. Koo (1996)	Population-based descriptive study of psoriasis patients.	1. 505	Mean (SD), NA	Psoriasis Quality of Life Questionnaire (study-specific)
		2. 47:53	Patient-based severity, clear 25%, mild 42%, moderate 24%, severe 9%	
		3. Median, 47 (range, NA)		
9. Kurwa and Finlay (1995)	Uncontrolled study on effects of inpatient management. Assessments at baseline and 4 wk after discharge.	1. 63	Mean (SD), NA	DLQI
		2. 41:59		
		3. 45 (19.7)		

10. McKenna and Stern (1997)	Descriptive study of long-term PUVA-treated patients, enrolled in a multi-center follow-up study.	1. 877	Mean (SD), NA	Psoriasis-Specific Total Quality of
		2. 62:38	Clear 16%, mild 62%, moderate 18%, severe 4% (assessment 4 y before follow-up; no additional information available)	Life Impact Index (study-specific)
		3. 56 (range, 22–92)		
11. Nichol *et al* (1996)	Descriptive study of patients participating in a clinical trial for a new psoriasis medication. Assessment at baseline.	1. 644	Mean (SD), NA	DLQI
		2. 61:39	Severity as described by investigators: mild to moderate (i.e., located on trunk, legs or arms, not exceeding 20% of total body surface; two target lesions of at least 2 cm in diameter)	PDI
		3. 48 (15)		SF-36
12. O'Neill and Kelly (1996)	Descriptive study of patients recorded as having psoriasis in five general practices.	1. 435	Mean (SD), NA	PDI
		2. 51:49		SF-36
		3. NA (range, 18–64)		
13. Rapp *et al* (1999)	Descriptive study of patients receiving treatment at a dermatology clinic.	1. 317	Mean (SD), NA	Psoriasis-Related Stressor Scale (PRSS)
		2. 43:57	SAPASI, 0 (clear) 1%, 0–3 (mild) 23%, >3–15 (moderate) 67%, >15 (severe) 9%	SF-36
		3. 49 (NA)		
14. Root *et al* (1994)	Descriptive study of patients receiving outpatient PUVA treatment.	1. 22	Clinical assessment from case notes and patients' global assessment, on a 7-point scale (1 = clear, 7 = severe). Clinical, 4.9 (1.2)/patient, 4.1 (1.2)	General Health Questionnaire (GHQ)
		2. 59:41		PDI
		3. 46 (NA)		
15. Wahl *et al* (1999a)[d]	Descriptive study of consecutively recruited in and outpatients.	1. 282	Patient-based assessment of the severity of five different symptoms on a 7-point scale (1 = clear, 7 = severe), 14.8 (SD 5.8; range 5–33)	PDI
		2. 57:43		Quality of Life Scale (QOLS)
		3. 46.5 (15.4)		SF-36
16. Wahl *et al* (1999b)[d]	Descriptive study of consecutively recruited in- and outpatients.	1. 273	Patient-based assessment of the severity of five different symptoms on a 7-point scale (1 = clear, 7 = severe), 14.7 (SD 5.7; range 5–33)	PDI
		2. 57:43		Quality of Life Scale (QOLS)
		3. 46.3 (15.3)		SF-36
17. Wall *et al* (1998)	Comparative study on treatment with dithranol or calcipotriol, with assessments at baseline and at the end (up to 3 mo) of treatment.	1. 306	Mean (SD), NA	PDI
		2. 47:53	Severity as described by investigators at baseline: mild to moderate (i.e., at least 100 cm^2 surface area, but less than 40% of body surface); final (up to 3 mo), clear or markedly improved in 50% (dithranol) to 60% (calcipotriol) of the patients	SIP
		3. 46.7 (15.8)		

[a]PASI, Psoriasis Area and Severity Index: scores range from 0 to 72, higher scores representing a greater degree of severity (there is no official classification of scores; < 8 indicate mild, 8–15 moderate, and >15 severe psoriasis).
[b]NA, not available.
[c]SAPASI, Self-Administered Area and Severity Index: 0 = clear, 0–3 = mild, >3–15 = moderate, >15 = severe.
[d]Two different studies based on virtually the same sample; quality-of-life data presented in this review were extracted from study 15.

Table II. SF-36: physical component summary (PCS) and mental component summary (MCS)

		PCS			MCS		
Study[a]	n	Mean[b]	SD	p value[c]	Mean[b]	SD	p value[c]
5	150	55.5	14.4	< 0.001	45.2	12.1	< 0.001
11	644	51.4	9.2	< 0.001	50.9	9.3	< 0.01
13	317	41.2	14.2	< 0.001	45.7	11.4	< 0.001
15	282	44.3	10.4	< 0.001	45.5	11.1	< 0.001

[a]5 = Fortune *et al* (1997); 11 = Nichol *et al* (1996); 13 = Rapp *et al* (1999); 15 = Wahl *et al* (1999a).
[b]Mean scores higher than 50 indicate higher levels of quality of life than that of the general population.
[c]p value from two-sided t test of the difference between the mean scores of each individual study and population norm scores (mean, 50; SD, 10).

Table III. Impairments of physical, psychological, and social functioning

Physical functioning	Psychological functioning	Social functioning
Physical symptoms[6,8,11,13]	General mental health[11–13]	Social contacts and activities[2,3,6,8,10–13]
Physical functioning and/or mobility[3,10–13]	Emotional functioning[3,6,8,10,12,13]	Skin-exposing social activities[2,6,8,17]
Daily activities[2,3,6]	Body and self-image[8,10]	Sports[2,8]
Vitality[11–13]	Psoriasis-related concern[8,10]	Sexual behavior[2,8]
Sleep and rest[3,8]		Hairdressing[2,6,8]
		Personal relationships[2,8,10,17]
		Work and career[2,3,6,8,10–13]

2 = Finlay and Coles (1995); 3 = Finlay *et al* (1990); 6 = Gupta and Gupta (1995); 8 = Koo (1996); 10 = McKenna and Stern (1997); 11 = Nichol *et al* (1996); 12 = O'Neill and Kelly (1996); 13 = Rapp *et al* (1999); 17 = Wall *et al* (1998).

Table IV. Relationship between age and quality of life and/or disability: Pearson correlation coefficient, r[a]

	DLQI	PDI	SF-36: PCS	SF-36: MCS	SIP
Age	11: N.A.*(†)	3: N.A.(−)	11: N.A.*(†)	13: 0.14***	3: N.A.(−)
		11: N.A.*(†)	13: −0.30***	15: 0.18**	
		15: −0.12***	15: −0.22**		

[a]r, coefficients of the magnitude of $\leqslant 0.3$ are generally considered as low, of $\geqslant 0.7$ as high.
N.A.: r-value not available, correlation verbally reported; N.A.(−), r-value not available, correlation verbally reported as not statistically significant.
*:$p < 0.001$; **:$p < 0.01$; ***:$p < 0.05$.
DLQI and PDI scores, negative r-values and (†), higher age correlates with lower levels of disability. SF-36 PCS and MCS, positive r-values and (†), higher age correlates with higher levels of quality of life. 3 = Finlay *et al*, 1990. 11 = Nichol *et al*, 1996. 13 = Rapp *et al*, 1999. 15 = Wahl *et al*, 1999a.

Disease severity Data on the relationship between disease severity and quality of life and/or disability were presented in eight studies. Although these data were not fully consistent, disease severity appeared to be associated with quality of life and/or disability. Coefficients expressing the association between clinically assessed disease severity and quality of life and/or disability ranged from -0.11 to $+0.40$. Coefficients expressing the association between patient assessed disease severity and quality of life and/or disability ranged from -0.29 to $+0.69$ (Table V). Additionally, the relationships between specific disease characteristics and quality of life and/or disability were assessed, such as pain, pruritus, and exacerbations in emotionally charged body regions such as head, scalp, hands, nails, and/or genitals. Again, the presented data were not entirely consistent, but there appeared to be a relationship between these disease characteristics and quality of life and/or disability. Correlation coefficients ranged from -0.28 to $+0.32$. (Table V).

Discussion

The included studies are characterized by a high degree of heterogeneity with respect to study design, sample characteristics, disease severity, measures, and data presentation. Quality of life was assessed with a wide range of questionnaires, each with its own conceptual framework, scales, response format, and scoring system. Of the 14 questionnaires employed, 10 were applied only once. Additionally, the majority of the studies suffered from one or more methodologic weaknesses, such as the use of small sample sizes, the use of less common and/or study-specific measures, the absence of statistical testing, and an

Table V. Relationship between disease severity and quality of life: Pearson correlation coefficient, r[a]

	DLQI	PDI	SF-36: PCS	SF-36: MCS	SIP
Clinically assessed disease severity					
Body involvement (%) or number of affected sites	11. 0.26*	2. 0.27*** 11. 0.27*	11. −0.10***	11. −0.10***	
Overall severity rating		14. −0.11*** (rs)			
Psoriasis Area and Severity Index		3. 0.40*** (rs)	5. NA (−)	5. NA (−)	3. NA (−)
Patient-assessed disease severity					
Self-Administered Psoriasis Area and Severity Index			13. NA (+)	13. NA (+)	
Overall severity rating		14. 0.69* (rs) 14. 0.53*	15. −0.44*	15. −0.29*	
Clinically assessed disease characteristics					
Exacerbation in emotionally charged body regions		15. 0.31*	5. NA** 15. 0.20**	5. NA*** 15. 0.18**	
Pain	11. 0.30*	11. 0.20*	11. −0.21* 13. −0.28***	11. −0.08*** 13. NA (−)	
Pruritus	11. 0.32*	11. 0.21*	11. −0.15* 13. NA (−)	11. NA (−) 13. −0.15***	

[a]r, coefficients of the magnitude of $\leqslant 0.3$ are generally considered as low, of $\geqslant 0.7$ as high. rs, Spearman rank correlation coefficient.
NA, r value not available, correlation verbally reported; NA (−), r value not available, correlation verbally reported as not statistically significant; NA (+), r value not available, correlation verbally reported as statistically significant.
*$p < 0.001$; **$p < 0.01$; ***$p < 0.05$.
DLQI and PDI, positive r values, more severe psoriasis correlates with higher levels of disability.
SF-36 physical component summary score (PCS) and mental component summary score (MCS), negative r values, more severe psoriasis correlates with lower levels of quality of life.
2 = Finlay and Coles (1995); 3 = Finlay *et al* (1990); 5 = Fortune *et al* (1997); 11 = Nichol *et al* (1996); 13 = Rapp *et al* (1999); 14 = Root *et al* (1994); 15 = Wahl *et al* (1999a).

incomplete presentation of quality-of-life data and analyses. The high degree of heterogeneity and the methodologic shortcomings of the included studies complicated the comparison and synthesis of study results. The application of more strict inclusion criteria in this study could, to some extent, have decreased the degree of heterogeneity and the number of these shortcomings, but would have implied a substantially smaller number of included studies and, thereby, a great loss and reduced generalizability of data.

The present review points to several areas for future research. A first area of interest is the assessment of overall quality of life. In the present review overall scores were difficult to interpret, because of the variability of scores and the absence of formal reference values or norm scores (DLQI and PDI), inconsistent results (SF-36), or the absence of formal comparisons with population norms (SIP). With respect to the SF-36, for instance, quality of life was significantly lower than that of the general population in one study, but more or less equal to that of the general population in another study. More research with the SF-36 and/or other well-established questionnaires is needed to generate a consistent body of knowledge of overall quality of life of patients with psoriasis. Furthermore, as we reported in a recent review of quality-of-life questionnaires for psoriasis research (de Korte *et al*, 2002) application of both a generic and a disease- or dermatology-specific quality-of-life questionnaire will cover the full range of quality-of-life issues.

A second area of interest is a more detailed study of psychological and social functioning in patients with psoriasis. First, in four studies, it was concluded that psoriasis affects psychological or psychosocial functioning most. Second, relatively few data were presented on relevant aspects, such as body and self-image, specific emotions, concern about psoriasis, and sexual behavior. These few data, however, do indicate that patients may particularly suffer from embarrassment, self-consciousness, and a negative body image. And finally, results from the present review suggest that social activities in public situations are more likely to be affected by psoriasis than social activities and relationships with friends and relatives. Future research is needed to clarify these issues.

A third area of interest is the study of the relationship between disease severity and quality of life. First, as reported under Materials and Methods, no clear pattern in overall quality of life or physical, psychological, or social functioning could be found across studies that differed in disease severity. Most likely, this is due to the heterogeneity of the studies. Within the eight studies presenting data on this relationship, the association between clinically assessed disease severity and quality of life was generally weak (correlation coefficients of the magnitude of $\leqslant 0.3$). The association between patient-assessed disease severity and quality of life appeared to be stronger. Second, data on the relationship between specific psoriasis characteristics and quality of life suggest that itch, pain, and exacerbations in emotionally charged body areas could be relevant predictors of quality of life. A deeper insight into these relations is important because of conceivable consequences for disease-severity measurement in quality-of-life

research. For instance, the well-established Psoriasis Area and Severity Index does not include the assessment of these specific characteristics.

A fourth area of interest concerns the relationship between psychological variables and quality of life. In this review, we were unable to combine data on this relationship, owing to the very small number of data presented in the included studies. Nevertheless, because demographic and clinical factors explain only part of the variability in quality of life, it was suggested in several studies that psychological and social factors could be important predictors of quality of life. Susceptibility to stress, the ability to cope with impairments, and the availability of social support may indeed affect the quality of life of patients with psoriasis and may even explain a large part of the variability between patients. Research in this field may contribute to a better understanding of this relationship.

Additionally, future studies are needed to assess the effects of dermatologic treatment on quality of life. In this review, the objective of five of the included studies was to assess the outcome of dermatologic therapies. The focus of most studies was limited to a demonstration of positive effects of dermatologic treatment—topical therapy, phototherapy, systemic therapy, and inpatient management—on overall quality of life. Future outcome studies may provide a clearer understanding of the short- and long-term effects of dermatologic treatment on overall quality of life, as well as on (aspects of) physical, psychological, and social functioning. Outcome studies may also provide an insight in the contribution of adjunct interventions, such as training in disease and stress management and psychological support.

Finally, because quality-of-life research in chronic (skin) disease is expanding, it would be interesting to conduct a systematic review of quality-of-life studies over a subsequent period of time and to compare these results with the results of this review.

Materials and Methods

Data sources Five computerized bibliographical databases were screened for publications: CINAHL (CINAHL Information Systems, Glendale, CA, January 1982 to April 2000), Current Contents (Institute for Scientific Information, Philadelphia, PA, January 1997 to April 2000), EMBASE (Elsevier Science Publishers, Amsterdam, the Netherlands, January 1980 to April 2000), MEDLINE (National Library of Medicine, Bethesda, MD, January 1966 to April 2000), and PsycINFO (American Psychological Association, Washington, DC, January 1974 to April 2000). The search was restricted to publications in English. Key words were established by means of a pilot search. The key word "psoriasis" was used in combination with "quality of life" (including "health-related quality of life" and "health status" as equivalents). Because of incidental use of related concepts in the publications, the search was expanded by the key words "handicap" and "disability" as equivalents of "quality of life," despite their different meaning.

Study selection: inclusion and exclusion criteria We included studies reporting data on quality of life in patients with psoriasis, generated by means of quality-of-life questionnaires and/or questionnaires on related concepts, such as disability, handicap, and stress. Excluded were studies restricted to psoriasis arthritis, psoriasis of the nails, and scalp psoriasis and studies restricted to a single aspect of quality of life. Two investigators independently assessed quality-of-life studies for inclusion. In case of disagreement, all arguments were discussed, whereupon consensus was reached. (The studies are represented in the tables by Arabic numerals.)

Data extraction We extracted data on: (1) the study objectives, study design, sample characteristics, disease severity, and quality-of-life measures; (2) overall quality of life, physical functioning, psychological functioning, social functioning, and/or well-being; and (3) the relation between demographic and clinical variables and quality of life.

Data synthesis First, we assembled data on study objectives, study designs, sample characteristics, disease severity, and quality-of-life measures (Table I). We then grouped studies according to the degree of disease severity of the samples: three subgroups of predominantly mild, mild to moderate, and severe psoriasis could be composed. The quality-of-life results of these subgroups were compared. No clear pattern in overall quality of life or physical, psychological, or social functioning emerged. We therefore decided to combine all extracted quality-of-life data into one synthesis. The application of quality-of-life results from outcome studies was restricted to baseline data.

Next, a synthesis of overall quality-of-life results was made. A comparison of mean overall quality-of-life scores was possible with respect to the Dermatology Life Quality Index (DLQI), Psoriasis Disability Index (PDI), Sickness Impact Profile (SIP), and the MOS 36-Item Short-Form Health Survey (SF-36) questionnaire (mean, standard deviation, and level of significance) (Table II). Owing to the heterogeneity of questionnaires, a comparison of scores on physical, psychological, and/or physical functioning was not possible. Therefore, a descriptive overview of physical, psychological, and social impairments was made. Impaired aspects of functioning reported in more than one study were included in this overview (Table III).

Finally, a synthesis of extracted data on the relation between demographic and clinical variables and quality of life was made. A uniform presentation of data (correlation coefficient, level of significance) was possible only for age (Table IV) and disease severity (Table V). With respect to disease severity, a distinction was made between clinically assessed and patient-assessed disease severity and specific disease characteristics (exacerbations in emotionally charged body regions, pain, and pruritus).

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Address correspondence to: John de Korte, Department of Dermatology, Academic Medical Center, University of Amsterdam, PO Box 22700, 1100 DE Amsterdam, the Netherlands. Email: j.dekorte@amc.uva.nl

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