



Correlations Between Disease-specific DLQI and Generic WHOQOL-BREF Quality of Life Instruments in a Clinical Population with Mixed Dermatological Diagnoses: A Pilot Study

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Measurement of health-related quality of life (HRQoL) has become increasingly important as an outcome parameter in the general care of patients (1). The many HRQoL instruments currently available can be categorized as generic or disease-specific. However, a disadvantage of disease-specific instruments is that they do not allow comparisons to be made between different medical conditions.

Skin diseases can have a major impact on patients' lives regarding psychological wellbeing, social functioning and everyday activities (2). Various dermatology-specific instruments have been developed and described to measure this impact, e.g. the Dermatology Life Quality Index (DLQI) (3) and Skindex (4). In studying the burden of skin diseases there is a need for a generic instrument that can be used in studies comparing dermatological diseases and other medical conditions.

During the 1990s, the WHO started a project to develop a cross-culturally valid assessment of wellbeing; the generic World Health Organization Quality of Life – 100 (WHOQOL-100). Assessment with this instrument is operationalized through 100 items representing 25 facets organized into 6 domains (5).

Based on the original WHOQOL-100, a short version has been developed, the WHOQOL-BREF, for use in situations in which time is limited, respondent burden must be minimized and facet-level detail is unnecessary (e.g. large epidemiological surveys and clinical trials).

The WHOQOL-BREF has been tested regarding its psychometric properties, with results showing good to excellent psychometric properties of reliability and promising results in preliminary tests of validity; overall a sound cross-culturally valid assessment of quality of life (QoL) (6). WHOQOL-BREF has been used in patients with cutaneous sarcoidosis, but has not been psychometrically tested in dermatology patients (7). DLQI has been psychometrically evaluated and been found to have a valid construct validity, high test–retest reliability and to be responsive to changes (8).

The aim of this pilot study was to investigate the correlation between WHOQOL-BREF and the dermatology-specific DLQI when applied to a mixed population of dermatological patients referred to our department, in order to evaluate whether WHOQOL-BREF is a candidate for further analysis concerning use in dermatological studies.

METHODS

The WHOQOL-BREF consists of 26 items (9) of which the first 2, regarding overall QoL and general health, are examined separately. The remaining 24 items are divided into 4 domains; Physical health (7 items), Psychological (6 items), Social relations (3 items) and Environment (8 items). Each item is scored on a 5-point scale, from 1–5. The maximum total score is 130, with a higher score indicating better QoL. The WHOQOL-BREF is self-administered and concerns how patients perceive their QoL over the preceding 2 weeks.

The DLQI was the first dermatology-specific QoL instrument and is the one most frequently used in dermatology (7, 10). DLQI is a self-administered questionnaire consisting of 10 questions, grouped into 6 sub-scales, concerning patients' perception of the impact of skin diseases on different aspects of their QoL during the preceding week.

Patients aged <16 years and those with skin tumours were excluded. Previous studies have shown no significant influence on QoL due to the tumorous disease *per se* (11).

Data were collected between March and October 2014. Subjects referred to the Dermatology Department of Örebro University Hospital, Sweden were sent the DLQI and WHOQOL-BREF by post approximately one month prior to their visit to the clinic. The questionnaires were to be returned prior to the visit. All participating patients signed a letter of consent. The questionnaires were sent to 566 consecutive patients and the response rate was 38% (214/566 patients). Of these, 16 were excluded, as 1 chose not to participate at a later stage, 10 had inadequately completed the questionnaires, 3 did not attend their consultation and 2 had not signed the letter of consent correctly. After exclusion 198 patients (35%) were enrolled in the study.

Patient sex, age, dermatological diagnosis (International Classification of Diseases and Related Health Problems 10th Revision (ICD-10) after meeting a dermatologist) and score on the DLQI and WHOQOL-BREF questionnaires were recorded. Diagnoses were grouped into the following larger categories: pruritus, dermatitis, acne, psoriasis and rosacea, in order to form groups with a sufficient number of patients. The research was approved by the Regional Ethical Review Board, Uppsala, Sweden (no: 442-2013).

Explorative correlation analyses concerning the 4 domains of WHOQOL-BREF and the total score of the DLQI were performed. Correlation analysis was also used when analysing the 2 separate WHOQOL-BREF questions and the total score on the DLQI.

Statistical analyses were performed using IBM SPSS 22.0 software. Spearman's rank-order correlation coefficient was used to assess the non-parametric correlation (R_s) between ordinal variables.

RESULTS

Age and diagnostic groups are shown in Table S1¹. The Spearman's correlation coefficients between the total

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scores of the DLQI and the WHOQOL-BREF are given in **Table I**. The correlation between subgroups of dermatological diagnoses is also presented in Table I. Statistically significant correlations were found for the total cohort, for both sex and for the diagnostic subgroups dermatitis, psoriasis and rosacea. Comparing total DLQI score with the 2 first questions of the WHOQOL-BREF, a significant correlation was found with $R=0.48$ and 0.43 , respectively. Correlation levels differ, but are all statistically significant when the correlations between domains of WHOQOL-BREF and total DLQI scores are analysed (see Table I).

DISCUSSION

There is a significant correlation between DLQI and WHOQOL-BREF when the whole cohort is analysed (R_s 0.55), with highest R_s for psoriasis, dermatitis and rosacea.

It must be noted that in conducting this study we did not take into account other clinical diagnoses among the enrolled patients. Having other diseases may contribute to a lower QoL in general, in which the skin may not be the major influencing factor. The correlation in such a cohort is prone to be weaker when comparing 2 questionnaires such as the dermatology-specific DLQI and the generic WHOQOL-BREF. This is a drawback with this study design, as other diseases tends to increase with age (12). However, studying other clinical diagnoses and their influence on QoL was beyond the scope of this study.

Interestingly, there was quite a strong correlation in the clinical diagnosis rosacea (R_s 0.76), but a very weak correlation in the group of patients with acne (R_s 0.15). We have no satisfactory explanation for this. Acne and rosacea are both common chronic inflammatory disorders primarily affecting the face, and one would think that

these 2 groups should have, if not the same, at least relatively similar, correlations. The mean age of the patients differs, 26.9 vs. 37.1 years (Table S1¹) and there was also a sex difference between the groups. However, the groups were too small to enable calculation of the correlation.

In summary, our results show that there is a statistically significant correlation between DLQI and WHOQOL-BREF in this study group of patients with mixed dermatological diagnoses. Strong correlation can be seen for some inflammatory skin diagnoses, e.g. psoriasis and dermatitis. However, it has to be kept in mind that the number of patients in some subgroups is too small to perform an analysis.

Our study was designed as a pilot study to compare the 2 QoL instruments. We found the statistically significant correlation for the whole group ($n=198$, R_s 0.55) to be strong enough to say that WHOQOL-BREF might be a candidate for a generic instrument to be used for comparative studies of dermatological diseases and other medical conditions. This possibility has to be further evaluated including co-morbidities in the analysis and focusing on separate dermatological diagnoses.

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Table I. Spearman's correlation coefficients (R_s) between the total scores of Dermatology Life Quality Index (DLQI) and WHO Quality of Life –short version (WHOQOL-BREF) and subgroups according to sex and dermatological diagnosis

	R_s	n	p
<i>DLQI</i>			
Total	0.55	198	< 0.01
Sex			
Men	0.58	92	< 0.01
Women	0.55	106	< 0.01
Dermatological diagnosis			
Pruritus	0.19	9	–
Dermatitis	0.56	47	< 0.01
Psoriasis	0.79	21	< 0.01
Acne	0.15	16	–
Rosacea	0.76	10	< 0.05
<i>WHOQOL-BREF domain</i>			
Physical	0.52	198	< 0.01
Social	0.27	198	< 0.01
Environment	0.49	198	< 0.01
Psychological	0.47	198	< 0.01

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