Correspondence

In hyperhidrosis quality of life is even worse than in acne, eczema, or psoriasis. A comparison of Skindex-16 and Dermatology Life Quality Index (DLQI)

Dear Editor,

Hyperhidrosis is an understudied disease. PubMed Medical Subject Headings presents 201 evidence-based studies on hyperhidrosis, 355 on hidradenitis, and 3628 on psoriasis, during the last 5 years.

We have experienced that quality of life is low in hyperhidrosis. In July 2019, we performed a pilot study in a dedicated hyperhidrosis clinic in Copenhagen. Swedish patients were included. Before attending, they had been asked to complete a general health form as well as online Dermatology Life Quality Index (DLQI)[1] and Hyperhidrosis Disease Severity Scale (HDSS)[2] questionnaires. On arrival at the clinic, they filled out the Skindex-16 quality of life form.[3] Patients were asked to fill out the questionnaire online after oral and written consent. This study was not required to be evaluated by the local ethics committee as it was seen as a quality assurance project. All data were processed anonymously in Excel and Stata.

Demographic characteristics and details were recorded for each patient. Disease severity was assessed by DLQI, HDSS, and number of areas to treat.

Skindex-16 is a Likert scale questionnaire that poses questions in three domains: physical symptoms, emotions, and functions. For each domain, a percentage of time occupied is calculated.[3] We obtained a license to use Skindex-16 questionnaires in Swedish from Mapi Research.

We calculated mean and standard deviation for the total sample. Furthermore, we compared results from our sample with reference materials, by two sample t-test.

A total of 98 patients were recruited to the study; however, three patients had to be excluded because of the problems with anonymous coding, with 95 patients remaining: 34 males (36%) and 61 females (64%). Mean age was 32 $\pm$ 10.9, body mass index 25.4 $\pm$ 5.2, HDSS 3.7 $\pm$ 0.44, DLQI 15.8 $\pm$ 6.6, and number of areas treated 2.86 $\pm$ 1.45.

In Table 1, Skindex-16 results are compared to the results from Chren.[3] In the symptoms domain, hyperhidrosis patients' scores were low but in emotions, patients suffering from hyperhidrosis scored like psoriasis patients and even higher than in eczema and acne. In the functioning domain, hyperhidrosis patients scored higher than the patients suffering from other major skin diseases. Correlation coefficients are shown. The correlation between Skindex-16 functioning and DLQI is significant.

Table 1 Skindex-16 values compared to Chren 2012

Study	Diagnosis	Symptoms	Emotions	Functioning
This study	Hyperhidrosis	22 $\pm$ 26	68 $\pm$ 29	74 $\pm$ 29
Chren 2012	Psoriasis	47 $\pm$ 29***	68 $\pm$ 25	39 $\pm$ 33***
Chren 2012	Eczema	42 $\pm$ 31***	52 $\pm$ 30***	24 $\pm$ 29***
Chren 2012	Acne	31 $\pm$ 24	75 $\pm$ 23	38 $\pm$ 30***

Correlations:
Skindex-16 Physical versus DLQI Pearson's $r = 0.2536$**
Skindex-16 Emotions versus DLQI Pearson's $r = 0.1642$ NS
Skindex-16 Functioning versus DLQI Pearson's $r = 0.3754$**
** = $P < 0.01$, *** = $P < 0.001$.

Our aim was to investigate how the gold standard, DLQI, and Skindex-16 compared. Skindex-16 has been used in many skin diseases and also on two occasions in primary hyperhidrosis. Lessa *et al*. (cited from Ref. 4) examined a mixture of dermatology outpatients and found values that resemble our findings in their hyperhidrosis patients, that is 17, 70, and 67 for physical, emotions, and functioning, respectively. Weber *et al*. (cited from Ref. 4) found values of 13, 30, and 30 for the same parameters. However, Weber´s patients were not classified as anxious, depressed, or as severely affected. Our results point to a damaged quality of life in primary hyperhidrosis, equal to or worse than in psoriasis or severe eczema. In the "functioning" part of Skindex-16, the results show a severely decreased quality of life. This is particularly relevant as physicians' judgment of disease severity has been shown to, albeit inconsistently, correlate with patient-reported scores. Health-related quality of life, rather than clinical severity of disease, was an independent predictor of work productivity. In psoriasis, indirect cost of loss of productivity has been shown to clearly exceed the total direct cost; thus, savings from work productivity might counterbalance the high cost of treatment (biologics in psoriasis, and botulinum toxins in hyperhidrosis).[5] When deciding to use the Skindex-16 instrument, we looked at what have been called weaknesses in DLQI, with its focus on function in daily activities. We found a correlation between the Skindex-16 functioning score and the DLQI score, a finding that supports the statements on the DLQI being more occupied with daily activities while Skindex-16 also measures emotions. The low percentage scores in the physical domain might be explained by the fact that Skindex-16 is not sensitive in that domain, used in hyperhidrosis. The question on perseverance, which is included, is relevant.

In conclusion, quality of life in hyperhidrosis is even worse than in other major skin disease. Both instruments performed well overall. Skindex-16 had weaknesses in the physical domain and had its strength in emotions and functioning. DLQI performed strongly in functioning and correlated significantly with Skindex-16 in this domain. As DLQI is weak on emotions, we suggest using the instruments concurrently.

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Conflict of interest: None.

Funding source: None.

doi: 10.1111/ijd.15164

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