LETTER TO THE EDITOR

Physician severity scores correlate poorly with health-related quality of life in patients with Hidradenitis Suppurativa

Dear Editor,

Hidradenitis suppurativa (HS) is known to have a profound impact on the quality of life (QoL) of patients.[1] Only a few small studies have assessed the Short Form-36 (SF-36) questionnaire in HS patients.[2–5] The relation between patient characteristics, patient-reported outcome measures (PROMs) and SF-36 scores has never been evaluated, even though younger age of onset, higher pain and pruritus scores are known to affect other QoL scores among HS patients.[5,6] The aim of this study was to assess the relation between patient characteristics, PROMs, and objective severity scores and SF-36 scores among HS patients.

All consecutive patients attending the specialized HS clinic of a tertiary centre in the Netherlands between June 2016 and August 2019 were included if they had filled out the SF-36 questionnaire. Patient characteristics, numerical rating scales (NRS) for pain, pruritus, and overall disease severity, Hurley stage, Hidradenitis Suppurativa Severity Score System (IHS4) score and SF-36 scores were collected through the HiScreen Registry (Table 1). Univariate regression analyses were performed for all SF-36 domains (physical functioning, PF; role limitations due to physical health problems, RP; bodily pain, BP; vitality, VT; social functioning, SF; role limitations due to personal or emotional problems, RE; mental health, MH; and general health perceptions, GH) and the physical and mental component scores (PCS, MCS) to inform subsequent multivariate analyses. Multivariate analyses were performed using the forward method with

Table 1 Patient characteristics

	***N* = 629**
Sex	
Female, *n* (%)	455 (72.3)
Age, median [IQR]	36.0 [27.0–46.0]
Age of onset, median [IQR]	18.0 [15.0–26.0]
Missing, *n*	11
Disease duration, median [IQR]	12.0 [6.0–22.0]
Missing, *n*	11
Body mass index, median [IQR]	27.2 [23.9–31.6]
Missing, *n*	186
Smoking status	
Current or former smoker, *n* (%)	447 (71.4)
Never smoked, *n* (%)	179 (28.6)
Missing, *n*	3
Family history	
Positive in 1st or 2st degree, *n* (%)	221 (40.8)
Negative, *n* (%)	252 (35.8)
Unknown, *n* (%)	144 (23.3)
Missing, *n*	12
Comorbidities	
Rheumatologic comorbidities, *n* (%)	30 (4.8)
Inflammatory bowel disease, *n* (%)	29 (4.6)
Treated depression, *n* (%)	118 (18.8)
Missing, *n*	4
Hurley stage	
I, *n* (%)	302 (53.8)
II, *n* (%)	220 (39.2)
III, *n* (%)	39 (7.0)
Missing, *n*	68
IHS4	2.0 [0.0–7.0]
Mild HS (≤3 points), *n* (%)	291 (55.1)
Moderate HS (4–10 points), *n* (%)	151 (28.6)
Severe HS (≥11 points), *n* (%)	86 (16.3)
Missing, *n*	101
NRS pain, median [IQR]	7.0 [4.0–8.0]
Missing, *n*	6
NRS pruritus, median [IQR]	5.0 [2.0–7.0]
Missing, *n*	4
NRS severity, median [IQR]	7.0 [5.0–8.0]
Missing, *n*	3
SF-36 norm-based domain scores	
Physical functioning	46.8 (10.6)
Role physical	45.2 (9.0)
Bodily pain	40.6 (11.2)
General health	40.5 (10.8)
Vitality	39.9 (10.6)
Social functioning	41.0 (12.6)
Role emotional	45.4 (9.8)
Mental health	42.7 (11.7)
SF-36 component scores	
Physical component score	43.9 (9.6)
Mental component score	42.1 (11.4)

DLQI, Dermatological life quality index; EQ-5D, Euroqol-5D; IHS4, International Hidradenitis Suppurativa score; NRS, numerical rating scale; SF-36, Short Form 36; VAS, visual analogue scale.

Table 2 Multivariate linear regression of SF-36 domains and component scores

	PCS B (95% CI)	MCS B (95% CI)	PF B (95% CI)	RP B (95% CI)	BP B (95% CI)	GH B (95% CI)	VT B (95% CI)	SF B (95% CI)	RE B (95% CI)	MH B (95% CI)
Patient characteristics										
Age	–		–	–	–	–	–	–	–	–
Sex	–		–	–	–	–	–	–	–	–
Current or former smoker	NS		NS	NS	NS	NS	NS	NS	NS	NS
BMI	−0.27 (−0.41 to −0.13)		−0.60 (−0.97 to 0.23)	−0.73 (−1.23 to −0.24)	NS	−0.63 (−0.97 to −0.29)	−0.52 (−0.83 to −0.20)	NS	NS	NS
Disease duration	–		–	–	–	–	–	–	–	–
Treated depression	−2.74 (−4.85 to −0.64)	−9.10 (−11.69 to −6.50)	−7.41 (−12.95 to −1.87)	−15.70 (−23.15 to −8.26)	−8.05 (−13.51 to −2.58)	−16.39 (−21.49 to −11.28)	−12.11 (−16.84 to −7.38)	−16.09 (−22.62 to −9.57)	−22.90 (−30.21 to −15.59)	−15.44 (−20.12 to −10.77)
Physician severity scores										
IHS4	NS	–	NS	NS	NS	NS	NS	NS	NS	NS
Hurley stage 1	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Hurley stage 2	–	–	–	–	–	–	–	–	–	–
Hurley stage 3	–	–	–	–	–	–	–	–	–	–
Patient reported outcome measures										
NRS pain	−0.89 (−1.29 to −0.49)	NS	−1.36 (−2.41 to −0.32)	−2.90 (−3.99 to −1.81)	−3.55 (−4.57 to −2.52)	NS	−0.82 (−1.52 to −0.13)	NS	NS	NS
NRS pruritus	NS	−0.69 (−1.07 to −0.31)	−1.06 (−1.87 to −0.24)	−1.51 (−2.57 to −0.45)	NS	−1.14 (−1.88 to −0.39)	−1.39 (−2.06 to −0.71)	−1.30 (−2.25 to −0.35)	−1.89 (−2.95 to −0.82)	−1.26 (−1.94 to −0.57)
NRS severity	−0.62 (−1.05 to −0.18)	−0.45 (−0.85 to 0.05)	−1.49 (−2.63 to −0.34)	NS	−2.21 (−3.30 to −1.11)	−1.02 (−1.82 to −0.23)	NS	−2.35 (−3.36 to −1.35)	−2.06 (−3.19 to −0.94)	−0.87 (−1.59 to −0.15)
Pain*severity	−0.12 (−0.22 to −0.03)	NA	−0.33 (−0.58 to −0.08)	NA	−0.31 (−0.55 to −0.07)	NA	NA	NA	NA	NA

BP, bodily pain; GH, general health; IHS4, International Hidradenitis Suppurativa score; MCS, mental component score; MH, mental health; NA, not applicable; NRS, numerical rating scale, tested but not significant and therefore excluded from final model; PCS, physical component score; PF, physical functioning; RE, role emotional; RP, role physical; SF, social functioning; VT, vitality.

pairwise deletion. Statistical analyses were performed using IBM SPSS Statistics for Windows, version 25.0 (IBM Corp. Armonk, NY, USA).

Multivariate analysis showed treated depression as the largest factor influencing the PCS and MCS, respectively B = −2.74, 95% CI −4.85 to −0.64 and B = −9.10, 95% CI −11.69 to −6.50, and each of the individual SF-36 domains (Table 2). None of the physician scores were significantly correlated with any of the domains or the component scores. NRS pain was significant in the physical domains (PF, RP, BP and VT), but in not in the GH, SF, RE and MH domains. Body mass index was a significant predictor of the PF, RP, GH and VT domains, but not of the SF, RE and MH domains. NRS pruritus was significantly associated with all individual domains except for BP.

This is the first study to assess the contribution of patient characteristics, PROMs and severity scores to SF-36 scores in a large cohort of HS patients. The mean component scores found in our study are in line with those reported by Kolli *et al*., 40.9 (6.3) and 40.0 (6.4), and those found by Hamzavi *et al*., 39.6 (9.4) and 41.5 (12.40).[3,4] Treated depression was the most important predictor for a lower score for both the MCS and PCS and each individual domain. This emphasizes the high burden of depression among HS patients on both psychological and physical domains.[7] Our results do not support an independent relation between Hurley stage or IHS4 score for the component scores or the domains scores. This might be due to the generic nature of the SF-36 as it does not include specific HS related quality of life problems, for example discomfort from drainage or foul smell. A disease-specific QoL questionnaire could include these important aspects and could be more sensitive to disease severity.[8]

In conclusion, HS severity scores were not associated with QoL, and treated depression was the largest independent factor for both component scores and all SF-36 domains. These results suggest that the generic SF-36 does not accurately capture quality of life impairment due to HS. Moreover, comorbid depression should be taken into account and corrected for when analysing quality of life in HS patients.

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References

1 Jemec GBE, Heidenheim M, Nielsen NH. The prevalence of hidradenitis suppurativa and its potential precursor lesions. *J Am Acad Dermatol* 1996; **35**: 191–194.
2 Alavi A, Anooshirvani N, Kim WB, Coutts P, Sibbald RG. Quality-of-life impairment in patients with hidradenitis suppurativa: a Canadian study. *Am J Clin Dermatol* 2015; **16**: 61–65.
3 Hamzavi IH, Sundaram M, Nicholson C*et al*. Uncovering burden disparity: a comparative analysis of the impact of moderate-to-severe psoriasis and hidradenitis suppurativa. *J Am Acad Dermatol* 2017; **77**: 1038–1046.
4 Kolli SS, Senthilnathan A, Cardwell LA*et al*. Hidradenitis suppurativa has an enormous impact on patients' lives. *J Am Acad Dermatol* 2019; **82**: 236–238.
5 Wolkenstein P, Loundou A, Barrau K*et al*. Quality of life impairment in hidradenitis suppurativa: a study of 61 cases. *J Am Acad Dermatol* 2007; **56**: 621–623.
6 Riis PT, Vinding GR, Ring HC, Jemec GBE. Disutility in patients with hidradenitis suppurativa: a cross-sectional study using EuroQoL-5D. *Acta Dermato Venereol* 2016; **96**: 222–226.
7 Machado MO, Stergiopoulos V, Maes M*et al*. Depression and anxiety in adults with hidradenitis suppurativa: a systematic review and meta-analysis. *JAMA Dermatol* 2019; **155**: 939.
8 Kirby J.S., Thorlacius L., Villumsen B., Ingram J.R., Garg A., Christensen K.B., Butt M., Esmann S., Tan J., Jemec G.B.E.. The Hidradenitis Suppurativa Quality of Life (HiSQOL) score: development and validation of a measure for clinical trials. *British Journal of Dermatology*. 2019; http://dx.doi.org/10.1111/bjd.18692.

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