Acta Derm Venereol 2015; 95: 114–115

SHORT COMMUNICATION

ItchyQoL Bands: Pilot Clinical Interpretation of Scores

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Accepted Apr 29, 2014; Epub ahead of print May 9, 2014

Pruritus is the chief symptom in many dermatologic and systemic conditions and can be quite burdensome on a patient's health-related quality of life (HRQoL) (1–3). ItchyQoL is a validated survey designed to assess the pruritus-specific disease burden (4). Although it is understood that higher scores correspond to higher HRQoL impact, the lack of clinical meaning for the scores has limited its use outside of research. Such endeavors have been performed for skin specific HRQoL measures such as the Dermatology Life Quality index (DLQI) (4, 5) and Skindex (6), where bands of scores are assigned a level of HRQoL impairment. Defining bands of ItchyQoL scores in terms of levels of itch-specific HRQoL impairment will provide clinicians with a better gauge of both pruritus-specific burden of disease and the efficacy of treatment. Researchers will be able to know whether new interventions were able to make clinically, and not just statistically, significant differences in itch burden (7). In this pilot study, we utilized an existing dataset and applied methods previously used in assigning clinical meaning for the DLQI to explore possible clinically meaningful bands for the ItchyQoL (5, 8).

METHODS

Patients were recruited from the Atlanta VA Medical Center outpatient dermatology clinic, with the only inclusion criteria being a history of chronic (> 6 weeks duration) pruritus. Subjects completed multiple self-administered written surveys accessing HRQoL, including ItchyQoL and a Global Itch Severity Question (GISQ).

ItchyQoL is a validated 22-question survey that assesses pruritus-specific HRQoL impact on symptoms, functional limitations, and emotions (4). Each of the questions is scored 1–5 (1: never; 2: rarely; 3: sometimes; 4: often; 5: all of the time) with the sum forming the raw ItchyQol score with a range of 22–110.

A GISQ was used to anchor and thus provide clinical context to the ItchyQoL results (7). GISQ is one question where the respondents rate their itch on a scale of 0 to 10 with 0 being no itch at all, and 10 being the worst itch ever experienced, for the past 7 days.

Band formation: Raw ItchyQoL scores were divided into 10-point intervals (0–10, 11–20, 21–30, etc.), and the mean, median, and mode of the GISQ scores of patients included in each interval were calculated. Five potential raw ItchyQoL band sets were created with effort to distribute the number of patients as evenly as possible, but also restricting the number of bands for ease of use. GISQ scores were divided into two potential sets of intervals.

Correlations of each of the 5 potential ItchyQoL band sets with each of the two proposed GISQ breakdowns was calculated using the Spearman Rank and Pearson correlation coefficients. The kappa, both unweighted and weighted, coefficient of agreement was calculated for the banding system with the highest Spearman and Pearson coefficient variables with $p < 0.05$ considered statistically significant (9). Analyses were performed using SAS 9.2. The anchoring technique was modeled after work done on the DLQI (10).

RESULTS

The majority of the 54 subjects were men (85%) and Caucasian (79%). The mean ± SD age was 63.8 ± 15.5 years. The majority (75%) experienced pruritus most or all of the time and nearly all (93%) had experienced pruritus for greater than 6 months. The overall mean ± SD GISQ score was 6.19 ± 2.42 out of 10, and the overall mean ± SD raw ItchyQoL score was 57.11 ± 21.06 out of 110. The Spearman rank coefficient (0.557, $p < 0.0001$) and Pearson correlation coefficient (0.559, $p < 0.0001$) showed a moderate correlation between raw ItchyQoL and GISQ scores. The correlation coefficients for all 5 proposed band sets ranged from 0.428 to 0.574 (Pearson) and 0.462 to 0.552 (Spearman). The ItchyQoL Band Set and GISQ breakdown with the highest measures of correlation (Pearson = 0.574, Spearman = 0.552) demonstrated a $\kappa = -0.2714$ and weighted $\kappa = 0.5677$. Thus the set of ItchyQoL bands and corresponding levels of pruritus-specific HRQoL impairment are as follows: 0–30 (little), 31–50 (mild), 51–80 (moderate), and 81–110 (severe). These bands are visualized in Fig. 1.

DISCUSSION

HRQoL instruments elucidate the burden that diseases place on patients, but lack of information on the clinical interpretation of HRQoL scores limits their clinical use (11, 12). This pilot study attempts to address such a gap by proposing a set of bands to aid in the clinical interpretation of the previously validated ItchyQoL. With these bands, we know that if an ItchyQoL raw score stays within a band after treatment, say 79 to 60, even if the change was statistically significant, the change would not be clinically significant (moderate to moderate impairment).

The anchor-based technique was chosen for its validity with short and relatively simple questionnaires (13, 14). The sum of all ItchyQoL questions was chosen to derive

© 2015 The Authors. doi: 10.2340/00015555-1891
Journal Compilation © 2015 Acta Dermato-Venereologica. ISSN 0001-5555

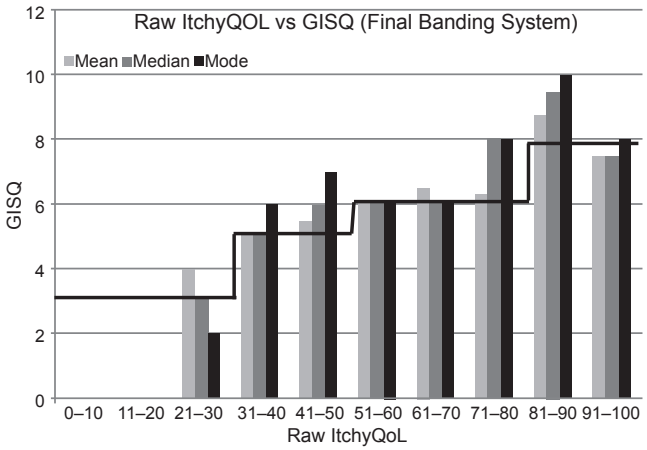

Fig. 1. Relationship between the raw ItchyQoL score and the mean, median, and mode of the Global Itch Severity Question (GISQ) score with proposed banding scale (full-drawn line) of ItchyQoL scores.

the 10-point intervals for its simplicity. Using the raw ItchyQoL scores is unique to the proposed ItchyQoL bands. Currently, ItchyQoL scores are calculated by taking the mean of all 22 questions, but this was thought undesirable because it involves decimal points and smaller band ranges, making bands more difficult to remember, potentially resulting in decreased use. The raw ItchyQoL score increases the range of values, but does not affect the questionnaire's presentation to the patient nor the instrument's psychometrics or validity. However, if the discrepancy of using the raw score versus the original mean scores proves to be a barrier, a future iteration can be explored using the mean scores.

Limitations to this pilot study include the small size, relatively homogeneous subject population, and single recruitment location, thus potentially limiting the generalizability of the results. Future studies need to include larger populations that involve both nonveteran men and women, incorporating other age groups. Another limitation is that our kappa coefficient shows only a moderate agreement between our set of ItchyQoL bands and the GISQ. This may be attributable to the small number of subjects. Additionally, the GISQ gauges "itch severity" during the last 7 days, and does not have the multi-dimensionality of the 3-construct ItchyQoL. This difference in complexity of the two instruments may have contributed to the less than ideal kappa coefficient. Nonetheless, the weighted kappa, demonstrated moderate agreement despite the small numbers and thus supports the potential of the ItchyQoL bands to assess patients' level of impairment. In future expanded studies, it may be simpler to use "little, mild, moderate, severe" as categorical answers to GISQ in order to map the bands and thus not need to guess the cut-off values; or to utilize percentiles of the reported rather than the possible scores, however a larger sample would be necessary.

In conclusion, the ItchyQoL, with the 3 constructs, is a rich instrument capable of elucidating the symptomatic, functional, and emotional burden created by chronic pruritus. Never intended as a substitute for ItchyQoL construct scores, raw ItchyQoL bands add an additional layer of interpretation of the information. The results of this pilot study need to be validated with a larger, more heterogeneous population, but provide an initial means to monitor significant clinical improvement or exacerbation of pruritus.

ACKNOWLEDGEMENT

Conflict of interest: Dr. Chen's research laboratory at Emory University receives royalties for usage of the ItchyQoL.

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