Assessing Cellulite Severity: Method for Assessing Reliability of a New Clinician-Reported and a New Patient-Reported Photonumeric Scale

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BACKGROUND

- Cellulitis is a common condition in women, occurring in up to 88% of them.
- Currently, few validated scales (eg, Niveau Cellulite Severity Scale [CSS]) are available to evaluate the severity of cellulitis.
- The clinician-reported Photonumeric Cellulite Severity Scale (CR-PCSS; Figure 1) and Patient Reported Photonumeric Cellulite Severity Scale (PR-PCSS; Figure 2) are 5-point photonumeric scales that have recently been developed to assess cellulitis severity.
- Text-reliability has been established for the PR-PCSS and for the CR-PCSS using photographs.
- These 2 scales have been shown to correlate with traditional measures of cellulitis severity (eg, CR-PCSS with Nivel CSS, PR-PCSS with the Subject Global Aesthetic Improvement Scale).

AIM

- To further validate through in-person assessments the use of the CR-PCSS (by clinicians) and the PR-PCSS (by patients) for cellulitis severity on buttocks and posterolateral thighs.

METHODS

- Noninterventional test-reliability study in patient assessments
- The CR-PCSS (Figure 1) and PR-PCSS (Figure 2) are a series of 5 photographs ranked in increasing order of cellulite severity according to the number and depth of depressions on the left or right buttock and left or right posterolateral thigh, with corresponding labels and text descriptors.
- Content validity of both scales (eg, descriptors) was previously established through concept elicitation and cognitive interviews.
- Training on the use of CR-PCSS included an online video and in-person instruction at baseline using live models.
- Target patient enrollment for this assessment was 16 females (18 years of age) at each of the 5 levels of cellulite severity (none to severe).
- CR-PCSS text-reliability involved assessments at baseline and Day 2.
- Various methods were used to minimize clinician recall bias (eg, rating a large number of cellulitis cases before rating a given patient case).
- Patients rated by clinicians also self-rated their cellulite severity using the PR-PCSS (by patients) for cellulitis severity on buttocks and posterolateral thighs.
- Reliability between photograph versus mirror evaluation methods for the PR-PCSS was determined by calculating ICC and 95% CI.
- To further validate through in-person assessments the use of the CR-PCSS, a noninterventional test-reliability study using in-person assessments was conducted.
- Assessing Reliability of a New Clinician-Reported and a New Patient-Reported Photonumeric Scale

RESULTS

- Patients (3 clinicians and 3 dermatologists) were included in the test-reliability study (63.3 male, 18.0–67.8 years in practice post-residency).
- Of 75 patients enrolled, 76 (Table 1) participated in the CR-PCSS and 75 patients participated in the PR-PCSS.

CONCLUSIONS

- The CR-PCSS, using edge detection, was considered reliable for cellulitis severity in the thighs and buttocks.
- The CR-PCSS and the PR-PCSS produced acceptably comparable ratings of cellulitis severity based on the methods used.
- The CR-PCSS and the PR-PCSS are valid and reliable tools and should be considered for evaluating cellulitis severity in clinical trials and real-world settings.

REFERENCES


Table 1. Patient Demographics and Baseline Characteristics

<table>
<thead>
<tr>
<th>Age (y), range</th>
<th>Mean (SD)</th>
<th>95% CI</th>
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<tbody>
<tr>
<td>28–65</td>
<td>47.8 (6.6)</td>
<td>45.8, 50.8</td>
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Table 2. Overall CR-PCSS Intra-Rater Reliability

<table>
<thead>
<tr>
<th>Cellulite Location</th>
<th>ICC (95% CI)</th>
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<tr>
<td>Buttock</td>
<td>0.76 (0.67, 0.85)</td>
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<tr>
<td>Thigh</td>
<td>0.74 (0.65, 0.83)</td>
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Figure 1: CR-PCSS for Buttock and Thigh

Figure 2: PR-PCSS for Buttock and Thigh

Figure 3: CR-PCSS Inter-Rater Reliability at Baseline and Day 2

Figure 4: Mean Intra-Rater Reliability for the PR-PCSS

Figure 5: Baseline CR-PCSS Inter-Rater Agreement

Table 3: Baseline CR-PCSS Inter-Rater Agreement

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Figure 6: Baseline PR-PCSS Inter-Rater Agreement

Table 4: Baseline PR-PCSS Inter-Rater Agreement

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Figure 7: Baseline PR-PCSS Inter-Rater Agreement

Table 5: Baseline PR-PCSS Inter-Rater Agreement

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