Generic Pain Intensity Scores Are Affected by Painful Comorbidity

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Aims: *To determine the degree to which the generic pain intensity rating (ie, overall and without reference to a particular body site) of facial pain patients being seen in a specialty setting for facial pain is influenced by painful comorbidity in body parts other than the face.* **Methods:** *In this prospective study, 40 consecutive female temporomandibular pain patients rated their generic pain on a 100-mm visual analog scale. After marking all painful body sites on pain drawings, patients were asked to rate the pain intensity for each of the indicated pain sites; the patients did not have access to the generic pain intensity score. Pearson's correlation coefficient was used to correlate the generic pain intensity score with site-specific pain intensity ratings, their mean and maximum, and the number of pain sites.* **Results:** *The medians of the generic, maximum, and facial pain intensity scores were 49.5, 53, and 45.5, respectively. The generic pain intensity rating correlated more highly with the intensity scores reported for the most painful body site ($r^2 = 0.82$; $P < 0.001$) than with the average rating across all painful sites ($r^2 = 0.62$; $P < 0.001$), or the pain intensity score in the face ($r^2 = 0.61$; $P < 0.001$). The number of pain sites did not correlate to any statistically significant degree with the generic pain intensity rating ($r^2 = 0.006$; $P = 0.65$).* **Conclusion:** *The results of this study suggest that the maximum visual analog scale pain intensity score, observed in any body location, is a better reflection of the generic pain intensity rating than the corresponding score of the face. To avoid overrating or underrating of facial pain intensity, patients should be instructed to provide site-specific pain intensity scores if painful comorbidity is present.*
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Key words: chronic pain, musculoskeletal pain, pain intensity, pain rating, visual analog scale

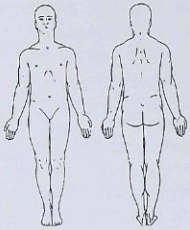
Pain intensity scores are important measures in the assessment of patients in both clinical and research contexts. Visual analog scales (VAS)[1] and numeric rating scales[2] are most frequently used. Given their widespread use, the question arises whether the generic pain intensity rating (ie, overall and without reference to a particular body site) of a person presenting with facial pain in a specialty setting for facial pain is influenced by coexisting pain located in other parts of the body. Recently, we have shown that painful comorbidity is more frequent than not in such patients, which appears to make this question even more relevant.[3] Therefore, the aim of this study was to determine the degree to which painful comorbidity influences the generic pain intensity rating.

Name:_____ Age:_____
Pain duration (years, months):_____

Please mark the line at the point that best represents how intense your pain is right now.

No pain ——— Most pain imaginable

Please shade painful sites and identify sites by numbers (1, 2, 3, etc)



Please mark the line at the point that best represents how intense your pain is in each specific site (1, 2, 3, etc) right now.

Location #1
No pain ——— Most pain imaginable

Location #2
No pain ——— Most pain imaginable

Location #3
No pain ——— Most pain imaginable

Location #4
No pain ——— Most pain imaginable

Location #5
No pain ——— Most pain imaginable

Fig 1 Pages 1 to 3 of the questionnaire administered to patients.

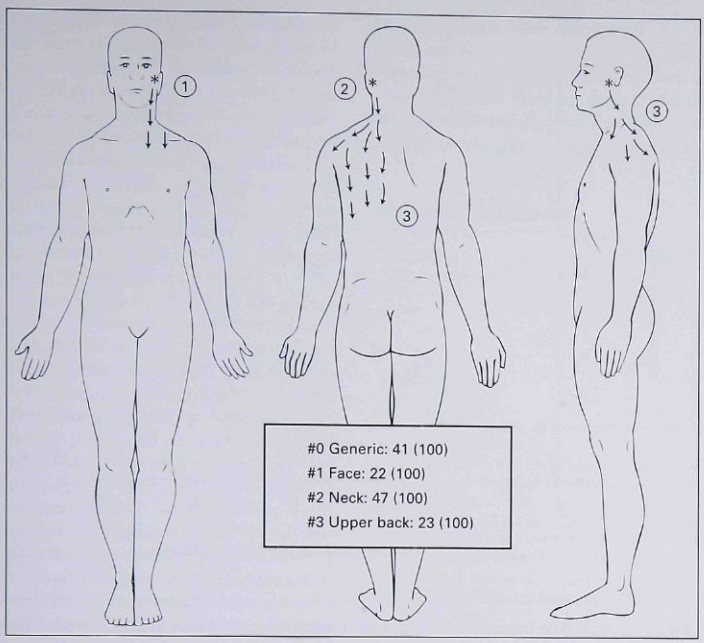


Fig 2 Example of generic and site-specific pain intensity ratings. The generic pain intensity rating was obtained without reference to a particular body site. After they completed the pain drawings, and without access to the generic pain intensity score provided earlier, study participants were requested to provide site-specific pain intensity measures.

Methods

The study was based on data from 40 prospectively collected consecutive female patients who were referred to a university-based, multidisciplinary, tertiary care clinic for the diagnosis and management of persistent facial pain. The patients' median age was 38 years (range, 17 to 58 years), with a median duration of 48 months since the onset of the facial pain condition (range, 3 to 276 months). All patients were Americans of European descent.

Before a detailed history was obtained, each patient was asked to mark with a vertical line on a 100-mm-long horizontal VAS the point that best represented her present pain intensity (Fig 1). The scale was anchored with descriptors of the extreme limits of pain perception ("no pain" and "most pain imaginable"). Subsequently, each participant was asked to indicate each painful body site on sketches of the frontal and rear views of the human body. Study participants were then asked to rate on a VAS the pain intensity for each of the indicated pain sites, without having access to her generic pain intensity score (Fig 2). For analytic purposes, the available site-specific pain intensity scores were assigned to a particular body region (ie, head, face, neck, shoulders/upper back, and lower back) based on a transparent template that was placed over the pain drawings. If the patient's sketch encompassed more than a single region, the same value was assigned to each.

Pearson's product-moment correlation coefficient (r) was used to correlate the generic VAS pain intensity score with the maximum VAS pain intensity score reported for any body location, the VAS score of the face, the average VAS pain intensity score (pain intensity averaged about the scores of all specific pain sites of a patient), and the number of pain sites.

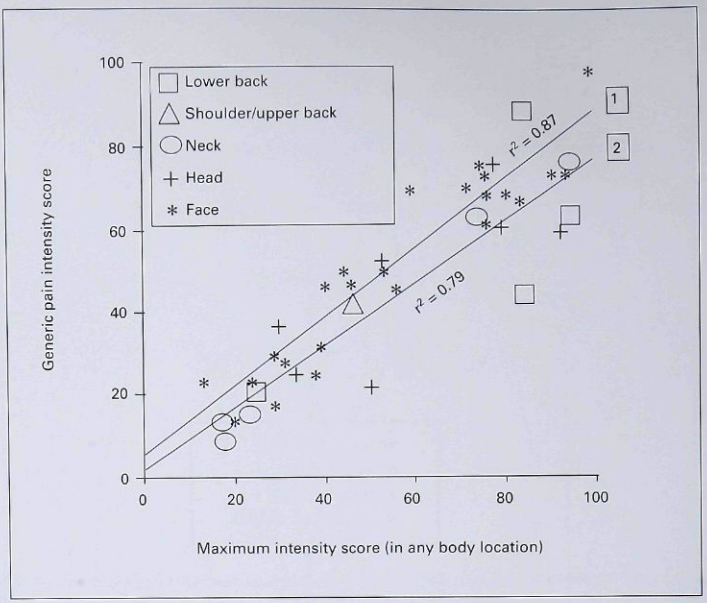


Fig 3 Generic pain intensity versus maximum reported present pain intensity, plotted separately for cases with maximum pain intensity present in or outside the region of the face. 1 = maximum intensity within face (n = 24); 2 = maximum intensity outside face (n = 16).

Results

The median generic pain intensity was 49.5 (range, 10 to 98). All 40 participants reported coexisting pain in body sites outside the face region. The median maximum pain intensity score was 53 (range, 14 to 99). For the face, the corresponding median score was 45.5 (range, 0 to 99). In 24 patients, the maximum pain intensity score was located in the face. In 16 individuals, the site-specific intensity rating for the face was within 5 mm of the reported generic pain intensity score. Twelve patients reported site-specific facial pain intensity scores that were more than 5 mm higher than their generic pain intensity scores. In another 12 patients, the generic pain intensity score was reported as more than 5 mm higher than their site-specific facial pain intensity score.

The generic pain intensity score correlated to a higher degree with the maximum pain intensity score reported for any body location ($r^2 = 0.82$; $P < 0.001$) than with the site-specific pain intensity score of the face ($r^2 = 0.61$; $P < 0.001$). Irrespective of whether the maximum pain intensity score was associated with a site located in the face or elsewhere in the body, both were highly and similarly correlated with the generic pain intensity score ($r^2 = 0.87$ and 0.79, respectively; Fig 3). Although significantly different from zero, the correlation between the generic pain intensity score and the average pain intensity score was considerably less ($r^2 = 0.62$; $P < 0.001$). The number of pain sites did not correlate to any statistically significant degree with the generic pain intensity score ($r^2 = 0.006$; $P = 0.65$).

Discussion

The main purpose of this study was to determine whether the generic pain intensity rating of patients presenting for the evaluation and management of

persistent facial pain was influenced by pain in locations other than the face. Unlike the effect of memory on pain measures,[4,5] the extent to which comorbid pain affects generic pain intensity scores has not been subject to systematic research. There is the possibility that comorbid pains could suggest local treatment effect where none had occurred, or, alternatively, mask the effect of locally delivered treatment. We are unaware of any studies of how multiple pain sites impact on the generic, site-independent pain intensity score, or the site-specific score with respect to the chief complaint.

Recently, we were able to show that the spread of pain influences the perceptual correlates of pain to a significant degree in both experimental and clinical contexts. In fact, the spatial pain distribution differentially influences the sensory and affective information content of pain in temporally distinct categories of pain, such as acute, tonic, and persistent pain.[6] This agrees with earlier reports of the significant effect of increasing pain stimulus areas on pain perception.[7,8] In the present study, we focused on intensity measures and found that the generic pain intensity rating was most strongly related to the maximum pain intensity rating, irrespective of whether the maximum pain intensity was reported in the face or not. In fact, the most intense pain in any body location explained 82 percent of the variation of the reported generic pain intensity scores.

When pain intensity is assessed with VAS, the guides that patients receive are descriptors, which define the anchors of the scale.[9] Site-specific information is requested only rarely. In more than half of our patients (24/40), the site-specific intensity rating of facial pain was more than 5 mm lower or higher than the generic pain intensity rating. Given the fact that, in the majority of facial pain patients in a tertiary care setting, pain is not limited to the face,[3] our results indicate that there is a considerable potential for these patients to overestimate or underestimate their site-specific facial pain intensity on generic pain intensity measures. This appears to be of particular concern if pain intensity scores are used as site-specific outcome measures in the presence of significant painful comorbidity outside the primary region of interest.

Acknowledgments

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