



Correlations between pain extent and clinical features in chronic low back pain and chronic neck pain patients

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Background: The extent of pain reported with pain drawings (PD) by chronic low back pain (CLBP) and chronic neck pain (CNP) patients may correlate and even predict some clinical features such as pain related disability, psychological distress and pain intensity. Due to the paucity of studies on this topic and to the heterogeneity of methods used for pain extent estimation, data on these correlations are lacking and often conflicting. The aim of this study was to investigate the correlations between pain extent and clinical features in CLBP and CNP patients.

Methods: Fifty-one CLBP (20 men, 31 women), and fifty-six and CNP (15 men, 41 women) patients participated. Each patient shaded a PD using a stylus pen on an iPad® (Fig 1). A custom designed software was used to quantify the pain extent, expressed as the number of pixels coloured inside the body chart perimeter. Data on clinical variables were then collected as follows: pain-related disability using the Roland and Morris Disability Questionnaire and the Neck Disability Index (NDI) for the CLBP and the CNP patients respectively, psychological distress using the Kessler Psychological Distress Scale (K-10), and pain severity using the visual analog scale (VAS).

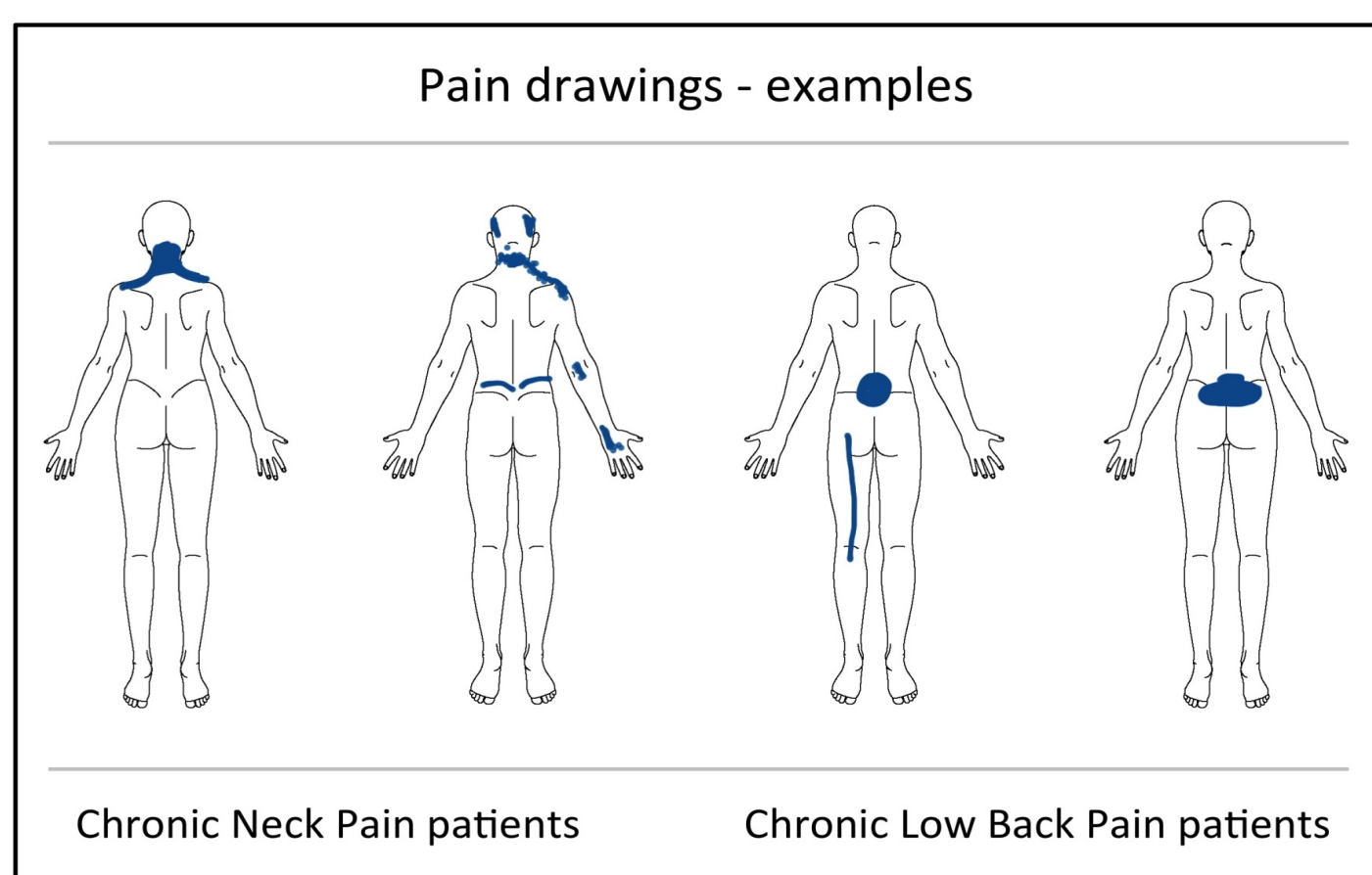


Figure 1. Examples of digital pain drawings shaded by female and male CNP and CLBP patients

Results: Pearson correlation coefficient within CNP group showed that pain extent was positively associated to pain-related disability ($r:0.404$, $p=0.002$) and pain severity ($r:0.375$, $p=0.004$). No significant correlations were found between pain extent and clinical variables within CLBP group (Table 1)

<i>CLINICAL FEATURES</i>	CLBP Mean±SD Pearson Correlation (R) with pain extent	CNP Mean±SD Pearson Correlation (R) with pain extent
PD1 EXTENT (pixels)	5469±3631 1	59251±4762 1
VAS	4,3±2,2 .264	4±2 .375*
RMDQ	5,5±3 .199	-
NDI	-	10,59±5,3 .404*
K-10	17±5 .079	17,3±4,3 -.104

Table 1. Correlation between pain extent and clinical features. Mean, standard deviations and Pearson correlation coefficient are reported for each variables.

Discussion: It's reasonable to expect that patients referring widespread pain or pain in multiple spots report also more severe pain. The same reasoning could be made about pain related disability, where higher pain extent is likely to reduce more the ability to carry out activities of daily living. These hypothesis were confirmed only in CNP patients but not in CLBP ones where any correlation was observed between pain extent and clinical features.

Conclusions: These findings provide a better understanding of the clinical relevance of pain extent in CLBP and CNP patients. Future investigation should establish whether the clinical relevance of pain extent depends on the pain nature and/or on its anatomical distribution.

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