

# Predicting physical health-related quality of life using numeric, semantic and graphic methods in the assessment of chronic low back pain patients

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# I. Background and objective

- ❖ The physical component summary (PCS) score of the SF-36, a widely-used health-related quality of life (HRQoL) questionnaire is related to function in chronic low back pain (LBP) patients.
- ❖ This study aimed 1) to examine the associations between PCS and LBP intensity as measured by Visual Analogue Scales (VAS), the characteristics of the Pain Drawing, the Pain Words (PW) used as descriptors in the McGill Pain Questionnaire, along with psychological and sociodemographic variables; 2) to predict the PCS score using these variables.

## II. Methods

- ❖ **Study design.** Cross-sectional investigation of chronic pain patients.
- ❖ **Study sample.** Patients were recruited from the Geneva University Hospital Multidisciplinary Pain Center between the years 2013 and 2015. Full data were available for 82.8% of these patients (n=236/285).

*Inclusion criteria:* patients with LBP defined as pain comprised between the 12th rib and the inferior gluteal folds, with or without leg pain; patients with sufficient understanding of French; patients > 18 years.

*Exclusion criteria:* patients with specific LBP were excluded.

- ❖ The **final sample** comprised 109 patients, i.e., 46.2% of the total number of patients referred to the Center in the time frame considered; 67.6% were women; mean age was 54 ( $\pm 17$ ) years, ranging from 19-86 years; 62.9% had  $\leq 10$  years of education; 88% were living with someone; and about half (49.5%) had French as their mother-tongue. Mean pain duration was as high as 10 years (SD $\pm 13$ ).

## II. Methods

- ❖ **Procedure.** Upon their invitation to visit the Center, patients completed the following self-administered questionnaires:  
the **SF-36** (Physical Component Summary [PCS] + Mental Component Summary [MCS] Scores); the **McGill Pain Questionnaire**, including the Pain Drawing (PD) and the list of pain words (PW) providing sensory and affective descriptors of the pain experience; *Visual Analogue Scales (VAS)* concerning worst, least and present pain intensity; the **Hospital Anxiety and Depression Scale (HADS)**, and classical **sociodemographic** variables.  
The number of PD characteristics (lines, arrows and crosses) was summed as an indicator of the patient's depiction of the extent of pain.
- ❖ **Data analysis.** Descriptive statistics were conducted for continuous variables; Associations between PCS, PD characteristics, PW, VAS and psychological measures were performed with Pearson correlations; linear regression analysis was performed with PCS as the dependent variable.

### III. Results

Physical component of HRQoL and *sociodemographic variables*. Gender, age, education level, and living conditions) and were not related to PCS.

Physical component of HRQoL and *pain duration*. Pain duration was not related to PCS either. Physical component of HRQoL and Pain Drawing characteristics. PCS was positively correlated with Pain Drawing characteristics ( $r=-.240$ ,  $p=0.026$ ), and number of Pain Words used ( $r=-.327$ ,  $p=0.003$ );

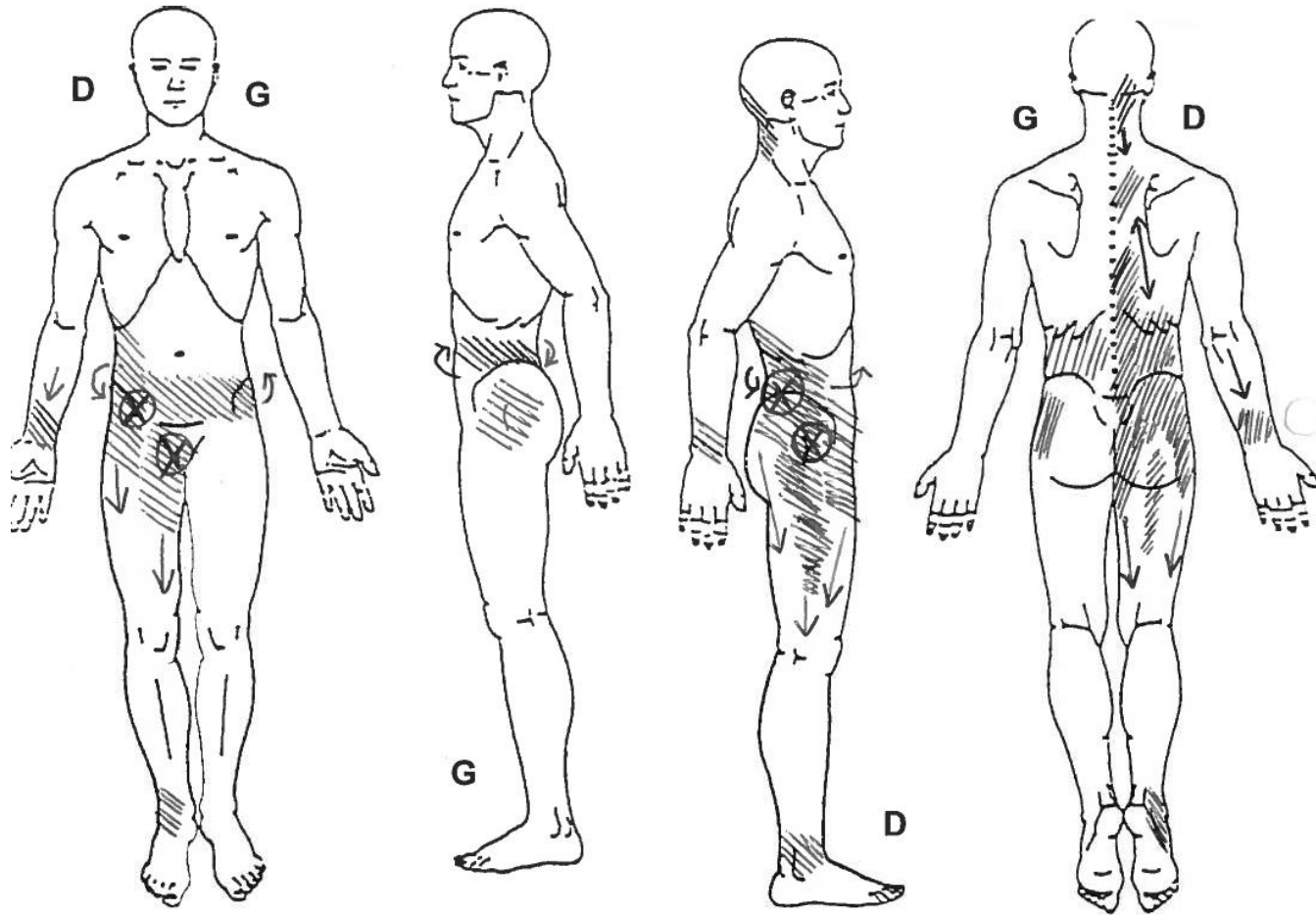
PCS was also positively correlated to HADS Depression subscale ( $r=-.539$ ,  $p=0.000$ ), and pain intensity, i.e., VAS scores ( $r=-.429$ ,  $p=0.000$ ).

PCS and MCS were correlated ( $r=.80$ ,  $p=0.000$ ), indicating multicollinearity.

*Regression analysis*. The final model explained 41.0% of the variance in PCS with those using more Pain Drawing characteristics to describe their pain ( $\beta=-.221$ ;  $p=.027$ ), expressing depression ( $\beta=-.443$ ,  $p=.000$ ) and higher VAS values ( $\beta=-.263$ ,  $p=.009$ ) displaying lower PCS scores (see Figures 1 and 2 below).

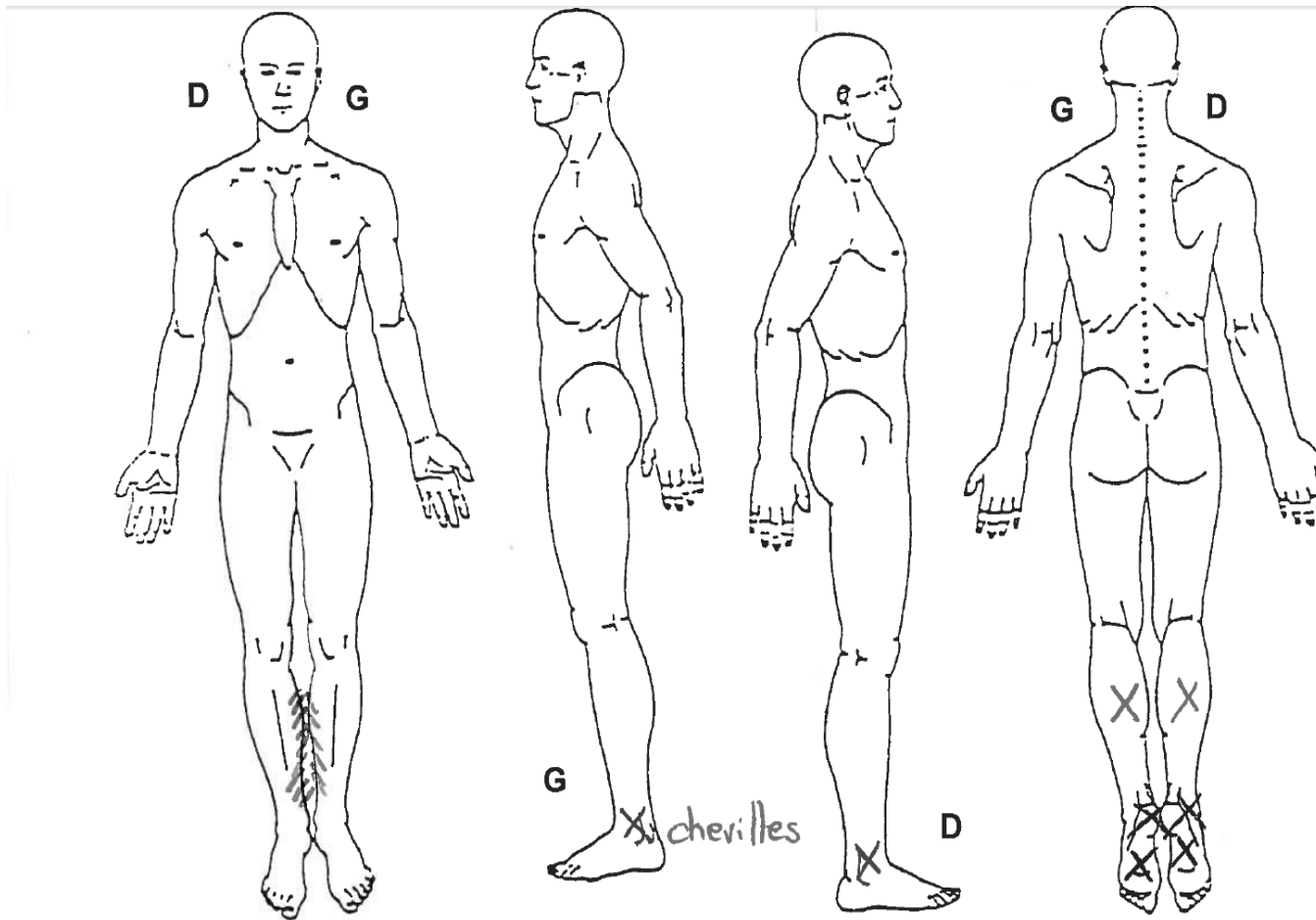
# III. Results

Figure 1. Pain Drawing in a CLBP patient with a low (negative) functional score



# III. Results

Figure 2. Pain Drawing in a CLBP patient with a high (positive) functional score



## IV. Discussion & conclusions

The PCS score of the SF-36 is impacted by graphic, psychological, and numeric aspects of pain assessment, pointing to the contribution of symbolic pain assessment to the understanding of patients' appraisal of their ability to function.

Expressions of pain severity appear to influence the physical score of the SF-36, underscoring by the way the involvement of symbolic pain representations in the patients' appraisal of their functional ability.

The majority of the patients were women. This is somewhat divergent from what is described in the literature. In several studies men comprised the majority of patients. A possible explanation for the higher number of women is that patients were referred to the Pain Center after several years of treatment in the community with no improvement. It is possible that after such a long time women tended to use and adhere to medical services more than men.



## V. Disclosure of interest

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The authors have no conflict of interest to declare

Many thanks for your attention

**EUROSPINE 2017**  **EURO  
SPINE 2017**  
11-13 OCTOBER, DUBLIN, IRELAND