

A CROSS-SECTIONAL STUDY

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INTRODUCTION

- Non-specific low back pain (NSLBP) is a global problem that causes high rates of treatment costs, sick leave, and functional disability. (1-2)
- A smaller portion of sufferers develop chronic pain (CLBP) (3).
- Within CLBP patients, a more complicated group of syndromes called central sensitization syndromes (CSS), may occur (4).
- Research has shown that effective self-management (SM) strategies may be an effective, low-cost approach for the treatment CLBP (5-6).
- Further research is required to see if low SM skills are correlated to acquiring a CSS and worsening severity levels
- This research investigated the correlation between SM and CSS, in order to find the factors that may contribute to the development of CSS in LBP patients.
- A sub-question was conducted in order to see if there was a difference in SM outcomes between patients in better or worse CSI groups.

RESEARCH QUESTION

- What is the correlation between SM and CSS in NSCLBP patients?
- Is there a difference between SM outcomes between patients with better CSI outcomes and worse CSI outcomes?

METHOD

- Design:** Cross-sectional research
- Participants:** 58 patients were originally extracted from the baseline of an e-Exercise trial for LBP. 52 of these patients had complete data and were used for this study
- Inclusion Criteria**
  - 18 years +
  - Must have applied for PT services for non-specific LBP complaints
  - Possess a Smartphone with internet access
  - Live and reside in the Netherlands and speak Dutch
  - They do not possess comorbidities
  - Are not pregnant
- Data Collection:** Signing of informed consent, baseline assessment for obtaining the demographic variables and responses to the central sensitization index (CSI) and Patient Activation Measure (PAM-13) Questionnaires.
- Analysis:** Demographic data was analysed using descriptive statistics and displayed using central tendency measures. The Shapiro Wilk test and visual inspection of the histogram was used for assessing normality of distribution. A Spearman Correlation was used for the main analysis, while a Mann-Whitney-U Test was used for the sub-analysis

RESULTS

Distribution of PAM-13 and CSI Scores	
PAM-13 Total Point Scores (13-52) Activation Level 1 (13 – 35): Overwhelmed and disengaged Activation Level 2 (36 – 38): Becoming aware but still struggling Activation Level 3 (39 – 45): Taking action and achieving many behaviours at guideline level Activation Level 4 (45 – 52): Maintaining behaviours and pushing further	3(5.8%)
	11(21.2%)
	21(40.4%)
	17(32.7%)
CSI Total Point Scores (0 – 100) 0 – 29 Sub-clinical 30 – 39 Mild 40 – 49 Moderate 50 – 59 Severe 60 – 100 Extreme	30(57.7%)
	9(17.3%)
	10(19.2%)
	2(3.8%)
	1(1.9%)
CSI high and low risk sub-categories 0 – 39 Low (lower severity levels of CS and positive outcome scores) 40 – 100 Medium – High (higher levels of CS and negative outcome scores)	39 (75%)
	13(24.9%)

Table 2: Pearson Correlation of PAM-13 and CSI scores (Sample N = 52)		
	Significance	Relationship
PAM-13 Numeric Total Score with CSI Numeric Total Score	p = .150	r = -.202
Abbreviations: (PAM-13) Patient Activation Measure, (CSI) Central Sensitization Index		

- A Spearman Correlation was selected to show a relationship between the patient’s numeric score PAM-13 (13 – 52 points) and CSI (0 – 100 points)
- Mann-Whitney U Test was used to show the difference in SM scores between patients with high and low CSI scores. Therefore, the CSI was divided into two categories: moderate – severe categories (41 – 100) points and subclinical – mild categories, (<40).
- The results of the Spearman correlation test (using  $\alpha = .05$ ) between the CSI and PAM-13 questionnaires showed a statistically non-significant weak correlation ( $r = -.202$ ,  $p = .150$ ). The statistical significance was defined as a p-value less than 0.05. The correlation was statistically insignificant ( $p > .05$ ).

DISCUSSION

- The results of the tests showed a weak, statistically insignificant correlation
- Literature showed that correlations using longitudinal studies, larger patient samples and more evenly distributed data are preferable..
- Literature could only show rough correlations between elements of self-management and chronicity of LBP

Strengths

- Good mix of generalizable demographic variables and patient characteristics
- All questionnaires had high validity and reliability
- Cross-sectional research is cheap, quick and easy
- Appropriate amount of patients used

Limitations

- Some demographic variables were unevenly distributed and might have been confounding
- Questionnaires themselves have inherent weaknesses. Patients don’t always give accurate answers
- The CSI had an uneven distribution of high CS scores and low CS scores

CONCLUSION

This research did not find a statistically significant correlation between SM and CS in CLBP patients, despite literature showing several associations. Several minor design flaws may have influenced this outcome. A longitudinal study is recommended as the preferable method for finding how CS develops in certain individuals in relation to their SM skill. Further research needs to be done in order to find a direct correlation between CS and SM.

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