

# Psychosocial and psychological factors are not related to low back pain in office-workers who develop pain during standing-paradigm: preliminary study

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## Introduction

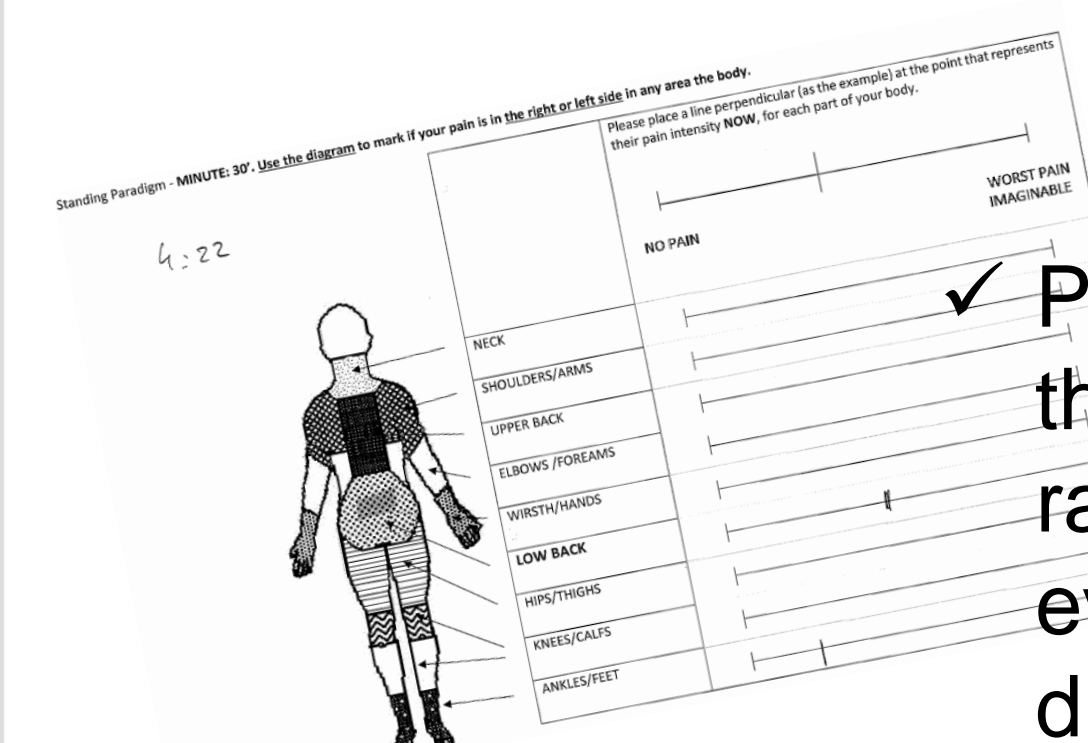
- Low back pain (LBP) is a common and disabling musculoskeletal disorder in working population.
- Prolonged standing is associated with LBP with the focus to date on understanding the biomechanical source of this pain.
- An induced-pain protocol (**standing paradigm**) has been used to examine psychological factors in back-healthy people in previous studies but none have examined the association with **psychosocial factors in office-workers**.

## Purpose

To examine: **1)** the relationship between group status (those who did and did not develop LBP during standing) and workplace psychosocial factors, and individual psychological factors; **2)** the relationship between intensity of LBP during standing and workplace psychosocial and individual psychological factors.

## Participants

- ✓ **32 office-workers**, who perform more than 30 hours per week mostly sitting at a computer were recruited.



- ✓ Participants completed their own work and rated their LBP intensity every 15 minutes during the **one-hour standing-paradigm**.

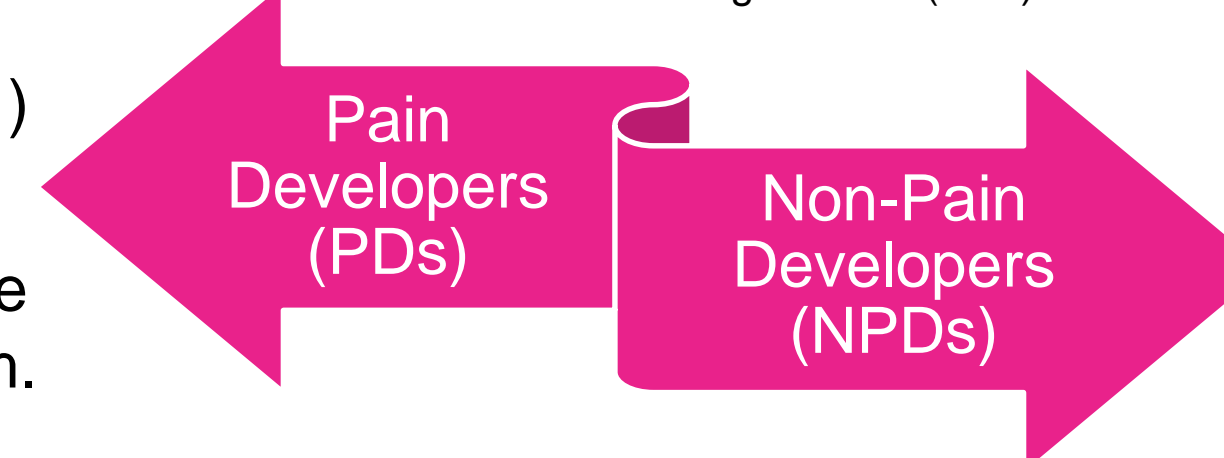
## Methods

- A cross-sectional laboratory-based study.
- Demographic, anthropometric, physical activity levels (IPAQ Questionnaire), and previous episode of LBP data was collected.

- Primary outcomes:

- Group status based on change in LBP score (VAS) (fig. 1)
- Change in LBP intensity during the standing-paradigm.

Figure 1. Group status based on change on a 100-mm visual analogue scale (VAS)



- Secondary outcome:

<b>Abbreviated Job Content Questionnaire (JCQ)</b>	Job Control: job skill discretion + job decision authority (24-96) Psychological Job Demand (3-12) Social Support (4-16) Physical Demand (2-8)
<b>Satisfaction Job</b>	1 question
<b>Pain Catastrophizing Scale (PCS)</b>	PCS-Rumination (0-16) PCS-Magnification (0-12) PCS-Helplessness (0-24) PCS-score total (0-52)
<b>SF-12 questionnaire</b>	Mental Component Summary (MCS) (50±10)

- Data analysis: independent t-test and Chi Square to test for differences PDs vs NPDs at baseline. Pearson correlation coefficients for VAS and JCQ, PCS and MCS. Logistic regression modelling, an stepwise procedure considering the predictor variables one-by-one. Statistical significance:  $p \leq 0.05$ .

## Results

- There were 14 (43.8%) PDs.
- The mean maximum LBP reported by PDs was 26 mm (range 4 to 59 mm).
- There were no significant differences at baseline for age, BMI, and physical activity levels between the PDs vs NPDs and nor any significant differences for any workplace psychosocial or psychological measures (Table 1).

## Results

Table 1. Participant characteristics at baseline and difference between NPDs and PDs

Variables	ALL Mean (SD)	NPDs Mean (SD)	PDs Mean (SD)	p-value
Age	38.7 (10.7)	36.3 (10.1)	41.7 (11.2)	0.17
BMI	26.3 (5.6)	25.7 (3.9)	26.98 (7.3)	0.56
IPAQ-MET/min/week	2505.1 (1760)	2580.2 (1748.1)	2392.5 (1850)	0.78
JCQ-Job Control	87.3 (10.5)	86.7 (10.4)	88.1 (10.9)	0.70
JCQ-Psychological demand	9.4 (2.4)	9.8 (2.4)	8.9 (2.4)	0.26
JCQ-Social Support	15.7 (2.5)	15.8 (2.5)	15.6 (2.6)	0.88
JCQ-Physical demand	2.6 (1.1)	2.6 (1.1)	2.6 (1.2)	0.94
Job Satisfaction	5.3 (1.1)	5.3 (1.2)	5.2 (1.0)	0.87
PCS-Rumination	4.0 (3.7)	3.7 (3.9)	4.4 (3.5)	0.63
PCS-Magnification	1.9 (1.7)	1.7 (1.5)	2.1 (1.9)	0.50
PCS-Helplessness	3.6 (4.2)	3.2 (4.4)	4.1 (4.1)	0.52
PCS-Total Score	9.5 (8.4)	8.6 (8.4)	10.6 (8.5)	0.51
MCS (SF-12)	46.6 (10.3)	44.3 (11.2)	49.6 (8.5)	0.14

- Correlations between VAS and each psychosocial (JCQ) and psychological measures (PCS, MCS) were small and not significant (fig. 2 and 3).



Fig 2. Pearson correlation coefficients for VAS and JCQ

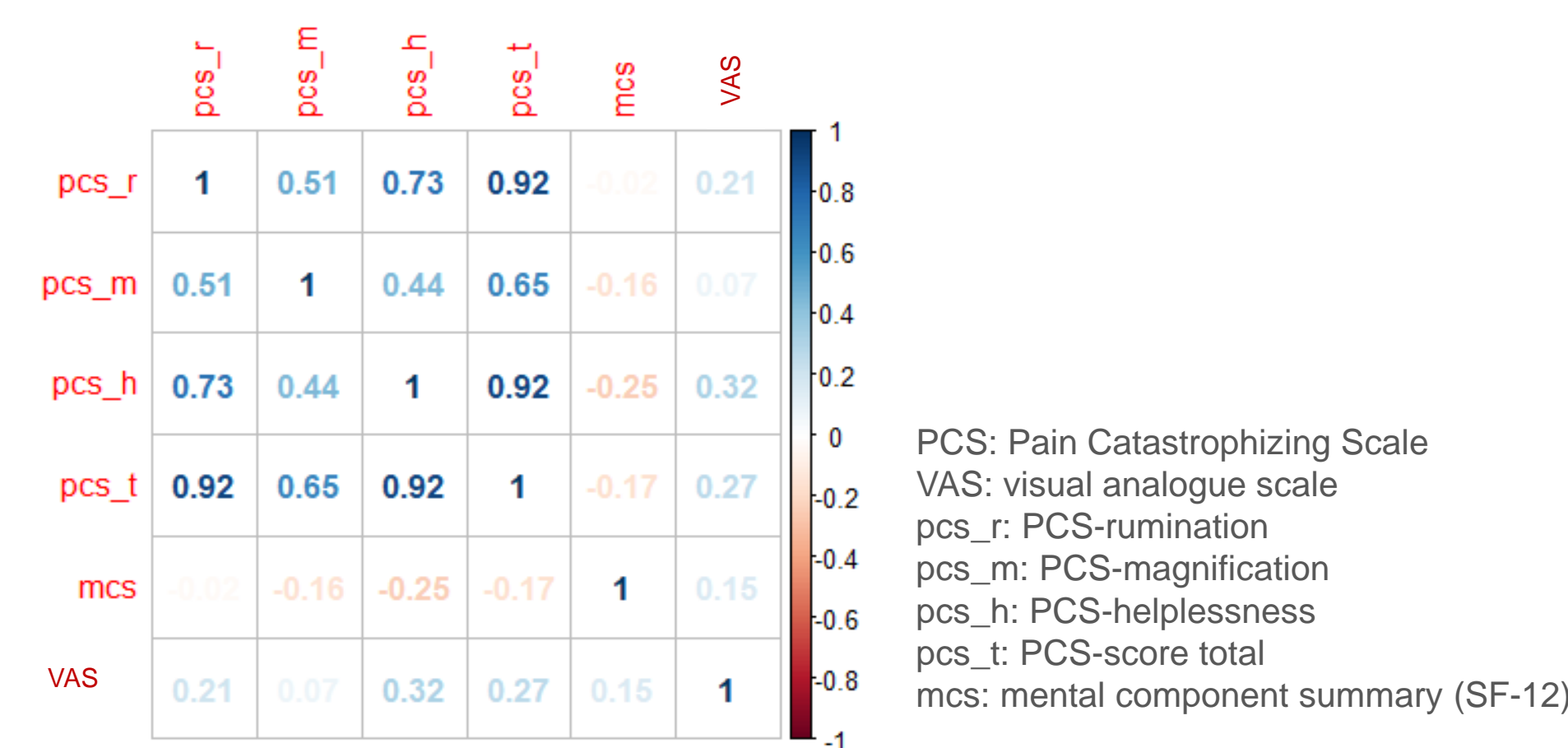


Fig 3. Pearson correlation coefficients for VAS and PCS and MCS

- Regression modelling showed that sex ( $p=0.01$ ), lifetime episode of LBP ( $p=0.04$ ) and LBP-last month ( $p \leq 0.01$ ) predicted PD status.

## Discussion & Conclusions

These results suggest that in office-workers baseline psychosocial and psychological status do not differentiate who will develop LBP during standing.

LBP intensity was not related to workplace psychosocial nor individual psychological status. Only sex and previous history of LBP identified those who developed LBP during the standing-paradigm.

## Recommendations

Baseline psychosocial and psychological status may not provide insight into office workers at risk for developing LBP during a standing-paradigm.

## References

- Hwang CT, Van Dillen LR, Haroutounian S. Do Changes in Sensory Processing Precede Low Back Pain Development in Healthy Individuals? Clin J Pain. 2018;34(6):525-531.
- Sorensen CJ, George SZ, Callaghan JP, Van Dillen LR. Psychological Factors Are Related to Pain Intensity in Back-Healthy People Who Develop Clinically Relevant Pain During Prolonged Standing: A Preliminary Study. PM R. 2016;8(11):1031-1038.

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