



## THE PAIN CATASTROPHIZING SCALE: HOW TO MAKE A LONG STORY SHORT G. Matis, A. Chatzikalfas, G. Bara, V. Visser-Vandewalle, A. Koulousakis

### Objectives:

The **Pain Catastrophizing Scale** was developed in 1995 with the aim to facilitate research on the mechanisms by which catastrophizing impacts on pain experience. It comprises 13 statements (S)/items which constitute three subscales (helplessness: S1-5 & 12; magnification: S6-7 & 13; rumination: S8-11). The total score ranges from 0 (lack of catastrophic thinking) to 52 (exaggerated catastrophic thinking). The scope of this study is to seek underlying latent variables that are reflected in the manifest variables and minimize the required number of PCS-S.

### Methods:

Ten patients with failed back surgery syndrome treated with a spinal cord stimulation (SCS) system were asked to fill in the PCS questionnaire. Using Principal Component Analysis (PCA) and Kaiser normalization (Varimax rotation), summated scales were formed and tested for internal consistency using Cronbach's alpha coefficient. A S had to present a correlation limit >0.5 in order to become a part of a summated scale. The differences in correlation coefficients of each S with different components (factor loadings) should be >0.2. Cronbach's coefficient should be >0.7. The threshold p-value for statistical significance (2-sided) was set at 0.05. All tests were performed with IBM® SPSS® v.19 (Armonk, NY: IBM Corp.).

### Results:

Mean values and ranges: age (54.1±4.2, 38-74), PCS (41.4±1.22, 33-46), VAS-Baseline (8±0.28, 6.5-9). The Kaiser-Meyer-Olkin measure of sampling adequacy gave a value of >0.7. Five components were found which constructed five scales. The first (S8), second (S1 & S10), third (S6 & S12), fourth (S2 & S9) and fifth (S7) component (C) explained 33.944%, 25.267%, 13.909%, 11.009% and 8.027% of total variance respectively (cumulative: 92.155%). S3-5, S11, and S13 gave similar factor loadings and were excluded from further analysis. The reliability analysis excluded (S6 & S12) (Cochran's Q=1.8, p=0.18) and (S2 & S9) (Cochran's Q: 1.286, p=0.257). In the end, three components remained: C1 (S8), C2 (S1 & S10; Cronbach's a=0.76), and C5 (S7). The rumination subscale is better represented with 2 items (S8 & S10). The helplessness and the magnification subscales contain 1 item each (S1 & S7).

### Conclusions:

The results suggest that a simpler PCS version is possible incorporating only four out of the initial 13 S: "I worry all the time about whether the pain will end"; "I keep thinking of other painful events"; "I anxiously want the pain to go away"; "I keep thinking about how much it hurts". Further research is warranted to elucidate how these findings could be applied in larger samples promoting pain research for the benefit of chronic pain patients.



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**PCS**

Client No.: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: M( ) F( ) Date: \_\_\_\_\_

Everyone experiences painful situations at some point in their lives. Such experiences may include headaches, tooth pain, joint or muscle pain. People are often exposed to situations that may cause pain such as illness, injury, dental procedures or surgery.

We are interested in the types of thoughts and feelings that you have when you are in pain. Listed below are thirteen statements describing different thoughts and feelings that may be associated with pain. Using the following scale, please indicate the degree to which you have these thoughts and feelings when you are experiencing pain.

0 – not at all    1 – to a slight degree    2 – to a moderate degree    3 – to a great degree    4 – all the time

When I'm in pain ...

- 1  I worry all the time about whether the pain will end.
- 2  I feel I can't go on.
- 3  It's terrible and I think it's never going to get any better.
- 4  It's awful and I feel that it overwhelms me.
- 5  I feel I can't stand it anymore.
- 6  I become afraid that the pain will get worse.
- 7  I keep thinking of other painful events.
- 8  I anxiously want the pain to go away.
- 9  I can't seem to keep it out of my mind.
- 10  I keep thinking about how much it hurts.
- 11  I keep thinking about how badly I want the pain to stop.
- 12  There's nothing I can do to reduce the intensity of the pain.
- 13  I wonder whether something serious may happen.

... Total

**Reference:** Sullivan M J L, Bishop S, Pivik J. The Pain Catastrophizing Scale: Development and validation. Psychol Assess 1995, 7: 524-32.

