



FACTOR STRUCTURE AND VALIDATION OF THE GERMAN VERSION OF THE PAIN ANXIETY SYMPTOMS SCALE (PASS-20)



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Introduction:

Pain-related anxiety plays a significant role in pain and disability, as it has been suggested as an influence on cognitive and coping responses to pain¹. While avoidance behavior has often been shown as a response to pain anxiety, the question arises whether pain anxiety may also be associated with pain-related endurance, such as cognitions of thought suppression, humor/distraction, and task persistence behavior.

The PASS-20 assesses cognitive, physiological and behavioral aspects of pain-related anxiety, such as cognitive anxiety, fear, physiological anxiety and escape/avoidance. The aim of this study was twofold:

(1) To examine the factor structure and the psychometric characteristics of a German version of the PASS-20 in a sample of low back pain (LBP) patients, and (2) to examine aspects of criterion-related and content validity with a special focus on pain-related avoidance versus endurance.

Methods:

Sample

192 patients with low back pain (81,5% chronic), 54% were female; mean age was 42.5 years (SD = 11.3); mean pain duration was 6.2 years (SD = 8.5).

Measures

A German version of the PASS-20 (PASS-20-DE) was created via forward-backward translation of the original 20 items.

Pain Intensity: NRS-Scale (0-10)

Pain Anxiety: Pain Anxiety Symptoms Scale (PASS), Tampa Scale of Kinesiophobia (TSK-DE)

Avoidance/Endurance: Avoidance-Endurance Questionnaire (AEQ)

Depression: Beck Depression Inventory (BDI)

Disability: Pain Disability Index (PDI, Oswestry Disability Scale)

Statistical Analysis

The factor structure was assessed by Principal Component Analysis (PCAs) with oblique rotation (Promax). We examined the eigenvalues and Cattell's Scree Test to decide which factors to retain. Cronbach's Alpha was calculated for the PASS-20's total score and for all subscales. Convergent, divergent and criterion-related validity were examined by calculating Pearson's Product Moment Correlations.

Results:

Factor structure

4 factors were identified, explaining 56.26% of the variance.

Factor	Eigenvalues	Items (numbers of the original PASS)
Cognitive Anxiety	7.11	14, 22, 25, 26, 34, 37
Fear	1.48	1, 5, 21, 33
Physiological Anxiety	1.35	12, 17, 24, 32, 36
Escape/Avoidance	1.31	7, 15, 19, 23, 39

Item distribution

Our study showed a very similar factor structure and item distribution to the one originally proposed for the PASS-20². In cases of deviations (loadings on multiple factors), we calculated subscale reliability analyses to find the best fit for the item and also examined the item's face validity. Only item 25 did not fit the original structure and was assigned to another factor (*Cognitive Anxiety* instead of *Fear*).

Reliability

Scale	Items	Means	SD	Cronbach's Alpha
Total Score	20	32.17	15.82	.90
Cognitive Anxiety	6	13.33	6.26	.84
Fear	4	5.07	4.18	.77
Physiological Anxiety	5	5.04	4.42	.75
Escape/ Avoidance	5	8.67	4.41	.66

Validity

Content. The PASS-20-DE's total score and subscales showed highly significant correlations with all measures of pain anxiety, depression and the AEQ fear-avoidance subscales. Concerning endurance, humor/distraction as one of the behavioral endurance scores was negatively related to all PASS-20 scores. In contrast, pain persistence was negatively related to escape/avoidance, but unrelated to the affective components of the PASS-20. Thought Suppression was completely unrelated.

Criterion-related. The PASS-20 scores were moderately positive related to depression but unrelated to pain.

	PASS-20-DE Cognitive Anxiety	PASS-20-DE Fear	PASS-20-DE Physiological Anxiety	PASS-20-DE Escape/Avoidance	PASS-20-DE Total score
Depression					
BDI	r= .450**	r= .330**	r= .439**	r= .197**	r= .443**
Fear of Pain					
TSK	r= .434**	r= .517**	r= .329**	r= .433**	r= .524**
Disability					
Oswestry	r= .266**	r= .260**	r= .308**	r= .386**	r= .379**
PDI	r= .329**	r= .257**	r= .298**	r= .360**	r= .387**
Fear-Avoidance (AEQ)					
Anxiety/Depression	r= .534**	r= .389**	r= .407**	r= .295**	r= .515**
Help-/Hopelessness	r= .527**	r= .501**	r= .336**	r= .326**	r= .527**
Catastrophizing	r= .313**	r= .431**	r= .382**	r= .313**	r= .437**
Avoidance of social activities	r= .343**	r= .222**	r= .318**	r= .479**	r= .420**
Avoidance of physical activities	r= .249**	n.s.	n.s.	r= .535**	r= .306**
Endurance (AEQ)					
Positive mood	r= -.424**	r= -.309**	r= -.300**	r= -.279**	r= -.412**
Thought suppression	n.s.	n.s.	n.s.	n.s.	n.s.
Behavioral endurance	r= -.276**	r= -.171*	r= -.144*	r= -.422**	r= -.312**
-Humor/ distraction	r= -.327**	r= -.227**	r= -.187**	r= -.391**	r= -.350**
-Pain persistence	r= -.172*	n.s.	n.s.	r= -.351**	r= -.209**

Conclusions:

Factor structure

The data of this study show an excellent fit for the factor structure and item distribution originally proposed for the PASS-20². The statistical characteristics prove its usefulness.

Validity

The criterion-related validity of the PASS-20 was supported for disability as outcome variables, while pain anxiety was largely unrelated to pain. With respect to content validity, there is substantial evidence for high convergent validity (correlations with depression, fear of pain and fear-avoidance variables). Distinct relations were found for cognitive and behavioral endurance variables. The results indicate that the German version of the PASS-20 is a reliable and valid measure for pain-related anxiety.

Literature:

¹ McCracken LM, Gross RT. Does anxiety affect coping with chronic pain? Clin J Pain. 1993;9(4):253-9.

² McCracken LM, Dhingra L. A short version of the Pain Anxiety Symptoms Scale (PASS-20): preliminary development and validity. Pain Res Manag. 2002;7(1):45-50.