Psychometric Properties of the PASS-20: Normative Data with a Non-clinical Sample

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Introduction

• The Pain Anxiety Symptoms Scale-20 (PASS-20; McCracken & Dhingra, 2002) is a 20 item instrument, which measures four factorially distinct components of pain-related anxiety:
- cognitive
- Fear
- escape/avoidance
- physiological

• For samples experiencing chronic pain the PASS-20 has demonstrated good factor stability, reliability, and internal consistency (Coons, Hadjistavropoulos, & Asmundson, 2004)

• For non-clinical samples the PASS-20 has confirmed that fear of pain manifests in both those with and without chronic pain (e.g., Asmundson & Carleton, 2005), however normative psychometric data for healthy controls have yet to be established

• The purpose of this study was to perform a confirmatory factor analysis (CFA) of the PASS-20 with a sample of healthy pain-free individuals in order to establish normative psychometric data for subsequent comparative purposes

Method

• Participants were 176 undergraduates who completed the PASS-20 as part of a larger study. None of them reported current pain or a history of chronic pain

- 55 men, ages 18 - 31 (M = 21.0; SD = 3.0)
- 121 women, ages 17 - 45 (M = 20.7; SD = 4.7)

• Factorial validity was established with confirmatory factor analysis (CFA) comparing the proposed four-factor structure (McCracken & Dhingra, 2002) to a unitary model using a non-clinical sample

• Model fit was evaluated using indices as suggested by Hu and Bentler (1999):

1) Chi-square/df ratio (values should be < 2.0)
2) Comparative Fit Index (CFI; values should be close to .95)
3) Root Mean Square Error of Approximation (RMSEA; values should be close to .06)
4) Standardized Root Mean Square Residual (SRMR; Values should be close to .08)
5) Expected Cross Validation Index (ECVI, lower values indicate better fit; Brown & Cudeck, 1993)

• Descriptive statistics were assessed for the total measure, each of the subscales, along with an item by item reliability analysis (Tables 1 & 2)

Results

• The CFA testing a unitary factor structure resulted in unacceptable fit indices

- χ^2/df = 3.89
- CFI = .89
- RMSEA = .15
  90% confidence intervals of .14 and .16
- SRMR = .09
- ECVI = 5.11
  90% confidence intervals of 4.62 and 5.64

• The CFA testing the proposed 4-factor structure resulted in acceptable fit indices

- χ^2/df = 2.03
- CFI = .96
- RMSEA = .08
  90% confidence intervals of .07 and .09
- SRMR = .06
- ECVI = 2.46
  90% confidence intervals of 2.19 and 2.78

• As expected, t-test comparisons demonstrated the clinical sample from McCracken and Dhingra (2002) reported significantly more fear on each subscale than our sample of healthy controls (Table 2)

• Inter-factor correlations are presented in Figure 2

Discussion

• CFA results confirm that pain-free individuals exhibit pain-related anxiety, but, as would be expected, to a lesser degree than clinical pain populations

• Comparisons of subscale means with a clinical sample revealed significant differences on all four domains
- The escape/avoidance subscale accounted for the largest amount of variance

• In line with expectations, people with no history of pain are less likely to endorse escape and avoidance pain behaviours relative to those suffering from chronic pain

• The findings of this study are limited in that the current sample consists only of undergraduate students; further verification of normative data is warranted with other, more demographically and culturally diverse samples

• Additional research should explore test re-test reliability and predictive diagnostic utility

• Future longitudinal research should determine whether relative elevations in PASS-20 subscales is indicative of specific vulnerabilities for chronic pain

• Establishing normative psychometric data for the PASS-20 provides a basis for general assessment and comparison with various clinical populations

Table 1a. PASS-20 Items

Cognitive Factor	M	SD	CITC	α*
1. I can't think straight when in pain	1.89	1.26	0.67	0.91
2. During painful episodes it is difficult for me to think of anything besides the pain	1.90	1.31	0.70	0.91
3. When I hurt I think about pain constantly	1.73	1.23	0.71	0.91
4. I find it hard to concentrate when I hurt	1.99	1.25	0.70	0.91
5. I worry when I am in pain	1.71	1.39	0.72	0.91

Escape/Avoidance Factor	M	SD	CITC	α*
6. I go immediately to bed when I feel severe pain	1.32	1.32	0.43	0.91
7. I will stop any activity as soon as I sense pain coming on	1.13	1.09	0.41	0.91
8. As soon as pain comes on I take medication to reduce it	1.44	1.34	0.40	0.91
9. I avoid important activities when I hurt	1.22	1.06	0.49	0.91
10. I try to avoid activities that cause pain	1.40	1.44	0.37	0.92

CITC = Corrected Item Total Correlations
* Scale α if item deleted

Table 1b. PASS-20 Items

Fear Factor	M	SD	CITC	α*
11. I think that if my pain gets too severe, it will never decrease	1.02	1.23	0.61	0.91
12. When I feel pain I am afraid that something terrible will happen	0.95	1.04	0.61	0.91
13. When I feel pain I think I might be seriously ill	0.95	1.05	0.69	0.91
14. Pain sensations are terrifying	0.88	0.90	0.62	0.91
15. When pain comes on strong I think that I might become paralyzed or more disabled	0.37	0.74	0.46	0.91

Physiological Anxiety	M	SD	CITC	α*
16. I begin trembling when engaged in an activity that causes pain	0.61	1.01	0.42	0.91
17. Pain seems to cause my heart to pound or race	1.20	1.15	0.55	0.91
18. When I sense pain I feel dizzy or faint	0.90	1.13	0.55	0.91
19. Pain makes me nauseous	0.98	1.13	0.59	0.91
20. I find it difficult to calm my body down after periods of pain	1.05	1.09	0.67	0.91

Table 2. Total and Subscale Comparisons

	Healthy Controls			Clinical[†]			Comparisons			
	Mean	SD	α	Mean	SD	α	t	p	r²	
Cognitive	9.22	5.59	.92	12.27	6.73	.86	4.62	< .01	.04	
Escape/Avoidance	6.51	4.09	.66	12.84	6.11	.75	11.42	< .01	.22	
Fear	4.17	3.89	.83	7.37	6.38	.82	5.68	< .01	.07	
Physiological Anxiety	4.74	4.20	.82	6.15	5.69	.81	2.64	< .01	.02	
Total	24.64	14.41	.92	38.62	20.38	.91	7.43	< .01	.11	

[†] As reported in McCracken & Dhingra (2002), p values indicate one-tailed tests

Figure 1: Normative Subscale Correlations