

Assessing anxiety and depression with the Personality Assessment Inventory in persons with musculoskeletal injuries: Concurrent validity with the PASS-20 and the CES-D

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Introduction

- The Personality Assessment Inventory (PAI; Morey, 1991) is a common measure used in the assessment of patients with chronic pain. As a general measure of personality, the PAI facilitates the identification of factors, including anxiety and depression, which may influence the treatment and course of chronic pain.
- To date, only one study has examined the psychometric properties of the PAI with a sample of chronic pain patients (Karlin et al., 2005). Concurrent validity of PAI depression and anxiety scales with other established measures was not assessed and further research is necessary to establish the validity of PAI depression and anxiety scales for use in persons with chronic pain.
- The current study examined concurrent validity of the PAI anxiety and depression scales with related measures commonly used in the assessment of persons with chronic musculoskeletal pain. These measures included the *Pain Anxiety Symptoms Scale-20* (PASS-20; McCracken & Dhingra, 2002) and the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977).

Method

- Participants were consecutive patients with musculoskeletal injuries ($N=103$; 52% male; Mean age=41.48, $SD=12.23$) referred for multidisciplinary assessment at a rehabilitation clinic. As part of standard intake procedures, participants completed the PAI, PASS-20, and CES-D.
- Measures
 - The PAI (Morey, 1991) is a 344-item self report measure that assesses personality and psychopathology. The PAI includes validity, clinical, treatment, and interpersonal scales. PAI validity and reliability have been demonstrated in normative, college, and clinical samples (Desinger, 1995; Morey, 1991).
 - The CES-D (Radloff, 1977) is a 20-item measure of depressive symptoms. It is widely used in research and clinical settings and has well established psychometric properties.
 - The PASS-20 (McCracken & Dhingra, 2002) is a 20-item self report measure that assesses 4 distinct aspects of pain-related anxiety. It has well established psychometric properties in both clinical (e.g., Coons et al., 2004) and non-clinical samples (Abrams et al., 2007)
- Correlational analyses were conducted to assess concurrent validity of PAI Anxiety, Anxiety-related disorder, and Depression scales with the PASS-20 and CES-D. PAI Impression scale scores were also assessed in relation to these measures.

Results

- Moderate to high correlations (Cohen, 1988) were found between PAI Anxiety scales (ANX) and PASS-20 subscales (see Table 1). Correlations were highest for PASS-20 cognitive, fear, and physiological anxiety subscales. This pattern was robust across the ANX subscales (i.e., cognitive, affective, physiological). ANX scales were moderately to highly correlated with the CES-D.
- PAI Anxiety-related disorder (ARD) subscale correlations were not consistently correlated with the PASS-20 subscales suggesting some specificity (see Table 1). PASS-20 subscales were not associated with the ARD Obsessive-Compulsive scale. The ARD Phobias subscale was associated only with PASS-20 fear and physiological anxiety subscales, and the ARD Traumatic-Stress scale was associated with all PASS-20 subscales except escape/avoidance. ARD scales were moderately correlated with the CES-D.
- High correlations were found between PAI Depression scales (DEP) and the CES-D; moderate to high correlations were found between PAI DEP scales and PASS-20 subscales with the exception of the PASS-20 escape/avoidance scale (see Table 2).
- Moderate to high correlations between PAI Positive and Negative Impression scales (PIM, NIM) and the CES-D and PASS-20 were in the directions expected (see Table 3).

Discussion

- The PAI is gaining use in the assessment of persons with chronic musculoskeletal pain, in part, because it contains validity and impression scales, which can provide information to address the possible involvement of issues of secondary gain. Moreover, results on these scales inform the interpretation of other measures and interview data.
- Results of correlational analyses support the validity of PAI anxiety and depression scales. Additionally, the results indicate the specificity of the PAI Anxiety-Related Disorder subscales.
- PAI DEP scales were consistently and robustly associated with scores on the CES-D and, to a lesser degree, PASS-20 subscales (with the exception of escape/avoidance), providing indications of concurrent validity,.
- Overall, the findings support the general utility of the PAI for the assessment of anxiety and depression in persons recovering from musculoskeletal injuries. PAI anxiety scales are unlikely to supplant the PASS-20, which specifically targets pain-related anxiety; however, administering the PAI provides a range of information that is unobtainable with brief measures.
- Continued research is needed to assess the predictive utility of PAI clinical and treatment scales for course of recovery in persons with chronic musculoskeletal pain.

Table 1. PAI Anxiety (ANX) and Anxiety-Related Disorder scale correlations with CES-D and PASS-20

	CES-D	PASS-20 cog	PASS-20 esc/av	PASS-20 fear	PASS-20 phys/anx
ANX (Anxiety)	.56**	.62**	.39**	.60**	.67**
<i>N</i>	92	101	103	100	100
ANX-C (Cognitive Anxiety)	.60**	.54**	.30*	.61**	.60**
<i>N</i>	56	63	65	62	63
ANX-A (Affective Anxiety)	.65**	.38**	.33**	.49**	.60**
<i>N</i>	56	63	65	62	63
ANX-P (Physiological Anxiety)	.51**	.50**	.33**	.57**	.67**
<i>N</i>	56	63	65	62	63
ARD (Anxiety-Related Disorders)	.48**	.43**	.28**	.46**	.50**
<i>N</i>	92	101	103	100	100
ARD-O (Obsessive-Compulsive)	.32*	.07	.04	.04	.25
<i>N</i>	56	63	65	62	63
ARD-P (Phobias)	.35**	.21	.15	.53**	.45**
<i>N</i>	56	63	65	62	63
ARD-T (Traumatic stress)	.46**	.48**	.20	.40**	.36**
<i>N</i>	56	63	65	62	63

*Significant at the .05 level; **significant at .01 level (2 tailed)

Table 2. PAI Depression scale correlations with CES-D and PASS-20

	CES-D	PASS-20 cog	PASS-20 esc/av	PASS-20 fear	PASS-20 phys/anx
PAI Depression scales					
DEP (Depression)	.65**	.62**	.35**	.60**	.62**
<i>N</i>	92	101	103	100	100
DEP-C (Cognitive Depression)	.52**	.47**	.17	.56**	.49**
<i>N</i>	56	63	65	62	63
DEP-A (Affective Depression)	.78**	.55**	.26*	.50**	.56**
<i>N</i>	56	63	65	62	63
DEP-P (Physiological Depression)	.58**	.45**	.27	.36**	.39**
<i>N</i>	56	63	65	62	63

*Significant at the .05 level; **significant at .01 level (2 tailed)

PASS-20 subscales: cog = cognitive; esc/av = escape avoidance; phys/anx = physiological anxiety

Table 3. PAI Impression scale correlations with CES-D and PASS-20

	CES-D	PASS-20 cog	PASS-20 esc/av	PASS-20 fear	PASS-20 phys/anx
NIM (Negative Impression)	.63**	.44**	.17	.42**	.49**
<i>N</i>	92	101	103	100	100
PIM (Positive Impression)	-.40**	-.40**	-.20*	-.27**	-.41**
<i>N</i>	92	101	103	100	100

*Significant at the .05 level; **significant at .01 level (2 tailed)