



Validity of the Somatic Complaints Scales of the MMPI-2-RF in an Outpatient Chronic Pain Clinic

Lauren D. Mickens, B.A.,¹ Duyen M. Nghiem, M.A.,¹ Dustin Wygant, Ph.D.,² & Ryan J. Marek, Ph.D.¹
¹University of Houston-Clear Lake; ²Eastern Kentucky University



Introduction

Background:

- Chronic pain is a significant medical concern associated with many different physical and mental health issues (Dueñas et al., 2016).
- Accurately assessing the psychological functioning of patients may result in the patient attaining treatment that is beneficial in addressing and reducing chronic pain, especially in cases where psychopathology precedes or coexists with chronic pain.
- Previous studies have shown correlations exist between chronic pain and different forms of psychopathology like depression, substance use, and somatization disorders (Marek, Anderson, et al., 2020; Von Korff et al., 2005).
- Research has shown somatization tends to predict poorer treatment outcomes in chronic pain settings (Block et al., 2017; Marek, Block, et al., 2015; Marek et al., 2019). More specifically, somatization (i.e., physical symptoms present that result in an individual having excessive distress regarding their medical conditions) tends to predict poorer treatment outcomes within chronic pain settings.
- Data regarding gender differences within this population are mixed, with some studies reporting women experience higher levels of somatization compared to their male counterparts. (Barsky et al., 2001; Bragazzi et al., 2014; Ladwig et al., 2001; Ladwig et al., 2000). Other researchers have suggested gender differences may be negligible (Delisle et al., 2012; Marek, Anderson, et al., 2020).
- The MMPI-2-RF (Ben-Porath & Tellegen, 2008/2011; Tellegen & Ben-Porath, 2008/2011) is commonly used across medical settings and measures several domains related to psychopathology, including somatization. (Marek & Ben-Porath, 2017).

Objective:

- The current investigation sought to cross-validate the Somatic/Cognitive Specific Problems Scales of the MMPI-2-RF by examining associations between the MMPI-2-RF Somatic Complaints Scales with symptom counts of somatization-related disorders derived from a structured psychodiagnostic instrument and other self-report measures more narrowly focused to assess somatization.

Methods

Participants:

- Participants included 230 patients who were seeking outpatient treatment for chronic low back pain.
- Demographic information regarding participants consisted of 58.5 % women and 41.5% men – with a mean education level of 13.24 years (SD= 3.27).
- The majority of the sample identified as being White (96.0%) whereas 3% identified as being Black, .5% identified as being Asian American, and .5% reported being of another ethnicity.
- The sample had a mean age of 50.12 years old (SD = 14.39) and reported an average of 12.83 years of education (SD = 2.07).
- Use of this database was approved by the third author's Institutional Review Board and patients provided consent at the time of their evaluation that their archival data could be used for research.

Measures:

- Minnesota Multiphasic Personality Inventory – 2 – Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008/2011; Tellegen & Ben-Porath, 2008/2011).** The MMPI-2-RF is comprised of 338 items scored on nine protocol validity scales and 42 substantive scales. The MMPI-2-RF captures a broad range of psychological functioning, including internalizing, externalizing, thought disorder, interpersonal, and somatization. Notably, the scale scores of the MMPI-2-RF yield good reliability and validity (including convergent, discriminant, and predictive validity) coefficients when used with chronic low back pain patients (Marek, Anderson, et al., 2020; Tarescavage, 2015; Tarescavage et al., 2015).
- Pain Disability Index (PDI; Pollard, 1984).** The PDI is a 7-item, self-report measure that assesses how pain disrupts various domains of functioning (e.g., social activity, responsibilities). In the current sample, Cronbach's alpha was equal to .88 (mean inter-item correlation = .51) indicating good reliability.
- Modified Somatic Perception Questionnaire (MSPQ; Main, 1983).** The MSPQ is a 13-item, self-report measure that assesses somatic and autonomic perception in patients with chronic pain. In the current sample, Cronbach's alpha was equal to .84 (mean inter-item correlation = .29) indicating good reliability.
- Structured Clinical Interview for DSM-IV-TR Disorders: Somatoform Disorders Module (SCID; First et al., 2002).** The SCID is a structured clinical interview to aid in formulating reliable psychiatric diagnosis consistent with the DSM-IV-TR (APA, 2000). For the current study, only the somatoform disorders module was utilized. A symptom count variable was used with the more symptoms reported indicating more severe somatization.

Procedure:

- Data were drawn from a retrospective, deidentified database. Patients consented to have their clinical data used archivally for research purposes.
- Participants were administered the MMPI-2-RF, PDI, MSPQ, and SCID somatoform disorders module as part of their routine clinical evaluations.
- Means and standard deviations between gender were calculated for the MMPI-2-RF Somatic Scales Scores. Zero-order and partial correlations (controlling for gender) were then calculated between the MMPI-2-RF Somatic Complaints Scales with symptom counts of somatization-related disorders derived from the SCID and other self-report measures.

Results

Data Analysis:

- Women tended to score higher on a number of MMPI-2-RF Somatic/Cognitive scales, including Somatic Complaints, Head Pain Complaints, and Cognitive Complaints. These differences yielded small to medium effect sizes (see Table 1).
- The Somatic Complaints scale scores were positive and modestly associated with PDI scores and SCID somatization symptom count. A substantial association was founded between Somatic Complaint scale scores and MSPQ scales scores (see Table 2).
- After controlling for gender, associations between the MMPI-2-RF Somatic/Cognitive scales and the SCID and other self-report measures did not reduce in effect size.

Table 1.

Sample Means and SDs of MMPI-2-RF Scale Scores by Gender

MMPI-2-RF Scale Scores	Men (n = 83)		Women (n = 117)		t (df)	p-value	Cohen's d
	M	SD	M	SD			
Somatic Complaints	70	11	74	12	2.58 (198)	.011	.35
Malaise	76	9	77	9	.92 (198)	.358	.11
Gastrointestinal Complaints	61	16	66	18	1.88 (198)	.062	.29
Head Pain Complaints	63	9	67	11	3.05 (191.69)	.003	.39
Neurological Complaints	71	12	73	13	1.27 (198)	.207	.16
Cognitive Complaints	60	13	64	14	2.15 (198)	.033	.30

Note: MMPI-2-RF (Minnesota Multiphasic Personality Inventory – 2 – Restructured Form); n(sample size); M(Mean); SD (Standard Deviation)

Table 2.

Correlations and Partial Correlations Between Minnesota Multiphasic Personality Inventory-2-Restructured Form Somatic/Cognitive Scale and External Criteria

MMPI-2-RF Scale Scores	PDI	Partial Correlation PDI	MSPQ	Partial Correlation MSPQ	SCID-Based Somatization Sx-Total	Partial Correlation SCID-Based Somatization Sx-Total
Somatic Complaints	.28**	.27**	.62**	.60**	.35**	.33**
Malaise	.48**	.48**	.33**	.32**	.20**	.20**
Gastrointestinal Complaints	.10	.09	.45**	.43**	.27**	.25**
Head Pain Complaints	.22**	.21**	.49**	.46**	.28**	.26**
Neurological Complaints	.30**	.30**	.44**	.43**	.28**	.27**
Cognitive Complaints	.26**	.25**	.34**	.32**	.29**	.28**

Note: Partial correlation coefficients control for gender; * p < .05. ** p < .01.

Discussion

Implications:

- The Somatic/Cognitive Specific Problems Scales of the MMPI-2-RF demonstrated strong convergent validity with the PDI, MSPQ and SCID.
- The MMPI-2-RF scale scores used in this study demonstrate little to no evidence of differentially being associated with other indices of somatization across gender.
- Using a test such as the MMPI-2-RF limits the need to administer multiple screeners in piecemeal fashion, some of which have not been well-validated in medical populations.
- Many of the Somatic/Cognitive Scales of the MMPI-2-RF are being carried over and enhanced for the MMPI-3 and the results from the current investigation will likely provide some continuity for the MMPI-3 and to the broader understanding of psychosocial functioning.

Limitations and Future Research:

- A limitation is that the sample used were predominately White/Caucasian, differential validity of the MMPI-2-RF Somatic/Cognitive scale scores as a function of race/ethnicity was not able to be conducted due to low statistical power.
- Women in the current investigation reported greater severity of somatization than men; however, scale differences did not result in differential validity suggesting that the MMPI-2-RF accurately assesses somatization regardless of gender. Future research is needed to better understand how other demographic variables impact the assessment of somatization and subsequent treatment interventions.