

25 Historical Highlights
in
Using the MMPI/MMPI-2
in Assessing Chronic Pain Patients¹

7/25/15

James N. Butcher
Professor Emeritus
University of Minnesota

Hundreds of articles have been published on the use of the MMPI and MMPI-2 scales in assessing chronic pain patients. This Highlight File notes some of the special contributions that were made showing that the MMPI scales are appropriate, reliable, and valid in predicting behavior pertinent to health care patients whose symptoms focused upon chronic pain. Numerous substantial contributions to this MMPI assessment could have been included. Several major research studies are highlighted and their findings/implications noted here. Topics include: validity research, treatment prediction, and generalization across different populations/cultures.

¹Citation: Butcher, J. N. (2015). 25 Historical Highlights: Using the MMPI/MMPI-2 in Assessing Chronic Pain Retrieved from <http://www.umn.edu/mmpi>

HIGHLIGHTS

- 1940 McKinley & Hathaway (1940) published the Hypochondriasis or Hs Scale as a means of understanding physical symptoms that are reported by the patient. They also developed the Hysteria or Hy scale (McKinley & Hathaway, 1944) to measure the expression of physical complaints in the context of hysteroid personality characteristics (e.g. denial).
- 1951 Hanvik conducted an empirical study showing that the MMPI scales (particularly Hs, D and Hy) discriminated between patients with organically based pain from patients with functional or psychologically based symptom patterns.
- 1972 French researcher, Pichot, used the MMPI, and developed a specific measure to assess pain acknowledgment to characterize patients with chronic low back pain. MMPI profiles for men and for women are presented and discussed. Analysis of the profiles reveals the presence of manifest anxiety and hysteria components in French chronic pain patients.
- 1973 Sternbach conducted a study which showed that the presence of a pending compensation action served to exaggerate the psychophysiological and psychopathic scales of the MMPI.
- 1980 Prokop, Bradley, Margolis & Gentry conducted a large group study of chronic pain patients and found that replicable subgroups coexisted in the patient cohorts. Results show that subgroups differed significantly from each other, and within-subgroup variation was small relative to between-subgroup variation. It was suggested that pain patients are characterized by a variety of personality styles; subgroup membership may be an indication of behavior and also personality dynamics, which may have implications for treatment selection.
- 1981 Sweet provided several case study evaluations that showed that the MMPI can serve a useful purpose in evaluating the progress of chronic pain patients as they undergo outpatient treatment.
- 1981 Strassberg further demonstrated the value of the MMPI as a clinical and research instrument with chronic pain patients. Substantial MMPI differences were found when subjects with only one part of their body in pain were compared with those with multiple pain complaints. Significant MMPI differences were also found in comparisons based on patients' sex, type of pain (e.g., head vs. back), and type of treatment for which the patient was referred (i.e., psychiatric vs. anesthesiologic).
- 1981 Long Administered the MMPI as part of a comprehensive pain evaluation to patients who were receiving surgery for low back pain. Surgical outcomes were determined after 6–28 mo, and Ss were divided into surgical success or failure groups. MMPI profiles were examined for each group. There was a significant difference on the Hypochondriasis scale. In contrast, when Ss were divided into

- subgroups based on MMPI profile configurations, a strong relationship existed between subgroup MMPI profile and surgery outcome. Subgroup profiles bear a strong relationship with surgery outcome and appear worthy of further investigation.
- 1983 McGill performed a cluster analysis of MMPI profiles and compared the resultant clusters with medical histories and treatment outcome. The 4 clusters reported in previous research were successfully replicated for the total sample and for males and females. The profiles were significantly related to Ss' pain histories,
- 1985 McCreary further replicated the profile clusters in chronic pain patients and demonstrated advantages of clustering of MMPI scores with regard to prediction of outcome. The outcome accuracy rates were quite high, especially for male patients. The obtained sex differences in prediction of outcome was noted.
- 1985 Leavitt conducted further research with elevated MMPI "conversion V" profiles finding that they are indicative of psychological disturbance among patients with low back pain.
- 1986 Atkinson, Ingram, Kremer & Saccuzzo found that depression was often associated with chronic low back pain. Findings indicate that behavioral and pharmacological interventions directed at depression as well as pain are important in the treatment of chronic pain populations.
- 1988 Ornduff, Brennan & Barrett studied Hy subscale scores among chronic pain patients. compared with 2 nonpain comparison groups on Hysteria (Hy) scores and scores on 2 Hy subscales: Bodily Concern and Psychological Denial. Pain Ss had significantly higher scores on the Bodily Concern Subscale and lower scores on the Psychological Denial Subscale than nonpain Ss with similar elevated Hy scores. Findings suggest that, among pain patients, Hy elevations are partially accounted for by the endorsement of a disproportionate number of Bodily Concern items. Pain patient's scores on the Bodily Concern subscale were significantly related to more indices of pain duration and severity than were scores on the Psychological Denial subscale.
- 1988 Kleinke & Spangler conducted a validity study of the use of the MMPI in assessing chronic pain. They reported that multiple regression analyses indicated that persons receiving workmen's compensation engaged in more pain behavior and rated their pain as more severe. High scores on the MMPI Hysteria scale were correlated with high self-ratings of pain.
- 1990 Snyder reported that high scores on the MMPI, and particularly on those scales comprising the neurotic triad, confirm a significant psychological component to the patient's pain complaints and functional limitations, but do not rule out underlying physical pathology. The higher the profile, the more likely that

- psychological factors play a significant and disproportionately greater role in the patient's pain syndrome.
- 1991 Sivik conducted a validity study comparing patients with chronic back pain with a control sample of healthy controls. On all of the MMPI variables, the patient group had significantly higher values than did the control group. There was a strong covariation between the MMPI variables and the pain drawing variables.
- 1991 Keller and Butcher conducted an extensive empirical validity evaluation of the revised MMPI (MMPI-2) in assessing chronic pain patients and provided a perspective on clinical variables associated with pain symptoms. The prevalence of Hs and Hy among chronic pain patients in MMPI-2 was described. The role of depression in pain symptoms was highlighted. Interpretive strategies for assessing pain patients were provided.
- 1992 Fordyce and colleagues provided valuable information as to the Hy scale's role in understanding the symptom picture in chronic pain patients.
- 1992 Akerlind, HornQuist & Bjurulf provided further validation of the MMPI scales in predicting pain behavior. They pointed out the significance of psychological factors in the long-term prognosis of patients with chronic low back pain (LBP). The number of elevated scales, in combination with the level of certain scales (Hypochondriasis and Hysteria), proved to be a strong predictor. The Hypochondriasis and Hysteria scales appeared most frequently as significant predictors.
- 1992 Lee, Cheung, Man & Hsu studied personality factors in Chinese patients with lower back pain compared with healthy controls. Moderate to high elevations were found on the neurotic triad (i.e., Hypochondriasis, Depression, and Hysteria) and the Psychasthenia and Schizophrenia scales for the groups of Low Back Pain patients compared with controls. The composite profile of the LBP Ss was indicative of a strong psychophysiological reaction with depression and deficient coping abilities, with the chronic group faring worse than the acute group.
- 1993 Deardorff, Chino & Scott MMPI-2 conducted a factor analysis of chronic pain patients from 2 outpatient treatment programs finding four interpretable factors emerged and were labeled Psychological Dysfunction, Interpersonal Isolation, Psychomotor Retardation, and Physical Dysfunction to reflect factor loadings. The MMPI-2 factors may be used to guide multidisciplinary treatment and to refine the assessment of chronic pain patient characteristics.
- 1995 Gatchel, Polatin, and Kinney evaluated whether a comprehensive assessment of psychosocial measures is useful in characterizing those acute low back pain patients who subsequently develop chronic pain disability problems. Analyses, conducted to differentiate between those patients who were back at work at 6 months versus those who were not because of the original back injury, revealed the importance of 3 measures: self-reported pain and disability, the presence of a

- personality disorder, and scores on Scale 3 of the MMPI. These results demonstrate the presence of a psychosocial disability variable that is associated with those injured workers who are likely to develop chronic disability problems.
- 2000 Vendrig conducted a study of chronic pain patients in Holland and found a specific subset of the items on Scale 3 related to the report of lassitude and malaise (Hy3) was related to failure to return to work after participating in a chronic pain program in the Netherlands. Personality factors associated with the Hs scale such as somatic preoccupation and a naïve denial of emotional or interpersonal difficulties leads a vulnerability to the individual toward the development of a chronic pain condition and becoming disabled.
- 2000 Meldolesi, et al., in Italy, conducted a study to provide an understanding of the psychosomatic aspects of TMJ pain dysfunction syndrome. Patients affected by this syndrome were compared with healthy Ss and psychiatric patients, using both self-report and physician-scored psychological measures. The psychiatric group consisted of outpatients diagnosed as having anxiety or depressive disorder of mild to moderate severity. Psychometric assessment with the MMPI results showed that TMJ patients scored higher than healthy controls on the Hs (Hypochondriasis), Hy (Hysteria) and D (Depression) scales.
- 2000 Strassberg & Russell provided a validation of utility of the MMPI-2 content scales (ANX, ANG, DEP, LSE) in assessing patients in a chronic pain treatment program.

References

- Akerlind, I., HornQuist, J. O., & Bjurulf, P. (1992). Psychological Factors in the long term prognosis of chronic low back pain patients. *Journal of Clinical Psychology, 48*(5), 596-605.
- Atkinson, J. H., Ingram, R. E., Kremer, E. F., & Saccuzzo, D. P. (1986). MMPI subgroups and affective disorder in chronic pain patients. *Journal of Nervous & Mental Disease, 174*, 408-413.
- Deardorff, W. W., Chino, A. F., & Scott, D. W. (1993). Characteristics of chronic pain patients: Factor analysis of the MMPI-2. *Pain, 54*, 153-158.

- Fordyce, W. E., Bigos, S. J., Batti'e, M. C., and Fisher, L. D. (1992). MMPI scale 3 as a predictor of back injury report: What does it tell us? *Clinical Journal of Pain*, 8, 222-226.
- Gatchel, R. J., Polatin, P. B., and Kinney, R. K. (1995). Predicting outcome of chronic back pain using clinical predictors. *Health Psychology*, 14, 415-420.
- Hanvik, L. J. (1951). MMPI profiles in patients with low-back pain. *Journal of Consulting Psychology*, 15, 350-353.
- Keller, L. S. and Butcher, J. N. (1991). *Assessment of Chronic Pain Patients with the MMPI-2*. Minneapolis, Minnesota: University of Minnesota Press.
- Klinke, C. L., & Spangler, A. S. (1988). Predicting treatment outcome of chronic back pain patients in a multidisciplinary pain clinic: methodological issues and treatment implications. *Pain*, 33, 41-48.
- Leavitt, F. (1985). The value of the MMPI conversion "V" in the assessment of psychogenic pain. *Journal of Psychosomatic Research*, 29, 125-131.
- Lee, H. C., Cheung, F. M., Man, H. M., & Hsu, S. Y. (1992). Psychological characteristics of Chinese low back pain patients: An exploratory study. *Psychology & Health*, 6, 119-128.
- Long, C. J. (1981). The relationship between surgical outcome and MMPI profiles in chronic pain patients. *Journal of Clinical Psychology*, 37, 744-749.
- McCreary, C. P. (1985). Empirically derived MMPI profile clusters and characteristics of low back pain patients. *Journal of Consulting & Clinical Psychology*, 53, 558-560.

- McGill, J. C. (1983). The relationship of Minnesota Multiphasic Personality Inventory (MMPI) profile clusters to pain behaviors. *Journal of Behavioral Medicine*, 6, 77-92.
- McKinley, J. C. Hathaway, S. R. (1940). A multiphasic personality schedule (Minnesota): II. A differential study of hypochondriasis. *Journal of Psychology*, 10: 255-268.
- McKinley, J. C. & Hathaway, S. R. (1944). The MMPI:V. Hysteria, hypomania, and psychopathic deviate. *Journal of Applied Psychology*, 28, 153-174.
- Meldolesi, G.N., Picardi, A., Accivile, E., di Francia, R., & Biondi, M. Personality and psychopathology in patients with temporomandibular joint pain-dysfunction syndrome: a controlled investigation. *Psychotherapy & Psychosomatics*, 69, 322-328 (2000).
- Ornduff, S. R., Brennan, A. Barrett, C. L. (1988). The Minnesota Multiphasic Personality Inventory (MMPI) Hysteria (Hy) Scale: Scoring bodily concern and psychological denial subscales in chronic back pain patients. *Journal of Behavioral Medicine*, 11, 131-146.
- Pichot, P. (1972). MMPI evaluation of personality characteristics of subjects with chronic functional low back pain. *Revue de Psychologie Appliquee*, Vol. 22, 145-172.
- Prokop, C. K., Bradley, L. A., Margolis, R., & Gentry, W. (1980). Multivariate analysis of the MMPI profiles of patients with multiple pain complaints. *Journal of Personality Assessment*, 44, 246-252.

- Sivik, T. M. (1991). Personality traits in patients with acute low-back pain: A comparison with chronic low-back pain patients. *Psychotherapy & Psychosomatics*, 56, 135-140.
- Snyder, D. K. (1990). Assessing chronic pain with the Minnesota Multiphasic Personality Inventory (MMPI). In T.W.Miller (Ed.), *Chronic pain*, Vols (pp. 215-257). Madison, CT, USA: International Universities Press, Inc.
- Sternbach, R. (1973). Traits of pain patients: The low-back "loser.". *Psychosomatics*, .v14, 226-229.
- Strassberg, D. S. (1981). The MMPI and chronic pain. *Journal of Consulting & Clinical Psychology*, 49, 220-226.
- Strassberg, D. S. & Russell, S. W. (2000). MMPI-2 content scale validity within a sample of chronic pain patients. *Journal of Psychopathology & Behavioral Assessment*, 22, 47-60.
- Sweet, J. J. (1981). The MMPI in evaluation of response to treatment of chronic pain. *American Journal of Clinical Biofeedback*, 4, 121-130.
- Vendrig, A. A. (2000). The Minnesota Mutliphasic Personality Inventory and chronic pain: A conceptual analysis of a long-standing but complicated relationship. *Clinical Psychology Review*, 20, 533-559.

