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Clinical Utility of the MMPI-2-RF Hierarchical Description

An Illustration in Cluster C Personality Disorder Patients

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Abstract: Several studies have addressed the associations between the Minnesota Multiphasic Personality Inventory-2 Restructured form (MMPI-2-RF; Ben-Porath & Tellegen, 2008) scale scores and the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013) Section II personality disorder (PD) criterion counts. While these studies showed which variables were associated with the PDs as well as their combined predictive potency, no information is available on mean patterns of elevation associated with these conditions. To illustrate how the MMPI-2-RF information may amplify categorical diagnostic information, we describe the mean RF profiles of a psychiatric sample with a Cluster C PD diagnosis. PD classification was based on the Structured Clinical Interview for the DSM-IV (SCID-II). Patterns of elevation across the three levels of the MMPI-2-RF scale sets were consistently in line with theoretical expectation. In addition, elevated scores on somatic/cognitive scales were noted. It is concluded that the MMPI-2-RF can enhance DSM Personality disorder model description.

Keywords: MMPI-2-RF, personality disorder, clinical personality assessment

Accumulating evidence documents how the recently developed full MMPI-2-RF model of personality and psychopathology behaves in the context of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) defined categorical Personality Disorders (PD). The MMPI-2-RF is hierarchically organized, with three Higher Order Scales on the first tier, nine Restructured Clinical (RC) Scales at the mid-tier level, and the 23 Specific Problems (SP) Scales at the bottom. Parallel to this hierarchy are the Revised Personality Psychopathology Five (PSY-5) Scales, which are dimensional measures of personality pathology, and two Interest Scales. Early studies focused on the clinical utility of the Restructured Clinical scales in the assessment of PD (Eaton, Krueger, South, Simms, & Clark, 2011; Kamphuis, Arbisi, Ben-Porath, & McNulty, 2008). Two more recent studies have specifically addressed the empirical associations between MMPI-2-RF scales and the DSM-IV or DSM-5 personality disorders (Anderson et al., 2015; Sellbom, Smid, De Saeger, Smit, & Kamphuis, 2014). First, Sellbom and colleagues (2014) mapped the PSY-5 abnormal personality scales onto DSM-IV PDs in both clinical and forensic samples. Next, Anderson et al. (2015) presented an in-depth conceptual analysis of how MMPI-2-RF variables

would be associated with each of the different PDs. For example, in the context of Avoidant PD, Anderson et al.'s (2015) inspection of the DSM criteria yielded the following concepts to be captured by the MMPI-2-RF: hypersensitivity to criticism, fear of negative evaluation and rejection, extreme social withdrawal and alienation, feelings of inadequacy and ineptitude, and general emotional misery. Generally, results from the (count) regression analyses were as conceptually expected, with the following significant predictors emerging: Demoralization (RCd), Low Positive Emotions (RC2), and Dysfunctional Negative Emotions (RC7), and several matching Specific Problem scales (SPS).

Of course, significant predictive betas from regression formulas do not necessarily translate to patterns of elevation that can assist the clinician in detecting possible personality pathology. Moreover, significant predictors emerging from the same regression equation are inherently statistically selected for incremental value relative to one another. This leaves open the option that other variables pertinent (i.e., elevated) to the description of the dependent variable (here, Cluster C personality disorder) are not selected because their predictive value has already been exhausted.

Accordingly, we aimed to examine whether the MMPI-2-RF hierarchical scale sets yield a pattern of elevated scores that are in line with a priori conceptual analyses in the context of PDs (Anderson et al., 2015), in the present sample, as limited to Cluster C PD. We focused on Cluster C PD patients because of availability, but also because we believe that few dimensional descriptions of Cluster C pathology are evident in the literature, whereas these patients are quite prevalent in daily practice. This study helps inform clinicians of the pertinent psychopathology dimensions, knowledge that can be useful in selecting and adapting treatments and treatment plans. Our main interest was to examine to what extent the pattern of elevations (a) made conceptual sense, (b) appeared sufficiently specific to be clinically useful, and (c) possibly yielded theoretically valuable hypotheses for diagnostic formulations beyond the DSM-5. Based on the conceptual analysis and subsequent findings of Anderson et al. (2015) that matched their expectations, we expected at the higher order scale level an exclusive elevation for Emotional Internalizing Dysfunction (EID); at the Restructured Scale (RC) level, we expected elevations for Demoralization (RCd), Low Positive Emotions (RC2), and Dysfunctional Negative Emotions (RC7). At the most specific level, that is, that of the Specific Problem Scales, we expected elevations on RCd and RC7 facets, but no elevation on the Externalizing scales. Of special interest for the personality disorders are the Specific Problem scales that address interpersonal functioning, as well as the abnormal personality scale set provided by the PSY-5. With regard to the former, we expected elevations on Shyness, Avoidance, and Interpersonal Passivity among the Interpersonal Specific Problems scales (core features of cluster C pathology); with regard to the PSY-5, we expected high scores on Negative Emotionality-Revised (NEGE-r) and Introversion/Low Positive Emotionality-Revised (INTR-r), while low scores for instrumental Aggressiveness (AGGR-r; low scores indicative of lack of assertiveness and submissiveness).

Method

Participants

Patient records between 2005 and 2010 from *De Viersprong*, a Dutch clinic for the assessment and treatment of personality pathology, were retrieved when both structured clinical interview data and MMPI protocols were available. This sample substantially overlaps with the

sample reported in Anderson et al. (2015). For this study, specific approval was obtained from the internal Ethical Review Board of *De Viersprong*, and all patients gave informed consent to the use of their data for anonymized use in research. As part of the standard intake procedure, patients were administered Structured Clinical Interviews for the DSM-IV Axis-I and Axis-II (SCID-I, II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997), but only patients ($N = 239$ valid cases)¹ who were referred to treatments addressing primary Cluster C (the so-called anxious cluster) personality pathology or mixed anxious/externalizing (Cluster B and C) were also administered the Minnesota Multiphasic Personality Inventory - Revised (MMPI-2). From these, we selected “pure” Cluster C records ($N = 66$); that is, patients who met criteria for Avoidant PD (80.3%, or $n = 53$), Obsessive Compulsive PD (24.2%, or $n = 16$), and/or Dependent PD (4.5%, or $n = 3$), but no Cluster B or Cluster A personality disorder. Slightly over half of the sample (56.2%) was female, with a mean age of 28.8 years ($SD = 9.5$). Eighty percent of the sample had comorbid Axis-I disorders, most notably unipolar mood disorders (28.8%, or $n = 21$), social phobia (31.5%, or $n = 23$), and/or Post Traumatic Stress Disorder (13.7%, or $n = 10$).

Measures

MMPI-2-RF (Ben-Porath & Tellegen, 2008)

Patients were administered the Dutch MMPI-2, from which the MMPI-2-RF scales can be scored without decrement in psychometric functioning (van der Heijden, Egger, & Derksen, 2010). The MMPI-2-RF consists of 338 binary items, and comprises 9 validity scales, 3 Higher-Order scales (H-O), 9 Restructured Clinical Scales (RCs), 23 Specific Problems scales (SPs), 2 Interest scales, and the Personality Psychopathology Five scales (PSY-5).

SCID-II (First, Gibbon, et al., 1997; Weertman, Arntz, & Kerkhofs, 2000)

The SCID-II is widely used semi-structured interview for the assessment of Axis II PDs. The inter-rater reliability of the Dutch SCID II has been demonstrated in several studies (Lobbetael, Leurgans, & Arntz, 2011; Weertman et al., 2000), but unfortunately no inter-rater reliability data were specifically collected for this study. To mitigate this concern, we note that all SCID-II interviewers had received extensive training and experience, and Cronbach α indicated satisfactory internal consistency for the SCID-II PD dimensional scores (ranging from .74 to .84).

¹ Thirty-nine invalid protocols excluded conform to the standard criteria outlined in the MMPI-2-RF; cannot say > 17; VRIN or TRIN > 79T; F-r = 120T; Fp-r > 99T (see Ben-Porath & Tellegen, 2008).

Results

Consistent with expectation, an exclusive elevation on Emotional Internalizing Dysfunction was observed at the higher order level (EID; $M = 79.3$, $SD = 9.27$); no other higher order scales showed elevation. Elevations on RC scales included Demoralization (RCd; $M = 77.67$, $SD = 8.27$), Low Positive Emotions (RC2; $M = 80.83$, $SD = 12.16$), and Dysfunctional Negative Emotions (RC7; $M = 68.30$, $SD = 11.11$) (see Figure 1).

An unexpected elevation was noted for Somatic Complaints (RC1; $M = 69.23$, $SD = 13.13$), and as can be seen from Figure 2, the following Somatic/Cognitive scales showed mean scores above the $t = 65$ cut-off point: Malaise

(MLS; $M = 75.39$, $SD = 9.73$), Gastrointestinal Complaints (GIC; $M = 66.61$, $SD = 16.94$), Neurological Complaints (NUC; $M = 66.02$, $SD = 11.25$), Cognitive Complaints (COG; $M = 67.94$, $SD = 12.07$).

Consistent with expectation, several facets of RCd and RC7 were elevated. Specifically, the following internalizing SPS were elevated: Suicidal/Death Ideation (SUI; $M = 73.85$, $SD = 22.86$), Helplessness (HLP; $M = 68.79$, $SD = 12.4$), Self-Doubt (SFD; $M = 71.88$, $SD = 7.84$), and Anxiety (AXY; $M = 69.7$, $SD = 16.66$). No elevations were noted for any of the externalizing SPS (see Figure 3). Elevated Interpersonal Problems Scales include Social Avoidance (SAV; $M = 67.5$, $SD = 11.49$), Shyness (SHY; $M = 65.86$, $SD = 11.24$).

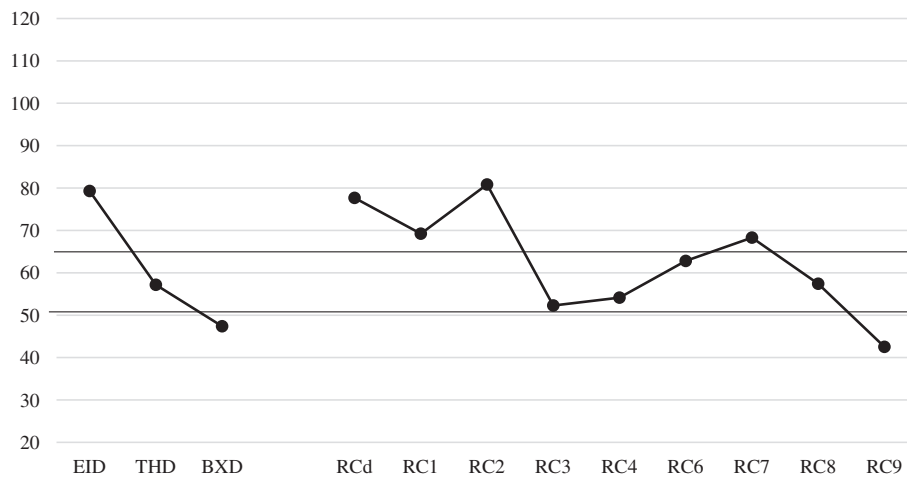


Figure 1. MMPI-2-RF Higher-Order (H-O) and Restructured Clinical (RC) Scales Mean Profile. EID = Emotional/Internalizing Dysfunction; THD = Thought Dysfunction; BXD = Behavioral/Externalizing Dysfunction; RCd = Demoralization; RC1 = Somatic Complaints; RC2 = Low Positive Emotions; RC3 = Cynicism; RC4 = Antisocial Behavior; RC6 = Ideas of Persecution; RC7 = Dysfunctional Negative Emotions; RC8 = Aberrant Experiences; RC9 = Hypomanic Activation.

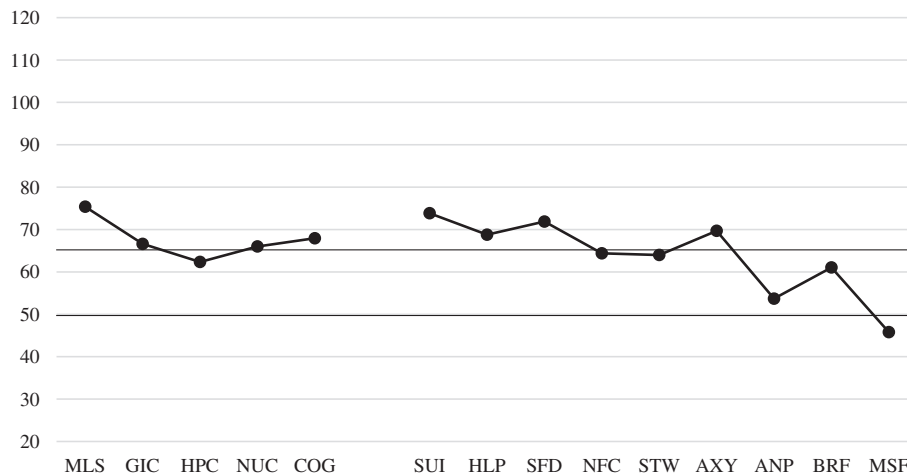


Figure 2. MMPI-2-RF Somatic/Cognitive and Internalizing Scales Mean Profile. MLS = Malaise; GIC = Gastrointestinal Complaints; HPC = Head Pain Complaints; NUC = Neurological Complaints; COG = Cognitive Complaints; SUI = Suicidal/Death Ideation; HLP = Helplessness; SFD = Self-Doubt; NFC = Inefficacy; STW = Stress/Worry; AXY = Anxiety; ANP = Anger Proneness; BRF = Behavior-Restricting Fears; MSF = Multiple Specific Fears.

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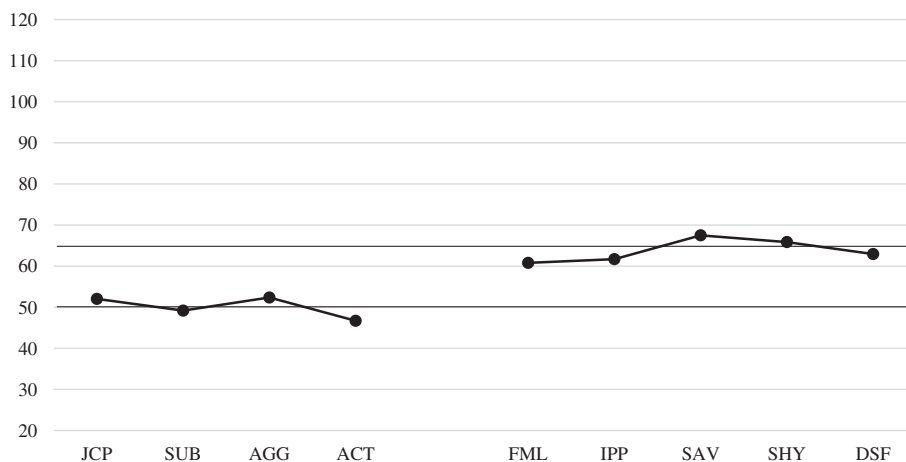


Figure 3. MMPI-2-RF Externalizing and Interpersonal Scales Mean Profile. JCP = Juvenile Conduct Problems; SUB = Substance Abuse; AGG = Aggression; ACT = Activation; FML = Family Problems; SAV = Social Avoidance; SHY = Shyness; IPP = Interpersonal Passivity; DSF = Disaffiliativeness.

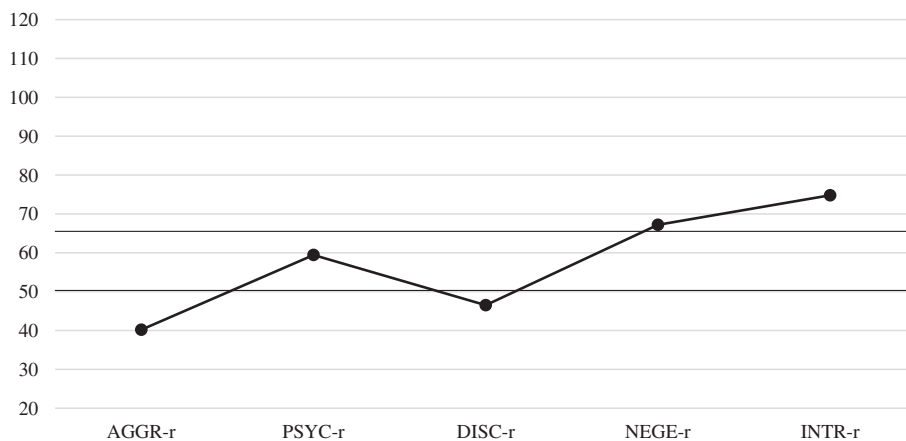


Figure 4. MMPI-2-RF Personality Psychopathology Five (PSY-5) Scales Mean Profile. AGGR-r = Aggressiveness; PSYC-r = Psychoticism; DISC-r = Disconstraint; NEGE-r = Negative Emotionality; INTR-r = Introversion/Low Positive Emotions.

Finally, at the level of abnormal personality pathology (PSY-5), as depicted in Figure 4, Negative Emotionality (NEGE-r; $M = 67.2, SD = 10.89$), Introversion/Low Positive Emotions (INTR-r; $M = 74.79, SD = 12.72$) were elevated. Conversely, a low mean score on (instrumental) Aggressiveness (AGGR-r; $M = 40.2, SD = 7.68$) was noted (see Electronic Supplementary Material, ESM 1).

Discussion

The MMPI-2-RF findings can be interpreted along its comprising hierarchical levels. Starting at the higher order broadest level, our results indicate that cluster C PD patients are likely to experience a broad range of symptoms and difficulties associated with demoralization, low positive emotions, and high negative emotional experiences (e.g., low morale, depression, anxiety, feeling overwhelmed, helpless,

pessimistic). Narrowing down to the RC core dimensions of psychopathology, mean scores in our sample were indicative of individuals who tend to be pessimistic, socially introverted and disengaged, and lacking in energy (RC2). They are behaviorally inhibited, stress reactive, and prone to excessive worry. Moreover, persons with these scores likely perceive others as overly critical, and are themselves intro-punitive and self-critical and guilt prone (RC7). While these results are fully consistent with the a priori conceptual analysis, more surprising was the observation that these patients report scores consistent with multiple somatic complaints, including fatigue that may be associated with stress responses (RC1). The pertinent Specific Problem Scales suggest that these physical problems may relate to sleep disturbance, fatigue, and low energy (MLS); dizziness and sensory problems (NUC); concentration and memory difficulties (COG), and gastrointestinal problems (GIC). Other elevated Specific Problems were the Demoralization-related facets

(suicidal ideation, hopelessness, feelings of insecurity and inferiority; SUI, HLP, SFD) and a facet from RC7, indicating general anxiety (AXY).

As noted, given the nature of personality pathology, the Interpersonal SPS and the abnormal personality dimensions provided by the PSY-5 are particularly relevant. As expected, elevations were observed for both Social Avoidance (SAV) and Shyness (SHY), indicating that these patients (more so than 92% of the general population, given a t -score > 65) do not enjoy social events, avoid social situations; and report being shy, easily embarrassed, and uncomfortable around others, respectively. Also in line with expectation were the elevated scores on NEGE-r and INTR-r, indicating significant anxiety, insecurity and worry, as well as a lack of positive emotional experiences, interests, respectively. Moreover, these scores are indicative of individuals who have difficulty asserting themselves (Low AGGR-r).

With regard to discriminant validity, it bears mentioning that no elevations were noted for any of the extant indices of thought (THD; RC6, RC8) or behavioral disorders (BXD, RC4, RC9), nor for their facets at the Specific Problems scale level. In fact, even within the Internalizing set of Specific Problem Scales, the more narrowly defined anxiety disorder-related facets (Multiple Specific Fears [MSF] and Behavioral Restricting Fears [BRF] scales) were not elevated, while more trait-like facets (Anxiety [AXY] and Stress and Worry [STW]) were. The specificity of the observed findings may attest to the success and yield of separating out the general demoralization variance that was core to the original restructuring project (Ben-Porath, 2012).

Of theoretical interest are the observed marked elevations on Low Positive Emotions (RC2) and Introversion (INTR-r). Roughly four out of five patients in our sample met criteria for Avoidant PD, which is often hard to differentiate from Generalized Social Phobia. Social Phobia, despite being defined as an anxiety disorder, tends to align itself in studies on latent psychopathology dimensions (e.g., Krueger, McGue, & Iacono, 2000) more with the unipolar mood disorders than with the anxiety disorders, which may reflect the shared underlying low standing on positive emotionality. The same may hold for the present sample of Cluster C PD patients, predominantly made up of patients with AVPD. Finally, the unexpected high scores on indices of stress-related somatic complaints warrant discussion. We speculate that patient with Cluster C diagnoses experience difficulty recognizing and expressing their emotional problems, and instead express their problems in terms of somatic complaints. Alternatively, the elevations may be expression of comorbid Axis-I disorders, especially unipolar depression and its psychosomatic manifestations.

Overall, we believe that this report illustrates how the MMPI-2-RF hierarchical presentation of implicated psychopathology dimensions can amplify the categorical DSM model of PD and may accordingly present clinicians with (a) diagnostic hypotheses, (b) targets for interventions, and (c) salient outcome dimensions. The unexpected elevated scores on the somatic/cognitive indicators may be an interesting target for future research.

Electronic Supplementary Materials

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1027/1015-5759/a000560>

ESM 1. Descriptive statistics of personality disorders and MMPI-2-RF scales

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