An Examination of the Impact of Content-Based Invalid Responding on MMPI-2-RF Substantive Scale Criterion Validity in a Forensic Inpatient Sample

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INTRODUCTION

- McGrath, Mitchell, Kim & Hough (2010) reviewed extant literature, concluding existing validity scales were poor or untested moderators of substantive scale criteria.
- Burchett (2012) found MMPI-2-RF Validity Scales moderated criterion validity of substantive scales in a variety of settings (college simulators, community mental health center outpatients, psychiatric inpatients, pretrial forensic examinees).
- Wiggins, Wygant, Hoelzle, and Gervais (2012) compared forensic disability examinee protocols deemed valid or invalid based on MMPI-2-RF Validity Scale scores, noting that correlations between substantive scales and external criteria were generally weaker in overreporting samples as compared to valid samples.

AIMS & HYPOTHESES

- In three groups (valid responders, overreporters, underreporters), we conducted independent samples *t*-tests and calculated Hedges' *g* effect size values for differences in mean MMPI-2-RF substantive scale scores across subgroups (1) *with* and (2) *without* uncontaminated conceptually-related psychiatric diagnoses.
- Based on a translation of McGrath et al.'s (2010) call for moderated regressions into a *t*-test framework, we hypothesized mean substantive scale score differences between individuals with and without a conceptually relevant independently-rendered psychiatric condition would be largest for the valid sample, as compared to underreporting and overreporting samples.
- The use of *t*-tests rather than moderated regressions allowed for a more nuanced exploration of the impact of invalid responding on mean scores.
- To our knowledge, this is the first study to examine this issue using uncontaminated diagnostic data as criteria, or in a forensic inpatient setting--where underreporting, overreporting, and genuine severe psychopathology may complicate the assessment picture.

METHOD

We used MMPI-2-RF Validity Scales to identify (a) valid (*n* = 641), overreported (*n* = 130), and underreported (*n* = 123) MMPI-2-RF protocols of forensic inpatient examinees.

Psychiatric diagnoses of record on the date of testing were used to define three dichotomous diagnostic variables:

- **Internalizing Dysfunction Diagnosis** (e.g., depression, anxiety, bipolar I disorder)
- **Thought Dysfunction Diagnosis** (e.g., schizophrenia, schizoaffective disorder, bipolar I disorder, most recent episode manic)
- **Externalizing Dysfunction Diagnosis** (e.g., substance use disorder, antisocial personality disorder)

Independent samples *t*-tests and Hedges' *g* values were examined to compare mean differences for valid and invalid (overreporting and underreporting) groups on relevant MMPI-2-RF substantive scales.

Table 1. MMPI-2-RF Internalizing Dysfunction Scale Mean Scores for Patients with Valid, Overreported, or Underreported Protocols

	Valid (*n* = 641)					Overreported (*n* = 130)					Underreported (*n* = 123)				
	No Internalizing Diagnosis (*n* = 321)		Internalizing Diagnosis (*n* = 320)			No Internalizing Diagnosis (*n* = 58)		Internalizing Diagnosis (*n* = 72)			No Internalizing Diagnosis (*n* = 77)		Internalizing Diagnosis (*n* = 46)		
	M	*SD*	*M*	*SD*	g_1	*M*	*SD*	*M*	*SD*	g_2	*M*	*SD*	*M*	*SD*	g_3
EID Emotional/Internalizing Dysfunction	49	11	54	13	**.39***	73	13	77	9	**.43***	41	8	40	9	**-.16**
RCd Demoralization	52	11	56	12	**.35***	73	11	77	8	**.43***	44	7	43	8	**-.14**
RC2 Low Positive Emotions	51	12	54	14	**.22***	70	16	74	14	**.27**	45	9	44	9	**-.19**
RC7 Dysfunctional Negative Emotions	47	11	52	11	**.37***	72	14	76	11	**.36***	41	7	41	7	**-.09**
SUI Suicidal/Death Ideation	50	11	54	15	**.30***	79	22	84	19	**.25**	47	8	48	10	**.11**
HLP Helplessness/ Hopelessness	49	11	53	14	**.25***	70	16	71	15	**.11**	46	8	44	7	**-.32**
SFD Self-Doubt	50	10	53	12	**.33***	66	12	68	10	**.21**	44	5	44	6	**-.02**
NFC Inefficacy	51	11	53	11	**.25***	65	11	68	10	**.35***	45	7	45	7	**-.02**
STW Stress/Worry	48	10	51	11	**.33***	65	12	64	10	**-.08**	43	7	43	6	**.05**
AXY Anxiety	52	13	56	14	**.25***	81	18	85	13	**.31**	48	10	48	10	**.06**
ANP Anger Proneness	47	10	51	10	**.35***	61	12	64	11	**.22**	43	6	43	5	**-.00**
BRF Behavior-Restricting Fears	52	12	56	14	**.26***	73	13	75	16	**.12**	53	11	50	10	**-.24**
MSF Multiple Specific Fears	49	9	52	9	**.28***	53	10	53	9	**.01**	48	10	48	9	**-.01**
NEGE-r Negative Emotionality/ Neuroticism-Revised	48	10	53	11	**.40***	70	14	72	11	**.17**	42	7	41	6	**-.04**
INTR-r Introversion/Low Positive Emotionality-Revised	51	12	52	12	**.06**	63	14	64	13	**.11**	50	8	49	8	**-.06**

Table 2. MMPI-2-RF Thought Dysfunction Scale Mean Scores for Patients with Valid, Overreported, or Underreported Protocols

	Valid (*n* = 641)					Overreported (*n* = 130)					Underreported (*n* = 123)				
	No Thought Dys. Diagnosis (*n* = 69)		Thought Dys. Diagnosis (*n* = 572)			No Thought Dys. Diagnosis (*n* = 20)		Thought Dys. Diagnosis (*n* = 110)			No Thought Dys. Diagnosis (*n* = 14)		Thought Dys. Diagnosis (*n* = 109)		
	M	*SD*	*M*	*SD*	g_1	*M*	*SD*	*M*	*SD*	g_2	*M*	*SD*	*M*	*SD*	g_3
THD Thought Dysfunction	54	14	58	15	**.27***	97	6	94	9	**-.36**	49	10	51	11	**.19**
RC6 Ideas of Persecution	61	16	62	16	**.07**	97	6	95	9	**-.27**	49	14	55	13	**.49**
RC8 Aberrant Experiences	52	12	55	13	**.23**	91	10	86	11	**-.44**	47	8	49	9	**.16**
PSYC-r Psychoticism-Revised	53	14	56	15	**.22**	96	7	93	10	**-.32**	46	10	50	11	**.35**

Table 3. MMPI-2-RF Externalizing Dysfunction Scale Mean Scores for Patients with Valid, Overreported, or Underreported Protocols

	Valid (*n* = 641)					Overreported (*n* = 130)					Underreported (*n* = 123)				
	No Externalizing Diagnosis (*n* = 172)		Externalizing Diagnosis (*n* = 469)			No Externalizing Diagnosis (*n* = 17)		Externalizing Diagnosis (*n* = 113)			No Externalizing Diagnosis (*n* = 41)		Externalizing Diagnosis (*n* = 82)		
	M	*SD*	*M*	*SD*	g_1	*M*	*SD*	*M*	*SD*	g_2	*M*	*SD*	*M*	*SD*	g_3
BXD Behavioral/ Externalizing Dysfunction	54	10	59	11	**.46***	58	13	70	11	**1.04***	45	8	49	8	**.49***
RC4 Antisocial Behavior	57	11	62	11	**.48***	65	14	76	11	**.98***	47	9	51	10	**.39***
RC9 Hypomanic Behavior	47	11	48	11	**.10**	53	10	60	13	**.54***	40	9	41	7	**.12**
JCP Juvenile Conduct Problems	56	13	61	13	**.44***	60	16	71	12	**.89***	48	10	52	12	**.38**
SUB Substance Abuse	51	10	57	10	**.65***	59	14	68	14	**.62***	45	6	50	9	**.67***
AGG Aggression	48	10	50	11	**.15**	62	15	68	14	**.48**	41	8	42	8	**.12**
ACT Activation	47	12	47	12	**.11**	59	12	60	13	**.05**	41	8	41	10	**.02**
AGGR-r Aggressiveness-Revised	51	10	52	10	**.03**	51	9	54	12	**.29**	49	8	49	7	**.02**
DISC-r Disconstraint-Revised	53	10	57	10	**.43***	54	12	64	10	**1.02***	46	7	50	8	**.49***

Note for Tables 1-3. Valid sample descriptive results were originally reported in Romero et al. (2016). *p < .05. Hedges' *g* values are in bold (small: |.20+|; medium: |.50+|; large: |.80+|).

RESULTS

Patterns of results differed notably from that anticipated by the McGrath premise (e.g., that a larger positive effect should be observed when distinguishing those with and without a disorder in a valid sample, as compared to in an invalid sample).

- **Internalizing dysfunction** mean differences were often as large or larger for the overreporting group as for the valid group. Differences were smaller for the underreporting group; those with the diagnosis suppressed scores to be lower than those without the disorder.
- **Thought dysfunction** mean differences were often larger for the overreporting group than for the valid group; those without the diagnosis may have fabricated symptoms such that their scores were higher than for those with thought dysfunction diagnoses.
- **Externalizing dysfunction** mean differences were of similar magnitude in the valid and underreporting groups, and sometimes notably larger within the overreporting group.

DISCUSSION

- The results suggest a complex, non-uniform combination of symptom suppression, exaggeration, and perhaps presence of fabrication and low insight. Such complex patterns may be masked in summative results obtained using moderated regression models and do not directly speak to the ability of validity scales to classify valid and invalid responders.
- Future researchers should further explore whether the ability to moderate substantive scale criterion validity is a necessary or important quality of validity scales.
- Validity scale classification accuracy may be a more important and clinically useful characteristic to consider.
- A strength of this study was the use of diagnostic external criteria uncontaminated by test scores. However, diagnoses were not rendered using a structured clinical interview and may still be impacted by self-report bias. An examination of replicability in larger samples is warranted.

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