

Impact of MMPI-2 versus MMPI-2-RF Booklet Administration on the Internal Structure and Predictive Utility of MMPI-2-RF Scales in a Forensic Inpatient Setting



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Introduction

Many researchers administer the MMPI-2 but rescore items into MMPI-2-RF scales¹

Previous studies have supported the comparability of MMPI-2-RF scores culled from MMPI-2 and MMPI-2-RF booklets^{1, 2, 3}

- MMPI-2-RF scale scores and reliability estimates derived from the two booklets are comparable in forensic and non-forensic settings

However, no studies have compared the predictive utility of MMPI-2-RF scales culled from the MMPI-2 versus MMPI-2-RF booklets

Aims and Hypotheses

We replicated Tarescavage et al. (2014) and extended analyses to examine the predictive utility of the MMPI-2-RF substantive scales culled from MMPI-2 versus MMPI-2-RF administration

We hypothesized we would find minimal differences for the majority of the scales on the test

However, we hypothesized VRIN-r and TRIN-r inconsistency scale mean scores would be higher when the longer MMPI-2 was administered due to the greater potential for fatigue

Method

Participants

- Deidentified archival dataset of psychiatric inpatients (926 administered MMPI-2 booklet & 178 administered MMPI-2-RF booklet)

Measures

- MMPI-2: a 567 True/False item personality inventory^{3, 4}
- MMPI-2-RF: a 338-item shortened version of the MMPI-2 with 51 scales⁴

Procedure

- We examined independent samples *t*-tests and Hedges' *g* values comparing scale mean scores across booklet type
- For predictive utility, we found Hedges' *g* values for both the MMPI-2 and MMPI-2-RF scales, calculated differences in *g* size, and compared confidence intervals for each booklet's *g* values by scale
- Predictive utility effect sizes were calculated for patients with vs. without various diagnoses

Table 1: Mean MMPI-2-RF Scale Scores by Booklet Type

Scale Name	MMPI-2 Booklet		MMPI-2-RF Booklet		<i>g</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Validity Scales					
Cannot Say (CNS)	3.08	15.48	0.80	2.78	0.16*
Variable Response Inconsistency (VRIN-r)	57.89	14.76	58.49	15.14	-0.04
True Response Inconsistency (TRIN-r)	61.51	12.57	64.32	15.04	-0.22*
Infrequent Responses (F-r)	68.81	25.61	65.13	21.28	0.15
Infrequent Psychopathology Responses (Fp-r)	64.18	22.81	63.98	20.17	0.01
Infrequent Somatic Responses (Fs)	60.93	20.14	58.93	16.77	0.10
Symptom Validity (FBS-r)	56.86	14.18	56.71	9.79	0.01
Response Bias Scale (RBS)	62.27	19.13	60.68	15.25	0.09
Uncommon Virtues (L-r)	61.31	13.29	63.82	14.06	-0.19*
Adjustment Validity (K-r)	51.36	12.10	53.09	11.13	-0.14
Higher-Order Scales					
Emotional/Internalizing Dysfunction (EID)	49.85	12.17	49.77	10.76	0.01
Thought Dysfunction (THD)	56.16	14.84	58.17	14.14	-0.14
Behavioral/Externalizing Dysfunction (BXD)	55.88	11.10	54.54	10.85	0.12
Restructured Clinical Scales					
Demoralization (RCd)	51.94	11.72	52.79	10.48	-0.07
Somatic Complaints (RC1)	52.77	11.12	55.74	9.83	-0.27*
Low Positive Emotions (RC2)	51.18	12.73	50.86	12.13	0.03
Cynicism (RC3)	50.06	11.04	49.11	10.60	0.09
Antisocial Behavior (RC4)	59.15	12.13	57.77	10.81	0.12
Ideas of Persecution (RC6)	59.93	15.66	62.77	15.39	-0.18
Dysfunctional Negative Emotions (RC7)	48.06	11.00	47.87	11.20	0.02
Aberrant Experiences (RC8)	53.51	12.41	55.20	11.22	-0.14
Hypomanic Behavior (RC9)	46.51	10.68	46.55	11.44	0.00
Specific Problems Scales					
Malaise (MLS)	53.23	11.51	52.54	11.75	0.06
Gastrointestinal Complaints (GIC)	51.00	10.67	50.74	9.69	0.02
Head Pain Complaints (HPC)	50.48	10.07	51.93	9.45	-0.15
Neurological Complaints (NUC)	56.24	12.81	59.33	12.04	-0.24*
Cognitive Complaints (COG)	51.90	12.20	52.22	11.66	-0.03
Suicidal/Death Ideation (SUI)	51.40	13.04	50.43	11.80	0.08
Helplessness/Hopelessness (HLP)	49.77	12.37	50.99	10.59	-0.10
Self-Doubt (SFD)	49.91	10.59	50.56	10.25	-0.06
Inefficacy (NFC)	50.49	10.51	51.49	11.44	-0.09
Stress/Worry (STW)	48.10	10.51	49.44	9.11	-0.13
Anxiety (AXY)	52.73	13.15	53.43	13.96	-0.05
Anger Proneness (ANP)	47.82	9.48	47.98	9.15	-0.02
Behavior-Restricting Fears (BRF)	53.95	12.51	52.60	11.58	0.11
Multiple Specific Fears (MSF)	50.12	9.38	49.84	9.34	0.03
Juvenile Conduct Problems (JCP)	58.38	13.54	57.57	12.69	0.06
Substance Abuse (SUB)	54.20	10.67	53.83	10.58	0.03
Aggression (AGG)	48.19	10.66	48.10	10.77	0.01
Activation (ACT)	46.11	11.88	45.60	11.26	0.04
Family Problems (FML)	50.15	12.14	48.95	11.20	0.10
Interpersonal Passivity (IPP)	48.78	9.97	48.43	9.22	0.04
Social Avoidance (SAV)	49.57	10.79	49.35	9.62	0.02
Shyness (SHY)	47.87	9.03	47.42	7.61	0.05
Disaffiliativeness (DSF)	53.45	12.34	53.10	10.99	0.03
Personality-Psychopathology-Five Scales					
Aggressiveness (AGGR-r)	50.85	9.68	51.53	10.56	-0.07
Psychoticism (PSYC-r)	54.57	14.65	55.60	13.53	-0.07
Disconstraint (DISC-r)	54.78	10.22	53.85	10.48	0.09
Negative Emotionality/Neuroticism (NEGE-r)	48.87	10.81	49.36	10.24	-0.05
Introversion/Low Positive Emotionality (INTR-r)	51.50	11.26	50.98	11.22	0.05

Note. Sample for CNS, VRIN-r, & TRIN-r analyses (*n* = 1,104); sample for remaining Validity Scales (*n* = 891); sample for substantive scales (*n* = 758). * indicate significant *p* < 0.05; small *g*: 0.201 – 0.491

Table 2: Predictive Utility for Patients with vs. without Internalizing Diagnoses

	MMPI-2 Booklet (<i>n</i> = 634)	MMPI-2-RF Booklet (<i>n</i> = 124)	<i>g</i> ₁ - <i>g</i> ₂
	<i>g</i> ₁ (<i>CI</i>)	<i>g</i> ₂ (<i>CI</i>)	
EID	0.39 (0.23, 0.55)	0.24 (-0.11, 0.60)	0.15
RCd	0.40 (0.24, 0.56)	0.02 (-0.33, 0.37)	0.38
RC2	0.22 (0.07, 0.38)	0.12 (-0.23, 0.48)	0.10
RC7	0.35 (0.20, 0.51)	0.36 (0.01, 0.72)	-0.01
SUI	0.30 (0.14, 0.46)	0.25 (-0.11, 0.60)	0.05
HLP	0.29 (0.13, 0.45)	-0.12 (-0.47, 0.24)	0.41
SFD	0.36 (0.20, 0.52)	0.19 (-0.16, 0.55)	0.17
NFC	0.29 (0.13, 0.44)	0.15 (-0.20, 0.51)	0.12
STW	0.35 (0.19, 0.50)	0.26 (-0.10, 0.61)	0.09
AXY	0.27 (0.12, 0.43)	0.11 (-0.25, 0.46)	0.16
ANP	0.37 (0.21, 0.52)	0.26 (-0.09, 0.61)	0.11
BRF	0.29 (0.13, 0.45)	-0.22 (-0.57, 0.14)	0.51
MSF	0.33 (0.18, 0.49)	-0.17 (-0.52, 0.18)	0.50
NEGE-r	0.41 (0.26, 0.57)	0.28 (-0.07, 0.64)	0.13
INTR-r	0.07 (-0.09, 0.22)	0.04 (-0.31, 0.40)	0.03

Note: **p* < .05; presence of Internalizing Dx. in MMPI-2 (*n* = 306); absence of Internalizing Dx. in MMPI-2 (*n* = 328); presence of Internalizing Dx. in MMPI-2-RF (*n* = 57); absence of Internalizing Dx. in MMPI-2-RF (*n* = 67).

Table 3: Predictive Utility for Patients with vs. without Thought Dysfunction Diagnoses

	MMPI-2 Booklet (<i>n</i> = 634)	MMPI-2-RF Booklet (<i>n</i> = 124)	<i>g</i> ₁ - <i>g</i> ₂
	<i>g</i> ₁ (<i>CI</i>)	<i>g</i> ₂ (<i>CI</i>)	
THD	0.19 (-0.05, 0.43)	0.79 (0.07, 1.52)	-0.60
RC6	0.07 (-0.17, 0.31)	0.54 (-0.18, 1.26)	0.47
RC8	0.14 (-0.10, 0.38)	0.93 (0.20, 1.65)	0.79
PSYC-r	0.18 (-0.06, 0.42)	0.67 (-0.05, 1.39)	-0.49

Note: **p* < .05; presence of Thought Dx. in MMPI-2 (*n* = 559); absence of Thought Dx. in MMPI-2 (*n* = 75); presence of Thought Dx. in MMPI-2-RF (*n* = 116); absence of Thought Dx. in MMPI-2-RF (*n* = 8).

Table 4: Predictive Utility for Patients with vs. without Externalizing Diagnoses

	MMPI-2 Booklet (<i>n</i> = 634)	MMPI-2-RF Booklet (<i>n</i> = 124)	<i>g</i> ₁ - <i>g</i> ₂
	<i>g</i> ₁ (<i>CI</i>)	<i>g</i> ₂ (<i>CI</i>)	
BXD	0.44 (0.27, 0.62)	0.66 (0.22, 1.09)	-0.22
RC4	0.44 (0.27, 0.62)	0.72 (0.29, 1.16)	-0.28
RC9	0.09 (-0.08, 0.26)	0.33 (-0.10, 0.76)	-0.24
JCP	0.43 (0.25, 0.60)	0.53 (0.10, 0.97)	-0.10
SUB	0.61 (0.44, 0.79)	0.92 (0.48, 1.36)	-0.32
AGG	0.13 (-0.04, 0.30)	0.38 (-0.05, 0.81)	-0.25
ACT	0.12 (-0.06, 0.29)	0.15 (-0.28, 0.57)	-0.03
DISC-r	0.42 (0.25, 0.60)	0.25 (-0.18, 0.68)	-0.17
AGGR-r	0.01 (-0.16, 0.18)	0.64 (0.21, 1.08)	-0.63*

Note: **p* < .05; presence of Externalizing Dx. in MMPI-2 (*n* = 449); absence of Externalizing Dx. in MMPI-2 (*n* = 185); presence of Externalizing Dx. in MMPI-2-RF (*n* = 97); absence of Externalizing Dx. in MMPI-2-RF (*n* = 27).

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Results & Discussion

Scale Mean Score Comparability

- Statistically significant mean score differences across MMPI-2 versus MMPI-2-RF booklets were observed for five of 51 scales: CNS, TRIN-r, L-r, RC1, & NUC
- Our hypothesis regarding VRIN-r was not supported and there was a notable difference in TRIN-r scores in the unanticipated direction with a small effect

Predictive Utility Comparability

- A statistically significant difference in predictive utility was found for AGGR-r when comparing patients with vs. without externalizing diagnoses

Conclusions

- This study replicated previous research on mean score differences and uniquely compared the predictive utility of MMPI-2-RF scales culled from MMPI-2 versus MMPI-2-RF booklets
- Results coincide with previous research, confirming the acceptability of using MMPI-2 booklet results to examine MMPI-2-RF scale scores

Limitations & Future Directions

- Limitations include unequal sample sizes and a small sample of patients not diagnosed with thought disorders who completed the MMPI-2-RF booklet (*n* = 8)
- Future studies should compare scale intercorrelations across booklets and utilize equal sample sizes

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