

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

Katrina Conen¹, Danielle Burchett PhD¹, & David Glassmire PhD, ABPP²

¹Department of Psychology, California State University, Monterey Bay, ²Patton State Hospital



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 & 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 administrations.

Hypotheses

We hypothesized we would find minimal differences for most scales.

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 [83.8%] administered MMPI-2 booklet & 178 [16.2%] administered MMPI-2-RF booklet).

Measures

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

Procedure

- We examined independent samples *t*-tests and Hedges' *g* values comparing mean scores across booklet type.
- For predictive utility, we calculated differences in *g* size across groups with and without relevant diagnoses. We compared confidence intervals for each booklet's *g* values by scale.

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>)	<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>)	<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>)	<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).

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. 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.

References

- Tarescavage, A.M., Alosco, M.L., Ben-Porath, Y.S., Wood, A., & Luna-Jones, L. (2014). Minnesota Multiphasic Personality Inventory-2- Restructured Form (MMPI-2-RF) scores generated from the MMPI-2 and MMPI-2-RF test booklets: Internal structure comparability in a sample of criminal defendants. *Assessment*, 1(10), 188-197.
- Van der Heijden, P.T., Egger, J.I.M., & Derksen, J.J.L. (2010). Comparability of scores on the MMPI-2-RF scales generated with the MMPI-2 and MMPI-2-RF booklets. *Journal of Personality Assessment*, 92(3), 254-259.
- Ben-Porath, Y. S., & Tellegen, A. (2011). *MMPI-2-RF manual for administration, scoring, and interpretation*. Minneapolis, MN: University of Minnesota Press. (Original work published in 2008)
- Ben-Porath (2012). *Interpreting the MMPI-2-RF*. Minneapolis, MN: University of Minnesota Press.

Acknowledgements

This research was made possible by support from a grant from the University of Minnesota Press, Test Division which supported data collection, and California State University, Monterey Bay Undergraduate Research Opportunity Center (UROC) which provided additional financial, logistical, and mentorship support. This research was approved by the CA Department of Mental Health Committee for the Protection of Human Subjects. The statements and opinions expressed are those of the authors and do not constitute the official views or the official policy of DSH-Patton, The California Department of State Hospitals, or the State of California. The authors thank Harry Oreol for his support of the research program at Patton State Hospital.