Special Issue on Using MMPI-2 Scale Configurations in Law Enforcement Selection: Introduction and Meta-Analysis

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In a recent meta-analysis of the validity of the MMPI and MMPI-2 to predict performance of law enforcement personnel, it was found that the individual scales were not valid predictors of supervisor ratings or of such objective measures of performance as commendations and citizen complaints (Aamodt, 2004). However, the meta-analysis suggested that the use of special scale patterns such as the Good Cop/Bad Cop or the Husemann Index might be useful predictors of law enforcement performance. In this special issue of Applied H.R.M. Research, researchers with MMPI-2 or MMPI datasets were asked to reanalyze their data using a variety of these special scales. This article provides descriptions of these scales, serves as an introduction to the articles that follow, and reports the results of a meta-analysis of these studies.

In a meta-analysis of the validity of the MMPI and MMPI-2 in predicting performance of law enforcement personnel (Aamodt, 2004), it was found that the individual scales were not valid predictors of supervisor ratings or of such objective measures of performance as commendations and citizen complaints (copies of these findings are in the appendix to this article). It is probably not surprising that individual scales of the MMPI had such low correlations with measures of police performance because the MMPI scales are usually interpreted with cutoff scores rather than with linear relationships. So, what these results basically mean is that score differences within the normal range of a single scale (30-69 for the MMPI and 35-64 for the MMPI-2) are not particularly useful. Because applicants with extremely high scores (above 70 for the MMPI, above 65 for the MMPI-2) are seldom hired, it is impossible from the available data to determine how these officers would perform.

As mentioned previously, using MMPI scores within a normal range is not a common or useful practice. Instead, psychologists look at extreme scores or patterns of scores. For example, some psychologists screen out applicants who have a score above 65 on any clinical scale whereas others look at particular patterns of scores. In the research literature, there are several methods mentioned in at least one article that seek to predict police performance with certain MMPI patterns. These patterns—Good Cop/Bad Cop Profile, Goldberg Index, Husemann Index, and the Gonder Index—need further exploration. For this special issue of *Applied H.R.M. Research*, we asked researchers with MMPI or MMPI-2 datasets to go back and analyze the ability of the following techniques to predict law enforcement performance.

Good Cop/Bad Cop Profile

The Good Cop/Bad Cop (GCBC) Profile was developed by Blau, Super, and Brady (1993). A prediction of an applicant being a "good cop" is made when the applicant's T scores are less than 60 on the Hy, Hs, Pd, and Ma scales and less than 70 on the other clinical scales. Brewster and Stoloff (1999) modified this technique to include three categories: good cop (no scores above the cutoff), borderline (one score above the cutoff), and bad cop (two or more scores above the cutoff). As shown in Table 7.11, evidence of validity for the GCBC profile across the two studies is promising. Further research is needed on the validity of this profile as well as whether a borderline category increases the profile utility.

Goldberg Index

The formula for the Goldberg Index is L+Pa+Sc-Hy-Pt. In a study investigating the validity of this combination of scales, Costello, Schneider, Schoenfeld, and Kobos (1982) found a correlation of - .28 between the Goldberg Index and performance.

Husemann Index

The Husemann Index is a measure of aggression and impulsivity and is formed by summing the F, Pd, and Ma scales. Costello and Schneider (1996) used a cutoff score of 192 and found a correlation of .22 between index category (above 192, less than 192) and being categorized as a problem officer (officers in the top 10% of days suspended) or a non-problem officer (officer in the bottom 10% of days suspended). Hargrave, Hiatt, and Gaffney (1988) found that scores on these scales were higher for officers and applicants who had been in at least two fights (aggressive) than for officers and applicants who had not been involved in fights.

Aamodt Index

Similar to the Husemann Index, the Aamodt Index is formed by summing the F and Ma scales. This index was created as the meta-analysis on the validity of the MMPI (Aamodt, 2004) suggested that these two scales were the most successful MMPI scales in predicting academy grades and supervisor ratings of law enforcement performance.

Gonder Index

The Gonder Index is created by summing the Pd, Pt, Mf, Ma, Hs, and Hy scales. In the only study looking at this combination, Gonder (1998) found a correlation of .02 between the index scores and completion of the academy (cadets completing the academy had slightly higher scores).

Five-Factor Model

Bernstein, Schoenfeld, and Costello (1982) factor-analyzed the MMPI and suggested that there are five basic MMPI factors that can be used in predicting law enforcement performance:

- Factor I (general pathology): Hs + Pd + Pa + Pt + Sc + Ma
- Factor II (bipolar): Hy + Hs + K - Ma
- Factor III (introversion): Si
- Factor IV: Pa + MF – L - K
- Factor V: F-K

Using a sample of 91 police officers, Bernstein, Schoenfeld, and Costello (1982) found that Factor I scores were negatively correlated with academy performance (r = - .29) and citizen complaints (r = - .19), Factor II scores were positively correlated with academy performance (r = .22), Factor III scores were positively correlated with the number of disciplinary days received by the officers (r = .18), and Factor V scores were negatively related to academy performance (r = -.18) and positively related to injuries (r = .33). In a sample of 200 officers, Costello, Schneider, and Schoenfeld (1993) found that Factor V scores (using a cutoff of -16) correlated .25 with disciplinary problems.

The Special Issue of Applied H.R.M. Research

Researchers with relevant MMPI databases were asked to report their results using a template provided by the Editor. These brief research reports are contained in the following pages of the Journal. Some of the brief reports contain an appendix of correlations between individual MMPI or MMPI-2 scales and the criterion if they had not been reported previously in a journal article. Of the 15 researchers contacted, 6 agreed to contribute their data.

Table 1

Validity of MMPI profile configurations in previously published research

Method/ Study	Criterion	N	Base Rate	Overall Prediction Accuracy %	r
Good Cop/Bad Cop					
Blau et al. (1993)	Performance Ratings	30	50.0	80.0	- .76
Brewster & Stoloff (1999)	Performance Ratings	39	79.0	82.1	- .44
Goldberg Index					
Costello et al. (1982)	Performance Ratings	161	85.7	80.7	- .28
Husemann Index					
Costello & Schneider (1996)	Suspensions	107	89.7	91.0	.22
Gonder Index					
Gonder (1998)	Academy Grades	291			.02

Meta-Analysis Results and Discussion

A summary of the studies from this special issue and from previous research is shown Table 2. These data were meta-analyzed using Meta-Manager 5.1, an Excel-based program for conducting meta-analyses (Aamodt, 2004).

As shown in Table 3, the meta-analysis indicates that only the Blau method of scoring the Good Cop/Bad Cop Scale and Factor 3 (social introversion) scores were significantly related to performance (in meta-analysis, an effect size is considered statistically significant if the confidence interval does not include zero). The correlation of .15 between the GCBC scale and performance ratings is higher than the .09 correlation found for the F, Sc, and Ma scales in the Aamodt (2004) meta-analysis (see Table A2 in the appendix of this article), suggesting that the GCBC combination of scales is more useful than looking at individual MMPI scales. The .13 correlation between the social introversion scale and performance ratings found in the five studies in this meta-analysis is larger than the -.01 correlation found in the 23 studies in the Aamodt (2004) meta-analysis of MMPI individual scales. When the data from the studies in this special issue are combined with the Aamodt (2004) meta-analysis, the mean correlation coefficient is still -.01 with a confidence interval that includes zero. Thus the social introversion scale (Factor 3) does not appear to be a valid predictor of performance ratings.

With the exceptions of Factors 3 and 4, all of the other scale combinations significantly correlated with discipline problems. Of these other scales, the Aamodt Scale (F + Ma) had the highest correlation ($r = .19$) with discipline problems. The .19 coefficient is much higher than the validity of any of the single MMPI scales found in the Aamodt (2004) meta-analysis (see Table A3 in the appendix of this article).

Table 2
Summary of studies included in the meta-analysis

Study/Scale	N	Performance Ratings		Discipline Problems	
		Criterion	Validity	Criterion	Validity
Bernstein et al. (1982)					
Factor I	91			Disciplinary actions	- .17
Factor II	91			Disciplinary actions	.04
Factor III	91			Disciplinary actions	- .02
Factor IV	91			Disciplinary actions	.12
Factor V	91			Disciplinary actions	.15
Blau et al. (1993)					
GCBC (2 levels)	30	Performance ratings	- .76		
Brewster & Stoloff (1999)					
GCBC (3 levels)	39	Performance ratings	- .44		
Brewster & Stoloff (2004)					
GCBC (2 levels)	112	Performance ratings	- .23	Terminated	.23
GCBC (3 levels)	112	Performance ratings	- .14	Terminated	.21
Husemann Index	112	Performance ratings	- .07	Terminated	.14
Aamodt Index	112	Performance ratings	- .03	Terminated	.11
Goldberg Index	112	Performance ratings	.07	Terminated	.16
Gonder Index	112	Performance ratings	- .15	Terminated	- .03
Factor I	112	Performance ratings	- .16	Terminated	.09
Factor II	112	Performance ratings	- .14	Terminated	- .06
Factor III	112	Performance ratings	.06	Terminated	.02

	N				
Factor IV	112	Performance ratings	.13	Terminated	-.08
Factor V	112	Performance ratings	.15	Terminated	.07
Costello & Schneider (1996)					
Husemann Index	107			Suspensions	.22
Costello et al. (1982)					
Goldberg Index	161	Performance ratings	-.28		
Davis & Rostow (2004)					
GCBC (2 levels)	1,992			Terminated for cause	.10
GCBC (3 levels)	1,992			Terminated for cause	.12
Huseman Index	1,992			Terminated for cause	.10
Aamodt Index	1,992			Terminated for cause	.19
Goldberg Index	1,992			Terminated for cause	.15
Gonder Index	1,992			Terminated for cause	.11
Factor I	1,992			Terminated for cause	.13
Factor II	1,992			Terminated for cause	-.04
Factor III	1,992			Terminated for cause	.02
Factor IV	1,992			Terminated for cause	.01
Factor V	1,992			Terminated for cause	.07
Matyas (2004)					
GCBC (2 levels)	115	Performance ratings	-.09	Suspensions	.08
GCBC (3 levels)	115	Performance ratings	-.02	Suspensions	.10
Husemann Index	115	Performance ratings	-.09	Suspensions	.08
Aamodt Index	115	Performance ratings	.04	Suspensions	.15
Goldberg Index	115	Performance ratings	.11	Suspensions	.01
Gonder Index	115	Performance ratings	-.01	Suspensions	-.12
Factor I	115	Performance ratings	.01	Suspensions	-.11
Factor II	115	Performance ratings	-.06	Suspensions	-.19
Factor III	115	Performance ratings	.09	Suspensions	.25
Factor IV	115	Performance ratings	-.01	Suspensions	.01
Factor V	115	Performance ratings	.02	Suspensions	.17
Raynes (2004)					
GCBC (2 levels)	26	Discipline	-.15	Discipline	.30
GCBC (3 levels)	26	Discipline	-.15	Discipline	.30
Husemann Index	26	Discipline	-.15	Discipline	.30
Aamodt Index	26	Discipline	-.28	Discipline	.48
Goldberg Index	26	Discipline	-.19	Discipline	.18
Gonder Index	26	Discipline	-.04	Discipline	.11
Factor I	26	Discipline	-.26	Discipline	.18
Factor II	26	Discipline	.20	Discipline	-.39
Factor III	26	Discipline	.13	Discipline	-.08
Factor IV	26	Discipline	.05	Discipline	-.27
Factor V	26	Discipline	.03	Discipline	.06
Surrette et al. (2004)					
GCBC (2 levels)	129	Supervisor ratings	.00		
GCBC (3 levels)	129	Supervisor ratings	-.15		
Husemann Index	129	Supervisor ratings	.00		
Aamodt Index	129	Supervisor ratings	-.08		
Goldberg Index	129	Supervisor ratings	.04		
Gonder Index	129	Supervisor ratings	.04		
Factor I	129	Supervisor ratings	.01		
Factor II	129	Supervisor ratings	.07		
Factor III	129	Supervisor ratings	.18		
Factor IV	129	Supervisor ratings	.07		
Factor V	129	Supervisor ratings	-.04		
Thomas & Kauder (2004)					
GCBC (2 levels)	30	Supervisor ratings	-.07		
GCBC (3 levels)	30	Supervisor ratings			
Husemann Index	30	Supervisor ratings	.03		
Aamodt Index	30	Supervisor ratings	-.04		

Goldberg Index	30	Supervisor ratings	.11			
Gonder Index	30	Supervisor ratings	.30			
Factor I	30	Supervisor ratings	.20			
Factor II	30	Supervisor ratings	.23			
Factor III	30	Supervisor ratings	.26			
Factor IV	30	Supervisor ratings	.00			
Factor V	30	Supervisor ratings	- .35			

Table 3
Meta-analysis results

Criterion/Scale	K	N	r	95% Confidence Interval		Var%	Q
				Lower	Upper		
Performance Ratings							
GCBC (2 levels)	7	481	- .17	- .32	- .02	36.3	18.73*
GCBC (3 levels)	6	451	- .15	- .31	.02	35.9	18.35*
Husemann Index	5	412	- .05	- .15	.05	100.0	0.97
Aamodt Index	5	412	- .04	- .05	.05	100.0	2.42
Goldberg Index	5	412	.06	- .04	.15	100.0	2.02
Gonder Index	5	412	- .01	- .11	.09	96.0	5.21
Factor I	5	412	- .04	- .14	.06	99.4	5.02
Factor II	5	412	.00	- .10	.09	88.6	5.64
Factor III	5	412	.13	.03	.22	100.0	1.55
Factor IV	5	412	.06	- .04	.15	100.0	1.14
Factor V	5	412	.01	- .09	.11	80.7	6.20
Discipline Problems							
GCBC (2 levels)	4	2,245	.11	.07	.15	100.0	2.65
GCBC (3 levels)	4	2,245	.13	.08	.17	100.0	1.57
Husemann Index	5	2,352	.11	.07	.15	100.0	2.72
Aamodt Index	4	2,245	.19	.15	.23	100.0	2.52
Goldberg Index	5	2,406	.15	.11	.19	95.8	4.46
Gonder Index	4	2,245	.11	.05	.17	43.1	8.44*
Factor I	5	2,336	.11	.04	.17	36.0	13.92
Factor II	5	2,336	- .05	- .09	- .01	80.4	6.24
Factor III	5	2,336	.03	- .01	.07	79.2	6.25
Factor IV	5	2,336	.00	- .03	.05	100.0	4.02
Factor V	6	2,536	.09	.05	.13	84.0	7.16

Note: K = number of studies, N = total number of subjects, r = mean correlation weighted by sample size, Var% = percentage of variance expected by sampling error, and Q = a chi-square statistical test of the homogeneity of the correlation coefficients (significance is indicated by an asterisk)

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Appendix: Results of MMPI Meta-Analysis (Aamodt, 2004)

Table A1: Meta-analysis results for the validity of the MMPI in predicting academy grades

MMPI Scale	K	N	r	95% Confidence Interval		ρ	90% Credibility Interval		Var	Q_w
				Lower	Upper		Lower	Upper		
L	9	1,469	-.02	-.11	.07	-.03	-.32	.25	30%	29.57*
F	9	1,469	-.11	-.17	-.04	-.16	-.31	.00	61%	14.82
K	8	1,364	.08	.02	.14	.12	-.01	.24	71%	11.31
Hs	6	973	-.09	-.15	-.02	-.13	-.13	-.13	100%	1.00
D	7	1,073	-.07	-.13	-.01	-.11	-.11	-.11	100%	2.80
Hy	7	1,073	.02	-.04	.08	.04	.04	.04	100%	4.66
Pd	7	1,105	-.04	-.10	.02	-.06	-.06	-.06	100%	1.65
MF	9	1,411	-.02	-.10	.05	-.04	-.27	.20	42%	21.66*
Pa	8	1,387	.04	-.01	.09	.06	-.05	.16	77%	10.38
Pt	7	1,105	-.03	-.09	.03	-.05	-.05	-.05	100%	3.46
Sc	6	973	-.07	-.14	-.01	-.11	-.11	-.11	100%	5.04
Ma	6	973	-.11	-.20	-.02	-.16	-.40	.08	40%	15.01*
Si	9	1,478	-.01	-.11	.09	-.02	-.36	.32	24%	37.44*

K=number of studies, N=sample size, r = mean correlation, ρ = mean correlation corrected for range restriction, criterion unreliability, and predictor reliability, VAR = percentage of variance explained by sampling error and study artifacts, Q_w = the within group heterogeneity

Table A2: Meta-analysis results for the validity of the MMPI in predicting supervisor ratings of performance

MMPI Scale	K	N	r	95% Confidence Interval		ρ	90% Credibility Interval		Var	Q_w
				Lower	Upper		Lower	Upper		
L	25	3,279	-.03	-.07	.00	-.05	-.08	-.03	49%	51.14*
F	23	3,304	-.09	-.12	-.05	-.15	-.39	.10	49%	46.99*
K	26	3,519	.04	-.04	.11	.06	-.24	.36	39%	67.03*
Hs	24	2,663	-.02	-.09	.04	-.04	-.27	.20	56%	41.14*
D	23	2,715	-.06	-.11	-.01	-.10	-.24	.04	77%	29.89*
Hy	24	3,222	.02	-.04	.08	.03	-.19	.26	54%	44.60*
Pd	24	3,273	-.08	-.15	-.01	-.14	-.16	-.11	49%	49.16*
MF	21	2,768	-.06	-.10	-.03	-.11	-.20	-.02	89%	23.71
Pa	27	3,314	-.01	-.08	.07	-.01	-.29	.27	45%	60.56*
Pt	22	2,585	-.07	-.13	-.01	-.12	-.31	.07	63%	33.68*
Sc	22	2,585	-.09	-.17	-.01	-.15	-.45	.16	43%	50.81*
Ma	24	3,204	-.09	-.16	-.03	-.16	-.40	.08	52%	45.84*
Si	23	2,861	-.01	-.05	.02	-.02	-.16	.12	76%	30.39

K=number of studies, N=sample size, r = mean correlation, ρ = mean correlation corrected for range restriction, criterion unreliability, and predictor reliability, VAR = percentage of variance explained by sampling error and study artifacts, Q_w = the within group heterogeneity

Table A3: Meta-analysis results for the validity of the MMPI in predicting discipline problems and complaints

MMPI Scale	K	N	r	95% Confidence Interval		ρ	90% Credibility Interval		Var	Q_w
				Lower	Upper		Lower	Upper		
L	11	4,967	-.02	-.07	.02	-.04	-.21	.13	35%	31.63*
F	10	3,620	.01	-.03	.06	.02	-.10	.14	58%	17.14*
K	11	3,695	.00	-.03	.03	.00	.00	.00	100%	7.97
Hs	13	3,814	-.02	-.06	.02	-.03	-.12	.07	72%	18.06
D	12	3,712	-.01	-.05	.03	-.02	-.13	.08	68%	17.77
Hy	12	3,976	.00	-.05	.05	-.01	-.13	.12	59%	20.51*
Pd	14	4,143	.03	-.02	.08	.05	-.14	.24	41%	34.56*
MF	11	3,647	.00	-.04	.04	.00	-.10	.10	67%	16.38
Pa	11	3,647	.01	-.03	.06	.02	-.12	.17	52%	21.13*
Pt	13	3,814	-.02	-.05	.01	-.03	-.03	-.03	100%	11.52
Sc	13	3,797	.00	-.03	.03	.01	-.05	.06	90%	14.51
Ma	12	3,749	.02	-.02	.05	.03	.03	.03	100%	11.56
Si	13	3,813	.01	-.03	.04	.01	.01	.01	100%	11.97

K=number of studies, N=sample size, r = mean correlation, ρ = mean correlation corrected for range restriction, criterion unreliability, and predictor reliability, VAR = percentage of variance explained by sampling error and study artifacts, Q_w = the within group heterogeneity

Table A4: Meta-analysis results for the validity of the MMPI in predicting citizen and department commendations

MMPI Scale	K	N	r	95% Confidence Interval		ρ	90% Credibility Interval		Var	Q_w
				Lower	Upper		Lower	Upper		
L	6	727	-.01	-.09	.06	-.02	-.02	-.02	100%	1.93
F	6	727	-.01	-.10	.08	-.02	-.22	.19	50%	12.03*
K	6	727	-.04	-.12	.04	-.05	-.18	.08	71%	8.40
Hs	7	754	-.05	-.16	.06	-.07	-.40	.20	33%	21.50*
D	7	754	.02	-.05	.09	.03	.03	.03	100%	6.28
Hy	8	1,083	-.01	-.09	.08	-.01	-.06	.04	43%	18.78*
Pd	7	754	-.06	-.18	.07	-.08	-.42	.27	28%	25.29*
MF	7	754	-.02	-.11	.07	-.02	-.21	.16	57%	12.36*
Pa	7	754	-.01	-.10	.08	-.01	-.22	.19	52%	13.40*
Pt	7	754	-.07	-.14	.00	-.10	-.39	.19	36%	19.47*
Sc	7	754	-.05	-.16	.07	-.06	-.37	.25	33%	21.50*
Ma	7	754	-.01	-.08	.06	-.02	-.13	.09	79%	8.81
Si	7	754	-.03	-.11	.06	-.04	-.20	.13	64%	10.90

K=number of studies, N=sample size, r = mean correlation, ρ = mean correlation corrected for range restriction, criterion unreliability, and predictor reliability, VAR = percentage of variance explained by sampling error and study artifacts, Q_w = the within group heterogeneity

Table A5: Meta-analysis results for the validity of the MMPI in predicting absenteeism

MMPI Scale	K	N	r	95% Confidence Interval		ρ	90% Credibility Interval		Var	Q_w
				Lower	Upper		Lower	Upper		
L	5	1,439	.03	-.02	.07	.04	.04	.04	100%	1.75
F	6	1,768	.01	-.04	.05	.01	.01	.01	100%	2.69
K	5	1,439	-.05	-.10	.00	-.07	-.09	-.05	98%	5.06
Hs	6	1,529	-.05	-.10	.00	-.07	-.13	.00	81%	7.45
D	5	1,439	-.03	-.09	.02	-.05	-.05	-.05	100%	1.72
Hy	5	1,439	-.06	-.11	-.01	-.08	-.08	-.08	100%	1.31
Pd	6	1,768	.00	-.05	.04	.00	-.08	.07	76%	7.85
MF	6	1,768	.00	-.04	.05	.01	.02	.01	100%	5.75
Pa	5	1,439	-.03	-.08	.02	-.04	-.04	-.04	100%	3.92
Pt	5	1,439	-.05	-.10	.01	-.06	-.06	-.06	100%	4.88
Sc	5	1,439	-.06	-.11	-.01	-.08	-.08	-.08	100%	2.18
Ma	5	1,439	.01	-.04	.06	.00	.00	.03	98%	5.08
Si	6	1,530	-.01	-.06	.04	-.02	-.02	-.02	100%	1.86

K=number of studies, N=sample size, r = mean correlation, ρ = mean correlation corrected for range restriction, criterion unreliability, and predictor reliability, VAR = percentage of variance explained by sampling error and study artifacts, Q_w = the within group heterogeneity