THREE STUDIES OF THE MMPI AS A PREDICTIVE INSTRUMENT IN METHADONE MAINTENANCE[1]

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The current popularity of methadone maintenance treatment appears justified largely on the strength of outcome studies which demonstrate its general effectiveness in facilitating the social rehabilitation of heroin addicts. Gearing (1971), for example, reports that only one percent of patients remaining in treatment revert to heroin use, that 80 to 90 percent remain free of other serious drug abuse, and that a majority of patients complete vocational or academic training, become self-supporting and refrain from their prior patterns of criminality and involvement with law enforcement agencies.

Representative findings such as these are impressive both in absolute terms and in comparison to the typically lower success rates estimated for alternative treatment approaches. Yet,the generalization of these findings to a larger universe of heroin addicts is, of course, limited by both systematic and random factors which influence patients' attraction to and acceptance by methadone maintenance programs. Likewise, the merits of methadone maintenance relative to alternative treatment approaches cannot be truly evaluated on the basis of largely partisan out come research in which methodological decisions seem to guarantee results that conform to extra-scientific dictates. Even discounting these perhaps incurable methodological shortcomings, the potential benefits of methadone maintenance seem well-established at this time, at least for those patients who are willing, able, and eligible to remain in treatment.

Regardless of its overall effectiveness, it is clear that a majority of heroin addicts do not seek methadone maintenance, and that a significant number of addicts fail in methadone maintenance programs, typically within the first few weeks or months of treatment when patient costs are greatest. To maximize the effectiveness of methadone maintenance programs and to insure that each addict receives the most appropriate services, research should be directed toward the identification of factors predictive of addicts differential preferences for and responses to various treatment alternatives. In the long run such research should prove more useful than the mere proliferation of outcome studies which tend to obscure the complexities of addiction and deny the possibilities of a viable multi-modality approach to rehabilitation.

This paper presents the findings of three studies designed to identify factors associated with success in methadone maintenance. The Minnesota Multiphasic Personality Inventory (MMPI) was selected as a research instrument in these preliminary studies for primarily practical reasons. It is an objective, paper and pencil test which can be easily and cheaply administered,scored and interpreted. It has been used widely in clinical and research settings to describe personality characteristics of individuals and groups, and to predict patients' responses to various medical and psychiatric treatments. The MMPI has also been used most frequently in previous research on personality characteristics of heroin addicts and other drug abusers.

Method

MMPI data for methadone patients reported in all three studies were obtained from the first 51 male and 15 female applicants to the San Francisco Center for Special Problems who met established guidelines for methadone maintenance treatment. All applicants were between 18 and 44 years old, had been addicted to heroin for at least five years, had been to prison at least once,[2] and had tried some other form of treatment for their addiction before applying for methadone maintenance.

The MMPI was administered to these patients prior to their acceptance for methadone maintenance but test results were not used as a basis for screening, determination of maintenance dosage or subsequent clinical decisions. Patients classified as successful in methadone maintenance have remained in treatment for 18 months to two and one half years. Patients classified as unsuccessful include those who detoxified voluntarily against medical advice and those who were detoxified for cause.

Additional MMPI data reported in study one were obtained from 41 male and 26 female heroin addicts who sought outpatient detoxification at the Haight Ashbury Medical Clinic.[3] In general, this group is similar to the methadone maintenance applicants in terms of age, ethnicity, duration of addiction, etc., although some patients with shorter histories of addiction would not have been eligible for methadone maintenance.

STUDY ONE: Comparison of Applicants for Methadone Maintenance and Outpatient Detoxification Programs

The purpose of this study was to determine if applicants for methadone maintenance differ in any systematic way from addicts who seek an alternative form of treatment. Figures 1 and 2 present MMPI group profiles (with raw K

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[2]Addicted spouses of eligible applicants were exampted from the prerequisite of prior incarceration as their participation in treatment was required as a condition of their spouses acceptance.

[3]These data were obtained through the courtesy of David Smith, M.D., George Gay, M.D., David Wellish and Steven Lerner.

corrections added) of male and female addicts seeking methadone maintenance compared with patients seeking outpatient detoxification. These data are summarized in Table 1.

In spite of a similarity in profile configuration which suggests that applicants for both treatment modalities have a comparable personality organization, it is clear that detoxification patients manifest considerably more psychopathology than the methadone maintenance group. Both male and female detoxification patients show higher elevations on all of the MMPI clinical scales; these differences are most striking on scales measuring psychotic trends. Detoxification patients also score significantly higher on the hypochondriasis scale (Hs), which measures concern over bodily functioning, but they are not significantly different from the methadone maintenance group on other scales measuring neurotic or character pathology.

In general, these findings demonstrate that addicts who seek methadone maintenance are less psychiatrically disturbed than those who seek outpatient detoxification. It would seem, therefore, that the overall success of methadone maintenance programs may be enhanced by selective pressures which result in the most seriously disturbed addicts not seeking methadone maintenance.

STUDY TWO: Comparison of Successful and Unsuccessful Patients in Methadone Maintenance

This study was designed to identify MMPI variables which might be used to predict success in methadone maintenance.[4] Comparison of successful and unsuccessful patients on the MMPI shows few significant differences. Successful patients score significantly higher on the K scale, a measure of test defensiveness, and on the Barron ego strength scale (Es), which was developed as a prognostic indicator for success in psychotherapy. Unsuccessful patients score significantly higher only on the F scale, a validity measure keyed for admission of bizarre and statistically infrequent symptomatology.

However, unsuccessful patients score at least slightly higher than successful patients on eight of the ten clinical scales of the MMPI, with greatest differences occurring on scales in the psychotic triad. Although these differences are not statistically significant it is noteworthy that unsuccessful patients tend to be most different from successful patients on the same scales which differentiate between applicants for detoxification as opposed to methadone maintenance. This suggests that both preference for and success in methadone maintenance are associated with a common factor - the relative absence of severe psychopathology.

In spite of its relatively poor showing as a predictive instrument in this study, these results suggest that the MMPI might prove effective within a more heterogeneous patient population. However, if success in methadone maintenance rests primarily on patients' relative freedom from severe psychopathology it seems unnecessary to use the MMPI

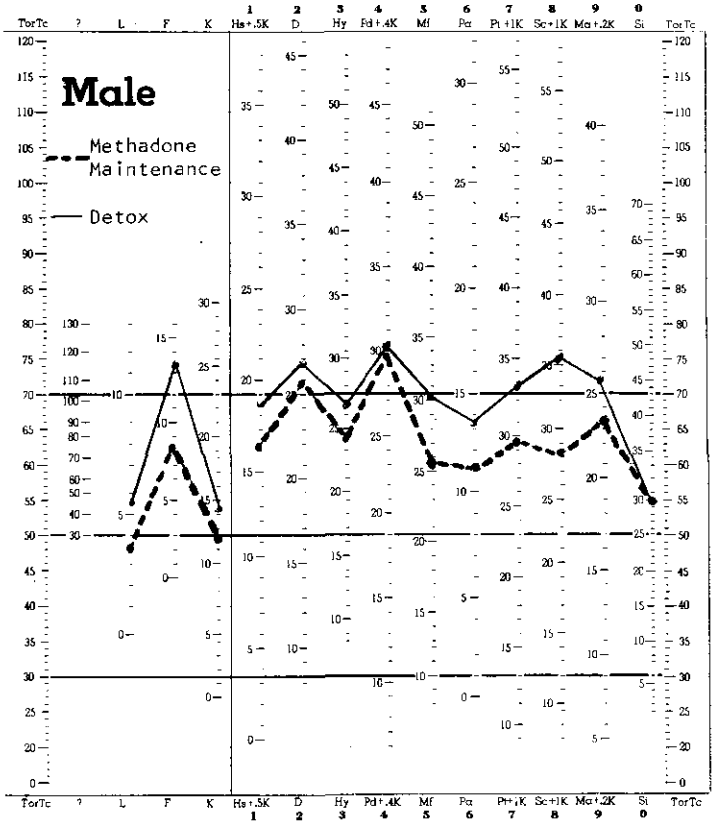

Figure 1. Comparison of the MMPI profiles of male addicts seeking methadone maintenance (N=51) with male addicts seeking short-term detoxification (N=41).

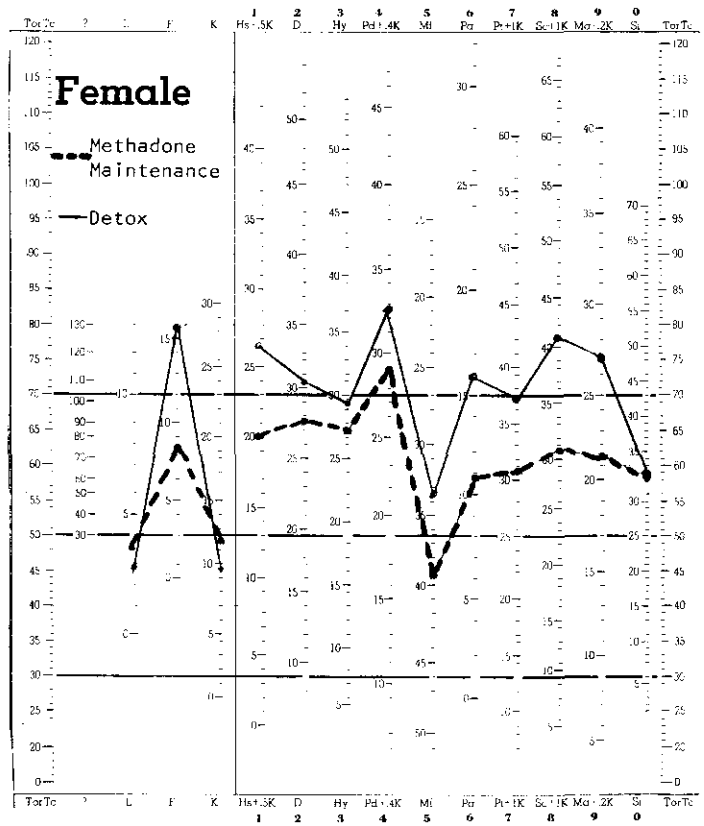

Figure 2. Comparison of the MMPI profiles of female addicts seeking methadone maintenance (N=15) with female addicts seeking short-term detoxification (N=26).

[4] Among these patients, success in treatment was unrelated to age, sex, ethnicity, marital status, current employment status, age of first heroin use, or duration of addiction. For a larger patient sample success appears to be positively associated with employment status.

TABLE 1

MMPI Scores of Applicants for Methadone Maintenance and Detoxification Programs

MMPI Scales	Males						Females					
	Methadone (N=51)		Detoxification (N=41)				Methadone (N=15)		Detoxification (N=26)			
	$\bar{X}$	SD	$\bar{X}$	SD	t	p	$\bar{X}$	SD	$\bar{X}$	SD	t	p
L	48.07	6.62	54.66	5.43	5.14	.001	48.27	5.78	45.77	5.77	1.30	--
F	62.88	10.56	74.33	17.33	3.91	.001	62.40	9.36	79.73	16.33	3.68	.001
K	49.82	8.62	53.76	7.72	2.28	.05	49.00	11.00	45.27	6.52	1.33	--
Hs	62.06	14.76	68.31	15.00	2.00	.05	64.00	11.51	76.34	12.38	3.08	.01
D	71.84	14.25	74.21	14.07	.80	--	66.40	15.45	71.47	12.64	1.11	--
Hy	63.73	12.01	68.02	11.60	1.73	--	65.20	6.88	68.43	10.21	1.06	--
Pd	75.47	10.64	77.21	10.80	.78	--	73.80	10.32	82.11	13.97	1.96	--
Mf	60.16	10.88	69.18	11.70	3.82	.001	44.67	9.45	55.40	10.54	3.18	.01
Pa	59.02	10.29	65.41	13.76	2.55	.05	58.33	10.49	72.97	15.64	3.15	.01
Pt	63.14	12.42	71.05	13.09	2.97	.01	59.13	10.22	69.21	14.65	2.30	.05
Sc	61.61	13.72	75.64	20.10	3.97	.001	62.87	13.42	78.58	15.98	3.13	.01
Ma	66.43	10.23	71.85	12.38	2.30	.05	61.20	10.04	75.21	10.55	4.07	.001
Si	54.82	9.05	54.59	8.82	.12	--	58.27	10.26	58.48	12.69	.05	---

to accomplish so limited a diagnostic task.

STUDY THREE: Paired Comparisons of Successful and Unsuccessful Patients in Methadone Maintenance

Because the MMPI was developed for the assessment of individual patterns of personality and psychopathology its potential as a predictive instrument in methadone maintenance cannot be estimated wholly on the strength of the foregoing studies. While these studies show that at least some MMPI scales differentiate between selected groups of heroin addicts, the averaging of MMPI scores within groups may have obscured profile configurations predictive of success for individual patients. This study was designed, therefore, to develop and test MMPI criteria which might be used to screen individual applicants for methadone maintenance.

To establish MMPI criteria predictive of success in the absence of relevant normative data, two of the present authors (J.A.W. and N.S.) prepared, on the basis of their clinical experience, a descriptive statement characterizing successful and unsuccessful patients.[5] Each of 13 separate traits thus ascribed to one or the other group of patients was used as the basis for generating a hypothesis based on specified scalar or configurational features of the MMPI profile. Each hypothesis was stated to allow for its testing in a series of 19 paired comparisons between successful and unsuccessful patients matched for sex and approximate age. To take one example, the narrative description of successful patients includes the statement ". . . they are able to cope very well, see themselves as adequate and are generally confident." This statement was used to derive the prediction that the MMPI profile of the successful member of each matched pair would show a higher score on ego strength (Es), a lower average elevation, and have fewer peaks. Table 2 presents trait descriptions, MMPI predictions, and results of chi square tests of significance (in which expected values were determined as a function of the number of prifile features predicted for each comparison).

Four of the 13 hypotheses were confirmed by a significant proportion of correct versus incorrect (or only partially correct) predictions across the 19 pairs of matched patients. Successful patients were thus shown to cope more adequately, to have fewer somatic complaints, to be generally more uncomplaining and to exercize better judgment. Again, these results indicate that success in methadone maintenance is associated more with general conditions of mental health than with any particular constellation of traits or personality attributes. It is striking to note that almost all of the disconfirmed hypotheses in this study refer more to particular personality traits or interpersonal dispositions than to general indicators of psychological stability.

In sum, results of these three studies lead us to the following brief conclusions and comments:

5. The preparation of these clinical portraits and the derivation of MMPI predictions were done prior to inspection or analysis of MMPI data relevant to these studies.

1. Success in methadone maintenance is more related to the absence of gross psychopathology than to any particular trait or constellation of traits.

2. The MMPI can be used to predict addicts' preferences for and ability to succeed in methadone maintenance. Its predictive validity is likely to be greatest when used in a heterogeneous population to screen out most seriously disturbed patients.

3. The prediction of treatment success might be accomplished more directly through assessment of applicants' personal and social strengths estimated, perhaps, on the basis of their premorbid and current achievements. Objective or interview measures tapping these areas of concern should be investigated as alternatives to more elaborate diagnostic procedures.

4. To the extent that treatment outcome rests on pre-existing personal and social strengths, it is likely that at least some patients who succeed in methadone maintenance might also benefit from drug-free treatment alternatives. At the very least, more maintenance to abstinence programs should be developed so that addicts capable of benefiting from methadone maintenance can be encouraged to become free of all drug dependence.

5. Finally, the ecological validity of findings such as these should be replicated in other methadone programs sampling from a larger addict population. The generality of the present findings may be limited by our selection of the first group of addicts to apply for methadone maintenance in San Francisco.

Reference

Gearing, Frances R. Successes and failures in methadone maintenance treatment of heroin addiction in New York City. Proceedings of the Third National Conference on Methadone Treatment,Washington,D.C; U.S.Government Printing Office (Public Health Service Publication No. 2172), 1971.

TABLE 2

Characteristics of Successful Patients in Methadone Maintenance: MMPI Predictions and Findings

Successful patients hypothesized to be:	MMPI Predictions*	X^2
1. More passive	Ma-;Si+	1.42
2. Less impulsive	Pd-; Ma-	.44
3. More optimistic	F-;K+;Hy+	.17
4. Less complaining(general)	F-;D-;Pa-	6.32b
5. Less complaining(somatic)	Hs-	10.96c
6. More identified with non-addict groups	Pd-;Si-	.02
7. More affable	Pd-;Pa-;Si-	.19
8. More reserved	K+; Pa+	.86
9. Less manipulative	D+;Pd-;Pt+	.91
10. More intropunitive	D+;Pa-;Pt+	.91
11. More adequate	Es+,lower profile,flatter profile	35.80c
12. More independent	Hy+;Mf-(males) Mf+ (females)	.19
13. Better in judgment	Sc-;Ma-	5.07a

* + = successful patients predicted to have higher score
- = successful patients predicted to have lower score
a = $p < .05$
b = $p < .02$
c = $p < .001$

Ref: Pittel SM. "Three Studies of the MMPI as a Predictive Instrument in Methadone Maintenance". In: Proceedings of the Fourth National Conference on Methadone Treatment. New York: National Association for the Prevention of Addiction to Narcotics, 1972