HOD-MMPI: A Comparison

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Sixty-four adolescent inpatients were given the Minnesota Multiphasic Personality Inventory {MMPI), the Hoffer-Osmond Diagnostic test (HOD), the Willoughby, Wolpe's Fears, Clover's Sexual Values, and a Q-Sort comparing self-image to parental ideal. Both the MMPI and the HOD intra correlations among subtests and to each other were high, both significantly correlated to the Willoughby and Wolpe, and the HOD correlated to the Q-Sort discrepancy; neither test correlated to the Glover.

The HOD much more highly correlated to the clustered psychiatric diagnosis, teacher assessment, and outcome than the MMPI. Both the Wolpe and the Willoughby were correlated to this cluster assessment.

Q-Sort discrepancy correlated with the HOD and with Wolpe's Fears and at the .06 level with the Willoughby, but not at all with the MMPI or the Clover. The Clover correlated with no assessment in this study.

The D score on the HOD correlated more highly with diagnosis, assessment, and outcome than the TS, while the D score on the MMPI did not correlate with these assessments at all.

Conclusions are drawn that the HOD is more useful than the MMPI. These delinquents do not appear to be anxiety free (clinically or formally), and sexual repression or aberration is not observably or measurably an important factor in the etiology of their disorder. A high level of irrational anxiety and perceptual disorder is significantly involved in their pathology.

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BACKGROUND

The MMPI is the most commonly used multiple choice questionnaire for the diagnosis of psychiatric patients and for evaluating outcome in research (Hathaway and McKinley, 1943; Meehl and Hathaway, 1946; Meehl and Dahlstrom, 1960; Dahlstrom et al., 1972; Lachar, 1974).

Personal communication with the Roche Corporation indicates that their computerized interpretation service is used more widely than ever before.

In 1969 Jarvis and his colleagues demonstrated that the MMPI was neither reliable nor valid, replicating many earlier studies. The "cookbook" method of interpretation is no more valid than the more "precise" methods (ibid.).

Direct statements by the patient about his illness are more reliable than the MMPI (Dempsey, in Jarvis, ibid.) and a shortened form of the depression (D) subtest is more useful than the full battery.

The MMPI is better than a random group of questions, or a group of questions on the "lifestyle" of the individual; however, empirical keying, factor-analysis, rational scales, and theoretical scales were not significantly different in results. Simple, direct self-ratings are superior to inventory scale scores (Hase and Goldberg, 1967). This finding replicated Peterson (1965) and Carroll (1975) who demonstrated similar results for a large battery of inventories, and Halblower's doctoral dissertation (1955).

Recent research has severely criticized the MMPI. Taylor et al. (1976) concluded that "self-concept" accounts for two-thirds of MMPI variance, that the MMPI acts mainly as a medium for the transmission of information about self-concept, and that self-concepts mediate and organize specific item responses. Their conclusions support the use of simple direct self-confession of symptoms and identity as superior to the MMPI. Stenson et al. (1975) concluded that the performances of experienced and naive judges reflect stable characteristics of the judges more than the data represented by the MMPI. The MMPI is unable to differentiate between Huntington's Disease patients and brain-injured patients (Norton, 1974), hysterical and depressed patients (Slavney and Mc-Hugh, 1975), right hemisphere traumatic brain injury and controls, left and right hemisphere damage (Black, 1975), unipolar and bipolar depression (Donnelly and Murphy, 1973), homosexuals and heterosexuals (Horstman, 1975), women's liberation activists from controls (O'Neil et al., 1975), creative postdoctoral scientists from controls (Tafel and Fain, 1974), pre- and post-training recovered alcoholic and addict counselors (Jansen and Hoffmann, 1975), psychiatrically disturbed adults from parents of disturbed children (McAdoo and Connelly, 1975), frequent and infrequent dream reporters (Redfering and Keller, 1974), or socioeconomic status of patients (Kuha et al., 1975).

The depression subtest is totally invalid in elderly individuals (Harnatz and Shader, 1975), and while subjective improvement and clinical evaluation in a double-blind evaluation of medication in depressed patients showed distinct improvement for drug over placebo, the MMPI showed no change while the Zung Self-Rating Scale showed significant improvement (the Zung's rationale is similar to the HOD) (Shaw et al., 1975). When applied to delinquents, criminals, addicts, and alcoholics, in spite of its special scales, use of the MMPI is not well supported. Ono and his colleagues (1969) questioned the use of the F scale as a measure of reliability among delinquents in a very large study; Pugliese (1975) showed that the MMPI could not discriminate the employment status of addicts; the MacAndrew Alcoholism Scale and the Unitary Alcoholism Scale of the MMPI did not differentiate between patients who completed a 90-day program and those who did not (Huber and Danahy, 1975); the Mac-Andrews did not discriminate between alcoholics and criminally charged psychiatric patients who were not alcoholic (Ruff et al., 1975).

The use of short versions of the MMPI seems quite as useful as using the full battery. The Mini-Mult version differed only in two scales (Ogilvie et al., 1976), and closely agrees with the full scale in profile patterning, diagnosis, and Psychopathology in 91 percent of cases evaluated (Mlott, 1973), which is confirmed by Hedlund et al. (1975) for both the MMPI-68 short form and the Mini-Mult. Newmark and his colleagues found Faschingbauer's abbreviation of the MMPI an adequate substitute with psychiatric inpatients, but not the Midi-Mult or Hugo's abbreviation; however, all three versions were highly comparable with the MMPI when used with undergraduates.

HOD

In 1960 Hoffer and Osmond developed a simple inventory for self-screening of patients (1961). While the inventory uses subtests for diagnostic refinement, it is basically a group of straightforward questions about symptoms.

The HOD assumes that the higher a score, the sicker a patient is likely to be. This rationale is modified slightly by discounting the scores of those with high D scores. This is done by simply dividing the Total Score (TS) by the D score. No complex profile or esoteric judgment is required. Interestingly, the use of this test has been largely confined to practitioners of Orthomolecular psychiatry. Examination of the index for five years of the Psychological Abstracts (1971 - 1975) reveals no entry for the test.

The HOD is based on the research finding that simple, direct questions to the patient about his problem are more likely to be reliable and valid than any indirect inventory regardless of the method of interpretation.

HOD-MMPI IN 64 INPATIENT ADOLESCENT DELINQUENTS

All the delinquents in residence at Green Valley from July, 1973, through August, 1974, were given a large battery of assessments. A staff panel of five special educators evaluated these students on a 10-point rank of "usefulness of Green Valley Community's program to the patient." No member of the panel knew the rank given by any other member; individual scores were averaged electronically and simultaneously to avoid "Asch" effect (group consensus effect); each patient was also assessed by three psychiatrists who interviewed and evaluated independently; they were given a large battery of psychoneurological and perceptual tests, and those with distinct learning disabilities (not merely a history of school failure) were determined.

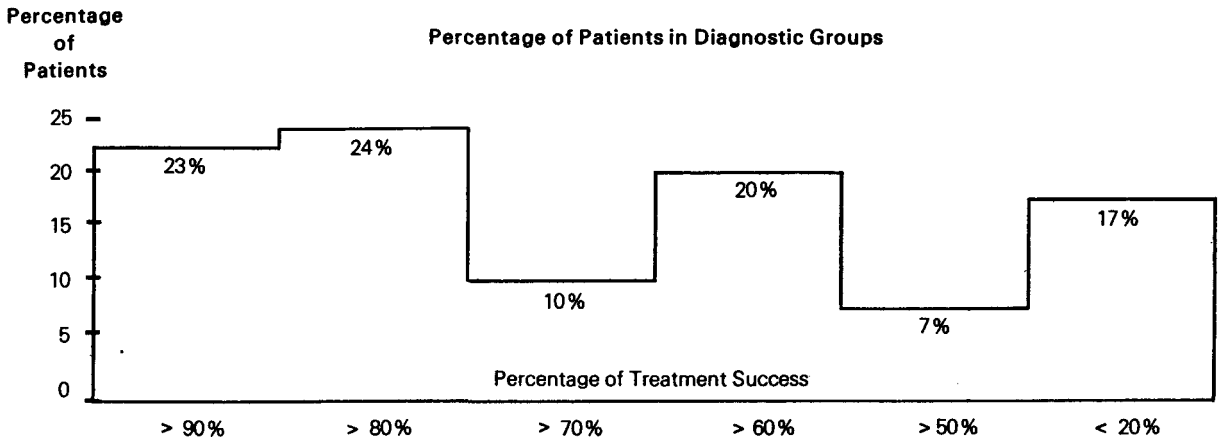
Combining all these assessments and tests gave us a final diagnosis for each student which is reported in Table 1 and Figure 1.

TABLE 1

Diagnostic Categories with Average Percentage of Therapist Success From 1963 to 1974

N	Diagnosis	11-year average of successful treatment
19	Chronic Severe Schizophrenia or Agitated Personality Disorder before age 8	10%
8	Depression, Inadequate, or Unclassifiable	54%
9	Acute, late onset Schizophrenia: Dysphoric and Passive	60%
14	Acute, late onset Schizophrenia: Agitated	63%
5	Rare Disorders	72%
6	Major Brain Involvement or Traumatic Injury	75%
9	Persistent Criminality with Learning Disability	81%
13	Agitated Depression, Moderate Acting out with Learning Disability	87%
5	Learning Disability without Acting Out or Psychiatric Involvement	88%
7	Agitated Depression	90%
5	Behavior Disorder (antisocial, adolescent adjustment)	94%
7	Reactive Depression	96%
6	Situational Adjustment Reaction	98%
1	No Problem	99%

FIGURE 1



These diagnostic assignments adequately indicated (a) how likely it was that the center could help the child, (b) how effective we were, (c) how likely it was that the child would be returned for treatment elsewhere, and (d) how unhappy or "difficult" the child was when we saw him. (This method of evaluating the residents, practiced over a 10-year period from 1963 to 1973, demonstrated a high degree of interobserver and inter-assessment reliability.) These rankings were made without reference to the inventory scores reported in Table 2.

The delinquents were asked to respond to the Hoffer-Osmond Diagnostic test (HOD) and to the Minnesota Multiphasic Personality Inventory (MMPI) as soon as practical after their admission to Green Valley. In addition, they were given a Q-Sort of self versus parental image (Poser, 1966) (they were asked to sort statements into "most like me" and "most unlike me," then into "most like my parents want me to be" and "most unlike what my parents want me to be"); a modification of the Adorno Dogmatism Scale (Rokeach, 1960) with the California F Scale (ibid.) and the Gough-Sanford Rigidity Scale (ibid)*; Glover's Inventory of Sexual Values (Neiger, 1963); the Willoughby Scale of Anxieties (Wolpe, 1969); and Quirk's modification of Wolpe's Inventory of Fears (ibid., and Quirk, 1966). Sixty-four subjects had scores on all of these inventories, reported in Table 2.

*** These tests are combined and hereafter referred to as "the Adorno."**

HOD AND DIAGNOSIS

We found that the HOD correlated well with our diagnostic ranking of the delinquents ($r = -.475$, $p = .001$) and each of the subtests correlated at the .001 level (except the Short Form, $p = .01$). When we evaluated the HOD without our chronic children, the correlation "r" value increased from -.47 to -.62 and the Short Form actually correlated more highly than the Total Score at -.67. (Chronic patients have proven to be very unlike other patients we saw, and their exclusion from the data improved the correlations in most cases.)

Interestingly, the correlation of the HOD Depression Score ($p = .01$) with diagnosis was higher than that of the Perception, Paranoid, or Total Score. None of the data in our study confirm the popular picture of an anxiety-free sociopath who is incapable of experiencing fear or remorse, and cannot understand his victims. The delinquents we saw were depressed, anxious, clearly aware of their differences with authority and their parents, and laden with guilt feelings and unhappiness.

TABLE 2

Inventory Scores
(N = 64 on all tests)

TEST	SUBTEST	MEAN	s.d.
HOD	(Ts)	44.7	36.64
	(PerS)	11.18	8.09
	(PS)	3.37	2.88
	(DS)	6.07	1.32
	(RS)	9.92	2.11
	(SF)	4.30	3.40
MMPI-KC	(HS)	15.23	5.80
	(D)	23.65	6.62
	(PA)	13.51	5.05
	(PT)	32.07	6.62
	(SC)	37.28	10.69
	(MA)	24.32	4.86
MMPI-TC	(HS)	58.02	15.83
	(D)	64.68	15.07
	(PA)	65.45	14.64
	(PT)	65.87	16.16
	(SC)	75.78	21.79
	(MA)	72.55	17.54
ADORNO		329.03	53.27
GLOVER		192.97	44.99
WILLOUGHBY		36.87	19.78
WOLPE		218.79	138.91
Q-SORT DISCREPANCY		25.83	8.88

HOD AND OTHER INVENTORIES

Glover

The Glover Inventory of Sexual Values was given to our students primarily for research purposes and we did not expect the test to correlate with diagnostic categories, save that patients who deny problems might be expected to give excessively conventional responses, and that scores at the extremes might have some diagnostic value. Nor did we expect delinquents to differ greatly from their age and social peers on the Glover; our expectations were confirmed. We compared the Glover to the HOD, the Diagnosis, Q-Sort of Self versus Parental Image, Adorno, Willoughby, and the Wolpe. The Glover correlated with none of these, nor with any of the subtests. It would appear that the social values tapped by the Glover Inventory have very little to do with issues of perception and anxiety measured by the other questionnaires. This is an extremely interesting finding in light of the excessive preoccupation with psychosexual etiology in common diagnostic usage.

Q-Sort

The Q-Sort of Self versus Parental Image did not correlate with diagnosis. This was surprising because a perceived discrepancy between "I am" and "my parents want me to be" is generally considered to be at the heart of delinquent behavior and emotional distress. On the other hand, the Q-Sort discrepancy did correlate with the HOD ($p = < .05$) arid its subtests, as well as with the Wolpe Inventory of Fears ($p = .01$), but not with the Willoughby Scale of Anxieties, and of course, not with the Glover Inventory of Sexual Values.

Authoritarianism

It is not surprising that the relative degree of authoritarian, ethnocentric,

and rigid values measured by the Adorno questionnaire correlate with diagnosis; however, the correlation was significant only at the .05 level. The Adorno correlated significantly with all of the HOD subtests and with the other measures except the Q-Sort and the Glover.

Anxiety Measures

Both the Willoughby and the Wolpe correlated with diagnosis, with each other, and with the HOD and its subtests. The Wolpe correlated at the .01 level with the Q-Sort, while the Willoughby did not quite reach the .05 level.

HOD and MMPI

We assessed the six possible scores on the HOD (TS, PerS, PS, DS, Ratio, and SF) with six of the subtests of the MMPI (HS, D, PA, PT, SC, and MA). We used the "KC" adjustment of the MMPI for this purpose, assuming that its correlation for physical factors would be a more appropriate comparison with the HOD which is strongly reactive to physical symptoms (although it does not call them "hypochondriasis" as the MMPI does) (Meehl and Hathaway, 1946).

The HOD and the MMPI subtests correlated internally very highly (well above the $p = .01$ level) except for the MA subtest of the MMPI which correlated with three of the HOD subscores and the Total Score, but only with Schizophrenia (SC) on the MMPI. These results indicate that there is a great deal of redundancy in both the HOD and the MMPI, and that only the MA subtest of the MMPI measures variables which are substantially different from the other tests.

We then compared diagnosis with the MMPI subtests, using the TC corrected score (this is the score utilized for diagnosis and profile plotting). Only two of the MMPI subtests correlated at the .01 level-PA and PT. SC and MA correlated at the .05 level, and HS and D did not reach .05, although both were better than .10. It was quite surprising that the MMPI D did not correlate with diagnosis, since the HOD D score was significantly correlated to the diagnosis at the .01 level and cross correlated to all other inventories except the Glover (as expected).

Seventy-four delinquents in this study were given the MMPI. Of these, the diagnostic summary for the guidance of the clinician failed to suggest a psychiatric problem in 22 of them in this residential center for resistant patients. Of those overlooked 22, the staff diagnostic ranking agreed that although 10 had responded very readily to the program, 12 of the 22 with "normal" MMPI were schizophrenic or suffered involutional depression, with a relatively long history of complications. (None of the chronic patients were in this group, nor any of the residents under age 16.) Of the 19 delinquents suggested as "severe psychiatric disorder," "major psychiatric disorder," or "profile is similar to that of psychiatric patients who become inpatients," two were regarded by the staff as very responsive to the program and free of serious complication. Both of these, however, were under 16 (the MMPI is not normalized below that age).

If the HOD TS score alone had been used as a diagnostic criterion, no severe cases would have been missed, with the exception of those diagnosed as sociopath or agitated depression without learning disability. If the D Score had been used, only the four sociopaths (all chronic patients) would have been missed.

NON-PARAMETRIC ASSESSMENT

Both the HOD and the MMPI distribute with a positive skew in our population. It seemed appropriate to assess both these tests by methods other than linear regression and so both the Kruskal and Wallis Test (1952) (which yields a Chi Square) and Chi Square methods were applied.

Kruskal and Wallis Test

In the Kruskal and Wallis test each

score is ordered from the smallest to largest and a rank number assigned (tied scores are given the average rank of those tied). These rank numbers are summed by category, and the Chi Square is calculated. Using all 13 diagnostic categories the HOD Total Score reaches a Chi Square of 29.269 (12 degrees of freedom) which is significant at the .005 level.

If the categories are reduced to chronic, acute, rare, learning disabled, and all situational patients, the Chi Square is 19.428 (4 d.f.) and p = < .001. If all those with psychiatric disorder are compared to the learning disabled and situational patients, combined Chi Square is 11.478 (1 d.f.) and p is <.001

When the test is used to differentiate among primarily psychiatric patients, primarily learning disabled, and primarily behavior problems, the Chi Square is 18.418 (2 d.f.) and p reaches < .001.

Since the smaller range of scores on the subtests do not lend themselves to rank order tests, a 3 by 2 contingency table of three diagnostic groupings with high or low scores was constructed for each.

The non-parametric tests indicate that the HOD and its subtests differentiate very significantly among the diagnostic groupings. The depression subtest is the most sensitive and confirms the impression given by linear regression.

We combined the relevant subtest scores on the MMPI to see if the total score was more productive than the separate subtests. The Kruskal and Wallis Test gave a Chi Square of 13.159 which at 12 degrees of freedom is likely to occur by chance four times out of 10 and is not significant. When diagnostic groupings were combined the highest level of confidence which could be reached was 94 percent which is not quite significant (Chi Square = 3.774 with 1 d.f.). Moreover, this test compared those with psychiatric involvement to those without, and use of the Wilcoxon Sum of Ranks Tests, which is more appropriate when comparing only two groups, gave a z score of 1.809 and a p of .07.
The non-parametric tests indicate that

TABLE 3

HOD SUBTESTS

	Chi Square			Combined Chi Square
D	Chi Square = 14.33	(2 d.f.)	p = .001	14.33
Per S	Chi Square = 8.48	(2 d.f.)	p = .02	8.48
P	Chi Square = 7.38	(2 d.f.)	p = .05	7.38
SF	Chi Square = 9.94	(2 d.f.)	p = .01	9.94
Ratio TS/D	Chi Square = .334	(2 d.f.)	n.s.	.334
		(10 d.f.)	p = .001	40.464
	HOD SUBTESTS		t = 4.64	

TABLE 4

DIAGNOSTIC CATEGORIES vs HOD SUBTESTS

	2 by 2 Chi Square			
	SF	PS	PerS.	D
PSY vs SAR	.002	.01	.01	.001
PSY & LD vs SAR	.01	.02	.01	.001
PSY vs SAR & LD	.01	.05	.02	.005
PSY vs LD	no subtests differentiate			
LD vs SAR	ns	ns	ns	.01

TABLE 5

MMPI SUBTESTS

3 by 2 Chi Square PSY, LD, SAR by High Scores vs. Low Scores			2 by 2 Chi Square All Combinations of PSY, LD, SAR		
Test	Chi Square	p =	Test	Dx	p =
HS	1.964	ns	HS	No Combinations Significant	
D	4.228	.2	D	SAR vs. LD	.05
PA	3.750	.2	PA	PSY vs. LD & SAR	.06
PT	7.689	.05	PT	PSY vs. SAR	.01
				PSY & LD vs. SAR	.02
				PSY vs. LD & SAR	.02
SC	10.195	.01	SC	PSY vs. SAR	.00004
				PSY & LD vs. SAR	.05
				PSY vs. LD & SAR	.002
				PSY vs. LD	.05
MA	.276	ns	MA	No Combinations Significant	
	28.102,	p = .01	at 12 degrees of freedom		

the sum of scores for six subtests of the MMPI was not significantly related to diagnosis in our population. The combined Chi Square value of the subtests separately reached .01 while only two of the six were individually significant.

The MMPI SC subtest was the most discriminatory which is to be expected in the rationale of the test.

These comparisons indicate that, at least in our population, diagnostic ratings and prediction of therapeutic outcome are much more significantly predicted by the HOD than by the MMPI.

DISCUSSION

Humanistic psychology suggests that the "mentally ill" can be trusted to tell us what is wrong with them. Diagnostic assessments such as the HOD were designed by clinicians to assist in determining if a patient is improving—an issue on which a patient presumably is a good authority. The Willoughby Scale of Anxieties is widely used in behavior therapy, not as a diagnostic tool (Wolpe indicates that patients score lower than normals), but as a means of monitoring treatment. The Willoughby, like an inventory of fears, simply asks the patient to respond to questions about how much anxiety he feels. Our survey demonstrated that such inventories are valuable, not only as an index of improvement of change in status, but also as a guide to severity of illness and the likelihood of the therapists to help the patient.

The Wolpe, the Willoughby, and a test not even designed for assessment in mental illness, the Adorno, all correlate just as highly as the MMPI with a diagnosis based on medical and staff assessment of value of the treatment. The HOD was even more highly correlated with diagnosis and with other inventories, including the relevant subtests of the MMPI.

Since the HOD is administered in the clinician's office, is scored directly and requires no interpretation, its economy, reliability, and high correlation with diagnosis indicate that it is a valuable addition to the clinician's tools. We have found that the HOD can be administered to the dyslexic and illiterate as well as to uncooperative delinquents, with substantially valid results. Since the HOD Short Form correlates very highly with

the subtests and the Total Score, it may be as reliable as the entire test. Given the redundancy in the subtests, the clinician is justified in using the Short Form in situations where many assessments must be made quickly, or where the therapist does not want to inflict a longer series of questions on an agitated or confused patient.

SUMMARY

The HOD, MMPI, Adorno, Glover, Willoughby, Wolpe, and a Q-Sort of Self-image versus Parental Ideal Image were administered to all the adolescent residents of Green Valley in 1973-74. With the exception of the Glover (an inventory of sexual values) and the Q-Sort, these tests correlated significantly with each other and with diagnostic rank. The HOD consistently correlated more highly with diagnosis; some subtests of the MMPI did not correlate significantly at all. The MMPI indicated that 22 of the subjects were normal, including 12 with considerable history of hospitalization and severe mental illness. Given the high correlation of the HOD with the MMPI and the higher correlation of the HOD to independent diagnoses, the HOD appears to be the most valid inventory.

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