

a variety of studies to state unequivocally and emphatically that the MMPI has not been shown to be a valid discriminator of psychogenic vs. organic erectile dysfunction and should not be used for this diagnostic purpose.

More fruitful lines of empirical inquiry may lie in examining the clinical utility of the MMPI in identifying psychopathological adjustments to chronic sexual difficulties and in predicting successful outcome of penile prosthesis surgery for erectile dysfunction regardless of its etiology.

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THE ASSESSMENT OF DENIAL AND PHYSICAL COMPLAINTS: THE VALIDITY OF THE HY SCALE AND ASSOCIATED MMPI SIGNS

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Little and Fisher (1958) have demonstrated that the MMPI Hysteria (HY) scale consists primarily of items that address the denial of psychological problems (the DN scale) and items that involve the admission of physical problems (the AD scale). The traditional interpretation of an elevated HY score implies that both DN and AD subscales are elevated significantly. Using samples of psychiatric ($N = 1,246$), medical ($N = 330$), and chronic pain patients ($N = 126$), the effectiveness of the HY scale and of various combinations of MMPI scales as predictors of the simultaneous occurrence of these two characteristics was evaluated. The results suggest that when the 13 standard MMPI scales were used, simultaneous elevations on scales K, Hs, and HY proved to be the best indicator of the denial of psychological factors associated with a physiological disorder. It was found unwarranted to suggest the presence of hysteroid features on the basis of an elevated HY score unless scales K and Hs also were elevated. The value of the HY scale as a measure of psychological denial associated with physical complaints must be considered questionable.

The Hysteria (HY) scale of the MMPI consists of those items that significantly differentiated between controls and psychiatric patients with hysterical symptoms (McKinley & Hathaway, 1944). Little and Fisher (1958) found on the basis of cluster analysis that the items on the HY scale fell into two subgroups. One set of 32 items

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involved the endorsement of somatic complaints. Another 26 items had to do with the denial of psychological difficulties. These were referred to as the Admission (AD) and Denial (DN) subscales, respectively. The AD scale has not been used extensively in research. The items on the AD scale refer to somatic problems, or to feeling down or blue. Research suggests that elevated scores on the DN subscale are suggestive of a repressive defensive style (Altrocchi, Parsons, & Dickoff, 1960; McDonald, 1965). For example, Lazarus and Alfert (1964) found that individuals with higher scores on the DN scale denied being disturbed by a threat-inducing film, but demonstrated more autonomic arousal on physiological measures than individuals with lower DN scores.

It generally is believed that the HY scale indicates the presence of hysteroid features, characterized by physical problems that are exacerbated by the denial of associated psychological problems. Elevated scores on the HY scale are interpreted as suggesting an individual who maintains a facade of normality, but when under stress uses somatic focusing to avoid psychological issues. Individuals with elevated scores on the HY scale have been described as immature and self-centered people who demonstrate difficulty with the appropriate expression of anger (Carson, 1969; Greene, 1980; Lachar, 1974).

In code type interpretation, the HY scale is associated most typically with the 1-3 profile, or conversion V, identified by the presence of significant elevations on both the Hypochondriasis (Hs) and HY scales (scales 1 and 3, respectively). Marks, Seeman, and Haller (1974) identified 31 psychiatric inpatients whose highest elevations were on scales 1 and 3. They reported that 77% of this group was diagnosed as having a conversion or psychophysiological disorder. Individuals with the 1-3 code type were described as garnering considerable secondary gain from their somatic symptoms, as exhibiting exaggerated needs for attention and affection, and as being emotionally dependent. Greene (1980) associated the 1-3 profile with the avoidance of psychological difficulties regardless of whether the person's somatic complaints were primarily of organic or functional etiology.

These descriptors imply that the respondent both admitted physical problems and denied psychological difficulties, i.e., that both the AD and DN subscales are elevated. In fact, research by Watson (1982) has demonstrated that among pain patients, elevated HY scores result almost exclusively from the increased endorsement of the physical complaint items. Furthermore, Watson suggests that if elevated HY scores reflected the extent of the tendency to use somatic focusing as a means of avoiding psychological distress, one would expect a positive correlation between the two subscales. Instead, Watson found a negative correlation between AD and DN scores in his sample of chronic pain sufferers.

The present study summarizes our evaluation of the assumption that the HY scale and associated MMPI signs accurately gauge both the admission of physical complaints and the denial of psychological complaints. Through an investigation of the relationship between the AD and DN subscales and other MMPI scales, we will attempt to provide evidence to suggest that: (1) the indicators traditionally used to evaluate denial associated with physical complaints are inaccurate; and (2) the accuracy of the MMPI can be improved if used appropriately.

METHOD

Subjects

Three samples were used for this study. The first consisted of 126 individuals who were administered the MMPI as part of an evaluation for participation in a behavioral chronic pain management program. Participants were referred for the evaluation by their personal physicians during the years 1982-1984. Of this group, 56 were female and 70 were male. Average age of the participants was 43 years ($SD = 11.6$ years).

The second sample consisted of 330 medical inpatients who completed the MMPI as part of a psychological evaluation performed at the request of the attending physi-

cian during the years 1982-1984. It may be assumed that the physician's request for evaluation would generate a pool of subjects whose medical condition more frequently involves a functional component than in the general medical population. This group included 210 females and 120 males, with an average age of 39 years ($SD = 11.9$ years).

The third sample consisted of 1,246 psychiatric inpatients who completed the MMPI at the time of hospitalization during the years 1982-1984. This group included 799 females and 447 males, with an average age of 35 years ($SD = 11.4$ years).

Procedure

MMPIs for the three samples were analyzed in three ways. First, the intercorrelations among the DN, AD, 10 clinical, and 3 validity scales were computed. Second, the three samples were divided according to the presence or absence of four MMPI signs that were believed to be predictors of the tendency to use physical complaints as a means of achieving secondary gain. The first sign selected for this analysis was an elevated score on the HY scale (T score greater than 69). This cut-off was used on the basis of Lachar's (1974) claim that an HY T score of 70 or greater suggests the presence of "hysteroid characteristics and repressive defenses" (p. 19).

The second and third signs were based on the 1-3 sign. We evaluated the effectiveness of the 1-3 sign under both the most restrictive and least restrictive conditions. For the least restrictive condition, elevations on both the HY and Hs scales were the only requirements for inclusion (to be referred to as the 1-3 sign). The most restrictive conditions required a significant elevation on the Hs and HY scales without elevations on scales D, PD, PA, PT, SC, MA, and Si (the pure conversion V). In both cases K-corrected Hs scores were used because this is the most common procedure in practice.

The fourth sign consisted of significant elevations on K and Hs. The last sign has not been discussed in the literature on the assessment of denial associated with physical symptoms, but was used on the basis of the results of the correlational analysis. In this case Hs scores were not K-corrected because Hs scores were not K-corrected in the correlational analysis. (See below.)

The criterion used for suggesting the presence of denial associated with physical complaints was simultaneous elevations on the AD and DN scales (Little & Fisher, 1958). A significant elevation was defined as a score two standard deviations above the mean for the normative sample provided in Greene (1980). Thus, for males, an AD score greater than 12 was considered elevated, while females required a score greater than 16. For both sexes, a score of 21 or more on the DN scale was considered elevated. Using this criterion, hit rates were computed for the four signs.

Finally, the frequency of elevated AD and DN scores among those with an elevated HY score was computed to provide further evidence on the meaning of the HY scale.

RESULTS

Results from the correlational analysis are presented in Table 1. Due to the large number of correlations that were computed with the 15 variables, Table 1 only includes correlations that involve scales associated with the denial of psychological symptoms or the admission of physical problems (scales L, K, Hs, HY, AD, and DN) because these were considered most relevant to the goals of the study. Hs values are not corrected for K in order to avoid spurious common variance. Separate correlation matrices are provided for the three samples.

Table 2 provides the hit rate boxes for the four signs. For each box, the first column represents the presence of the sign, the second column its absence. The first row of each box includes those individuals who exhibited simultaneous elevations on the AD and DN subscales. The second row includes those with subclinical elevations on AD, DN, or both.

Table 1
Correlations Between Scales L, K, HS, HY, AD, and DN for the Three Samples

	AD	DN	L	K	Hs
Pain					
DN	-.284*				
L	-.224*	.453**			
K	-.395**	.752**	.611**		
Hs	.884**	-.190*	-.133	-.327*	
HY	.788**	.359**	.071	.090	.751**
Medical					
DN	-.362**				
L	-.194*	.380**			
K	-.415**	.795**	.514**		
Hs	.879**	-.271**	-.013	-.251**	
HY	.705**	.400**	.102	.200*	.670**
Psychiatric					
DN	-.395**				
L	-.167**	.364**			
K	-.441**	.807**	.472**		
Hs	.902**	-.361**	-.105*	-.403**	
HY	.768**	.278**	.079*	.099*	.706**

* $p < .05$. ** $p < .0001$.

Table 3 describes the extent to which elevated DN and AD scores are found among participants with elevated HY scores. Only those individuals with HY T scores of 70 or more are included in this table.

DISCUSSION

The table of correlation matrices provides several interesting pieces of information. The first is that a small, but significant negative correlation between AD and DN was found for all three samples. This suggests that even in cases in which a strong functional component is suspected in a physical disorder (such as psychiatric patients with elevated scores on MMPI somatic scales, chronic pain patients, or medical patients referred for psychological evaluation), increased physical complaints generally are associated with increased emotional complaints rather than the denial of emotional problems.

The second relevant finding from the matrix is the pattern of relationships between the AD and DN scales and other MMPI scales. The AD scale consistently was correlated more highly with the Hs scale than with the HY scale. Similarly, the relationship between the DN and K scales was consistently stronger than that between the DN and HY scales. Furthermore, the AD-Hs and DN-K correlations were all above .70. The only other correlations in the analysis that consistently achieved this level were those between F and Sc and between Pt and Sc.

This finding is not particularly surprising given the extent of item overlap between the AD and Hs scales (18 items) and between the DN and K scales (9 items). The correlations originally reported by Little and Fisher (1958) were of similar magnitude. However,

Table 2
Hit Rates for the Four Signs of Conversion Disorder

Pain	Hy		1-3		Conversion		K-1	
	P	A	P	A	P	A	P	A
S	2 (.02)	0 (0)	2 (.02)	0 (0)	0 (0)	2 (.02)	2 (1.0)	0 (0)
O	94 (.98)	30 (1.0)	87 (.98)	37 (1.0)	13 (1.0)	111 (.98)	0 (0)	124 (1.0)
	32 (.25)		39 (.31)		111 (.88)		126 (1.0)	
Medical	Hy		1-3		Conversion		K-1	
	P	A	P	A	P	A	P	A
S	12 (.06)	0 (0)	12 (.07)	0 (0)	1 (.03)	11 (.04)	1 (.11)	11 (.03)
O	195 (.94)	123 (1.0)	164 (.93)	154 (1.0)	35 (.97)	283 (.96)	8 (.89)	310 (.97)
	135 (.41)		166 (.50)		284 (.86)		311 (.94)	
Psychiatric	Hy		1-3		Conversion		K-1	
	P	A	P	A	P	A	P	A
S	19 (.03)	0 (0)	17 (.04)	2 (.01)	0 (0)	19 (.02)	6 (.55)	13 (.01)
O	618 (.97)	609 (1.0)	447 (.96)	780 (.99)	14 (1.0)	1213 (.98)	5 (.45)	1222 (.99)
	628 (.50)		797 (.64)		1213 (.97)		1228 (.99)	

Note. — P = sign is present, A = sign is absent, S = AD and DN are simultaneously elevated, O = some other configuration of AD and DN. The four cells in each box represent (starting with the upper left-hand cell and moving clockwise), the valid positive (VP), false negative (FN), valid negative (VN), and false positive (FP) rates. Each cell provides the number of cases followed by the column proportion. Below each box is the overall hit rate (VP + VN) and its proportion of the total sample.

if the Hy scale were meant to detect the presence of physical complaints and the denial of psychological problems, the Hy scale proved to be the best predictor of neither. They can be assessed more straightforwardly with the AD and DN scales. Alternatively, the prediction of these two characteristics is achieved best through some combination of MMPI scales that includes scales K and Hs (without K-correction). The hit rate analysis explored this latter possibility further.

In all three samples the K-1 sign proved the most effective predictor overall of the presence or absence of simultaneous elevations on AD and DN. The number of valid positives as a proportion of those who exhibited the sign was greater for K-1 than for any of the other signs (see the column proportions provided in Table 2), while the valid negative rate was roughly equivalent to those for the other signs.

Table 3
Frequency of Elevated and Nonelevated Ad and Dn Scores Among Cases with Elevated Hy Scores

		AD		
		N	E	
Pain				
DN	N	8	77	85
	E	9	2	11
		17	79	
Medical				
		AD		
		N	E	
DN	N	42	117	159
	E	36	12	48
		78	129	
Psychiatric				
		AD		
		N	E	
DN	N	103	375	578
	E	40	19	59
		143	494	

Note.—N = scale is not elevated; E = scale is elevated. Marginal values represent row and column totals.

After K-1, the pure conversion V had the highest overall hit rate in all three samples. However, the table demonstrates that the conversion V is primarily effective as a predictor of the absence of simultaneous elevations on AD and DN, i.e., the valid negative rates were quite high; the false positive rates were consistently unacceptable. In two out of three samples the conversion V did not predict successfully a single case of simultaneous AD-DN elevation. The overall hit rates for HY and the 1-3 profile were also too low to justify their use as predictors of denial associated with physical disorders.

An interesting characteristic of the HY scale is its effectiveness as a predictor of the absence of simultaneous AD-DN elevation. In all three samples the false negative rate was zero. Because the HY scale is composed primarily of AD and DN items it is unlikely that a simultaneous elevation of the AD and DN scales would be possible if HY were not clinically elevated. This finding led us to investigate the hit rates for a hybrid sign, the K-1-3, in order to reduce the false positive rate associated with the K-1 sign. Two cases in the medical sample and one in the psychiatric sample shifted from the false positive cell to the valid negative cell. This increased the overall hit rates for the medical and psychiatric samples to 313 (.95) and 1229 (.99), respectively. The improvement in hit rate associated with the addition of the HY scale to the K-1 sign should be considered minimal, but reliable.

It is evident from our discussion so far and from Table 3 that the value of the Hysteria scale as a measure of hysteria is doubtful when the commonly recommended cut-off of 70 T is used. Under no circumstances do we find it justifiable to attribute hysteroid features on the basis of an elevated scale 3 score alone. For the 96 pain patients with elevated HY scores, 79 (82%) demonstrated an elevation on AD, while an elevated DN score was found in only 11 cases (11%). In the medical sample the numbers of elevated AD and DN scores were 129 (62%) and 48 (23%), respectively, out of 207. Of 637 psychiatric patients with elevated HY scores, 494 (78%) demonstrated an elevation on AD, while only 59 (9%) showed an elevation on DN. The practice of attributing personality characteristics that are likely to be associated with the DN scale (immaturity, difficulty with the expression of anger) on the basis of an elevated HY T > 70 produces an unacceptable false positive rate. Elevated HY scores more commonly predict the presence of somatic complaints. However, scale 1 already serves this purpose, presumably without the error in the measurement of somatic distress that results from the inclusion of DN items on HY. In attempting to evaluate two characteristics simultaneously, the HY scale does not appear to be an adequate measure of either, at least when one is using the recommended cut-off score.

It is our conclusion that MMPI users interested in assessing for the presence of denial associated with physical disorder should score the AD and DN scales and look for their simultaneous elevation. When one wishes to use the commonly scored scales, the involvement of denial in physical disorders is best served through the K-1-3 sign (although K-1 alone seems an adequate substitute). Significant elevations must be present on all three scales before the attribution of hysteroid features is deemed appropriate. This method reduces the false positive rate found with the more commonly used signs. In particular, our analysis suggests that the HY scale is unable to achieve the purposes that justified its original development. An HY score greater than 70 can be understood only in the context of scales K and Hs. By itself it is an entity of questionable significance.

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