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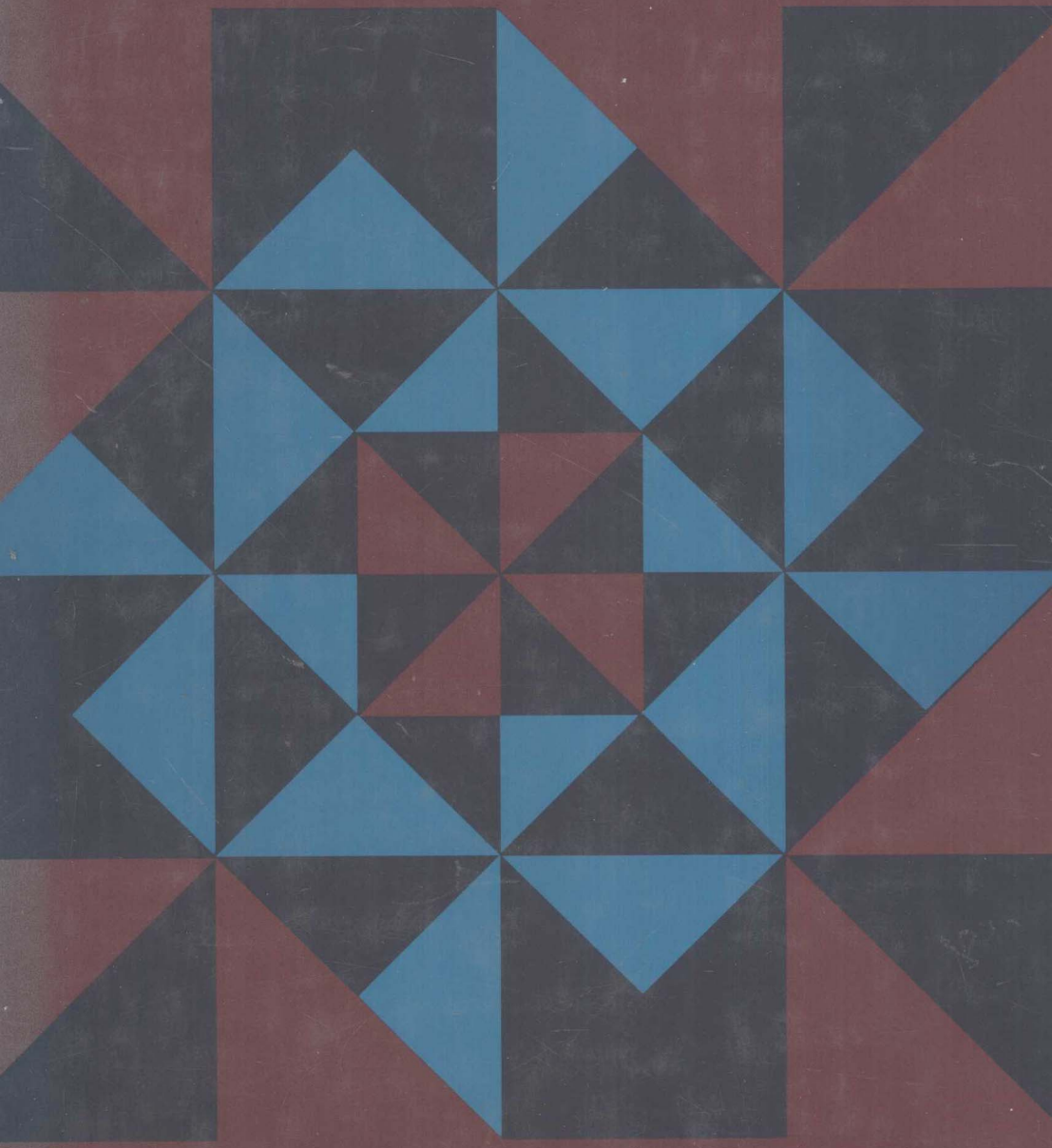

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Advances in Psychological Assessment

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Contents

I

Interpretive Guide to the Millon Clinical Multiaxial Inventory

THEODORE MILLON

The Millon Clinical Multiaxial Inventory (MCMI) (Millon, 1982) is an objective psychodiagnostic instrument designed for use with psychiatric patients who are undergoing clinical assessment or are involved in a program of psychotherapeutic intervention. It is a relatively brief self-report inventory composed of 175 items to which patients respond either "true" or "false." Scores for twenty clinical scales are routinely derived from these responses; eleven of these scales correspond to the personality disorders comprising Axis II of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-III*) (American Psychiatric Association, 1980), and nine represent the more prevalent clinical syndromes of Axis I. This chapter discusses the development of the MCMI, the procedures for its administration and scoring, and the rationale and theory employed in selecting its scales; explains the interpretive significance of each clinical scale, viewed individually and in high-point profile groups; and shows how the instrument can

fruitfully be coordinated with other objective diagnostic inventories, notably the Minnesota Multiphasic Personality Inventory (MMPI).

Nature and Development of the MCMI

Diagnostic instruments appear to be enhanced in their utility if they are linked systematically to a comprehensive clinical theory. Unfortunately, as many have noted (Butcher, 1972), assessment techniques and personality theorizing in the clinical area have developed almost independently. The MCMI is different, however. Each of its twenty clinical scales was constructed as an operational measure of a syndrome derived from a theory of personality and psychopathology (Millon, 1969, 1981). No less important than its link to theory is its coordination with the official diagnostic system and its syndromal categories. With the advent of the *DSM-III* (American Psychiatric Association, 1980), diagnostic categories and labels have been specified precisely and defined operationally. No diagnostic instrument currently available, other than the MCMI, is fully consonant with the nosological format and conceptual terminology of this official system.

Separate MCMI scales have been constructed in line with the *DSM-III* model, so as to distinguish the more enduring personality characteristics of patients (Axis II) from the acute clinical disorders they display (Axis I), a distinction judged to be of considerable value by test developers, theorists, and clinicians (Dahlstrom, Welsh, and Dahlstrom, 1975). This distinction should enable the clinician to separate persistent and pervasive features of psychopathological functioning from syndromal features that are transient or circumscribed. Similarly, the scales distinguish between various levels of psychopathological severity; for example, the premorbid characterological style of a patient is assessed independently of its degree of pathology.

In the process of test construction, all item selections were based on data in which target diagnostic groups were contrasted with a population of representative but undifferentiated psychiatric patients. This shift to a general psychiatric rather

than a normal comparison population optimizes the discrimination efficiency of scales and thereby heightens differential diagnostic accuracy. Moreover, actuarial base-rate data, rather than normalized standard score transformations, were employed in calculating and quantifying scale measures. These data not only provided a basis for selecting optimal differential diagnostic cutting lines but also ensured that the frequency of MCMI-generated diagnoses and profile patterns would be roughly equivalent to representative clinical prevalence rates.

Item selection and scale development progressed through a sequence of three validation steps: (1) theoretical-substantive, (2) internal-structural, and (3) external-criterion (Loevinger, 1957; Jackson, 1970). By using different validation strategies, the MCMI sought to uphold the standards of test developers committed to diverse methods of construction and validation (Hase and Goldberg, 1967). Moreover, each successive validation stage included only those items that had survived preceding validation stages. Thus, rather than becoming a product of compromise, the final items and scales of the MCMI met, through sequential refinement, the basic criteria of each of these construction methods.

A major goal for the MCMI was to keep the total number of items small enough to encourage use of the inventory in all types of diagnostic and treatment settings, yet large enough to permit the assessment of a wide range of clinically relevant behaviors. At 175 items, the final form appears to meet this goal.

Cross-validation data gathered with independent samples support the generalizability, dependability, and accuracy of diagnostic scale cutting lines and profile interpretations (Green, 1982). Large and diverse samples have been studied (Millon, 1982) since the introduction of the MCMI, but it is still necessary to achieve full domain coverage, and local base rates and cutting lines may still be useful for special settings. Nevertheless, the cross-validation data available at this time suggest that the MCMI can be employed with a reasonable level of confidence in most clinical settings for patients with disorders that are primarily emotional.

Reliability and validity data on the MCMI, as well as in-

formation on the rationale and methodology employed at various stages of test construction and subsequent cross-validation, can be found in detail in the test manual (Millon, 1982). Validation was an ongoing process involved in all phases of test construction rather than simply a procedure to corroborate the instrument's effectiveness following its completion; that is, validation of the MCMI was an integral element at each step of development rather than an afterthought. In effect, a substantial number of studies, condensed and summarized in the test manual, were carried out *before* the publication of the MCMI. Although only a few follow-up studies have been published to date in the literature (see, for example, Green, 1982), the manual provides considerable information on reliability and cross-validation. Current ongoing research from many clinical settings should result in a growing body of literature in the near future.

In addition to diagnoses that may be carried out by skilled clinical psychologists analyzing scale and profile elevations, automated printouts are available from the publisher, Interpretive Scoring Systems Division of National Computer Systems. Each report synthesizes data from score elevations and profile configurations and is based on actuarial research findings and the MCMI's theory-based reference text (Millon, 1969), as well as the new *DSM-III* classification (Millon, 1981). Following current psychodiagnostic thinking, the interpretive report focuses on a multiaxial framework of assessment.

The MCMI is *not* a general personality instrument to be used for "normal" populations or for purposes other than diagnostic screening or clinical assessment. Normative data and transformation scores are based entirely on clinical samples. Although the MCMI's use as an operational measure of relevant theoretical constructs is fully justified, the samples employed for such purposes must be drawn only from comparable clinical populations. To administer the MCMI to a wider range of problems or class of subjects is to apply the instrument to settings and samples for which it is neither intended nor appropriate.

Administration, Scoring, and Norms. Administration of the MCMI follows a procedure common to most self-report inventories. Test directions, patient information chart, identifica-

tion grid, and special coding sections for clinicians are printed on the front page. Answer choices ("true" and "false") are printed next to each of the 175 item statements. This placement increases the accuracy of patient markings, allows the clinician to scan responses to individual items, and facilitates machine scoring.

Machine scoring is clearly the best method for obtaining MCMI results. Computer scoring rarely makes recording or quantification errors, regardless of the complexity of the steps involved. Hand-scoring templates have recently been made available for researchers. Investigators may devise their own templates by reading the manual's appendixes, which include scale items and transformation scores. Validity modifications and corrections can be calculated with reference to instructions in the text of the manual.

Norms for the MCMI are based primarily on numerous samples of clinical patients who were involved in psychological assessment or psychotherapy (Millon, 1982). The test construction patient population consisted of 1,591 subjects, 58 percent males and 42 percent females, ranging in age from eighteen to sixty-six. An additional 256 patients, 57 percent males and 43 percent females, were involved in the first major cross-validation study. Clinicians in 108 hospitals and outpatient centers (223 participating clinicians) and in private practice (39 clinicians) from twenty-seven states and Great Britain provided patient test protocols. Although entirely random or precise probability sampling was not feasible, an effort was made to produce a high degree of diversity and representativeness for both the construction and the cross-validation patient populations.

To ensure a balance of the major syndrome categories for which the instrument was designed, several groups of patients were selected: patients just admitted to a hospital, patients hospitalized between three to six months, and patients ready for hospital discharge; patients or clients at family service agencies, psychiatric clinics, community mental health centers, college counseling or guidance centers, and alcohol and drug abuse clinics and hospitals; and patients seen in private practice. Of those comprising the test construction clinical population,

1,125 (71 percent) were outpatients and 466 (29 percent) were inpatients. The cross-validation clinical group was composed of 179 (70 percent) outpatients and 77 (30 percent) inpatients.

Subsequent MCMI data on 43,218 patients were reviewed in 1981 to assess their score and profile distribution, as well as to evaluate the utility of various adjustment and correction scores. This population consisted of 46 percent males and 54 percent females. Approximately 84 percent were outpatients and 16 percent inpatients. Several selected subsamples of these data were drawn for purposes of recalculating transformation scores and assessing various indexes of reliability and validity. In general, it appears that the highest level of diagnostic validity is obtained with patients during the early phases of clinical assessment or psychotherapy.

Base-Rate Scores. Under certain conditions the traditional procedure of transforming raw scores into standard scores is inappropriate. Standard scores assume "normal" distributions or comparable frequency spreads for the traits or dimensions being measured. This assumption is not met when a set of scales is designed to represent personality "types" or clinical "syndromes," since neither is normally distributed or of equal prevalence in patient populations. Furthermore, a clinical instrument is designed not to locate a patient's relative position on a frequency distribution but, rather, to indicate whether the patient belongs in a particular diagnostic category. For such clinical instruments, therefore, transformation scores that are more meaningful and more useful than conventional standard scores need to be constructed (Meehl and Rosen, 1955).

For the MCMI raw scores have been transformed into *base-rate scores,* a conversion determined by known personality and syndrome prevalence data and by using cutting lines designed to maximize correct diagnostic classifications—that is, calculated in terms of optimal valid-positive to false-positive ratios. Prevalence base-rate data for each MCMI personality and syndrome scale were obtained in two external validation studies comprising 682 and 296 patients (Millon, 1982). In these studies clinicians were asked to diagnose their patients in conjunction with a series of paragraphs describing each MCMI personal-

ity type and clinical syndrome. These investigations produced two sets of prevalence data, which were transformed from raw scores into base-rate scores. The first set of transformations represented the *total prevalence of characteristics* of each personality type or syndrome disorder. The second set represented the proportion of the total patient population that each personality type or symptom disorder comprised when judged to be the *most prominent or salient* within its subgroup of syndromes. This calculation was obtained by tabulating the percentage of each subgroup of personalities and symptom disorders rated the highest or most dominant by the judging clinicians. For example, 27 percent of the total patient sample were judged as presenting some histrionic personality features, but only 15 percent were judged to be predominantly or most distinctly histrionic personalities.

Two arbitrary numbers were selected to designate the two base-rate cutting lines drawn from the judgment prevalence studies. Base-rate (BR) scores of 74 were set for all scales as the cutting line above which scale percentages would correspond to the clinically judged prevalence rate for "presence" of personality or symptom features. In the example noted in the preceding paragraph, 27 percent of a representative group of MCMI respondents would score at BR 75 or above on the Histrionic Personality scale. Similarly, BR scores of 84 were set for all scales as the cutting line above which scale percentages would correspond to the clinically judged prevalence rate for the "highest" or most salient personality or symptom syndrome. In the foregoing example, 15 percent of a representative group of MCMI respondents would score at BR 85 or above on the Histrionic Personality scale.

Percentages at or above the BR 75 or BR 85 cutting lines will differ, of course, for different personality types and symptom disorders, since the prevalence of these types and disorders differs. Thus, 12 percent of MCMI respondents will score at BR 75 or above on the Antisocial scale, and 7 percent will score at BR 85 or above—figures that are lower than those for the Histrionic scale, since the prevalence of the antisocial types is less than that of the histrionic personality. Through this procedure

BR cutting lines and scores were established to ensure that the frequency of MCMI single-scale diagnoses and profile patterns would correspond as closely as possible to the prevalence base rates generated in the clinical judgment studies.

Theoretical Basis for Scale Selection. Three features considered essential to a good classification system of psychometric scales guided the development of the MCMI and are briefly summarized here. Syndrome scales should be differentiated according to severity. Most diagnostic instruments gauge severity in terms of scale elevation alone; clear demarcations of type and degree of pathology are difficult to determine with this approach. To facilitate these distinctions, the MCMI differentiates eight basic personality scales of mild severity from three more severe personality pathology scales. Similarly, six clinical syndrome scales identify disorders of moderate severity, and three other scales gauge disorders of marked severity. At the same time, the MCMI recognizes the commonalities and continuities between similar disorders that differ in their degree of severity; the more serious impairments are appraised as distinctive, but integrally related, variants of their less severe correlates.

Syndrome scales should be arranged to reflect the fact that the presenting clinical picture is composed of several covarying traits and symptoms. Diagnostic scales that focus on one, usually dramatic, behavioral sign fail to recognize this inherent complexity. When each MCMI scale was constructed, a number of different clinical features were included to tap the intricacy and diversity of personality styles and symptom syndromes.

Each diagnostic scale should be shown, where appropriate, to be a precursor, an extension, or a modification of other clinical categories rather than standing on its own as a discrete entity. For example, in both the MCMI theory and the inventory, all clinical syndromes of Axis I are viewed as disruptions in a patient's basic personality pattern (Axis II) that emerge under stress. In this formulation clinical syndromes are conceived not as discrete diagnoses but as integral elements of a larger complex of clinical features within which they are embedded.

As noted earlier, it would be extremely useful to have a consistent theoretical system on which to base a coherent classification of syndromes and a framework for developing a parallel set of inventory scales. The guiding texts of the MCMI, *Modern Psychopathology* (Millon, 1969) and *Disorders of Personality* (Millon, 1981), describe such a theoretical system. Despite its wide range of clinical applicability, the theory is based on derivations from a simple combination of a few variables. Essentially, it posits eight basic styles of personality functioning that can be formed logically from a 4 × 2 matrix consisting of two basic dimensions.

The first dimension pertains to the primary source from which patients gain comfort and satisfaction (positive reinforcements) or attempt to avoid emotional pain and distress (negative reinforcements). Patients who experience few rewards or satisfactions in life, be it from self or others, are referred to as *detached* types. Those who measure their satisfactions or discomforts by how others react to or feel about them are described as *dependent*. Where gratification is gauged primarily in terms of one's own values and desires, with little reference to the concerns and wishes of others, the patient is said to exhibit an *independent* personality style. Finally, those who experience considerable conflict over whether to be guided by what others say and wish or to follow their own opposing desires and needs are referred to as *ambivalent* personalities.

The second dimension of the theoretical matrix reflects the basic pattern of instrumental or coping behavior that the patient characteristically employs to maximize pleasure and minimize pain. Patients who seem aroused and attentive, arranging and manipulating life events to achieve gratification and avoid discomfort, display an *active pattern*. In contrast, those who seem apathetic, restrained, yielding, resigned, or content to allow events to take their own course without personal regulation or control possess a *passive pattern*.

When the four sources of primary reinforcement are combined with the two instrumental or coping patterns, eight basic personality styles emerge: active and passive detached, active and passive dependent, active and passive independent, active

and passive ambivalent. These patterns and their *DSM-III* counterparts are listed in Table 1.

Table 1. MCMI Basic Personality Patterns and *DSM-III* Counterparts.

MCMI Scale	*MCMI Pattern*	DSM-III *Classification*
1	Passive-Detached	Schizoid Personality
2	Active-Detached	Avoidant Personality
3	Passive-Dependent	Dependent Personality
4	Active-Dependent	Histrionic Personality
5	Passive-Independent	Narcissistic Personality
6	Active-Independent	Antisocial Personality
7	Passive-Ambivalent	Compulsive Personality
8	Active-Ambivalent	Passive-Aggressive Personality

The three more serious patterns of personality pathology in the *DSM-III* are seen as elaborations of one of the eight basic styles that develop under the pressure of persistent and unrelieved adversity. No matter how extreme or maladaptive these behaviors may become, they are best understood as extensions and distortions that derive from, and are fully consonant with, the basic personality styles. The schizotypal personality, assessed on Scale S, represents a deterioration among patients characterized by one of the two basic detached patterns, the schizoid or the avoidant type. Similarly, the *DSM-III* borderline personality, gauged on Scale C, is seen as a more severe variant of the basic dependent and ambivalent patterns—most particularly, the dependent, histrionic, and passive-aggressive patterns. The paranoid personality, noted on Scale P, occurs most often among the two independent basic personality types, the narcissistic and antisocial, and to a lesser degree in the compulsive and passive-aggressive patterns. These eleven personality scales encompass the full range of Axis II syndromes in the *DSM-III*.

Axis I clinical syndrome disorders are also seen as extensions or distortions of a patient's personality pattern. However, these syndromes differ in that they are relatively distinct or transient states, waxing and waning over time, depending on the impact of stressful situations. Most typically, they caricature or accentuate the patient's personality style. Regardless of how