

The Quantitative Assessment of Personality

BERNARD C. GLUECK, PAUL E. MEEHL, WILLIAM SCHOFIELD AND
DEAN J. CLYDE

THE URGENT NEED for a valid and reliable method of describing the personality of an individual hardly needs to be emphasized. Ever since the initial attempts at classification of psychiatric disorders by the nineteenth century nosologists, e.g., Kraepelin and Kretschmer, each new advance in the understanding of normal and abnormal personality functioning has brought new terms and more confusion to both the description and classification of personality functioning and especially disordered functioning. With the development of various "dynamic" theories of personality functioning, and their inevitable application in the attempt to explain disordered behavior, the confusion has multiplied rapidly until we are currently overwhelmed by a multitude of languages stemming from theoretical constructs. This not only seriously handicaps clinical activity, but makes comparative research in various areas of psychiatry virtually impossible.

The problems created by the varied diagnostic terminology and criteria, and the very fuzzy and inadequate concepts of improvement were first brought forcibly to our attention in the late 1930's with the development of the somatic therapies, insulin and electroshock, when for the first time large scale attempts were made in psychiatry to evaluate scientifically the effectiveness of these new treatments. No matter how carefully the evaluative studies were designed and carried out they all suffered from two serious defects. The first of these was the inadequacy of the grouping of patients on the basis of the diagnostic labeling, so that even within a given institution, and certainly from one institution to another, there was no assurance that patients labeled as hebephrenic schizophrenia or paranoid schizophrenia, for example, were really comparable. The second important source of difficulty concerned the criteria for improvement, with a broad range from the crude determination of whether or not the patient was able to leave the hospital, to elaborate systems of subdivision into mild, moderate, much improved, or fully recovered. Again, each group of investigators tended to develop their own set of standards for measurement of the changes observed in their patients, so that comparative studies from one hospital to another were very difficult to do.

With the increasing criticism of the results of various psychotherapeutic activities occasioned by the studies of Eysenck (1952), Rosenzweig (1954), Zubin (1953), and others, and with the development in the past ten years of the chemotherapies, the need for an accurate and reliable method of describing personality, especially assessing change in personality functioning, and allowing for comparison of results from one observer to the next has become one of the critical areas for evaluative research in psychiatry.

The authors have been concerned with this problem for the past six years, and have been working on the development of a vocabulary, expressed as a series of phenotypic and genotypic items or traits, which will have maximum accuracy and efficiency when used to describe personality. While it is designed primarily for clinical use, we believe it will be sufficiently inclusive and extensive to be useful in any area of behavioral science where accurate personality description and evaluation are considered important.

We were confronted by a number of problems in undertaking this kind of task. The first was to specify the dimensions of the personality domain. Here a methodology is required which will check the adequacy with which any set of traits, or other variables, provides a representative sample from the total domain. This in turn entails the problem of how to determine that all personality manifestations are encompassed in a given population of variables. We have been especially concerned that the matrix of observations be comprehensive as statements (a) descriptive of the surface personality, and (b) representative of most psychodynamic constructs. We feel we have made a good start toward the aim of producing a pool of items which the clinician can utilize effectively because he will have important information about their characteristics which is at present either totally unavailable or under dispute among competent authorities.

METHOD

In the development of the phenotypic pool a total of 73 different sources, including textbooks in psychiatry, clinical psychology and abnormal psychology, rating scales, doctoral dissertations, clinical examination forms, lexicographic compilations of trait-names, adjective check-lists, essays and research papers on personality, published personality tests, and the clinical observations and theoretical hunches of the research staff, were exhaustively combed and reduced to a set of 6682 items (Pool A) descriptive of facets of personality at the surface, or phenotypic level. A system of 13 major categories, with two of these being further divided into 13 and 4 sub-categories respectively, was empirically developed for the classification of the items. Figure 1 gives the categories, and the distribution of items in the various categories, in a reduced pool of 1222 items (Pool B), and in the final 329 item phenotypic deck (Pool C) as currently being used.

In the development of the provisional phenotypic pool, Pool A, we were somewhat less concerned with redundancy than with coverage, fearing that a certain conceptual "traditionalism" may have played too great a part in determining the makeup of previous pools of traits and symptoms. In addition to spending many hours reading psychological sources, and discussing patients in the frame of reference provided by the above mentioned 13 broad descriptive categories, and adding the new behavior facets thus suggested to us, we have also carried out two empirical studies in an effort to provide some reassurance on the problem of coverage.

Fig. 1.—Distribution of items by categories

Category Number and Name	Percent Representation in:	
	1222 Item Pool	329 Item Pool
I. Avocational Interests	1.17	0.62
II. Vocational Interests	2.17	1.59
III. Value Orientation	3.26	3.42
IV. Primary Group Relationships	6.35	6.52
V. Attitudes	4.51	4.04
VI. Mood and Temperament	5.18	6.52
VII. Vocational Activity	3.43	2.17
VIII. Manifest Interpersonal Patterns	(36.93)	(38.79)
VIII-1 Affiliation	2.59	3.42
VIII-2 Aggression	3.51	3.73
VIII-3 Dominance	2.26	1.86
VIII-4 Giving and Taking	4.26	4.35
VIII-5 Conformity	1.67	1.55
VIII-6 Social Resonance	1.09	1.55
VIII-7 Recognition	1.92	2.17
VIII-8 Suspicious—Over sensitivity	2.92	2.48
VIII-9 Social Fear	2.84	3.10
VIII-10 Spontaneity—Control	1.25	1.86
VIII-11 Social Impact	1.84	2.17
VIII-12 Stylistic—Expressive	8.02	8.38
VIII-13 Miscellaneous Interpersonal Patterns	2.76	2.17
IX. Psychopathology	14.04	13.98
X. Ethical Behavior	1.59	1.86
XI. Self-concept	10.11	8.70
XII. Organization and Character Structure	(11.53)	(11.48)
XII-1 Skill-Ability-Talent-Knowledge	2.76	2.17
XII-2 General Effectiveness	1.25	1.55
XII-3 Control and Reality Principle	2.26	2.48
XII-4 Miscellaneous Characterological	5.26	5.28
XIII. Miscellaneous	.33	.31
TOTAL	100%	100%

First, temporally restricted behavioral episodes were drawn by random sampling methods from a diversity of sources, including psychiatric and sociological case studies, novels in the English language, and published psychotherapy protocols. Persons representing various kinds of training and intellectual backgrounds, who were unfamiliar with the item pool (Pool A), read these episodes and suggested all the traits, technical terms, or ordinary descriptive phrases which occurred to them as characterizing a person who would behave in the ways instanced in the episodes. They also gave statements as possible explanations as to why a person would so behave. The instructions to these readers were such as to encourage maximum freedom in conceptualization rather than to attempt the "most probable" classification of the episode, so that even rather improbable or fantastic interpretations, whether in common trait language or in technical language, were requested. These spontaneous suggestions for traits or personality constructs were categorized and compared with items already in the provisional pool (Pool A), and an estimate of the adequacy of coverage thereby obtained.

Fig. 2.—Characteristics used for screening initial item pool

1. Ambiguous, and hence, likely to be unreliably rated by judges in describing a person.
 2. Rare, or the reverse, nearly universal application.
 3. Archaic, obsolete, esoteric or otherwise likely to be unfamiliar in meaning.
 4. Genotypic.
 5. Atomistic.
 6. Synonymous or antonymous with other items, the items with better format being retained.
 7. Extreme.
 8. Descriptive of transient states.
 9. Evaluative, that is judgeable only with reference to the value system of the judge involved.
 10. Excessively broad.
 11. Double or multiple-barreled.
 12. Unknown to the therapist, that is, not easily or commonly accessible to a psychotherapist even after extended contact with a patient.
-

A second approach to the problem of coverage involved the rate at which genuinely new items appeared in independent item sources, as they were reviewed and screened against the provisional pool (Pool A). Since these procedures rarely produced new items, we believe that the screened phenotypic pool (Pool A) approaches its asymptote of descriptive power.

Reduction of the initial set of 6682 items (Pool A) was accomplished by screening the items for the undesirable characteristics listed in Fig. 2. This screening resulted in a pool of 1808 items. These were further reduced by asking 21 therapists to rate a patient, whom they had known for at least 25 therapeutic hours, solely on the basis of yes or no, I could or could not rate this item. Those items rated “not judgeable” for three or more of the patients were eliminated. This reduced the pool to 1222 items (Pool B) with distribution across the 13 categories as shown in Figure 1.

Fifty therapists, representing as many different varieties of theoretical orientation as it was possible for us to obtain, were asked to rate two patients each, using the 1222 item pool (Pool B). They were also asked to repeat the rating on each patient after an interval of 5 to 10 days. All patients had been in treatment at least 25 hours, with many being in psychoanalytic treatment for as long as three years.

Reduction of the 1222 item pool (Pool B) was accomplished on the basis of the following criteria:

(a) Sort-resort stability of item placement by the therapist on the patient.

(b) Inter-patient discriminations achieved by the item, as inferred from two (admittedly imperfect) indices: Total variance of the item, and the ratio of intra-therapist between-patient variance to “error” variance.

(c) Variance over therapists as an index of rater bias, or stereotypy.

(d) Judgeability, items being excluded that were sorted “not rateable” on three or more of the 100 patients.

On the basis of this screening the pool was reduced to 544 items which were presumed to contain relatively small therapist bias, that were relatively reliable, discriminated well between patients, and that could be rated by all therapists on all patients. It is interesting to note here that almost all of the items dealing with sexual patterns of behavior were sorted “not rateable.” However, since we felt these items were essential in the pool, we included a number of them in spite of their having been sorted in the “not rateable” category by a number of the therapists. We have no explanation to offer for this finding.

The 544 items were then examined by categories, and a varimax factor analysis of the intercorrelation matrix of the items within a given category was done. * An effort was made to interpret each factor on the basis of the magnitude of the item loadings and the content of the items, with items being retained when they had a high loading on a given factor and negligible loadings on other factors. Where several items were relatively pure and heavily loaded on the same factor, the number of items retained depended upon the size of the loading, the importance of the factor in terms of the magnitude of its contribution to variance, and its clinical importance as interpreted psychodynamically. One hundred and seventy-six factors

* All statistical analyses were performed by Dr. Dean Clyde at the Biometric Laboratory, George Washington University, Washington, D.C.

were identified in the various categories and sub-categories, totaling 329 items. These 329 items comprise the final phenotypic pool (Pool C), with representation in the various categories shown in Figure 1.

The majority of the factors could readily be labeled with dynamically meaningful labels, with the items contained in the factor making a good deal of sense in terms of the dynamic labeling of the factor. However, the main purpose of this factor analysis was to aid in further item elimination, rather than to achieve any final factor interpretation. Examples of the factors and items are shown in Figures 3, 4, and 5.

Fig. 3.—Category XI, Self-concept

Factor 3, Hysteroïd defense, not psychologically oriented

- | | | |
|--------|-----------|--|
| Item 1 | loads .78 | Is resistant to the idea that his symptoms are related to or due to emotional maladjustments or psychological conflicts. |
| Item 2 | loads .76 | Lacks insight into his own motivation and dynamics. |
| Item 3 | loads .62 | In therapy sessions he has difficulty in finding things to talk about, other than his symptoms, which are significantly related to his psychological conflict. |
-

Fig. 4.—Category XII-4, Miscellaneous Characterological

Factor 6, Anality

- | | | |
|--------|-----------|---|
| Item 1 | loads .79 | Fussy, overly concerned with things being exactly as he thinks they should be. Fastidious, finicky. |
| Item 2 | loads .75 | Parsimonious, unduly reluctant to part with his money or possessions, etc. |
| Item 3 | loads .69 | Neat, tends to keep his personal possessions and momentary surroundings or condition clean, tidy, orderly, in place, put away, etc. |
-

Fig. 5.—Category IX, Psychopathology*Factor 4, Cognitive Slippage*

Item 1	loads .89	Manifests atypical strange or bizarre mentation.
Item 2	loads .87	Has feelings of depersonalization.
Item 3	loads .82	Has a tendency to experience perceptual distortions. (Extreme high rating means hallucinations).
Item 4	loads .78	Dereistic thinking present. His mental activity lacks accordance with reality, logic or experience.
Item 5	loads .79	Has a thinking disturbance which has resulted in inefficiency in adaptation to life situations.
Item 6	loads .68	Has inappropriate affect.

Since the clinical usefulness of the phenotypic pool will be determined in part by the possibility of constructing diagnostic scales from the items, similar to those on the Minnesota Multiphasic Personality Inventory, this was investigated, using the description of the 100 patients, for a schizotypic scale. We chose this particular diagnostic entity since one of the constraints in the selection of patients was the elimination of overtly psychotic individuals from the sample. It was felt that if items loaded heavily on a schizotypic factor on the basis of this patient sample, they would probably represent the subtler indicators for a diagnosis of schizoid, or schizo-adaptive, individual. The items in the pool were rated for high, middle, or low relevance for the diagnosis of schizophrenia. Items with high relevance, as agreed by the authors, and a few items with low relevance, were chosen for further study. A total of 54 items were so chosen. These items were intercorrelated with each other on the basis of the ratings by the fifty therapists on their initial description of the 100 patients. Using this correlation matrix, a varimax factor analysis was performed which provided four factors, containing a total of 28 items, that appear to have important relevance for diagnosis of the schizotypic.

The first factor loads on 16 items, between .51 and .86, which we have interpreted as being typical of the disturbed mentation of the schizophrenic. A sample of these items is seen in Figure 6.

The second factor loads on four items, descriptive of the anhedonia component, as illustrated in Figure 7.

The third factor loads on four items descriptive of the pervasive anxiety of the schizophrenic, as illustrated in Figure 8.

The fourth factor loads on four items which seem less homogeneous but appear to tap the alienated, paranoid, suspicious, sensitivity aspect of the schizotypic, Figure 9.

Fig. 6.—Factor 1—Thinking Disorder

Item Number	Loading	Item
1	.87	Has feelings of depersonalization.
2	.85	Manifests atypical, strange, or bizarre mentation.
3	.83	Experiences fleeting episodes of actual cognitive distortion. He can snap back to reality, yet during the episode the pathological idea seems to have more the character of a belief than of an obsessive notion whose subjectivity the patient recognizes.
4	.82	Has a tendency to experience perceptual distortion. (Extreme high rating means hallucinations.)
5	.81	Experiences at times a feeling of strangeness, unreality, or unfamiliarity with regard to ordinary objects of his physical environment, etc.
6	.81	Has short-lived psychotic-like states (micropsychoses) in which hypochondriacal ideas, ideas of reference, and feelings of depersonalization occur interlocked and in practically delusional form.

Fig. 7—Factor 2—Anhedonia

Item Number	Loading	Item
1	.79	Tends not to have subjective experiences of pleasure. There is a sparsity and weakness of positive experience in all domains, ranging from the kicks derived from simple sensory stimulation to the kinds of gratifications normally derived from complex subtle interpersonal relationships.
2	-.79	Spontaneously reports pleasure experiences; describes occurrences which felt wonderful, were lots of fun, gave me a big kick, provided real satisfaction, enjoyed a lot.
3	.61	Tends not to become genuinely deeply involved in anything or with anybody; nothing seems to arouse interest, passion, or lasting concern.
4	.60	States, in so many words, that he never has been happy, as far back as he can remember.

Fig. 8.—Factor 3—Pan-anxiety

Item Number	Loading	Item
1	.75	Is frightened at times by consciously experienced inability to direct the course of his thoughts.
2	.70	Has a generally apprehensive fearful mood; experiences feelings of foreboding, misfortune, or dread; has chronic “free-floating” anxiety and anxiety-readiness.
3	.69	Has “pan-anxiety”; shows an all-pervading anxiety-readiness which does not leave any life-approach free from tension.
4	.55	Has multiple neurotic manifestations (e.g., conversions, phobic reactions, obsessive concerns, free-floating anxiety, vegetative disturbances, depressions) which shift considerably but each of which dominates the behavior while it is present.

Fig. 9.—Factor 4—Paranoid, Suspicious-Sensitive

Item Number	Loading	Item
1	.70	Feels that others regard him as strange, odd, peculiar, different.
2	.64	Has persecutory trends. Experiences the feeling that others are unfair to him, critical of him, against him, or attempting to harm him, without presenting adequate evidence for such notions. (Extreme high rating means delusion of persecution.)
3	.63	Feels that he is different, not like other people, somehow.
4	.59	Experiences deep, pervasive, and persistent feelings of unworthiness, “badness”, incompetence, unattractiveness, and unloveability; suffers from a diffuse, chronic, and relatively unchangeable deficit in self-image and self-esteem.

We have presented the above material to illustrate the kind of diagnostic scale development that we expect will result from further work utilizing the phenotypic pool of items. We anticipate being able to construct a number of scales which will score various psychopathological entities, as well as

various types of character and personality configurations, in much the same manner that the MMPI is currently scored.

A word about other aspects of the project that will be reported on at a later date. We have constructed a genotypic pool of 101 items, divided into sub-pools on the basis of substantive reference rather than theoretical orientation. The variable classes are: *structural*, *affective*, *motivational*, *modes of handling*, *impulses*, and *objects*. The genotype is to be characterized by:

(a) Overall placement of items representing these domains.

(b) Ratings on selected patterns of impulse plus object plus mode of handling impulse-object combination, permitting the clinician to give a dynamic interpretive statement about the *why* of the behavior described in detail by the phenotypic pool. The language employed in these items has been chosen for maximum theoretical neutrality, so that therapist orientation will be reflected by the item placements, and by selected patterns of *impulse-object-handling*.

We are currently finishing a pool of items drawn from the original phenotypic set (Pool A) that will be used as a self-sort pool, in much the same manner as the MMPI, to be sorted by patients to describe themselves.

All of these instruments will be used in two major projects. In the first of these we will obtain a detailed description of four patients each, from twenty-five therapists, utilizing the phenotypic and genotypic pools. At the same time we will ask the patients to describe themselves, using the self-sort pool and the MMPI. Various analyses of the information thus obtained will be attempted in order to explore the following points:

(1) To analyze in detail selective aspects of the process by which a skilled judge of persons, that is, a trained and experienced psychotherapist, arrives at his view of the individual. This analysis has both quantitative and qualitative aspects, since we shall be studying the manner in which a therapist's judgment, or rating of various traits, changes over time, and as a function of the total mass of information available to him.

(2) The particular advantages and limitations of intensive psychotherapy, and psychoneurotic disorders, as media for analysis of the personality phenotype and its relation to the underlying genotype.

(3) Examination of the rate and order with which the experienced clinician develops a formulation, that is, a stable G-P matrix of the neurotic patient, as a function of increments in the number of interviews, and examination of the stability of such formulations and their generality over different judges.

(4) Study of the therapist's concept of the patient's personality in relation to the patient's self-concept, and examination of the strength of that relationship as a function of the number of interview hours.

(5) Study of the interrelationships among clinician's descriptions, patient's self-descriptions, and extensive life-history data.

(6) Study of the relative contribution to the total perception of the patient from face-to-face interview, and from tape-recorded interview content alone, in determining the character of the P and G descriptions, their

rate of approach to stability, and the level of stability of final formulation.

The second major project involves obtaining descriptions from clinicians, using the Q-sort decks, on a large sample of patients and normal subjects, and at the same time obtaining an MMPI from the individual so described. On the basis of these descriptions we will attempt an actuarial method of data combination to derive an objective, statistically determined, interpretation of any MMPI profile.

SUMMARY

The authors have presented a research project which attempts to develop a better language for the description and formulation of personality and personality dynamics. The details of the development of the current phenotypic pool of items have been given, along with a brief description of other sets of items. The future course of the research has been outlined.

It is the authors' contention, which they feel is adequately supported by the evidence so far accumulated, that the current phenotypic item pool represents a complete coverage of the domain of overt personality functioning which can be successfully utilized to describe personality in its multiple aspects, and which can be used to derive diagnostic statements about the individual so described.

REFERENCES

- Eysenck, H. J. (1952). The effects of psychotherapy: an evaluation. *J. Consult. Psychol.*, 16, 319-324.
- Rosenzweig, S. (1954) A transvaluation of therapy—a reply to Hans Eysenck. *J. Abnorm. Soc. Psychol.*, 49, 298-304.
- Zubin, J. (1953). Evaluation of therapeutic outcome in mental disorders. *J. Nerv. & Ment. Dis.*, 117, 95-111.

Bernard C. Glueck, Jr., M.D., Director of Research, Institute of Living, Hartford, Connecticut.

Paul E. Meehl, Ph.D., Professor, Departments of Psychology and Psychiatry, University of Minnesota.

William Schofield, Ph.D., Professor, Departments of Psychology and Psychiatry, University of Minnesota.

Dean J. Clyde, Ph.D., University of Miami, Coral Gables, Florida.