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DELINQUENCY AND THE VALIDATING SCALES OF THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

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If we take the position that delinquent behavior is nonconforming behavior in violation of an ideal norm as defined by law, then it follows that on a continuum of conformity—nonconformity there should exist a psychological homogeneity among delinquents and heterogeneity between delinquents and nondelinquents. Although no inference is made that delinquency is a behavioral entity or that delinquents are a unique personality type, the assumption may be made that individuals exposed to broadly similar cultural norms and yet separable into conforming—nonconforming groups may be found to be different in some other respect. Such a difference may be used for the purposes of delinquency prediction.

This paper reports the results of an investigation of the self-reference statements endorsed by delinquents and nondelinquents contained in the pool of items of the Minnesota Multiphasic Personality Inventory (hereinafter referred to as the MMPI). The study is an outgrowth of a research program carried on under the direction of Starke R. Hathaway and Elio D. Monachesi (5). The MMPI has been described and extensively discussed in the literature and especially in the specific references listed in the bibliography (1, 3, 4). The test was originally constructed to provide scores on all the more clinically important phases of personality. Although the MMPI was first intended to be employed in the assessment of personality traits in a clinical setting, research has demonstrated that it is a useful device for the classification of “normal” persons.

The instrument contains 550 items covering a wide variety of topics centering upon many aspects of an individual’s physical, mental, and social life. The responses made to these items yield scores on fourteen scales, four of which are employed to measure the validity of all of the responses while the remaining scales are descriptive of the degree to which the subject resembles persons who have been diagnosed as afflicted with personality and psychological disorders.

The list of highly abbreviated and simplified scale descriptions shown on the following page indicate the aspects of personality the MMPI describes.

In the original Hathaway and Monachesi study, the MMPI was administered to the ninth grade population of the Minneapolis public school system for the year 1947–1948. The total ninth grade population at the beginning of the academic year consisted of 4,572 students of whom 4,048 were available for the study. Scores on the clinical scales of the MMPI are converted to standard scores and recorded on a graph called “the profile” of the individual. From this “profile” the pattern of the scale scores for each individual can be read.

To facilitate communication and analysis, Hathaway (2) has developed a coding system by which it is possible to present the profile of each individual using the scale numbers listed in the above scale descriptions and a series of primes which indicate the elevation level of each clinical score in ten point categories. Validity scores are usually given in raw scores, and for the purposes of this study the cut-off points used were 9 for the L score and 15 for the F score. No effort is made at pattern or profile analysis in this paper, how-

1 Throughout this paper numbers in parentheses in the text apply to numbered references in the bibliography at the end of the paper.
**Clinical Scales**

0  Si  Social Introversion  Social introversion; withdrawn socially.
1  Hs  Hypochondriasis  Abnormal concern about bodily functions.
2  D  Depression  Depression; unhappiness.
3  Hy  Hysteria  Hysteria; solve problems by physical symptoms; immaturity.
4  Pd  Psychopathic Deviate  Absence of deep emotional response; inability to profit from social training; disregard of social mores.
5  Mf  Masculinity- Femininity  Tendency toward feminine interests (for males).
6  Pa  Paranoia  Suspiciousness; oversensitivity in social situations; rigidity of personality.
7  Pt  Psychasthenia  Fears; inferiority feelings; compulsive behavior; indecisiveness.
8  Sc  Schizophrenia  Bizarre thought or behavior; failure to be or feel in good social contact.
9  Ma  Hypomania  Over-productivity in thought; overactive; transient enthusiasm; expansive.

**Validity Scales**

?  Cannot Say  A count of the items not answered.
L  Lie Scale  Naive attempt at defensiveness.
F  Reflects derogatory self-attitudes.
K  Subtly reflects degree of candor.

However, the fact of invalidity as identified by recorded profiles is made the basis for the selection of the subjects included in this study. Approximately 7 per cent of the total of the children tested achieved invalid protocols on the basis of high scores on the L and/or F scales or high scores in the Cannot Say category.

Subsequent to the administration of the test, follow-up studies of court records and police records were made to discover which of the ninth-graders had had contact with law enforcing agencies. Among the findings provided by these follow-up studies was the fact that the greatest frequency of delinquency occurs among those juveniles whose MMPI profiles are characterized by high scores on the L and/or F scales. It is suggested in this context that this homogeneity in response to the validating scales of the MMPI may prove to be a fruitful basis for the classification of delinquent types.

We take the position that in matching the group on the criterion of psychological homogeneity provided by scores within a certain range of the MMPI validating scales and then determining what differences exist between delinquents and nondelinquents may produce significant results. The central hypothesis of this study is, therefore, that in a population selected by high scores on the validity scales of the MMPI there will be a difference between delinquents and nondelinquents reflected by the endorsement of the individual items of the MMPI, and therefore these items can become predictors of the criterion delinquency.

### Rationale for the Study

The need for a classification system among delinquents based on some factor of homogeneity is well attested to by the literature in the field, but it would seem that to date the significant factors have not been successfully isolated. There is general agreement, however, that delinquents fall into a variety of psychological groupings. Attention has also been called to the relatively high frequency of delinquency among those juveniles whose MMPI profiles are characterized by high scores on the L and/or F scales. It is suggested in this context that this homogeneity in response to the validating scales of the MMPI may prove to be a fruitful basis for the classification of delinquent types.
A number of supplementary assumptions have contributed to the particular method of dealing with the data and have defined the basis for the variables which determined the selection of cases used in this analysis. These assumptions are—

1. To the extent that scoring within a certain range on the validity scales L and/or F is a recognized psychological characteristic, there is a psychological homogeneity among the cases included in this study.

2. Individuals exposed to broadly similar cultural norms and yet behaviorally different can be found to be different in some other respect, and a pool of items like those which constitute the MMPI may offer means for the assessment of the difference.

3. The individual items of the MMPI can be interpreted as statements of self-attitudes, and the individual's response to the respective items is an expression or manifestation of his self-attitudes.

4. To the extent that cultural patterns for adolescent behavior define the social role and therefore self-attitudes of the sexes differently, endorsement of individual items of the MMPI will reflect this sociological difference between the sexes.

5. Since psychological homogeneity, defined as high scores on the L and/or F scales is the basis for selection of the population included in this study, differences in self-attitude statements found to distinguish delinquents from nondelinquents among the criterion groups will not hold up for valid profile cases.

OUTLINE OF PROCEDURE

In order to test the hypothesis and explore the soundness of the assumptions made as stated, the following steps were taken:

An item analysis was made of all the items of the MMPI for the invalid profile cases, comparing delinquent boys with nondelinquent boys and delinquent girls with nondelinquent girls. The frequencies were converted to proportions, and the test of the significance of the difference between the proportions of delinquent and nondelinquent responses was made.  

A scoring key was constructed made up of those items which discriminated between delinquents and nondelinquents giving a weight of one to each item in the direction answered by the delinquent group.

A cross-validation test was made of the "delinquency scale" on a group of cases made up of a large portion of institutionalized and some non-institutionalized delinquents and a group of nondelinquents, all of whom had obtained invalid profiles and who were approximately the same age as the standardization groups. An item analysis based on the answers of the cross-validation group to the questions in the delinquency scale was made to assess which items individually discriminated between delinquents and nondelinquents in this cross-validation group.

A second cross-validation sample was taken from among the valid profile cases of the ninth graders and the procedure outlined in the first cross-validation test was repeated.

THE FINDINGS FOR MALES

The item analysis of the total pool of MMPI items comparing delinquent males with nondelinquent males, all of whose profiles were characterized by elevated scores on the validity scales L and/or F yielded the pool of 59 items listed in Table I.

An assessment of the screening efficiency of the delinquency scale on the criterion groups revealed that a cutting score of 32 would identify approximately 56 per cent of the delinquents at the expense of almost 5 per cent "false positives" or overlap of nondelinquents.

Two cross-validation tests were made. Validation group A was made up of 97 male institutionalized, adjudicated delinquents and 36 nondelinquents drawn from a variety of school and recreational groups in the Hennepin and Ramsey County, Minnesota, communities as described in more detail by E. D. Monachesi. (6, 7, 8) All these cases had invalid profiles because of high scores on the L and/or F scales. An assessment of the screening efficiency of the male delinquency scale on Validation Group A using the cutting score of 32 as in the criterion groups identified approximately 57 per cent of the delinquents at the expense of 36 per cent overlap of nondelinquents, revealing that the shrinkage of efficiency of the delinquency scale is associated with a con-

Although a pool of items found to discriminate between delinquents and nondelinquents is referred to as a "delinquency scale", it is not to be inferred from this fact that this is a scale of general applicability.
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TABLE II
SUMMARY OF TESTS OF SIGNIFICANCE OF THE DIFFERENCES BETWEEN MEANS FOR THE CRITERION AND VALIDATION GROUPS ON THE MALE DELINQUENCY SCALE

<table>
<thead>
<tr>
<th>Comparison Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Mean Difference</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Criterion delinquent.</td>
<td>87</td>
<td>31</td>
<td>7.54</td>
<td>9</td>
<td>7.83*</td>
</tr>
<tr>
<td>Criterion nondel.</td>
<td>64</td>
<td>22</td>
<td>6.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Criterion del.</td>
<td>87</td>
<td>31</td>
<td>7.54</td>
<td>1</td>
<td>1.11</td>
</tr>
<tr>
<td>Validation A del.</td>
<td>97</td>
<td>32</td>
<td>4.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Criterion del.</td>
<td>87</td>
<td>31</td>
<td>7.54</td>
<td>3</td>
<td>2.2**</td>
</tr>
<tr>
<td>Validation A nondel.</td>
<td>36</td>
<td>28</td>
<td>6.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Criterion nondel.</td>
<td>64</td>
<td>22</td>
<td>6.63</td>
<td>6</td>
<td>4.51*</td>
</tr>
<tr>
<td>Validation A nondel.</td>
<td>36</td>
<td>28</td>
<td>6.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Validation A del.</td>
<td>97</td>
<td>32</td>
<td>4.02</td>
<td>4</td>
<td>3.57*</td>
</tr>
<tr>
<td>Validation A nondel.</td>
<td>36</td>
<td>28</td>
<td>6.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F. Criterion nondel.</td>
<td>64</td>
<td>22</td>
<td>6.63</td>
<td>10</td>
<td>10.87*</td>
</tr>
<tr>
<td>Validation A del.</td>
<td>97</td>
<td>32</td>
<td>4.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Validation B del.</td>
<td>72</td>
<td>24.7</td>
<td>4.71</td>
<td>1</td>
<td>1.54</td>
</tr>
<tr>
<td>Validation B nondel.</td>
<td>147</td>
<td>23.7</td>
<td>4.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Criterion del.</td>
<td>87</td>
<td>31</td>
<td>7.54</td>
<td>6.3</td>
<td>6.4*</td>
</tr>
<tr>
<td>Validation B del.</td>
<td>72</td>
<td>24.7</td>
<td>4.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Criterion del.</td>
<td>87</td>
<td>31</td>
<td>7.54</td>
<td>7.3</td>
<td>8.4*</td>
</tr>
<tr>
<td>Validation B nondel.</td>
<td>147</td>
<td>23.7</td>
<td>4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J. Criterion nondel.</td>
<td>64</td>
<td>22</td>
<td>6.63</td>
<td>1.7</td>
<td>1.91</td>
</tr>
<tr>
<td>Validation B nondel.</td>
<td>147</td>
<td>23.7</td>
<td>4.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. Criterion nondel.</td>
<td>64</td>
<td>22</td>
<td>6.63</td>
<td>2.7</td>
<td>2.7**</td>
</tr>
<tr>
<td>Validation B del.</td>
<td>72</td>
<td>24.7</td>
<td>4.71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Signifies a difference reliable above the 1 per cent level of confidence.
** Signifies a difference reliable above the 5 per cent level of confidence.

reliable difference. In other words, the discriminant efficiency of the male delinquency scale as measured by the differences between the means of delinquent and nondelinquent groups seems to be valid among groups characterized by the psychological characteristics associated with invalid MMPI profiles, but is not consistently valid when applied to groups not so characterized.

THE FINDINGS FOR FEMALES

Ninety-one items were found to discriminate significantly between female delinquents and nondelinquents who had achieved invalid profiles because of high L and/or F scores. These items with the way delinquents tended to respond to them as well as the frequency with which both delinquents and nondelinquents gave such responses are presented in Table III.

An assessment of the screening efficiency of the delinquency scale on the criterion groups of females yielded the findings that a cutting score of 66 would identify 60 per cent of the delinquents with no overlap of nondelinquents. A cutting score of 28 at the lower end of the distribution of scores would identify 36.2 per cent of the nondelinquents with no overlap of delinquents. Compared to the male delinquency scale, this scale for females is considerably more efficient.

The first sample of cases with invalid profiles used as a validating group for the female delinquency scale was made up of MMPI records collected in the course of several studies reported by Elio D. Monachesi (5, 7). As for the males, the public records were checked in Ramsey and Hennepin Counties in the summer of 1953 to ascertain that there was no delinquency record against the cases included in this group.

An analysis of those items included in the female delinquency scale was made based on the female Validation Group A sample to ascertain those items which individually discriminated between delinquents and nondelinquents in this group. This analysis yielded a pool of 50 items which held up as discriminators between delinquents and nondelinquents in Validation Group A. An analysis based on the Validation Group B of the items in-
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cluded in the delinquency scale yielded ten items which discriminated between delinquents and nondelinquents in this group.

A test of the significance of the difference between the means of the respective groups of delinquents and nondelinquents in the criterion and validation groups was made, and the results are summarized in Table IV. Inspection of Table IV reveals the fact that the differences between criterion delinquent and criterion nondelinquent, criterion delinquent and Validation Group A nondelinquent, Validation Group A delinquent and Validation Group A nondelinquent, criterion delinquent and Validation Group B nondelinquent attain statistical reliability, and thus substantiate the hypothesis to the extent that differences between these respective groups of delinquents and nondelinquents are greater than might have occurred by chance. With reference to the Validation Group B, the differences between the delinquency scale means of delinquents and nondelinquents on the basis of this test of significance do not attain a statistical reliability. It should also be noted that the high statistically significant difference in means of the criterion delinquents and the Validation Group B delinquents, and the fact that the difference between criterion nondelinquents and Validation Group B delinquents is not statistically reliable would indicate that the delinquency scale for females does not discriminate delinquents from nondelinquents who are not already members of the sub-group of the population which gives invalid profiles on the MMPI. In substantiation of the hypothesis which this study is testing are the nonsignificant relationships between the means of the criterion delinquents and Validation Group A delinquents, criterion nondelinquents and Validation Group A nondelinquents, and criterion nondelinquents and Validation Group B nondelinquents. Like the male delinquency scale, the discriminatory efficiency of the female delinquency scale as measured by the differences between the means of delinquent and nondelinquent groups seems to differentiate significantly groups characterized by the psychological characteristics associated with invalid MMPI profiles, but fails to do so consistently when applied to groups not so characterized.

**Conclusion**

Selecting the population to be studied on a criterion of psychological homogeneity as identified by the scales of the MMPI, and investigating what differences of response to the individual items of the MMPI exist, yielded pools of items which efficiently discriminated delinquents from nondelinquents in the criterion groups for male and female. Cross-validation tests of the pools of items called delinquency scales in this study revealed that a scoring key based on the respective items of the delinquency scales efficiently screened delinquents from nondelinquents in validation groups selected on the same characteristic of psychological homogeneity as the standardization groups although with some shrinkage. The scales were not efficient on cross-validation tests based on groups not sharing the psychological homogeneity with the standardization groups. One possible interpretation of this latter fact is to underline the conviction that there are a variety of psychological types of delinquents, and that one meaningful sorting of types for analysis and prediction is the validity-invalidity criterion of the MMPI.

**BIBLIOGRAPHY**