



1975

Use of a Short Form of the Minnesota Multiphasic Personality Inventory with Alcoholics

Patrick E. Shields
Loyola University Chicago

Follow this and additional works at: https://ecommons.luc.edu/luc_theses

 Part of the [Psychology Commons](#)

Recommended Citation

Shields, Patrick E., "Use of a Short Form of the Minnesota Multiphasic Personality Inventory with Alcoholics" (1975). *Master's Theses*. 2883.

https://ecommons.luc.edu/luc_theses/2883

This Thesis is brought to you for free and open access by the Theses and Dissertations at Loyola eCommons. It has been accepted for inclusion in Master's Theses by an authorized administrator of Loyola eCommons. For more information, please contact ecommons@luc.edu.



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 License](#).
Copyright © 1975 Patrick E. Shields

USE OF A SHORT FORM OF THE MINNESOTA
MULTIPHASIC PERSONALITY INVENTORY
WITH ALCOHOLICS

By

Patrick E. Shields

A Thesis Submitted to the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
Master of Arts

December

1974

ACKNOWLEDGEMENTS

The assistance and interest of Dr. Frank J. Kobler and Dr. Roderick W. Pugh of Loyola University of Chicago is sincerely appreciated.

The author is indebted to Miss Phyllis K. Snyder, Director of the Chicago Alcoholic Treatment Center, Mr. Julian Abraham, other staff members, and the patients of the Chicago Alcoholic Treatment Center for their cooperation with the author throughout the research project.

The author wishes to thank Dr. Frank Slaymaker, Mr. Ronald Szoc, and Dr. Stuart Meshbaum for help with the statistical analysis.

Special thanks go to my wife, Deborah, for her support throughout the project.

LIFE

Patrick E. Shields was born in Minneapolis, Minnesota on February 9, 1948.

He graduated from Hill High School, St. Paul, Minnesota in May, 1966. He attended Nazareth Hall preparatory seminary for two years and received the Associate of Arts degree in 1968. He graduated *magna cum laude* from the College of St. Thomas in May, 1970. He is currently enrolled in the Doctoral Program in Clinical Psychology at Loyola University of Chicago.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.	ii
LIFE.	iii
LIST OF TABLES.	vi
CONTENTS OF APPENDICES.	viii
Chapter	
I. INTRODUCTION.	1
II. REVIEW OF RELATED LITERATURE.	4
Short Form Intelligence Test Research. . .	4
Short Forms of the MMPI.	5
Methodological Issues.	6
Predicting Full Scale Scores from	
Short Form Scores.	7
Choice of Short Form Items	8
Establishing Correspondence of Forms . . .	9
Practical Validity	13
Systematic Sources of Error.	15
The Mini-Mult.	15
III. METHOD.	34
Subjects	34
Materials.	35
Procedure.	37
IV. RESULTS	39
V. DISCUSSION.	74
VI. SUMMARY	76
REFERENCES.	78
APPENDIX A.	87
APPENDIX B.	89
APPENDIX C.	91

TABLE OF CONTENTS (CONTINUED)

	Page
APPENDIX D.	93
APPENDIX E.	98
APPENDIX F.	100

LIST OF TABLES

Table		Page
1.	Means and Standard Deviations Compared for Mini-Mult and MMPI, Group 1	42
2.	Means and Standard Deviations Compared for MMPI ₁ and MMPI ₂ , Group 3	43
3.	Means and Standard Deviations Compared for MMPI ₁ and MMPI ₂ , Group 1	44
4.	Means and Standard Deviations Compared for MMPI ₁ and MMPI ₂ , Group 2	45
5.	Means and Standard Deviations Compared for Mini-Mult and MMPI ₂ , Group 2	47
6.	Means and Standard Deviations Compared for MMPI ₁ and Mini-Mult, Group 2	48
7.	Means and Standard Deviations Compared for MMPI ₂ and Mini-Mult, Group 3	49
8.	Means and Standard Deviations Compared for MMPI ₁ and Mini-Mult, Group 3	50
9.	Means and Standard Deviations Compared for Mini-Mult and MMPI ₂ , Group 2	52
10.	Means and Standard Deviations Compared for Mini-Mult, Group 1, and MMPI ₁ , Group 2	53
11.	Means and Standard Deviations Compared for MMPI ₁ , Group 2 and MMPI ₁ , Group 3	54
12.	Means and Standard Deviations Compared for Mini-Mult, Group 1 and MMPI ₁ , Group 3	55
13.	Means and Standard Deviations Compared for MMPI ₂ , Group 1 and MMPI ₂ , Group 2	57
14.	Correlations Compared for MMPI ₂ - Mini-Mult, Group 3 and Mini-Mult - MMPI ₁ , Group 1	58

LIST OF TABLES (CONTINUED)

Table	Page
15. Correlations Compared for Mini-Mult - MMPI ₂ , Group 2 and Mini-Mult - MMPI ₁ , Group 1.	59
16. Correlations Compared for MMPI ₂ - Mini-Mult, Group 3 and MMPI ₁ - Mini-Mult, Group 2.	61
17. Correlations Compared for MMPI ₁ - MMPI ₂ , Group 1 and MMPI ₁ - MMPI ₂ , Group 3.	62
18. External Correlations Reported in Five Studies	64
19. Profile Highpoint Agreement for MMPI ₁ - MMPI ₂ , Group 1, and MMPI ₂ - Mini-Mult - MMPI ₁ , Group 1	67
20. Profile Highpoint Agreement for MMPI ₁ - MMPI ₂ , Group 3 and Mini-Mult - MMPI ₁ , Group 1.	68
21. Profile Highpoint Agreement for MMPI ₂ - Mini- Mult, Group 3 and Mini-Mult - MMPI ₁ , Group 1. . .	69
22. Correspondence Between MMPI ₁ , Group 1 and Mini-Mult Contained Within It	71
23. Mini-Mult Test - Retest Comparisons	72

CONTENTS OF APPENDICES

Appendix	Page
A. MMPI ₂ and Mini-Mult Mean Scores, Group 3 . .	87
B. Mini-Mult and MMPI ₁ Mean Scores, Group 1 . .	89
C. Volunteer Information Sheet.	91
D. Mini-Mult.	93
E. Kincannon's Conversion Table for the Prediction of Standard Scale Raw Scores From the Mini-Mult Raw Scores.	98
F. Internal Comparisons	100

CHAPTER I

INTRODUCTION

The value of diagnostic testing has been questioned by a number of people in recent years. Rosenwald (1963) observes a trend to deprecate the role of testing. Some have suggested disposing of testing because it is a product of the medical model and fosters the "illness" conception of emotional problems (Szasz, 1961). Another criticism stems from the fact that the amount of knowledge gained from testing is not justified by the expense in terms of money and valuable professional time necessary for a thorough diagnostic evaluation, or is not relevant to treatment (Hunt, 1971, p. 7).

One remedy for the cost-benefit imbalance has been to reduce the amount of time necessary for diagnostic evaluation by reducing the length of standard instruments. This reduction in testing time seems to be the main motivator behind the development of short-form (SF) tests. In some reports, this aim must be considered obvious, for no statement of purpose of the SF is given (Levy, 1968).

Other reasons for an SF are given by Kincannon (1968). In clinical situations, patients are frequently unable or unwilling to complete either the individual or

the group form of the MMPI. These same patients, however, usually agree to answer a short series of orally administered questions. Consultation situations call for rapid evaluation. The length of the MMPI makes its use in research time-consuming and bothersome to respondents. An SF test could be included in mailed questionnaires and in multivariate projects without causing high S attrition and expense.

The present study will attempt to assess the usefulness of a short form of the MMPI with alcoholics at the Chicago Alcoholic Treatment Center (CATC). The MMPI is used with alcoholics in many treatment settings to screen for individuals whose emotional problems are of such a magnitude that they are not available for treatment. A short form MMPI could serve this same function, but at a savings in money, and staff and patient time.

The purpose of the present study is:

1. To provide a comparison between MMPI and Mini-Mult scores to determine if the Mini-Mult is suitable for use at CATC. This determination is to be based on statistical tests and also profile similarity.

2. To provide a comparison between the agreement of the MMPI with the external Mini-Mult and the agreement of the MMPI with a retest of the MMPI. This comparison is necessary since the former would not be expected to exceed the latter. The MMPI scores are influenced to a

small degree by random or day to day fluctuation and thus the discrepancy between the Mini-Mult and the MMPI is due in part to error variance in the MMPI score.

3. To test the hypothesis that higher correlations will be obtained between forms administered on days 2 and 3 than between forms administered on days 1 and 2. The social desirability factor which has been shown to create score differences between days 1 and 2 is hypothesized to reduce correlations between days 1 and 2, but to have little effect on correlations between days 2 and 3.

4. To provide an estimate of the stability of the Mini-Mult over a period of approximately three weeks.

CHAPTER II

REVIEW OF THE LITERATURE

Short Form Intelligence Test Research

A great deal of research has been done on SFs of standard intelligence tests, beginning with Doll's (1917) questioning of the need to use all the Binet-Simon items for the clinical assessment of intelligence. Although this study is primarily concerned with research on SFs of the MMPI, issues in SF intelligence testing are discussed when relevant. Many of these issues will be discussed in the section on methodological problems. An issue not necessarily related to methodology is that of standards for SF acceptance.

No clear-cut standards can be found that serve as a basis for accepting or rejecting an SF. Doppelt (1956) said, "A compromise must be made between economy of time and effort and accuracy of prediction" (p. 63). Levy (1968) has proposed what he calls a "decision-theoretic framework." According to Levy,

If we are to judge how much validity may be sacrificed, an equation must be found which defines a utility or cost function for the relationship between validity lost and time saved; otherwise no solution is possible.

No amount of conventional statistical manipulation of data, however sophisticated, can develop such a solution.

It is clear that standards of acceptability for SFs are somewhat arbitrary. Some idea of what standards have been adopted can be gained from looking at which SFs have become popular and which have not.

Short Forms of the MMPI

An early short form of the MMPI called the Hastings Short Form (Olson, 1954) was designed to save 26% of testing time. The inventory was limited to the first 420 items of the MMPI. The only items beyond this point scored on the clinical scales are items on scale 0 (Si). The K validity scale also has two items beyond this point. Other items beyond this point are research items to be used for constructing new scales. The scores for scales 0 and K were derived by constructing a table of proration based on a comparison of scores obtained on items preceding and following item 420. The prorated scores corresponded closely to long form scores. Olson's procedure did not attract a great deal of interest, probably because the proration procedure did not add enough significant clinical information to warrant clinicians changing their testing instructions and computations.

A more direct, and slightly shorter method of obtaining standard MMPI scores was introduced by Hathaway

and McKinley (1967). This method was called Form R of the MMPI, and was published and used widely. It consisted of the standard MMPI items, but re-arranged so that the research items (items not scored on any of the validity or clinical scales) were put at the end of the inventory. This arrangement permits responses to all standard scorable items with a reduction of test length to 399 items.

Holzberg and Alessi (1949) had removed unscored items from the card form of the MMPI and saved one third of the testing time. Although they found statistically significant differences between test and retest scores for half of the scales, their profiles were not significantly different (according to their clinical judgement) and their test-retest rs compared favorably to reliability data reported in the literature.

Several early attempts to predict MMPI standard scores from SFs (Jorgenson, 1958; Foulds, 1960) were unsuccessful.

Altus and Bell (1947) and Clark (1948) reported on brief oral adjustment scales adapted from the MMPI. The correspondence of these brief instruments to the MMPI was minimal (Dahlstrom, Welsch, & Dahlstrom, 1971).

Methodological Issues

A number of methodological problems are responsible for the difficulties encountered in developing SF inventories and tests. Kincannon (1968) raises the possibility

that a conviction or assumption on the part of researchers that methodological problems are unavoidable may have been a deterrent to SF construction in the past. There is a "general assumption that a longer test is significantly more reliable and therefore potentially more valid than a shorter one" (Kincannon, 1968). A fear of the predictions of the Spearman-Brown formula has discouraged testing its predictions. But Kincannon argues that the assumptions underlying this formula may render it inappropriate for use with a systematic reduction in length of the MMPI.

One assumption of the Spearman-Brown formula is that all items in a scale are equivalent. Kincannon cites ample evidence that the MMPI scales are quite heterogeneous. The second assumption is that item deletion would be made on a random basis. But since prediction of a "true" MMPI score is the goal, a systematic deletion, retaining the most representative items, would be more advantageous. Since the assumptions underlying use of the Spearman-Brown formula are, or can be rendered inapplicable for the MMPI, Kincannon suggests that the attenuation of the validity of an SF of this instrument be tested empirically.

Predicting Full Scale Scores from Short Form Scores

Developing an SF necessitates stipulating a procedure by which to assign an estimated standard score to the obtained SF score. Briggs and Telegen (1967) describe how both the mean and standard deviation of the SF can be

adjusted by use of a regression equation of the form $aX + b$, where X is the raw score of the SF, a is a constant equating the standard deviations, and b is a constant equating the means. Briggs and Telegen point out that this method is an improvement over the method used by Olson (1954) whose SF MMPI has been described above as inadequate. Olson set $b = 0$ and adjusted a . This procedure does not adjust both the mean and standard deviation.

Choice of Short Form Items

As mentioned earlier in connection with the assumptions of the Spearman-Brown formula, items of the MMPI are not deleted from the FS on a random basis in order to obtain the SF. An attempt is made to retain the most representative items, i.e. those most highly correlated with the score obtained on the scales of the FS. The method that has been used to accomplish this is a selection of items for each scale based on a factor analysis of that particular scale (Kincannon, 1968). This appears to be the best method currently available for selecting items. However, certain features of the MMPI raise questions about this item selection procedure. The MMPI scales are not factorially "pure" or independent. Considerable correlation exists between scales. This is complicated by the fact that some items are scored on more than one scale. It is possible that profile configurations are

a product of this item redundancy (Shure and Rogers, 1965).

Knowledge of the factor structure of the entire MMPI might make prediction more accurate. However, the large number of items makes a complete factor analysis nearly impossible by present methods. Stein (1968) has described experimenting with a method whereby the factor structure of the MMPI may be estimated by a sampling technique. If this method is perfected it might provide a set of SF items which predicts FS scores more accurately than the SFs developed by present methods. However, using items not scored on a particular scale to predict that scale raises questions about interpretation, meaning and even name of the scale.

It is also possible, as Kincannon (1968) points out, that the factor analytic model is not the best model for constructs tapped by the MMPI. In Kincannon's words, "The scores seem to reflect the functioning of aggregates of statistically disjunctive indicators of a construct rather than variations along certain sets of homogeneous dimensions."

Establishing Correspondence of Forms

As mentioned previously, a good deal of work has been done on short forms of intelligence tests. While results have been reported that appear promising, Luszki (1970) points out that losses in reliability have been obscured by looking at only part-whole correlations.

Citing research on SFs of the WAIS, he states that the findings are consistent with the Spearman-Brown formula in that less reliable tests show a more drastic loss in reliability.

This conclusion does not necessarily suggest that item deletion on the MMPI will leave it with inadequate reliability. Item-scale correlations differ for the two instruments. And in view of Kincannon's points about faulty assumptions, it would be wise to let the data speak for itself.

But this raises the problem of what data to "let speak." A demonstration of the reliability and validity of an SF is the desired outcome. The traditional statistic used to achieve such a demonstration is the correlation coefficient. Levy (1968) has taken exception to the use of the SF-FS correlation coefficient for evaluating the SF in special diagnostic groups. He notes that the correlation coefficient is lowered by homogeneity on one or both of the variables. He suggests that "the regression slope of the FS scores on SF scores provides a more appropriate test of whether or not an SF developed on a wide range sample remains satisfactory for more restricted groups such as the mentally retarded or high school students." This is an important consideration since one of the recommendations that has been made in MMPI SF research is that the SF be validated on each new population with

which it is used (Armentrout and Rouzer, 1970). A comparison should be made between the homogeneity of the group with which the SF was developed and the new group it is to be used with.

Levy mentions another problem that might produce correlations that are too high rather than too low. This problem stems from the fact that the SF is included in the FS and thus the correlation between the two is spuriously high. He quotes Doppelt (1956), who argued that the spurious nature of the coefficients did not matter because the SF replaces itself. Levy quotes himself as taking an intermediate position: "The spurious nature of the SF-FS correlation is not due to the inclusion of the part score in the whole as such, but is due to the inclusion of the error variance of the part score in both scores."

Levy does not offer a method of correcting for this difficulty, but warns that SFs differing in reliability are not comparable because their validities are spuriously high to different degrees. This point should be kept in mind when deciding which of several SFs is the best instrument.

Another point made by Levy, and one that is relevant to the above discussion of standards of acceptance of SFs, is that the FS should not be the absolute criterion to be predicted if SF and FS are administered independently (the external SF, as opposed to the internal SF

which is obtained by scoring the SF from the FS protocol). If prediction of the "true" score is the goal, and the FS is not perfectly reliable, then the SF need not (and can not) correlate perfectly with the FS score. From this it follows that the appropriate comparison is between the SF-FS correlation coefficient and a standard test-retest reliability coefficient.

If the SF is not administered independently, that is, the SF score is obtained by scoring the original FS, the need for a test-retest control is removed unless contextual effects create a difference.

Kincannon minimized the role of contextual effects, thus opening the door for doing research on SFs with scores extracted from the standard MMPI. This makes research easier, but it may be somewhat premature. Kincannon based his assertion of the absence of this kind of contextual effect on a study by Perkin and Goldberg (1964). This study does show an absence of statistically significant difference between sets of MMPI items arranged in different order. But it does not compare sets of items of different lengths, except by inferring that responses to items first in a list are identical to responses to items in a shorter list. This may not be the case, since subjects may approach the two lists with different expectations and/or level of motivation. Perkin and Goldberg cite a study by Gordon (1952) showing that subjects tend

to respond to items in a more socially desirable fashion as they reach the end of a long inventory. Also, Perkin and Goldberg provide no evidence that practical decisions based on the responses made to items of altered order are equivalent.

Newton (1971) saw the need to compare internal to external SFs, but his comparison was inappropriate because he did not use a retest MMPI as a control. As can be seen from the points made by Levy above, the internal SF shares error variance with the original FS that the external SF does not. Comparing the external SF to the original FS attributes all the unshared error variance to the SF. An alternate method was used by Holzberg and Alesi (1949). They simply compared the SF-FS correlations to reliability coefficients reported by other researchers.

Practical Validity

From the above discussion it can be seen that the correlation coefficients obtained in SF research may be inflated, deflated, or inappropriately applied. But even if confidence can be put in the interpretation of the correlation coefficient, and even if this coefficient is very high, the usefulness of the SF may still be suspect. Mumpower (1964) has shown that misclassifications can occur when SF scores are used to put subjects into categories, even when SF-FS correlation coefficient is .95. The coefficient seems quite high, but Mumpower illustrates

that statistics can be misleading. He points out that with a correlation of .90, only 81% of the variance in the SF test scores is attributable to the FS score. This leaves nearly one fifth of the variance unaccounted for. Kramer and Francis (1965) also report greater than expected errors in classification associated with a correlation coefficient that is very high.

This problem has been recognized by researchers working with MMPI SFs, and the various measures of practical validity they have employed will be discussed below in the section dealing with this research.

Practical validity is not determined completely by the usual statistical tests, nor by hard-and-fast standards of psychometric tradition, but is based in part on the demands of a particular clinic and the clients' motivations.

The need to assess practical validity is illustrated by Lichtenstein and Bryan (1966). They have rank-ordered scale scores of the MMPI for two administrations and found "little evidence of profile stability" for individual profiles. They report that small shifts in scale score can result in large changes in profile, if profile is defined as rank order of the scales. "The profile stability over groups appears to be quite adequate for research use but there is risk of misclassifying individual profiles when clinical (or actuarial) interpretations are to be made." Rosen (1966) also urges that statistical significance not

be confused with "clinical or practical significance."

Systematic Sources of Error

Differences between test scores on two different occasions, using the same test or an SF and FS, may be due to random error, or to systematic factors. One source of systematic error that may influence scores is the tendency for Ss to respond in a more socially desirable way on the second administration (Kincannon, 1968; Newton, 1971).

Howard (1964) and Howard and Diesenhause (1965) have demonstrated another systematic factor. They have shown that responses tend to become more stable and yield a greater differentiation of individuals on later administrations of tests. Item variances increased on later administrations, and more reliable individual differences were found.

It is evident that order of testing and number of retests are factors that might influence correlation coefficients.

The Mini-Mult

Kincannon (1968, 1967), who has been cited many times in the section on methodology, seemed to succeed in producing an SF MMPI in spite of methodological problems that had previously appeared insurmountable. His discussion about the inapplicability of the Spearman-Brown

formula and justification of the MMPI's poor fit with the factor-analytic model have been discussed above.

Kincannon chose 71 items from the MMPI by picking items from Comrey's (1957a, 1957b, 1957c, 1958a, 1958b, 1958c, 1958d, 1958e, 1958f; Comrey and Margraff, 1958) clusters that are scored on the greatest number of clinical and validity scales. This SF was called the Mini-Mult. Comparisons were made between MMPI and internal Mini-Mult scores for an inpatient and an outpatient group recently admitted to the psychiatric service of a city-county general hospital. Regression equations were developed from these two samples in order to predict standard scores from Mini-Mult scores. A third group, consisting of inpatients recently admitted to the psychiatric service of the same general hospital, was given a standard administration of the MMPI, and then a retest of the MMPI and an orally administered Mini-Mult, the latter two being alternated between the second and third position in the sequence.

Following the suggestions made by authors cited above in the section on methodology, Kincannon compared the Mini-Mult's ability to predict the standard scores with a retest's ability to do the same (since the original scores contain error). Also, in addition to the correlational data, Kincannon used methods aimed at assessing the Mini-Mult's practical significance. This included:

(1) a comparison of the Mini-Mult and the retest with respect to the ordinal position of the three clinical scales highest in rank on the original administration of the MMPI, and (2) a rating by experienced clinicians of the percentage of overlap between profiles based on the original MMPI and profiles based on the retest or the Mini-Mult (in alternate order).

In comparison with a readministration of the standard form, the Mini-Mult was found to suffer only a 14% loss estimated by the clinicians' ratings of profile overlap.

Kincannon points out several weaknesses of the Mini-Mult. The F scale does not predict extremes well. The fact that error is introduced by use of the Mini-Mult would argue against its use whenever a standard form could be administered. But in spite of the error introduced, Kincannon sees a use for the Mini-Mult: "When no other comparable psychometric testing is available, however, it seems likely that the amount of error introduced through use of the Mini-Mult would be tolerable."

An important point brought up earlier is the fact that the homogeneity of the group tested influences the correlation coefficient between SF and FS scores. This fact must be kept in mind when comparing results of investigators who have extended Kincannon's research. Attention must be paid to subjects' age, education, IQ,

socio-economic status, and psychiatric diagnosis and other variables which might systematically influence variability in obtained scores.

Age, in particular, should be reported in this research. Gynther and Shimkunas (1966) have shown that T scores on scales 4, 6, 8, and 9 are affected by age. They also report that scores on scales L and F are affected by intelligence, and scores on F are affected by both age and intelligence. Scores on scale 2 are not affected by age, but older patients more often have profile peaks on scale 2 because of decreases in T scores on the other scales. Davis (1972) reports that the MMPI has more "power" to discriminate schizophrenics from nonschizophrenics with young patients (18 to 28 years) than with older patients (45 to 56 years).

Lacks (1970) reports a "high degree of accuracy" of prediction with the Mini-Mult. His sample covers a wide range in age (17-63) years), education (3-16 years), and IQ (WAIS FSIQ 66-131).

Using correlations based on an internal Mini-Mult, Lacks reports correlations ranging from .68 to .89, with a median of .83. This agrees with Kincannon's medians for this type of comparison (both were .87). A significant difference was found between the MMPI and Mini-Mult on scales F and Ma, and Lacks warned that these two scales on the Mini-Mult tend to underestimate the MMPI.

Lacks used the three clinical code types of Haertzen and Hill (1959) as one measure of practical validity. One of these types consists of peaks on scales 1, 2, 3, or 7; the second type, peaks on 6 or 8; and the third, peaks on 4 or 9. No significant difference was found between the MMPI and the Mini-Mult compared in this fashion. Another measure of practical validity reported by Lacks is labelled Indexes of Psychopathology. Five classes or indices are defined: (1) one or more clinical scales greater than 69; (2) three or more clinical scales greater than 69; (3) five or more clinical scales greater than 69; (4) F scale above 11 raw score points; (5) F scale above 15 raw score points. Agreement between MMPI and Mini-Mult on these indices ranged from 91% to 100%, with the median 96%. There was 65 to 92%, with a median of 87%, agreement on predicting absence of maladjustment.

Lacks concluded by suggesting that a better design would be to test the correspondence of the external Mini-Mult to the MMPI. As stated earlier, it has not been shown that the internal comparison is equivalent to an external comparison, and a retest control should be used for an external comparison.

Lacks and Powell (1970) report that "the Mini-Mult is reliably and highly related to the standard MMPI" for a population of psychiatric attendant applicants. However, there are a number of shortcomings in this study. An

internal comparison was used, limiting conclusions about correspondence in real-life administrations of the Mini-Mult. Only T tests are reported; no indices of practical validity are included. Also, a predominantly Black sample was used, and Gynther (1972) has suggested that the MMPI interpreted in the usual way might be used to the disadvantage of Black job applicants.

Armentrout and Rouzer (1970) reported a less satisfactory correspondence of MMPI and Mini-Mult with juvenile delinquents. While the group data showed good correspondence, many individual profiles were misclassified according to validity, high points, and number of scales above 70 T score points (practical validity indicators). This lack of correspondence could be due to several factors. Armentrout and Rouzer's sample is more homogeneous than Kincannon's. Armentrout and Rouzer's age ranges are only 13-3 to 19-0. All are institutionalized delinquents and thus profile types are probably more similar than Kincannon's inpatients. Also, the entire group took the MMPI after the Mini-Mult, allowing systematic factors to influence the results (i.e. tendency to respond in a more socially desirable fashion on the second administration). Armentrout and Rouzer have ignored the point made by Kincannon that the independently administered Mini-Mult must be compared with a retest of the MMPI unless one believes that the MMPI score contains no "error" (some would go

this far!)).

Platt and Scura (1972) replicated Armentrout and Rouzer's results with juvenile delinquent subjects. Even with the internal comparison, the correlations between the MMPI and the Mini-Mult were low. They ranged from .40 to .83 with a median of .58. The Lacks and high-point validity indicators showed poor correspondence between forms and the authors suggested that the Mini-Mult not be used to predict individual profiles with delinquents. They did find somewhat better correspondence between forms where substantial pathology was indicated.

Mlott (1973) reported more encouraging results with adolescent psychiatric inpatients. Using the internal comparison, correlations of .63 to .93 with a median of .70 were obtained. Mean differences were found on scales 6 and 9 except for females where no significant mean differences were found. Clinicians rating profiles on profile patterning, diagnostic formulation, and psychopathology showed 90.7% agreement between the MMPI and internal Mini-Mult. Mlott suggests that the Mini-Mult may be used with inpatient adolescents but urges caution in interpreting scales 1, 6, and 9.

Armentrout (1970) reported results with college students. All correlations were significant except scale F for males. But the similarity of high points was lacking "because of the infrequency of extreme elevations and

the resulting smaller differences between scale mean scores," or in other words, a homogeneous sample. Since tables showing means and standard deviations (SDs) of the Mini-Mult and MMPI are reported, suggesting the inferences might be drawn concerning which form yields higher scores, Armentrout should have counterbalanced the order of presentation of the two forms (to control second administration social desirability). As in the study of delinquents, this study should have employed a retest control. The measures of practical validity in this study were the same ones used in the study with delinquents.

Taking up Armentrout and Rouzer's suggestion that the Mini-Mult be validated in each context in which its use is considered, Newton (1971) tested the correspondence of the MMPI and the Mini-Mult with alcoholic subjects. The design of this study is an improvement over Lacks (1970) and Lacks and Powell (1970) in that an external MMPI - Mini-Mult comparison is made, and the order of presentation of the two forms is counterbalanced, but the study suffers from the same defect found in Armentrout and Rouzer (1970) and Armentrout (1970): no MMPI retest control is employed. It is not surprising that Newton reports greater correspondence between the MMPI and the internal Mini-Mult than between the MMPI and the independently administered (external) Mini-Mult, for the MMPI and the internal Mini-Mult share situation specific (error) variance.

Newton provides a table showing correlation ratios between the MMPI and an external Mini-Mult found by Kincannon (1968), Armentrout and Rouzer (1970), Armentrout (1970), and Newton's (1971) own study. Newton points out that the correlations in the three later studies are lower than Kincannon's and are rather modest. These results probably follow directly from the changes in design of the later studies: the samples are more homogeneous and no retest control group is used.

Newton replicated the finding of Kincannon that the second inventory was responded to in a more socially desirable way, even when forms were changed.

Gaines and Abrams (1974) also examined the correspondence of the Mini-Mult and MMPI with alcoholics. Using an internal comparison they found a poor match on profile validity indicators. Agreement on scales with scores greater than 70 or less than 70 showed only a 66% match between forms for one sample and a 17% match for another sample. No differences in correspondence were found when high pathology and low pathology groups were compared. They suggest local crossvalidation of the Mini-Mult in each setting where it is to be used because of the large differences between their samples which had been assumed to be quite similar.

McLachlan (1974) used alcoholic subjects to study changes in MMPI and internal Mini-Mult scores over a two

year period. He reports a range of .61 to .91 for the MMPI to Mini-Mult internal comparison, but this should not be compared to other internal correlations because McLachlan did not add the K correction to the appropriate scales. He reports that the average retest correlation for an interval of about 2 years is .71 for the MMPI and .63 for the internal Mini-Mult. In order to enhance the stability of the Mini-Mult McLachlan suggests that the whole 15 item L scale be included. He also revised scales F, K, 4, 6, 8, and 9 by adding more items from the MMPI. McLachlan called the resulting 94 item form the Maxi-Mult.

Pulvermacher and Bringmann (1971) report poor correspondence between the French version of the MMPI and an internal Mini-Mult with French-Canadian college students. This finding is inconsistent with the good results of other investigators using an internal Mini-Mult (Lacks, 1970; Lacks and Powell, 1970). The authors point out that caution should be employed in interpreting these results since proper standardization of the MMPI with Canadian Ss has not been completed. Another possible reason for poor correspondence is the fact that college students constitute a population that is more homogeneous than Kincannon's.

Gayton and Wilson (1971) report good correspondence between the MMPI and an internal Mini-Mult with emotionally disturbed adolescents and their parents. The

correlations reported ranged from .54 to .88 for the adolescents, and were somewhat lower than Kincannon's internal correlations but were higher than Armentrout's (1970) external correlations. An apparent decrease in correspondence between forms was found when practical validity indicators were looked at. Profiles were classified into three groups: (a) no scales greater than 70; (b) one-three scales greater than 70; and (c) four or more scales greater than 70. Gayton and Wilson point out that each clinic will have to decide for itself if the time saved by the Mini-Mult is worth the decrease in correspondence. They believe that "if the Mini-Mult is used for screening purposes, it would seem that considerable time could be saved with only minimal risk."

Harford, Lubetkin, and Alpert (1972) report relatively poor correspondence between the MMPI and an internal Mini-Mult with psychiatric outpatients at a general hospital. The short-to-long form correlations for scale scores ranged from .21 to .81, with a median of .54. Practical validity indicators used were those used by Lacks (1970), Haertzen and Hill (1959), Meehl and Dahlstrom (1960) and a comparison of rank-ordered T scores. These indicators yielded generally unfavorable results. The authors point out that their sample may be better educated (mean years of education was 14) than earlier samples tested, and that age and education may be

important variables. They also show evidence that matches between short and long forms are better in a more severely disturbed subgroup of their sample. These variables appear to warrant attention in future research.

Hobbs (1974) also reported results of internal comparisons with psychiatric outpatients. Correlations between forms ranged from .29 to .83 with a mean of .70. The same highest scale was found on both forms 28% of the time. Hobbs concludes that poor profile similarity was found. He believes that a respectable degree of accuracy was found for predicting gross pathology but accuracy deteriorated when description of this pathology was attempted.

Trybus and Hewitt (1972) report correspondence between the MMPI and internal Mini-Mult with college sophomores. Correlations between forms range from .59 to .87 with a median of .81. There was little difference between Black and Caucasian subgroups on these correlations. The lowest correlations were for scales L, 2, and 3, and the highest were for scales K, 4, and 7. The authors say that the tendency to underestimate F scores and tendency to overestimate L scores are the worst faults of the Mini-Mult. The authors' cautious approval of the Mini-Mult seems inappropriate since they did not employ an external comparison. Also, Dean's Midi-Mult, to be discussed below, is probably more appropriate for college students.

Huisman (1974) reports the internal comparison with brain-damaged patients. He found no significant mean differences between forms except for scale 9. The correlations ranged from .58 to .91. He reported good correspondence on scales L, K, 1, 2, and 3. However, profile comparisons were less than adequate. The Mini-Mult predicted the MMPI high point in only 55.5% of the cases. Huisman believes this is due to weakness in the test rather than sampling differences. He reported good prediction of scale 2, Depression, as a high point. He found no difference in prediction for severe versus non severe pathology groups. Also, no differences were found when subjects were divided into two groups based on lesion site.

It is unfortunate that so many of the studies cited above used the internal comparison. The external comparison is more appropriate because this presents the Mini-Mult in the same manner that it would be presented in clinical use. The three studies that follow did use the external comparison.

Palmer (1973) used state hospital subjects. His sample was heterogeneous. He reports an age range of 18 to 60, with half male and half female. Correlations ranged from .08 to .71 with a median of .59. All correlations were significant beyond the .01 level except for scale F. Neither sex of the subject nor order of administration had a significant effect on the results. The Mini-Mult

and the MMPI agreed on the highest scale 39% of the time. Scales ranked first on the Mini-Mult ranked four or below on the MMPI 36% of the time. Palmer concludes the Mini-Mult should not be used with State hospital patients. But because he did not use a retest of the MMPI, he is implying that all of the disagreement between the Mini-Mult and the MMPI is due to error in the Mini-Mult. He does report agreement between Mini-Mult items and the identical items within the MMPI. This agreement ranged from 59% to 98% with a median of 83%. He comments that unreliability of the population might account for the poor agreement between the Mini-Mult and the MMPI. However, this manner of assessing reliability confounds population test-retest reliability with the contextual effects that differ for the Mini-Mult.

Hobbs and Fowler (1974) show an improved design in that a retest of the MMPI is employed. They adjust for error in the MMPI by reporting the discrepancy between MMPI test-retest correlations and MMPI.- Mini-Mult correlations with the formula Kincannon used:

$(r^2_{s_1s_2} - r^2_{s_1m_2}) \times 100$, where r^2 is the correlation coefficient squared, s_1 is MMPI₁, s_2 is MMPI₂, and m_2 is Mini-Mult), to estimate the percent loss in correspondence. They report a percentage loss in degree of scale equivalence ranging from -5.4% to 61.2%, with a mean loss of 21.6%. This is based on MMPI - Mini-Mult correlations

ranging from .37 to .82 with a median of .69. It is unfortunate that no data on equivalence of profiles is reported. The crucial question is whether clinical decisions made on the basis of the Mini-Mult differ significantly from those based on the MMPI. The way to assess this is to compare profile agreement between MMPI and Mini-Mult with profile agreement between MMPI and retest of MMPI.

One other change in the Hobbs and Fowler design might affect the results. They report no "order" effect. The Mini-Mult given first or second yields the same results. However, Kincannon has reported a difference in scores due to social desirability. Second day scores are lower (higher on scales L and K) than first day scores because subjects report fewer symptoms on the second day. It is possible that this factor might result in lower agreement between forms. The design used to test this effect is described in the second chapter.

Hartman and Robertson (1972) used an external comparison, but did not employ a retest of the MMPI with psychiatric out-patients. As mentioned earlier, this implies that any discrepancy found across forms is due to Mini-Mult error. They report correlations between MMPI and external Mini-Mult ranging from .64 to .87 with a median of .78. The internal correlations are slightly higher. The Mini-Mult and MMPI agree on the highest scale in 45% of the cases. Agreement on general diagnostic categories

was 77% for males, 50% for females, and 63% for all subjects. While the authors do implicitly compare this to retest figures by saying the agreement was "lower than one would expect, e.g., for a stability type reliability coefficient between two forms of a test, it would be better to employ a retest MMPI to rule out the possibility that the same percentages would have been found for an MMPI test-retest comparison for this population.

Several studies have been aimed at extending and improving the Mini-Mult. Graham and Schroeder (1972) selected items for abbreviated Mf and Si scales. These could be added to the Mini-Mult by adding 20 items to Kincannon's 71 items. Internal correlations were .79 for the Mf scale and .84 for the Si scale. The authors point out that these correlations are as high as reported reliability data for these scales. They recommend these scales be added to the Mini-Mult but caution that new regression equations may be necessary for each new population.

Finch, Griffin, and Edwards (1974) replicated the Graham and Schroeder study and found correlations of .76 for the Mf scale and .67 for the Si scale. They point out, however, that if males and females are separated, the Mf correlations are very low and the abbreviated scale is invalid. The spuriously high Mf correlation was due to a bimodal distribution, with men's scores in one cluster

and women's scores in another.

Dean (1972) attempted to refine the Mini-Mult and include new items and regression equations so that adequate prediction could be obtained with normal Ss. His 86 item SF is called the Midi-Mult.

In a preliminary study Dean found poor prediction of MMPI scale scores from Kincannon's Mini-Mult.

Dean developed new regression equations for scales K, 1, 4, 6, 7, and 8, and new item subsets for scales L, F, and 9. For an internal comparison, only one significant difference was found between MMPI and Midi-Mult scale scores. This difference was on scale 2.

The SDs for the Midi-Mult were all smaller than SDs for the MMPI, indicating a tendency to underestimate MMPI scores.

The following were used for practical validity indicators: (1) the highest scale on the MMPI appeared in the top three scales of the Midi-Mult in 90% of the cases, the second highest MMPI scale appeared in the top three Midi-Mult scales 70% of the time, and the third highest MMPI scale appeared in the top three Midi-Mult scales 53% of the time; (2) concurrence of the validity scales in 117 of 125 cases; (3) agreement on a normal-abnormal classification was obtained in 120 of 125 cases with 108 both normal, 12 both abnormal, and 5 discrepant.

Dean acknowledged the need to do research with

separate administrations (external SF). She suggested that the Mini-Mult be used with psychiatric patients and the Midi-Mult be used with normals.

Newmark, Cook, and Greer (1973) test Dean's suggestion by using the Midi-Mult with psychiatric inpatients. Internal correlations ranged from .44 to .82 with a mean of .69 (.72 for females). Sixty-three percent of males and 67% of females who had invalid MMPI profiles also had invalid Midi-Mult profiles (an invalid profile was defined in this study as one with a validity scale T score greater than 70). The MMPI and Midi-Mult agreed on the highest scale for 37% of the cases. Agreement on diagnostic categories was found in 54% of the cases. The experimenters conclude that Dean was correct in not recommending use of the Midi-Mult with psychiatric patients. High group correspondence was found, but accuracy in predicting individual profiles was limited.

Gilroy and Steinbacher (1973) report external MMPI to Midi-Mult correlations for a college student population. These correlations range from .52 to .84 with a median of .72. The experimenters point out that mean differences and correlations are independent phenomena (a statistical fact) and that researchers should consider the effect of mean differences before applying profile comparisons. Without applying profile comparisons Gilroy and Steinbacher conclude that the Midi-Mult is adequate for use in

college populations.



CHAPTER III

METHOD

Subjects

Subjects were patients at the Chicago Alcoholic Treatment Center (CATC). This is a public treatment center operated by the City of Chicago. There is no charge to patients for the program which is a six to eight week inpatient program followed by outpatient treatment. There were approximately 70 male patients in the program at the time this research was conducted. All subjects were male.

Patients were asked to volunteer to participate in the research after they had been patients at CATC for at least one week. They were promised and given a short interview after the testing. This interview provided them with some of the results of the first MMPI administered, and also served to answer questions they had about testing and its relevance to their treatment. This interview took place after each subject was finished with his part of the research. A complete explanation of the research was not given because this might be communicated to other patients who might be subjects at a later date. The research was introduced as a study conducted to obtain a better understanding of alcoholism and psychological

testing. The subjects appeared to be highly motivated to respond as accurately as possible because of their desire for feedback about themselves.

One hundred and five subjects participated in the research. Thirty-five of these subjects were not used in the main part of the data analysis because the experimenter gave them improper instructions (they were instructed to stop at item 366 rather than item 399 on Form R of the MMPI). Some of these thirty-five subjects' scores on the Mini-Mult were included along with scores from subjects in the main study in data reported for Mini-Mult test-retest scores. The scores of ten individuals were excluded from the main part of the data analysis because their profiles were technically invalid on MMPI₁. These subjects' scores were used in the comparisons on profile validity.

Materials

All subjects completed a Volunteer Information Sheet (see Appendix C) prior to responding to the research inventories. Form R of the MMPI (Hathaway and McKinley, 1967) was administered to each subject according to standard instructions. Answers were recorded on standard Form R answer sheets which are placed in the hard-cover Form R test booklet. Also administered to each subject was Kincannon's (1968) 71 item form of the MMPI called the Mini-Mult (see Appendix D). The Mini-Mult questions about abuse of alcohol which follow item 71 were not

included because all subjects in this study had abused alcohol and the questions would not provide any new information. Answers for the Mini-Mult were recorded on standard Group Form MMPI answer sheets.

Scoring keys for the Mini-Mult were constructed from Kincannon's table. This was done by marking a score sheet for each item on a particular scale and then punching a hole through either the "true" or "false" column for that item, depending on the direction of scoring for that item. Kincannon picked these items by using a cluster analysis. He calculated regression equations for estimating MMPI scores from Mini-Mult scores. His table, derived from these regression equations (see Appendix E), was used to assign a predicted MMPI score to each obtained Mini-Mult score. Thus, when the scoring key for scale L was placed on a Mini-Mult score sheet and a score of 2 was counted, a predicted MMPI score of 6 was assigned (from the table).

Scores on the Shipley Institute of Living Scale (Shipley, 1967) were taken from each subject's medical chart. The Shipley, the Bender Gestalt and projective drawings are administered routinely to each patient by the CATC staff, as part of the patient's evaluation. Also taken from the medical chart was each subject's classification according to race.

A short report based on an interpretation of the

MMPI administered first to each subject was placed in each subject's medical chart and was available to staff members to help in treatment planning for their patients.

Procedure

The Mini-Mult, the MMPI, and a retest of the MMPI were administered to each subject on successive days by the same examiner. Subjects were assigned randomly to one of three groups, each consisting of 20 subjects. Group 1 was administered the Mini-Mult on the first day, and MMPIs on the second and third days. Group 2 was administered the Mini-Mult on the second day and MMPIs on the first and third days. Group 3 was administered the Mini-Mult on the third day and MMPIs on the first and second days.

Fourteen subjects selected on the basis of availability were asked to complete a second Mini-Mult approximately three weeks after they had completed the first Mini-Mult.

Subjects were tested in 5 three-day sessions. The number of subjects tested in each session ranged from eight to twenty-one. The testing began in April, 1974 and was completed in September, 1974.

Scoring keys were constructed for both the independent or "external" Mini-Mult and for the "internal" Mini-Mult. The internal Mini-Mult is the Mini-Mult items scored from the answer sheet of the full Form R MMPI.

Five sets of scores were generated for each subject. These include two sets of MMPI scores, a set of MMPI scores predicted by the external Mini-Mult, and two sets of MMPI scores predicted by the internal Mini-Mults.

CHAPTER IV

RESULTS

The three groups do not differ significantly on any of the identifying information. The mean age for groups ranges from 38.60 to 42.35. Two-tailed T-tests result in no significant differences between groups at the .01 level.

The groups are essentially the same in racial composition also. Group 2 contains slightly more non-Whites than Whites, but a chi-square test shows that this difference is not significant at the .01 level, $\chi^2 = 1.77$, $df = 2$. The non-Whites are all Black except for one Spanish surname member in each of the groups.

There were a large number of single and divorced men among the subjects and a minority of married men. A chi-square of 8.93 with 4 degrees of freedom indicated that the groups are not significantly different at the .05 level on these variables.

The educational level of the three groups was essentially the same. The means ranged from 10.90 to 11.45. The largest T-value was -0.80 for groups 1 and 3. This value is not significant at the .05 level of confidence for a two-tailed test.

The groups also appear to be equal in intellectual

level as measured by the Shipley Institute of Living Scale. The means range from 98.30 to 100.20. The largest T-value, 0.51 for groups 1 and 2, is not significant at the .05 level for a two-tailed test.

A relatively small number of the subjects had had hospitalizations for psychiatric reasons, and there was a near equal distribution of the groups on this variable. A chi-square of 0.78 with 2 degrees of freedom is not significant at the .05 level.

Sixty of the 70 subjects had a valid MMPI profile, and the corresponding Mini-Mult was also valid. The validity comparison suggests that the Mini-Mult tends to miss invalid profiles (predict that they are valid). Profiles were considered invalid if the L scale raw score was equal to or greater than 10, or if the F - K index exceeded 16. An exception to this second rule was made for profiles which contained the "6 - 8 valley," a psychotic configuration. In 6 instances the Mini-Mult predicted a valid profile while the corresponding MMPI profile was invalid. There were two profiles in agreement on validity. In two cases the Mini-Mult predicted an invalid profile while the MMPI profile was valid. It would seem appropriate to make interpretations cautiously in Mini-Mult profiles that approach invalidity.

Kincannon (1968) reported that forms administered second were responded to in a more socially desirable

fashion than forms administered first. This occurred regardless of whether the Mini-Mult or the MMPI was administered first.

Table 1 shows that when the Mini-Mult is first and MMPI second as in Group 1, the expected drop occurs in eight of 11 cases. Eight of the 11 means are lower (except scales K and L, for which a higher score is more socially desirable). A sign test shows that this trend is not significant at the .05 level. However, six of these differences are significant, $p < .05$ level for a one-tailed test. No differences in the opposite direction are significant.

The same pattern is found for Group 3 which had MMPIs on the first and second day. Table 2 shows that 11 of the 11 means are in the expected direction. The sign test is significant, $p < .05$. However only four of these differences were significant below the .05 level.

Group 1 also shows a drop in mean scale scores between $MMPI_1$ on the second day and $MMPI_2$ on the third day. Table 3 shows that 9 of the 11 means show the expected change. The Sign Test is significant, $p < .05$. Four of these differences are significant, $p < .01$.

Group 2 shows no significant change when the $MMPI_1$ on day 1 is compared to $MMPI_2$ on day 3 as indicated on Table 4. The 11 means are required to reach the .05 level. Two T-tests are significant, one in the expected direction and the other in the opposite direction.

Table 1
Means and Standard Deviations Compared for
Mini-Mult and MMPI₁, Group 1

Scale	Mini-Mult		MMPI ₁		T-value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	3.30	1.98	3.20	1.76	+0.22	
F	9.65	3.01	8.00	3.37	+2.11*	e
K	11.95	2.86	11.30	3.73	+0.70	
1	15.60	5.30	15.10	4.80	+0.75	e
2	26.00	5.52	24.50	5.17	+2.10*	e
3	25.70	4.93	21.95	5.07	+4.15**	e
4	31.40	3.58	28.30	5.29	+2.77*	e
6	11.90	3.24	10.20	2.71	+2.07*	e
7	31.75	5.57	29.80	7.19	+1.00	e
8	34.40	6.29	28.45	7.93	+4.18**	e
9	21.40	1.64	21.45	4.86	-0.05	

* T is significant at .05 level

** T significant at .01 level

e Expected mean change

Table 2
Means and Standard Deviations Compared for
MMPI₁ and MMPI₂, Group 3

Scale	Mini-Mult		MMPI ₁		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	2.55	1.99	2.85	2.06	-1.19	e
F	10.55	4.27	8.80	3.68	2.70**	e
K	9.65	3.03	10.20	3.50	-1.42	e
1	16.60	4.82	14.85	5.24	2.63*	e
2	26.35	6.56	25.00	7.53	1.39	e
3	23.10	5.33	21.65	6.65	1.65	e
4	28.95	4.73	27.70	3.69	1.63	e
6	12.90	4.14	11.20	3.40	2.09*	e
7	33.65	5.83	32.60	5.68	1.45	e
8	33.85	7.11	30.95	7.06	3.49**	e
9	25.20	6.21	24.80	5.48	0.52	e

* T significant at .05 level

** T significant at .01 level

e Expected mean change

Table 3
Means and Standard Deviations Compared for
MMPI₁ and MMPI₂, Group 1

Scale	MMPI ₁		MMPI ₂		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	3.20	1.76	3.15	1.42	0.20	
F	8.00	3.37	6.95	3.84	2.71**	e
K	11.30	3.73	12.15	3.95	-1.29	e
1	15.10	4.80	13.15	4.87	2.67**	e
2	24.50	5.17	22.20	4.56	3.23**	e
3	21.95	5.07	20.25	5.41	2.78**	e
4	28.30	5.29	27.05	5.65	1.67	e
6	10.20	2.71	9.50	2.78	1.44	e
7	29.80	7.19	28.45	7.17	1.24	e
8	28.45	7.93	27.55	7.96	1.01	e
9	21.45	4.86	23.00	3.84	-1.68	

* T significant at .05 level

** T significant at .01 level

e Expected mean change

Table 4
Means and Standard Deviations Compared for
MMPI₁ and MMPI₂, Group 2

Scale	MMPI ₁		MMPI ₂		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	3.15	2.06	3.05	2.56	0.32	
F	9.20	4.42	8.95	6.19	0.36	e
K	10.75	4.25	11.90	3.73	-2.63**	e
1	17.60	5.49	17.05	5.98	0.74	e
2	26.90	5.90	25.80	7.68	1.67	e
3	24.75	4.92	24.55	5.54	0.27	e
4	27.50	3.19	27.25	3.74	0.36	e
6	11.10	3.68	10.60	3.59	0.79	e
7	31.65	6.16	32.60	7.80	-1.09	
8	31.35	6.77	32.65	8.49	-1.23	
9	23.40	3.39	25.20	4.30	-2.49*	

* T significant at .05 level

** T significant at .01 level

e Expected mean change

From the comparisons made above, it appears that the MMPI means are at a more socially desirable level on a retest (retest on the day after the original test) than on the original test. While not all differences between means are significant, the direction of the differences is significant. Table 1 indicated that the same effect was found when the Mini-Mult was administered first and the MMPI second. The most obvious difference is between the Mini Mult on day 1 and MMPI₂ on day 3 for Group 1 as shown in Table 5. Nine of 11 means change in the expected direction, with the Sign Test significant, $p < .05$. Eight of these 9 differences are significant at the .05 level, and seven of these reach the .01 level.

The Mini-Mult, however, does not appear to change in the expected direction when it is second or third in order of administration. Table 6 shows that when MMPI₁ on day 1 and the Mini-Mult on day 2 are compared, six means change in the expected direction, four change in the opposite direction, and one is exactly the same. The Sign Test is not significant at the .05 level. Table 7 shows the same result for MMPI₂ on day 2 and the Mini-Mult on day 3 for Group 3. Seven means are at a level more socially desirable on the Mini-Mult, while 4 means are at a level more socially desirable on MMPI₂. The Sign Test is not significant at the .05 level.

Table 8 compares MMPI₁ on day 1 and the Mini-Mult

Table 5
Means and Standard Deviations Compared for
Mini-Mult and MMPI₂, Group 1

Scale	Mini-Mult		MMPI ₂		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	3.30	1.98	3.15	1.42	0.33	
F	9.65	3.01	6.95	3.84	3.25**	e
K	11.95	2.86	12.15	3.95	-0.22	e
1	15.60	5.30	13.15	4.87	2.91**	e
2	26.00	5.52	22.20	4.56	5.27**	e
3	25.70	4.93	20.25	5.41	5.29**	e
4	31.40	3.58	27.05	5.65	3.60**	e
6	11.90	3.24	9.50	2.78	3.05**	e
7	31.25	6.49	27.95	7.47	1.95*	e
8	34.40	6.29	27.55	7.96	4.35**	e
9	21.40	1.64	23.00	3.84	-1.90**	

* T significant at .05 level

** T significant at .01 level

e Expected mean change

Table 6
Means and Standard Deviations Compared for
MMPI₁ and Mini-Mult, Group 2

Scale	MMPI ₁		Mini-Mult		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	3.15	2.06	3.70	1.75	1.87*	e
F	9.20	4.42	8.50	3.74	-0.75	e
K	10.75	4.25	10.90	3.35	0.28	e
1	17.60	5.49	16.80	4.66	-1.12	e
2	26.90	5.90	27.45	5.84	0.50	
3	24.75	4.92	26.70	4.71	2.11*	
4	27.50	3.19	28.30	4.22	0.75	
6	11.10	3.68	11.10	3.68	0.00	
7	31.65	6.16	31.00	7.48	-0.52	e
8	31.65	6.77	33.95	7.27	2.11*	
9	23.40	3.39	21.70	2.52	-2.76**	e

* T significant at .05 level

** T significant at .01 level

e Expected mean change

Table 7
Means and Standard Deviations Compared for
MMPI₂ and Mini-Mult, Group 3

Scale	MMPI ₂		Mini-Mult		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	2.85	2.06	4.10	2.29	3.68**	e
F	8.80	3.68	7.85	3.41	-1.36	e
K	10.20	3.50	10.95	2.52	1.04	e
1	14.85	5.24	14.75	5.39	-0.12	
2	25.00	7.53	27.15	7.18	2.24*	
3	21.65	6.65	24.15	5.68	2.56**	
4	27.70	3.69	29.15	4.34	1.76*	
6	11.20	3.40	11.10	3.81	-0.15	e
7	32.60	5.68	31.75	7.40	-0.96	e
8	30.95	7.06	32.65	7.94	1.35	
9	24.80	5.48	21.50	3.25	-3.54**	e

* T significant at .05 level

** T significant at .01 level

e Expected mean change

Table 8
Means and Standard Deviations Compared for
MMPI₁ and Mini-Mult, Group 3

Scale	MMPI ₁		Mini-Mult		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	2.55	1.99	4.10	2.29	4.97**	e
F	10.55	4.27	7.85	3.41	-3.12**	e
K	9.65	3.03	10.95	2.52	1.88*	e
1	16.60	4.81	14.75	5.39	-1.93	e
2	26.35	6.56	27.15	7.18	0.72	
3	23.10	5.33	24.15	5.68	1.06	
4	28.95	4.73	29.15	4.34	0.21	
6	12.90	4.14	11.10	3.81	-2.70**	e
7	33.65	5.83	31.75	7.40	-1.57	e
8	33.85	7.11	32.65	7.94	-0.87	e
9	25.20	6.21	21.50	3.25	-3.85**	e

* T significant at .05 level

** T significant at .01 level

e Expected mean change

on day 3 for Group 3. Eight of the 11 means are at a more socially desirable level for the Mini-Mult. Nine means are required for the Sign Test to be significant at the .05 level. However, 5 of the expected differences are significant at the .05 level with 4 of these reaching the .01 level. It appears that the Mini-Mult is less subject to change from the social desirability factor than the MMPI is.

Tables 4, 6, and 9 show that there is no consistent change in means when the Mini-Mult is in the second position in the sequence.

The change found when the Mini-Mult is first in the sequence might be accounted for by the fact that means are higher (lower for L and K) initially on the Mini-Mult. Tables 10, 11, and 12 show that this is not the case. Table 10 shows that approximately half the means are at a more socially desirable level for the Mini-Mult, Group 1, and half for the MMPI, Group 2. Table 11 shows that Groups 2 and 3 are not significantly different. Eight means are at a more socially desirable level for Group 2, but the Sign Test is not significant at the .05 level and none of the T-tests between means for the groups are significant at the .05 level. Table 12 shows 8 of 11 means lower (higher for L and K) on the Mini-Mult, Group 1 than MMPI₁, Group 3. These 8 means are in opposite direction from that expected if the objection cited above were true.

Table 9
Means and Standard Deviations Compared for
Mini-Mult and MMPI₂, Group 2

Scale	Mini-Mult		MMPI ₂		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	3.70	1.75	3.05	2.56	2.04*	
F	8.50	3.74	8.95	6.19	-0.39	
K	10.90	3.35	11.90	3.73	-2.13*	e
1	16.80	4.66	17.05	5.98	-0.39	
2	27.45	5.84	25.80	7.68	1.23	e
3	26.70	4.71	24.55	5.54	2.36*	e
4	28.30	4.22	27.25	3.74	1.07	e
6	11.10	3.68	10.60	3.59	0.77	e
7	31.00	7.48	32.60	7.80	-1.20	
8	33.95	7.27	32.65	8.49	0.84	e
9	21.70	2.52	25.20	4.30	-4.19**	

* T significant at .05 level

** T significant at .01 level

e Expected mean change

Table 10
Means and Standard Deviations Compared for
Mini-Mult, Group 1 and MMPI₁, Group 2

Scale	Mini-Mult, Group 1		MMPI ₁ , Group 2		Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD	
L	3.30	1.98	3.15	2.06	e
F	9.65	3.01	9.20	4.42	
K	11.95	2.86	10.75	4.25	e
1	15.60	5.30	17.60	5.49	e
2	26.00	5.52	26.90	5.60	e
3	25.70	4.93	24.75	4.92	
4	31.40	3.58	27.50	3.19	
6	11.90	3.24	11.10	3.68	
7	31.75	5.57	31.65	6.16	e
8	34.40	6.29	31.35	6.77	
9	21.40	1.64	25.20	4.30	e

e Expected mean change

Table 11
Means and Standard Deviations Compared for
MMPI₁, Group 2 and MMPI₁, Group 3

Scale	MMPI ₁ , Group 2		MMPI ₁ , Group 3		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	3.15	2.06	2.55	1.99	0.94	
F	9.20	4.42	10.55	4.27	-0.98	
K	10.75	4.25	9.65	3.03	0.94	
1	17.60	5.49	16.60	4.82	0.61	e
2	26.90	5.60	26.35	6.56	0.29	e
3	24.75	4.92	23.10	5.33	1.02	e
4	27.50	3.19	28.95	4.73	-1.14	
6	11.10	3.68	12.90	4.14	-1.45	
7	31.65	6.16	33.65	5.83	-1.05	
8	31.35	6.77	33.85	7.11	-1.14	
9	23.40	3.40	25.20	6.21	-1.14	

e Expected mean change

Table 12
Means and Standard Deviations Compared for
Mini-Mult, Group 1 and MMPI₁, Group 3

Scale	Mini-Mult, Group 1		MMPI ₁ , Group 3		Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD	
L	3.30	1.98	2.55	1.99	
F	9.65	3.01	10.55	4.27	
K	11.95	2.86	9.65	3.03	
1	15.60	5.30	16.60	4.82	
2	26.00	5.52	26.35	6.56	
3	25.70	4.93	23.10	5.33	e
4	31.40	3.58	28.95	4.73	e
6	11.90	3.24	12.90	4.14	
7	31.75	5.57	33.65	5.83	
8	34.40	6.29	33.85	7.11	e
9	21.40	1.64	25.20	6.21	

e Expected mean change

The Sign Test is not significant at the .05 level.

Table 13 shows that all 11 means for MMPI₂, Group 1 are at a more socially desirable level than the means for MMPI₂, Group 2. The Sign Test is significant at the .01 level. Only two of these differences are significant at the .05 level. This trend is expected since there was a change for Group 1 but not for Group 2.

Table 14 presents data related to the hypothesis that higher correlations would be obtained between forms administered on days 2 and 3 than between forms administered on days 1 and 2. The MMPI₂ - Mini-Mult correlations are all significant at the .05 level and are larger than the Mini-Mult - MMPI₂ correlations for all scales except scale 1. The Sign Test is significant, $p < .01$. In this case the Mini-Mult - MMPI₁ correlation is .83, the highest for this comparison. Four of the Mini-Mult - MMPI₁ correlations are not significant at the .05 level. Fisher's Z Test was used to determine if the difference in correlation coefficients is significant. Six of the 11 comparisons were significant, all at the .01 level. The hypothesis that correlations for forms on days 2 and 3 would exceed that on days 1 and 2 was confirmed for this comparison.

Table 15 shows a similar comparison, but in this case the Mini-Mult and MMPI are reversed for the day 2 - day 3 sequence. Again the Mini-Mult - MMPI₂ correlations are all significant at the .05 level, and 8 of the 11

Table 13
Means and Standard Deviations Compared for
MMPI₂, Group 1 and MMPI₂, Group 2

Scale	MMPI ₂ , Group 1		MMPI ₂ , Group 2		T-Value	Direction of Mean Change
	\bar{X}	SD	\bar{X}	SD		
L	3.15	1.42	3.05	2.26	0.17	e
F	6.95	3.84	8.95	6.19	-1.23	e
K	12.15	3.95	11.90	3.73	0.21	e
1	13.15	4.87	17.05	5.98	-2.26*	e
2	22.20	4.56	25.80	7.68	-1.80	e
3	20.25	5.41	24.55	5.54	-2.48*	e
4	27.05	5.65	27.25	3.74	-0.13	e
6	9.50	2.78	10.60	3.59	-1.08	e
7	27.95	7.47	32.60	7.80	-1.93	e
8	27.55	7.96	32.65	8.49	-1.96	e
9	23.00	3.84	25.20	4.30	-1.71	e

* T significant at .05 level

e Expected mean change

Table 14

Correlations Compared for MMPI₂ - Mini-Mult,
Group 3 and Mini-Mult - MMPI₁, Group 1

Scale	Group 3	Group 1	Fisher's Z
	MMPI ₂ --Mini-Mult	Mini-Mult--MMPI ₁	
	r	r	
L	.76	.43***	4.56**
F	.62	.40***	2.56**
K	.47	.22***	2.43**
1	.74	.83	-2.01
2	.83	.82	0.26
3	.76	.68	1.42
4	.59	.42***	1.95**
6	.64	.25***	4.27**
7	.85	.58	5.05**
8	.72	.62	1.55
9	.65	.14***	5.39**

*** r is not significant at .05 level

* Z is significant at .05 level

** Z is significant at .01 level

Table 15

Correlations Compared for Mini-Mult - MMPI₂,
Group 2 and Mini-Mult - MMPI₁, Group 1

Scale	Group 2	Group 1	Fisher's Z
	Mini-Mult--MMPI ₂	Mini-Mult--MMPI ₁	
	r	r	
L	.78	.43***	4.98**
F	.54	.40***	1.54
K	.83	.22***	8.19**
1	.88	.83	1.60
2	.64	.82	-3.39
3	.70	.68	0.32
4	.39**	.42***	0.30*
6	.68	.25***	4.88**
7	.70	.58	1.74*
8	.62	.62	0.00
9	.50	.14***	3.47**

*** r not significant at .05 level

* Z significant at .05 level

** Z significant at .01 level

correlations are larger than the Mini-Mult - MMPI₁ correlations. A Sign Test shows that this trend is significant, $p < .05$. Fisher's Z Test resulted in four significant differences in the predicted direction, with four of these at the .01 level. The hypothesis was confirmed for this comparison also.

Table 16 shows the early and late comparisons for Groups 2 and 3. The same trend is observed. Eight of 11 correlations are larger for the later comparison. A Sign Test, however, shows that this trend is not significant at the .05 level. Five of the differences in correlations are significant in the predicted direction at the .05 level, with three of these reaching the .01 level. While the hypothesis is not confirmed at the level of confidence observed in the comparisons on the two previous tables, the same trend is observed.

Table 17 shows the results of a similar comparison between MMPIs only. No support is found for the hypothesis in this comparison. Approximately half the late (day 2, day 3) correlations are higher and half the early (day 1, day 2) are higher. The Sign Test is not significant at the .05 level. While four differences are significant at the .05 level in the predicted direction, a similar number of differences are significant in the opposite direction. The MMPI does not show the shift in level of correlations that was observed for the Mini-Mult.

Table 16
Correlations Compared for MMPI₂ - Mini-Mult,
Group 3 and MMPI₁ - Mini-Mult, Group 2

Scale	Group 3	Group 2	Fisher's Z
	MMPI ₂ --Mini-Mult	MMPI ₁ --Mini-Mult	
	r	r	
L	.76	.77	-0.20
F	.62	.48	1.72*
K	.47	.82	-5.50
1	.74	.82	-1.75
2	.83	.62	3.93**
3	.76	.63	2.17*
4	.59	.20***	4.04**
6	.64	.57	0.94
7	.85	.68	3.63**
8	.72	.69	0.51
9	.65	.60	0.70

*** r not significant at .05 level

* Z significant at .05 level

** Z significant at .01 level

Table 17
Correlations Compared for MMPI₁ - MMPI₂,
Group 1 and MMPI₁ - MMPI₂, Group 3

Scale	Group 1	Group 3	Fisher's Z
	MMPI ₁ --MMPI ₂	MMPI ₁ --MMPI ₂	
	r	r	
L	.76	.85	-2.21***
F	.89	.74	4.01**
K	.70	.87	-3.96***
1	.77	.83	-1.43
2	.79	.82	-0.73
3	.87	.81	1.75*
4	.82	.69	2.62**
6	.68	.55	1.79*
7	.77	.84	-1.71***
8	.87	.86	0.34
9	.57	.84	-4.88***

*** Z significant in opposite direction

* Z significant at .05 level

** Z significant at .01 level

Table 18 shows external Mini-Mult to MMPI correlations obtained in the present study along with correlations reported in earlier studies. Most of the correlations reported by Newton, Armentrout and Rouzer, and Armentrout are lower than correlations for the corresponding scale in Kincannon's study. The same pattern is found when the SH-1 (Mini-Mult and MMPI₁, Group 1) correlations are compared to the Kincannon correlations. The SH-3 (MMPI₂, to Mini-Mult, Group 3) correlations, however, are quite close to Kincannon's. Five of the SH-3 correlations are larger than Kincannon's. The SH-3 correlations range from .47 to .85 with a median of .72. Kincannon's correlations range from .45 to .88 with a median of .79.

Kincannon used the formula $(r_{s_1 s_2}^2 - r_{s_1 m_2}^2) \times 100$, where r^2 is the correlation coefficient squared, s_1 is MMPI₁, s_2 is MMPI₂, and m_2 is the Mini-Mult, to estimate the loss in correspondence due to the Mini-Mult. His estimate ranged from -2% to 25% with a mean of 14%. In the present study, loss estimated in this way for MMPI₁ - MMPI₂, Group 1 compared to MMPI₂ - Mini-Mult, Group 3, ranged from -26% to 41%, with a mean of 10%. (Within Group 3, that is MMPI₁ - MMPI₂, Group 3, compared to MMPI₂ - Mini-Mult, Group 3 yielded a range of -11% to 54%, with a mean of 14.7%).

The same comparison for MMPI₁ - MMPI₂, Group 3 and Mini-Mult - MMPI₁, Group 1 ranged from -3% to 71%, with a

Table 18
External Correlations Reported
In Five Studies

Scale	K	N	A&R	A	SH-3	SH-1
L	.75	.63	.51	.35	.76	.43
F	.45	.30	.57	.09	.62	.40
K	.80	.46	.59	.73	.47	.22
1	.72	.69	.72	.44	.74	.83
2	.79	.64	.64	.47	.83	.82
3	.70	.46	.63	.49	.76	.68
4	.83	.61	.53	.67	.59	.42
6	.79	.39	.57	.70	.64	.25
7	.88	.54	.72	.71	.85	.58
8	.84	.53	.76	.56	.72	.62
9	.71	.28	.52	.44	.65	.14

K is Kincannon (1968)

N is Newton (1971) from which this table was adapted

A&R is Armentrout and Rouzer (1970)

A is Armentrout (1970)

SH-3 is the present study, Group 3, MMPI₂--Mini-Mult

SH-1 is the present study, Group 1, Mini-Mult--MMPI₁

mean of 35.7%. (Within Group 1, the range was from -10% to 64%, and the mean was 31.5%). The loss in correlation that can be attributed to the Mini-Mult is greater in the early comparison. Group 3 is quite similar to Kincannon on this measure.

Kincannon emphasized the importance of examining the agreement between forms on profiles since the profile is used by clinicians in making judgments about patients. The profile rating system proposed by Haertzen and Hill (1959) which will be designated "H-H," and that of Lacks (1970) have been described in Chapter I.

A third comparison consists of a table of the three highest scales on the Mini-Mult which agree with the three highest scales on the MMPI. Percentage of agreement between forms is the measure used for each of these comparisons, with acceptable levels of agreement depending on what the clinician considers acceptable.

The comparison of profiles in this manner does not yield the same pattern found in the comparison of correlation coefficients in all cases.

The H-H rating shows 70% agreement for the MMPI₂ - Mini-Mult comparison for Group 3. The H-H rating for the Mini-Mult - MMPI, comparison for Group 1 is 50%. The MMPI test - retest comparisons on the H-H rating are 80% for Group 1 and 85% for Group 3.

The Lacks rating shows similar results. The MMPI₂

- Mini-Mult comparison for Group 3 is 40%. The Mini-Mult - MMPI₁ comparison for Group 1 is 25%. The MMPI test - retest comparisons are 55% for Group 1 and 35% for Group 3. This would suggest that for this comparison, the loss in correspondence that might be attributed to the Mini-Mult is 15%.

Table 19 compares the Mini-Mult agreement with the MMPI to the MMPI test - retest agreement on profile high points. For this comparison, use of the Mini-Mult results in loss in agreement ranging from 5% to 35%, with a mean of 16%. (Within Group 3, the range was 0% to 40%, and the mean was 15.5%).

Table 20 shows the same comparison for days 1 and 2. Here the loss that may be attributed to the Mini-Mult ranges from 0% to 35%, with a mean of 8.8%. (Within Group 1, the range was 0% to 30%, and the mean was 9.4%). Kincannon's figures were recalculated from his Table 3 so that they correspond to the two comparisons above (the fourth scale was excluded). The resulting range is 0% to 14% with a mean of 6.6%.

Table 21 shows that the early comparison (Mini-Mult - MMPI₁, Group 1) shows greater profile agreement than the late comparison (MMPI₂ - Mini-Mult, Group 3). This result for profile high points is opposite to the results for the other profile indicators and the results with correlations reported above.

Table 19

Profile Highpoint Agreement for MMPI₁--MMPI₂,
Group 1 (a) and MMPI₂--Mini-Mult, Group 3 (b)

	1	2	3
1	(a) 75 (b) 40	(a) 15 (b) 30	(a) 5 (b) 15
2	(a) 15 (b) 30	(a) 40 (b) 20	(a) 15 (b) 25
3	(a) 0 (b) 20	(a) 25 (b) 20	(a) 35 (b) 30

In percentages, the upper left figure in each cell (a) is MMPI₁--MMPI₂, Group 1. The lower right figure (b) is MMPI₂--Mini-Mult, Group 3.

Table 20

Profile Highpoint Agreement for MMPI₁--MMPI₂,
Group 3(a) and Mini-Mult--MMPI₁, Group 1 (b)

	1	2	3
1	(a) 80 (b) 45	(a) 10 (b) 20	(a) 5 (b) 10
2	(a) 10 (b) 20	(a) 40 (b) 25	(a) 30 (b) 30
3	(a) 0 (b) 0	(a) 20 (b) 10	(a) 35 (b) 30

In percentages, the upper left figure in each cell (a) is MMPI₁--MMPI₂, Group 3. The lower right figure (b) is Mini-Mult₁, Group 1.

Table 21

Profile Highpoint Agreement for MMPI₂--Mini-Mult,
Group 3 (a) and Mini-Mult--MMPI₁, Group 1 (b)

	1	2	3
1	(a) 40 (b) 45	(a) 30 (b) 20	(a) 15 (b) 10
2	(a) 30 (b) 20	(a) 20 (b) 25	(a) 25 (b) 30
3	(a) 20 (b) 0	(a) 20 (b) 10	(a) 20 (b) 30

In percentages, the upper left figure in each cell (a) is MMPI₂--Mini-Mult, Group 3. The lower right figure (b) is Mini-Mult--MMPI₁, Group 1.

Table 22 shows the internal Mini-Mult to MMPI correlations for the 20 subjects in Group 1, day 2. Many of these are quite high, as might be expected since they share situation specific, or error variance. Researchers who have reported these correlations have presented an inflated estimate of the correspondence of the two forms. Other internal comparisons are reported in Appendix F.

Table 23 shows the Mini-Mult test - retest coefficients. The interval between tests ranged from 12 to 39 days with a mean of 19.0 and a standard deviation of 7.99. These correlations are low for stability measures and may reflect the fact that the treatment program tended to change the subjects' responses to test items. This is not surprising since psychological symptoms and problems are discussed every day in group therapy.

The following results are indicated in relation to the four purposes of this study:

1. The best estimates of error due to use of the Mini-Mult were 10% for correlations and 9%, 10%, 15%, and 16% for profile ratings (after MMPI test - retest error is removed). Writing the usual MMPI report based on Mini-Mult scores containing this amount of error is contraindicated. The results are quite similar to those of Kincannon who said the loss was "tolerable" in circumstances where the full MMPI could not be administered. If this is done, recalculation of the regression equations should be carried

Table 22

Correspondence Between MMPI₁, Group 1 and
Mini-Mult Contained Within It

Scale	MMPI		Mini-Mult		r	T-Value
	\bar{X}	SD	\bar{X}	SD		
L	3.20	1.76	3.60	1.79	.63**	-1.16
F	8.00	3.37	7.80	2.84	.76**	0.41
K	11.30	3.73	11.35	2.11	.82**	-0.10
1	15.10	4.80	14.70	4.85	.89**	0.79
2	24.50	5.17	25.25	5.75	.81**	-0.99
3	21.95	5.07	24.35	4.84	.90**	-4.71**
4	28.30	5.29	29.40	4.67	.76**	-1.41
6	10.20	2.71	10.95	3.03	.51*	-1.18
7	29.80	7.19	29.95	6.77	.79**	-0.15
8	28.45	7.93	32.35	7.00	.79**	-3.53**
9	21.45	4.86	20.80	2.76	.50*	0.69

* significant at .05 level

** significant at .01 level

n = 20

Table 23

Mini-Mult Test - Retest Comparisons

Scale	Mini-Mult		Retest		r	T-Value
	\bar{X}	SD	\bar{X}	SD		
L	3.57	2.62	3.71	1.90	.65	-0.27
F	9.36	4.14	5.57	1.74	.46	3.85**
K	10.86	3.04	12.86	4.07	.53	-2.09
1	17.71	5.55	16.36	3.99	.42	0.96
2	30.79	5.92	27.79	4.58	.46	2.00
3	27.29	5.22	25.86	3.92	.47	1.10
4	29.21	5.60	28.71	3.77	.83	0.58
6	13.29	3.50	11.50	3.50	.32	1.64
7	35.00	5.29	33.14	5.90	.54	1.28
8	35.57	9.68	32.21	7.30	.52	1.47
9	20.29	1.94	20.29	2.64	.78	0.00

** T significant at .01 level

out. If not, the Mini-Mult might be used to screen for serious psychopathology.

2. It is clear from the results that the Mini-Mult would look much less promising if the MMPI test - retest error were not subtracted from the Mini-Mult to MMPI agreement indicators.

3. The "late versus early" effect was clearly demonstrated for correlations and for two of the three profile indicators.

4. The estimates of the Mini-Mult stability over a three week period were quite low.

CHAPTER V

DISCUSSION

The results of this study have direct implications for much of the research currently being done with the Mini-Mult. It appears that assessing the validity of the Mini-Mult is a more complicated process than many researchers have assumed. The findings of higher correlations for the later comparisons suggest that merely giving the Mini-Mult and the MMPI in counterbalanced order serves to reduce the estimate of correspondence between them. Some factor is operating which affects subject's responses in a different manner on successive days, at least for the Mini-Mult. The social desirability factor accounts for the lower level of scores on later administrations. It is a statistical fact that means and correlations are independent of each other. Thus it would be possible for the means to be lower on later administrations, but with no change in correlations. The present research does not answer the question of exactly what causes the higher correlations. Further research might be aimed at answering this question.

While the methodology in the present study has resulted in a more favorable estimate of the Mini-Mult's

utility than many of the recent studies, the findings do not suggest that the Mini-Mult might be used in place of the MMPI indiscriminately. The 15% error introduced would result in inaccurate judgments about individuals in too many cases to justify the time saved.

At the same time the findings of good group correspondence between MMPI and Mini-Mult were apparent in this study as in earlier studies (Hobbs, 1974; Trybus and Hewitt, 1972). Thus it appears that the Mini-Mult is an adequate research tool for comparing groups of subjects, or possibly for research in program effectiveness. A pre-test- post test design might be used for such a study.

Researchers using the Mini-Mult in a particular setting should refine the instrument and adapt it to the needs of their population. Re-calculation of the regression equations for predicting MMPI scores improves prediction. This may be accomplished by administering the MMPI to a sample of subjects and calculating regression coefficients from the internal Mini-Mult scores. A separate sample should then be used to test the correspondence of the forms. Another way of improving prediction is to lengthen the test as Dean (1972) and McLachlan (1974) have done. Somewhere in between the full MMPI and the 71-item Mini-Mult is a form with the most advantageous number of items. This number of items is determined in each clinical setting by balancing time saved and accuracy sacrificed.

CHAPTER VI

SUMMARY

The study was designed to assess the utility of the Mini-Mult at the Chicago Alcoholic Treatment Center and to examine methodological problems involved in this assessment. Kincannon (1968) constructed the Mini-Mult. The studies of Howard (1964), and Howard and Diesenhaus (1965) suggested that greater correspondence between forms would be found later in a series.

Subjects completed a Mini-Mult, an MMPI, and a second MMPI on consecutive days, with the Mini-Mult appearing on day one for 20 subjects, day 2 for 20 subjects, and day 3 for 20 subjects.

Estimates of error due to use of the Mini-Mult ranged from 9% to 16%. The results suggest that the Mini-Mult would look much less promising if the MMPI test - retest error were not subtracted from the Mini-Mult to MMPI agreement indicators. Correspondence between the Mini-Mult and MMPI administered later in the series was superior to correspondence between these forms administered earlier in the series as indicated by correlations and by two of the three profile indicators. The estimates of the Mini-Mult stability over a three-week period were quite low.

It was recommended that the Mini-Mult not be used indiscriminantly, and that use of the Mini-Mult as a screening device be preceded by recalculation of regression equations for the intended population.

Further research aimed at determining the exact cause of the higher correlations later in the series is suggested.

REFERENCES

- Altus, W. D., & Bell, H. M. An analysis of four orally administered measures of adjustment. *Educational and Psychological Measurement*, 1947, 7, 101-115.
- Armentrout, J. A. Correspondence of the MMPI and the Mini-Mult in a college population. *Journal of Clinical Psychology*, 1970, 26, 493-495.
- Armentrout, J. A., & Rouzer, D. L. Utility of the Mini-Mult with delinquents. *Journal of Consulting and Clinical Psychology*, 1970, 34, 450.
- Briggs, P. E., & Tellegen, A. An abbreviation of the social introversion scale for 373-item MMPI. *Journal of Clinical Psychology*, 1967, 23, 189-191.
- Clark, J. H. Clinical use of the Altus thirty-six point adjustment test in screening army AWOL's. *Journal of Consulting Psychology*, 1948, 12, 276-279.
- Comrey, A. L. A factor analysis of items on the MMPI Psychopathic Deviate scale. *Educational and Psychological Measurement*, 1958, 18, 91-98.
- Comrey, A. L. A factor analysis of items on the MMPI Depression scale. *Educational and Psychological Measurement*, 1957, 17, 578-585.

- Comrey, A. L. A factor analysis of items on the MMPI Hypochondriasis scale. *Educational and Psychological Measurement*, 1957, 17, 568-577.
- Comrey, A. L. A factor analysis of items on the MMPI Hysteria scale. *Educational and Psychological Measurement*, 1957, 17, 586-592.
- Comrey, A. L. A factor analysis of items on the F scale of the MMPI. *Educational and Psychological Measurement*, 1958, 18, 621-632.
- Comrey, A. L. A factor analysis of items on the K scale of the MMPI. *Educational and Psychological Measurement*, 1958, 18, 633-639.
- Comrey, A. L. A factor analysis of items on the MMPI Hypomania scale. *Educational and Psychological Measurement*, 1958, 18, 313-323.
- Comrey, A. L. A factor analysis of items on the MMPI Paranoia scale. *Educational and Psychological Measurement*, 1958, 18, 99-107.
- Comrey, A. L. A factor analysis of items on the MMPI Psychasthenia scale. *Educational and Psychological Measurement*, 1958, 18, 293-300.
- Comrey, A. L., & Marggraff, W. A. A factor analysis of items on the MMPI Schizophrenia scale. *Educational and Psychological Measurement*, 1958, 18, 301-311.

- Davis, W. E. Age and the discriminative "power" of the MMPI with schizophrenic and nonschizophrenic patients. *Journal of Consulting and Clinical Psychology*, 1972, 38, 151.
- Dean, E. F. A lengthened Mini: The Midi-Mult. *Journal of Clinical Psychology*, 1972, 28, 68-71.
- Doll, E. A. A brief Binet-Simon scale. *Psychological Clinic*, 1917, 11, 197-211.
- Doppelt, J. E. Estimating the Full Scale score on the Wechsler Adult Intelligence Scale from scores on four subtests. *Journal of Consulting Psychology*, 1956, 20, 63-66.
- Finch, A. J., Griffin, J. L., Edwards, G. L. Abbreviated Mf and Si scales: efficacy with parents of emotionally disturbed children. *Journal of Clinical Psychology*, 1974, 30, 80.
- Foulds, G. A., Caine, T. M., & Creasy, M. A. Aspects of extra- and intro-punitive expression in mental illness. *Journal of Mental Science*, 1960, 106, 599-610.
- Gaines, L. S., Abrams, M. H., Toel, P. & Miller, L. M. Comparison of the MMPI and the Mini-Mult with alcoholics. *Journal of Consulting and Clinical Psychology*, 1974, 42, 619.
- Gayton, W. F. & Wilson, W. T. Utility of the Mini-Mult in a child guidance clinic setting. *Journal of Personality Assessment*, 1971, 35, 569-575.

- Gilroy, F. D. & Steinbacher, R. Extension of the Mini-Mult to a college population. *Journal of Personality Assessment*, 1973, 37, 263-266.
- Gordon, L. V. The effect of position on the preference value of personality items. *Educational and Psychological Measurement*, 1952, 12, 660-676.
- Graham, J. R., & Schroeder, H. E. Abbreviated Mf and Si scales for the MMPI. *Journal of Personality Assessment*, 1972, 36, 436-439.
- Gynther, M. D. & Shimkunas, A. M. Age and MMPI performance. *Journal of Consulting Psychology*, 1966, 30, 118-121.
- Gynther, M. D. White norms and Black MMPIs: a prescription for discrimination? *Psychological Bulletin*, 1972, 78, 386-402.
- Haertzen, C. A., & Hill, H. E. Effects of morphine and pentobarbital on differential MMPI profiles. *Journal of Clinical Psychology*, 1959, 15, 434-437.
- Harford, T., Lubetkin, B., & Alpert, G. Comparison of the standard MMPI and the Mini-Mult in a psychiatric outpatient clinic. *Journal of Consulting and Clinical Psychology*, 1972, 39, 243-245.
- Hartman, G., & Robertson, M. Comparison of the Mini-Mult and the MMPI in a community mental health agency. *Proceedings of the Annual Convention of the American Psychological Association*, 1972, 7, 33-34.

- Hathaway, J. C., & McKinley, J. C. *The Minnesota Multiphasic Personality Inventory Manual*, New York: Psychological Corporation, 1967.
- Hobbs, T. R. Scale equivalence and profile similarity of the Mini-Mult and MMPI in an outpatient clinic. *Journal of Clinical Psychology*, 1974, 30, 349-350.
- Hobbs, T. R. & Fowler, R. D. Reliability and scale equivalence of the Mini-Mult and MMPI. *Journal of Consulting and Clinical Psychology*, 1974, 42, 89-92.
- Holzberg, J. D., & Alessi, S. Reliability of the shortened MMPI. *Journal of Consulting Psychology*, 1949, 13, 288-292.
- Howard, K. I. Differentiation of individuals as a function of repeated testing. *Educational and Psychological Measurement*, 1964, 24, 875-894.
- Howard, K. I., & Diefenhaus, H. I. Intra-individual variability, response set, and response uniqueness in a personality questionnaire. *Journal of Clinical Psychology*, 1965, 21, 392-396.
- Huisman, R. E. Correspondence between Mini-Mult and standard MMPI scale scores in patients with neurological disease. *Journal of Consulting and Clinical Psychology*, 1974, 42, 149.
- Hunt, W. A. (Ed.) *Human Behavior and its Control*. Cambridge: Schenkman, 1971.

- Jorgenson, C. A short form of the MMPI. *Australian Journal of Psychology*, 1958, 10, 341-350.
- Kincannon, J. C. An investigation of the feasibility of adapting a personality inventory for use in the mental status exam. *Dissertation Abstracts*, 1967, 28, 2625-B (Abstract).
- Kincannon, J. C. Prediction of the standard MMPI scale scores from 71 items: The Mini-Mult. *Journal of Consulting and Clinical Psychology*, 1968, 32, 319-325.
- Kramer, E., & Francis, P. S. Errors in intelligence estimation with short forms of the WAIS. *Journal of Consulting Psychology*, 1965, 29, 490.
- Lacks, P. B. Further investigation of the Mini-Mult. *Journal of Consulting and Clinical Psychology*, 1970, 35, 126-127.
- Lacks, P. B., & Powell, B. J. The Mini-Mult as a personnel screening technique: A preliminary report. *Psychological Reports*, 1970, 27, 909-910.
- Levy, P. Short-Form tests: A methodological review. *Psychological Bulletin*, 1968, 69, 410-416.
- Lichtenstein, E., & Bryan, J. H. Short-term stability of MMPI profiles. *Journal of Consulting Psychology*, 1966, 30, 1972-174.

Luski, M. R., Shultz, W., Laywell, H. R., & Dawes, R. M.

Long search of the short WAIS: Stop looking. *Journal of Consulting and Clinical Psychology*, 1970, 34, 425-431.

McLachlan, J. F. Test - retest stability of long and short MMPI scales over two years. *Journal of Clinical Psychology*, 1974, 30, 189-191.

Meehl, P. E., & Dahlstrom, W. G. Objective configural rules for discriminating psychotic from neurotic MMPI profiles. *Journal of Consulting Psychology*, 1960, 24, 375-387.

Mlott, S. R. The Mini-Mult and its use with adolescents. *Journal of Clinical Psychology*, 1973, 29, 376-377.

Mumpower, D. L. The fallacy of the short form. *Journal of Clinical Psychology*, 1964, 20, 111-113.

Newmark, C. S., Cook, L. & Greer, W. Application of the Midi-Mult to psychiatric inpatients. *Journal of Clinical Psychology*, 1973, 29, 481-484.

Newton, J. R. A comparison of the studies of the Mini-Mult. *Journal of Clinical Psychology*, 1971, 27, 489-490.

Olson, G. W. The Hastings short form of the group MMPI. *Journal of Clinical Psychology*, 1954, 10, 386-388.

Palmer, A. B. A comparison of the MMPI and the Mini-Mult in a sample of state mental hospital patients. *Journal of Clinical Psychology*, 1973, 29, 484-485.

- Perkins, J. E., & Goldberg, L. R. Contextual effects on the MMPI. *Journal of Consulting Psychology*, 1964, 28, 133-140.
- Platt, J. J., & Scura, W. C. Validity of the Mini-Mult with male reformatory inmates. *Journal of Clinical Psychology*, 1972, 28, 528-529.
- Pulvermacher, G. D., & Bringman, W. G. The Mini-Mult used with French-Canadian college students. *Psychological Reports*, 1971, 29, 134.
- Rosen, A. Stability of new MMPI scales and statistical procedures for evaluating changes and differences in psychiatric patients. *Journal of Consulting and Clinical Psychology*, 1966, 30, 142-145.
- Rosenwald, G. C. Psychodiagnostics and its discontents. *Psychiatry*, 1963, 26, 222-240.
- Shipley, W. *The Shipley-Hartford Institute of Living Scale*. Los Angeles: Western Psychological Services, 1967.
- Shure, G. H., & Rogers, M. S. Note of caution on the factor analysis of the MMPI. *Psychological Bulletin*, 1965, 63, 14-18.
- Stein, K. B. The TSC scales: The outcome of a cluster analysis of the 550 MMPI items. In P. McReynolds (Ed.), *Advances in Psychological Assessment*. vol. 1, Palo Alto: Science and Behavior Books, 1968.

Szasz, T. S. *The Myth of Mental Illness*. New York:

Hoeber-Harper, 1961.

Trybus, R. J., & Hewitt, C. W. The Mini-Mult in a non-psychiatric population. *Journal of Clinical Psychology*, 1972, 28, 371.

APPENDIX A

Scorer's Initials _____

Address _____

Occupation _____

Date Tested _____

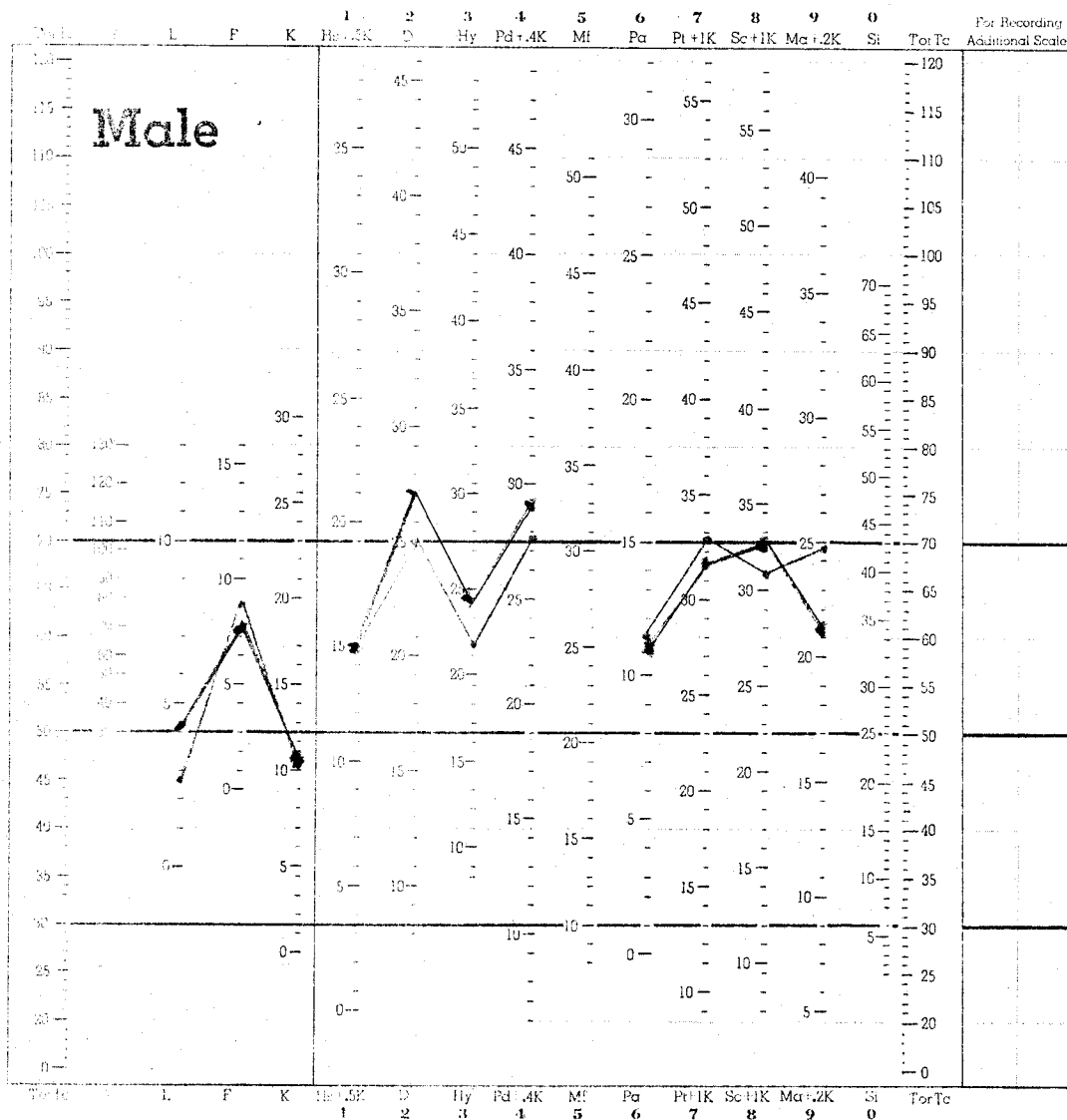
Education _____

Age _____

Marital Status _____

Referred by _____

NOTES



Fractions of K			
T	1	2	3
30	15	12	6
29	15	12	6
28	14	11	6
27	14	11	5
26	13	10	5
25	13	10	5
24	12	10	5
23	12	9	5
22	11	9	4
21	11	8	4
20	10	8	4
19	10	8	4
18	9	7	4
17	9	7	3
16	8	6	3
15	8	6	3
14	7	6	3
13	7	5	3
12	6	5	2
11	6	4	2
10	5	4	2
9	5	4	2
8	4	3	2
7	4	3	1
6	3	2	1
5	3	2	1
4	2	2	1
3	2	2	1
2	1	1	0
1	1	1	0
0	0	0	0

Mini-Mult
MMPI 2

MMPI2 - Mini-Mult - Mean
Profiles, Group 3

APPENDIX A

Raw Score _____

K to be added _____

Raw Score with K _____

Copyright 1948 by The Psychological Corporation.

All rights reserved as stated in the manual and Catalog.

The Psychological Corporation, 304 East 45th Street, New York, N. Y. 10017

Signature _____

Date _____

APPENDIX B

Scorer's Initials _____

Occupation _____

Date Tested _____

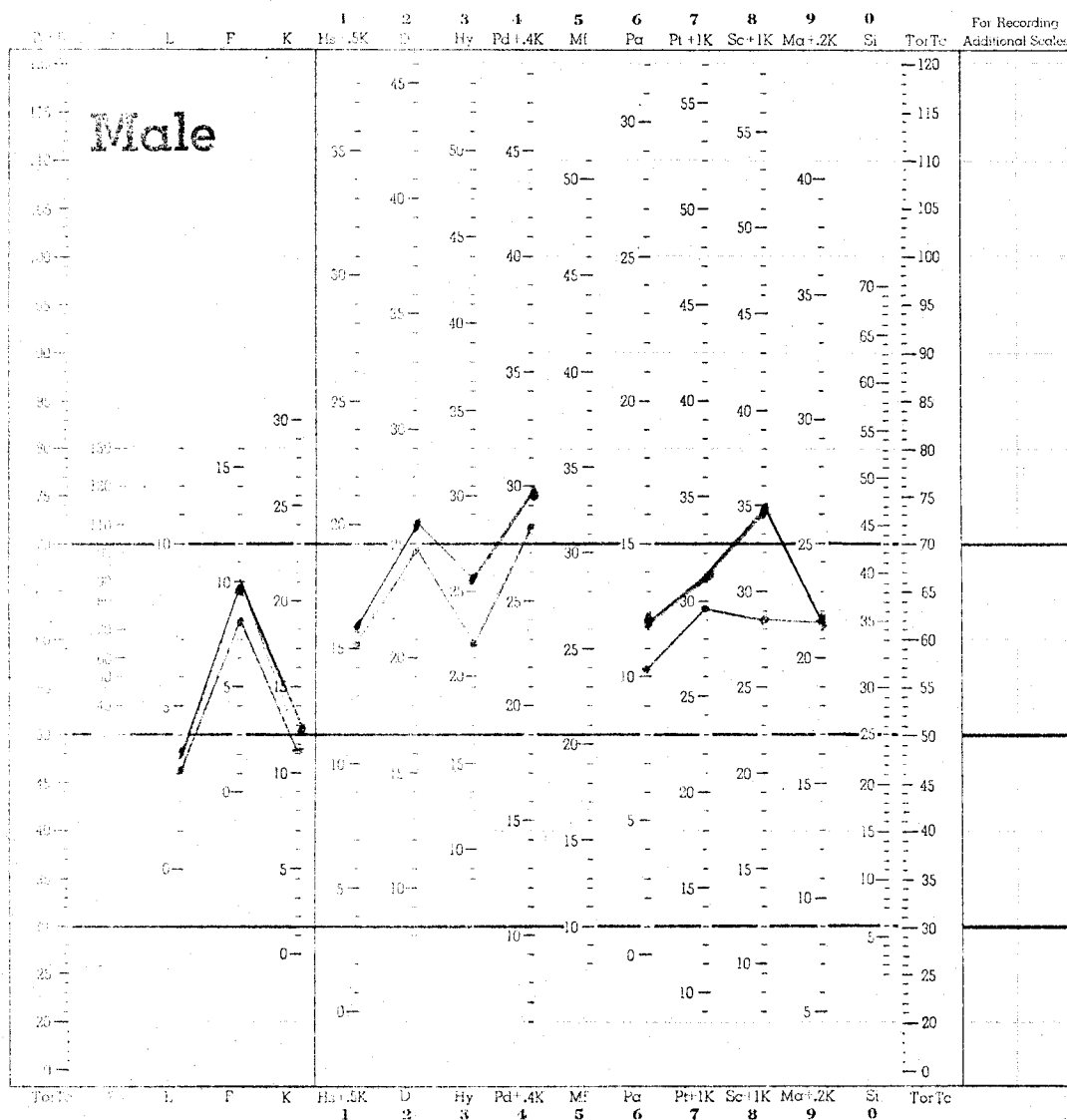
Education _____

Age _____

Marital Status _____

Referred by _____

NOTES _____



Fractions of K			
K	5	4	2
30	15	12	6
29	15	12	6
28	14	11	6
27	14	11	5
26	13	10	5
25	13	10	5
24	12	10	5
23	12	9	5
22	11	9	4
21	11	8	4
20	10	8	4
19	10	8	4
18	9	7	4
17	9	7	3
16	8	6	3
15	8	6	3
14	7	6	3
13	7	5	3
12	6	5	2
11	6	4	2
10	5	4	2
9	5	4	2
8	4	3	2
7	4	3	1
6	3	2	1
5	3	2	1
4	2	2	1
3	2	2	1
2	1	1	0
1	1	1	0
0	0	0	0

Mini-Mult
MMPI

Mini-Mult - MMPI₁ - Mean
Profiles, Group 1

APPENDIX B

APPENDIX C

APPENDIX C

VOLUNTEER INFORMATION SHEET

Name _____

Date of admission _____

Age _____

Education _____

Employment _____

Marital status _____

Children _____

Main language _____

Socio-economic class
prior to alcoholism _____

Military service _____

Psychiatric hospitalizations
(number, length) _____

Previous hospitalizations
for alcoholism _____

Time since last drink _____

Medications (now on) _____

Order of Tests

1) _____ 2) _____ 3) _____

APPENDIX D

APPENDIX D

Mini-Mult

Please answer the following questions Yes or No as they apply to you now.

1. Do you have a good appetite?
2. Do you wake up fresh and rested most mornings?
3. Is your daily life full of things that keep you interested?
4. Do you work under a great deal of tension?
5. Once in a while, do you think of things too bad to talk about?
6. Are you troubled by constipation?
7. Have you, at times, very much wanted to leave home?
8. At times, do you have fits of laughing and crying that you cannot control?
9. Are you troubled by attacks of nausea and vomiting?
10. Does it seem that no one understands you?
11. At times, do you feel like swearing?
12. Do you have nightmares every few nights?
13. Do you find it hard to keep your mind on a task or job?
14. Have you had very peculiar and strange experiences?
15. Would you have been much more successful if people had not had it in for you?
16. During one period when you were a youngster, did you engage in petty thievery?
17. Have you had periods of days, weeks or months when you couldn't take care of things because you couldn't "get going"?

APPENDIX D (continued)

18. Is your sleep fitful and disturbed?
19. When you are with people are you bothered by hearing very queer things?
20. Are you liked by most people who know you?
21. Have you often had to take orders from someone who did not know as much as you did?
22. Do you wish you could be as happy as others seem to be?
23. Do you think a great many people exaggerate their misfortunes to gain the sympathy and help of others?
24. Do you sometimes get angry?
25. Are you definitely lacking in self-confidence?
26. Are you troubled with your muscles twitching or jumping?
27. Much of the time, do you feel as if you have done something wrong or evil?
28. Are you happy most of the time?
29. Are some people so bossy that you feel like doing the opposite of what they request, even though you know they are right?
30. Are you being plotted against?
31. Will most people use somewhat unfair means to gain profit or advantage rather than lose it?
32. Do you have a great deal of stomach trouble?
33. Have you often been cross or grouchy without understanding why?
34. At times, have your thoughts raced ahead faster than you could speak them?
35. Is your home life as pleasant as that of most people you know?

APPENDIX D (continued)

36. Do you certainly feel useless at times?
37. During the past few years, have you been well most of the time?
38. Have you had periods in which you carried on activities without later knowing what you had been doing?
39. Do you feel that you have been punished without cause?
40. Have you ever felt better in your life than you do now?
41. Are you bothered by what others think of you?
42. Is your memory all right?
43. Do you find it hard to make talk when you meet new people?
44. Do you feel weak all over much of the time?
45. Are you troubled by headaches?
46. Have you had difficulty in keeping your balance in walking?
47. Do you like everyone you know?
48. Is anyone trying to steal your thoughts and ideas?
49. Do you wish you were not so shy?
50. Do you believe your sins are unpardonable?
51. Do you frequently find yourself worrying about something?
52. Have your parents often objected to the kind of people that you went around with?
53. Do you gossip a little at times?
54. Do you, at times, feel that you can make up your mind with unusually great ease?

APPENDIX D (continued)

55. Are you troubled by your heart pounding and by a shortness of breath?
56. Do you get mad easily and then get over it soon?
57. Do you have periods of such great restlessness that you cannot sit long in a chair?
58. Do your parents and family find more fault with you than they should?
59. Does anyone care much what happens to you?
60. Do you blame a person for taking advantage of someone who lays himself open to it?
61. Are you full of energy, at times?
62. Is your eyesight as good as it has been for years?
63. Do you often notice your ears ringing or buzzing?
64. Have you ever felt that someone was making you do things by hypnotizing you?
65. Have you had periods in which you felt unusually cheerful without any special reason?
66. Even when you are with people do you feel lonely much of the time?
67. Do you think nearly anyone would tell a lie to keep out of trouble?
68. Are you more sensitive than most other people?
69. Does your mind seem to work more slowly than usual, at times?
70. Do people often disappoint you?
71. Have you used alcohol excessively?

APPENDIX E

APPENDIX E

Kincannon's Conversion Table for the Prediction of
Standard Scale Raw Scores from the Mini-Mult Raw Scores

Scale											
	L	F	K ^{a.}	Hs 1	D 2	Hy 3	Pd 4	Pa 6	Pf 7	Sc 8	Ma 9
0	2	2	4	2	13	10	9	5	2	2	8
1	4	4	5	4	15	11	11	7	4	4	10
2	6	6	7	6	16	13	13	8	6	7	11
3	8	9	8	8	18	15	14	10	9	10	13
4	10	11	10	10	20	16	16	12	11	13	15
5	12	14	11	12	22	18	18	14	13	15	17
6		16	13	14	24	19	20	15	16	18	18
7		18	14	16	26	21	21	17	18	21	20
8		21	15	18	28	22	23	19	20	24	22
9		23	17	20	29	24	25	21	23	26	24
10		25	18	22	31	25	26	22	25	29	25
11		28	20	23	33	27	28	24	27	32	27
12		30	21	25	35	29	30	26	30	35	29
13		33	23	27	38	30	32	28	32	37	
14		35	24	29	39	32	33	29	34	40	
15		37	26		40	33	35		37	43	
16			27		42	35	37		39	46	
17					44	36	39			48	
18					46	38	40			51	
19					48	40	42			54	
20					50	41				57	
21						43					
22						44					
23						46					
24						47					
25						49					
26						50					

a. This estimated K scale score is added to the appropriate estimated scale scores in the usual manner to generate K-corrected profiles.

APPENDIX F

APPENDIX F

Table 24-A

Correspondence Between MMPI₂, Group 1
And Mini-Mult Contained Within It

Scale	MMPI		Mini-Mult		r	T-Value
	\bar{X}	SD	\bar{X}	SD		
L	3.15	1.42	3.40	1.46	.45	-0.74
F	6.95	3.84	8.05	3.40	.82**	-2.21
K	12.15	3.95	11.55	3.69	.75**	0.99
1	13.15	4.87	13.25	4.78	.90**	-0.21
2	22.20	4.56	24.40	5.52	.78**	-2.82*
3	20.25	5.41	22.60	4.20	.79**	-3.19**
4	27.05	5.65	27.80	4.41	.85**	-1.12
6	9.50	2.78	10.95	2.93	.75**	-3.22**
7	28.45	7.17	29.55	6.00	.69**	-0.92
8	27.55	7.96	32.00	7.00	.80**	-4.13**
9	23.00	3.84	21.80	2.48	.42	1.49

* significant at .05 level

** significant at .01 level

n = 20

APPENDIX F

Table 25-A

Correspondence Between MMPI₁, Group 2
And Mini-Mult Contained Within It

Scale	MMPI		Mini-Mult		r	T-Value
	\bar{X}	SD	\bar{X}	SD		
L	3.15	2.06	3.90	1.89	.76**	-2.45*
F	9.20	4.42	9.15	3.54	.77**	0.08
K	10.75	4.25	10.40	3.35	.90**	0.82
1	17.60	5.49	17.70	5.54	.80**	-0.13
2	26.90	5.60	28.85	5.34	.87**	-3.09**
3	24.75	4.92	26.25	5.34	.73**	-1.76
4	27.50	3.19	28.90	3.06	.76**	-2.86*
6	11.10	3.68	11.90	3.43	.76**	-1.44
7	31.65	6.16	32.00	6.92	.90**	-0.53
8	31.35	6.77	34.05	7.32	.86**	-3.17**
9	25.20	4.30	21.70	2.68	.59**	4.49**

* significant at .05 level

** significant at .01 level

n = 20

APPENDIX F

Table 26-A

Correspondence Between MMPI₂, Group 2
And Mini-Mult Contained Within It

Scale	MMPI		Mini-Mult		r	T-Value
	\bar{X}	SD	\bar{X}	SD		
L	3.05	2.26	3.50	2.04	.78**	-1.41
F	8.95	6.19	8.85	4.22	.79**	0.12
K	11.90	3.73	11.70	2.94	.94**	0.64
1	17.05	5.98	17.10	5.00	.90**	-0.09
2	25.80	7.68	28.05	8.25	.88**	-2.59*
3	24.55	5.54	26.10	4.42	.73**	-1.82
4	27.25	3.74	29.05	3.20	.80**	-3.60**
6	10.60	3.59	10.95	3.33	.62**	-0.52
7	32.60	7.80	31.65	8.79	.90**	1.10
8	32.65	8.49	34.85	8.24	.69**	-1.49
9	25.20	4.30	21.70	2.68	.59**	4.49**

* significant at .05 level

** significant at .01 level

n - 20

APPENDIX F

Table 27-A

Correspondence Between MMPI₁, Group 3
And Mini-Mult Contained Within It

Scale	MMPI		Mini-Mult		r**	T-Value
	\bar{X}	SD	\bar{X}	SD		
L	2.55	1.99	3.80	2.24	.81	-4.19**
F	10.55	4.27	10.15	4.18	.66	0.51
K	9.65	3.03	10.00	2.38	.68	-0.69
1	16.60	4.82	16.85	4.82	.85	-0.42
2	26.35	6.56	26.30	6.24	.73	0.05
3	23.10	5.33	24.80	3.87	.74	-2.14
4	28.95	4.73	27.90	4.58	.84	1.79
6	12.90	4.14	12.40	4.31	.86	0.99
7	33.65	5.83	31.85	5.85	.72	1.84
8	33.85	7.11	34.80	7.72	.69	-0.73
9	25.20	6.21	22.50	3.09	.71	2.64

** significant at .01 level

n = 20

APPENDIX F

Table 28-A

Correspondence Between MMPI₂, Group 3
And Mini-Mult Contained Within It

Scale	MMPI		Mini-Mult		r	T-Value
	\bar{X}	SD	\bar{X}	SD		
L	2.85	2.06	4.00	1.95	.81**	-4.20**
F	8.80	3.68	8.30	3.91	.71**	0.77
K	10.20	3.50	10.65	3.00	.77**	-0.89
1	14.85	5.24	15.75	5.40	.81**	-1.22
2	25.00	7.53	27.40	7.26	.84**	-2.56*
3	21.65	6.65	25.10	5.21	.86**	-4.46**
4	27.70	3.69	28.85	3.12	.78**	-2.24*
6	11.20	3.40	12.35	4.67	.66**	-1.46
7	32.60	5.68	32.50	6.60	.84**	0.13
8	30.95	7.06	32.85	8.43	.85**	-1.92
9	24.80	5.48	22.55	3.56	.62**	2.34*

* significant at .05 level

** significant at .01 level

n = 20

APPROVAL SHEET

The thesis submitted by Patrick E. Shields has been read and approved by the following Committee:

Dr. Frank J. Kobler, Chairman
Professor and Director of Clinical
Training, Psychology, Loyola

Dr. Roderick W. Pugh
Professor, Psychology, Loyola

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

December 25, 1974
Date

Frank J. Kobler
Director's Signature