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Another Look at the Mini-Mult

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ANOTHER LOOK AT THE MINI-MULT

by

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INTRODUCTION

The purpose of this study was to evaluate the relationship between the standard Minnesota Multiphasic Personality Inventory and the recently developed 71-item Mini-Mult (Kincannon, 1968).

Since its introduction by Hathaway and McKinley in 1940, the Minnesota Multiphasic Personality Inventory (MMPI), has been established as a clinically useful and popular self-report inventory. However, many investigators agree that the length of the test, both in terms of number of items and time required to complete the inventory, seriously restrict its application to clinical and research projects.

To overcome the restrictions imposed on the MMPI by its length, several attempts have been made to develop an abbreviated form from which the standard MMPI scale scores could be reliably predicted (e.g. Foulds, Caine, and Creasy, 1960; and Jorgenson, 1958). Lacking predictive accuracy, these forms failed to achieve acceptance. However, a 71-item short form of the MMPI, the Mini-Mult, introduced in 1968 by J. Kincannon, was specifically designed to predict all the standard validity and clinical scales, and may prove to be more acceptable and have greater potential usefulness than earlier abbreviated forms. Initial investigations indicated a high

degree of correspondence between the Mini-Mult and the MMPI.

Lacks (1970) scored MMPI answer sheets of 94 inpatients at an acute, urban, intensive treatment center for both the standard MMPI and the scales of Kincannon's 71-item Mini-Mult. The results of correlational and clinically relevant comparisons supported Kincannon's findings that the Mini-Mult predicts results of the MMPI with a high degree of reliability.

In another study, Lacks and Powell (1970) compared the Mini-Mult and the MMPI for a group of hospital attendant applicants. Data were collected from the personnel files of 20 males and 20 females who had applied for employment during 1967-68, as psychiatric attendants at a Mental Health Center. The results of the study supported previous work that the Mini-Mult is a reliable substitute for the standard MMPI. For the total sample, statistically significant differences were found for scales Pa, Pt, and Ma. Correlations between the two forms for the different scales ranged from .65 to .90.

Armentrout and Rouzer (1970) investigated the accuracy with which the Mini-Mult could predict features of the standard MMPI in a nonpsychiatric population of institutionalized adolescents. The subjects were 100 male and 25 female delinquents between the ages of 13 and 19 who were tested at a residential diagnostic center.

The Mini-Mult and the MMPI were administered to each subject and were completed in that order with a 24-48 hour intertest interval. Group results showed good correspondence between the Mini-Mult and MMPI scale scores. However, an examination of individual profile pairs suggested that, for these subjects, the Mini-Mult showed little correspondence regarding validity, high points, or general elevation. Therefore, they suggested that the results of their study were inconclusive.

The problems inherent in creating shorter versions of longer tests have interested many researchers (Borgatta, 1964; and Silverstein, 1965). The major problem in creating a shortened instrument is the assumption, generally accepted by many investigators, that a longer test is significantly more reliable, and therefore, potentially more valid than a short form. As illustrated by Kincannon (1968) this assumption is mathematically expressed in the Spearman-Brown formula which is based on two further assumptions. These assumptions, that all items in a scale are equivalent and that any deletions of items would be made on a random basis, need not be the case, according to Kincannon (1968). Indeed, Kincannon proceeds to illustrate that these assumptions need not be applied in this case by citing references which have demonstrated that the MMPI scales are quite heterogeneous and by proposing a systematic procedure for item

reduction, which he followed in developing the Mini-Mult. By comparing the 28% average loss in reliability predicted by the Spearman-Brown formula with the 9% average loss in reliability predicted by the results of his test-retest comparisons, Kincannon was able to support his proposition.

Kincannon's study consisted of Mini-Mult and MMPI comparisons with three sample populations. The first comparison was conducted on the MMPI answer sheets for a sample of 50 male and 50 female recent admissions to the psychiatric service of a city-county general hospital. Product-moment correlations between these two sets of scores ranged from .80 to .93. A second comparison was carried out on the MMPI answer sheets of 25 male and 25 female consecutive admissions to the local community mental health center. The product-moment correlations between these two sets of scores were essentially identical to those of the inpatient group and ranged from .70 to .96. For the third and most comprehensive comparison, he used a test-retest design with 30 male and 30 female new admissions to the acute psychiatric service of a general hospital. Each subject in this group was requested to complete a retest of the standard MMPI and take an independently administered Mini-Mult in an alternating sequence with the MMPI retest. The product-moment correlations between the first standard administration of

the MMPI and the Mini-Mult extracted from these MMPI answer sheets ranged from .82 to .96. Comparisons between comparable scales for all combinations of the two administrations of the two forms revealed a high degree of correspondence between the independently administered Mini-Mult, the extracted Mini-Mult, and the standard administration of the MMPI. The *t* tests for paired comparisons of means for the Mini-Mult and the MMPI showed statistically reliable differences for scales F, Hs, and Ma in the comparison of the first standard administration of the MMPI and the Mini-Mult which was extracted from those answer sheets.

Research for the present study was conducted on MMPI answer sheets for outpatients of an adult outpatient psychiatric clinic. In this study, scale scores of the standard administration of the MMPI and the Mini-Mult extracted from the MMPI answer sheets were compared. The following hypothesis was postulated:

> There are no statistically significant differences between the corresponding scale scores of the standard MMPI and the Mini-Mult extracted from the MMPI answer sheets.

This study was not intended to replicate Kincannon's (1968) research. Although some parts of the research were similar, the material was, in general, different. No attempt was made to employ a test-retest design.

Also, this study employed an actuarial method for investigating profile correspondence, rather than the ratings of clinical psychologists. Further, reliability of individual scale scores was not evaluated. However, a comparison of the results of this study with a recently completed study on a similar sample will provide some measure of scale reliability.

METHOD

The subjects for this study were obtained from the 1968 files of outpatients at an adult outpatient psychiatric clinic. Subjects were consecutively selected according to alphabetical sequencing. Selection began at the beginning of the alphabet and continued until files were obtained for 50 males and 50 females who had completed an MMPI. The age range for this sample was 16 to 60 with a mean age of 30.71 for males and 32.24 for females. However, 56% of the male group was clustered within a 16 to 30 age range and 54% of the female group was clustered within this same 16 to 30 range. Therefore, based on age distribution, this is not a truly representative sample.

All standard MMPI's were machine scored and K corrected. The Mini-Mult for all subjects was then scored with templates derived from Kincannon's Mini-Mult and the raw scores obtained were converted into standard scale raw scores using Kincannon's conversion table. Two sets of standard K corrected raw scores for eleven validity and clinical scales (L, F, K, Hs, D, Hy, Pd, Pa, Pt, Sc, and Ma) were obtained for the standard MMPI and the Mini-Mult extracted from the MMPI answer sheets. The scores of the two forms were then compared to determine

the degree of similarity.

Since contemporary use relies heavily on the configuration or profile of scores, an additional analysis focused on the stability of the three highest scores, in comparing the short and long forms. For each subject, K corrected profiles were plotted on standard profile sheets for the standard MMPI and the Mini-Mult. Three point codes based on these profiles were tabulated in the manner described by Lichtenstein and Bryan (1966). Further analysis of profile correspondence evaluated similarity in elevation of profile pairs by comparing the occurrence of clinical scales above or below a T score of 70.

RESULTS

For this study two sets of scores on the validity and eight clinical scales were obtained for each subject, the standard MMPI (St) and the Mini-Mult extracted from the MMPI answer sheets (MM).

Product-moment correlations between the comparable scales of the standard MMPI and the Mini-Mult ranged from .26 to .84 with a median of .75. For this total group all correlations were significant at the .01 level. For males the correlations between comparable scales for both forms of the test ranged from .13 to .85 with a median of .77. For this group correlations were significant at the .01 level for all scales except Hs and Hy. Neither of these scales was significant at the .05 level and only the Hy scale was significant at the .10 level. For females the correlations ranged from .33 to .85 with a median of .66 (see Table 1). These correlations were significant at the .01 level for all scales except the Hs scale which was significant at the .02 level.

The means and standard deviations for each scale are presented in Table 2. In most cases, the standard deviation was smaller for the Mini-Mult than for the standard MMPI. When *t* tests of mean differences for

comparable scales on the MMPI and Mini-Mult were calculated, several significant differences were found (see Tables 3 and 4). For the total group, significant differences ($p < .01$) between means occurred for the F, K, Hs, Pa, and Pt scales. The female group showed mean differences significant at the .01 level for scales K, Hs, D, Pt, and Ma. Scales F and Hs were the only scales found to have significant differences at the .01 level for the male group.

Using K corrected T scores, the degree of correspondence between comparable scales of the MMPI and the Mini-Mult was assessed in a manner more relevant for contemporary clinical judgment. Profiles of mean K corrected T scores for males and females are presented in Figure 1. Evaluating profiles as invalid when either scale L, F, or K was equal to or above a T score of 70, 42 of the total group had invalid MMPI's and 23 of these had invalid Mini-Mults. There were only 2 cases where the Mini-Mult was invalid and the MMPI was valid. For males, 16 of 50 (32%) had invalid MMPI's. Of these 16, only 6 had invalid Mini-Mults. This group had 2 cases where the MMPI was valid and the Mini-Mult was not. Of the 50 females, 26 (52%) had invalid MMPI's. Seventeen of these 26 also had invalid Mini-Mults. There were no cases in the female group where the MMPI was valid and the Mini-Mult invalid. Revaluating the pro-

files as invalid when scale L was equal to or above a T score of 60, or scale F was equal to or above a T score of 80, and leaving K unrestricted, invalid MMPI's were obtained for 29 of the total group. Of these 29, there were 15 invalid Mini-Mults. Also, the Mini-Mult was invlaid in 7 cases where the MMPI was valid. Invalid MMPI's occurred for 13 (26%) of the 50 males. Of these 13, only 4 Mini-Mults were invalid. In 3 (6%) of these 50 cases, the MMPI was valid and the Mini-Mult invalid. Of the 50 females, 16 (32%) had invalid MMPI's. Among these 16, 11 had invalid Mini-Mults. In 4 cases of the 50, the MMPI was valid but the Mini-Mult was not.

For further analysis, K corrected profiles were plotted on standard profile sheets for the standard MMPI and the Mini-Mult for each subject. Three point codes based on these profiles were tabulated in the manner described by Lichtenstein and Bryan (1966). These results are presented in Tables 5, 6, and 7. The probability that the top ranked score will remain among the top three is 75% for the total group, 78% for males, and 72% for the female group. The probability that the second or third ranked score would fall outside the three point code is 45% and 46% respectively for the total group. Equivalent probabilities occurred in both male and female groups.

Additional analysis of profile correspondence considered similarity in elevation of profile pairs by comparing the occurrence of clinical scales above or below a T score of 70. For the total group, 13 of the profile pairs had no scales above a T score of 70 on the MMPI. Of these 13 pairs, only 2 had no scales above 70 on the Mini-Mult. There were 5 cases with no scales above a T score of 70 on the Mini-Mult and only one of these had no scale above 70 for the MMPI. Only 12% of the total group had the same scales above 70 on both tests. Eight profile pairs for the male group had no scales above a T score of 70 on the MMPI and only one of these had no scale above 70 on the Mini-Mult. In this group, 8 pairs had the same scales above 70 on both tests. Profile pairs having no scales above a T score of 70 on the MMPI occurred in 5 of the 50 cases in the female group. Of these 5, only one had no scales above 70 for the Mini-Mult. There were 5 cases for this group where no scale above 70 occurred on the Mini-Mult, only one of which had no scale above 70 for the MMPI. In this group there were 4 pairs which had the same scales above 70 on both tests.

TABLE 1

Product-moment Correlations between Comparable Scales for Three Groups: Total, Male, and Female

Scale	Total	Male	Female
L	.76	.85	.66
F	.80	.85	.79
K	.84	.84	.85
Hs	.26	.13**	.33*
D	.78	.77	.85
Hy	.48	.26*	.60
Pd	.74	.68	.62
Pa	.75	.82	.74
Pt	.82	.84	.80
Sc	.67	.74	.59
Ma	.55	.48	.51
	Median r	Median r	Median r
	.75	.77	.66
	$p < .01$	$p < .01$	$p < .01$
		*$p < .10$	*$p < .02$
		**not significant	

TABLE 2

Mean and Standard Deviations of the Scale Scores for the Three Groups: Total, Male and Female

	Total				Male				Female			
	Standard		Mini-Mult		Standard		Mini-Mult		Standard		Mini-Mult	
Scale	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.
L	4.02	2.27	4.02	2.17	3.82	2.36	4.12	2.44	4.22	2.18	3.92	1.89
F	10.68	7.31	8.82	4.96	11.88	8.44	9.72	5.12	9.46	5.81	8.26	4.41
K	11.87	5.08	11.07	4.40	11.74	5.54	11.44	4.80	12.00	4.63	10.70	3.96
Hs	18.56	6.30	21.65	3.59	17.42	5.90	21.10	3.41	19.70	6.53	22.20	3.71
D	29.88	7.42	29.33	5.87	26.78	6.99	28.46	5.48	32.98	6.56	30.20	6.18
Hy	28.18	6.42	28.29	4.15	26.45	6.24	27.46	5.68	29.92	6.18	28.58	4.25
Pd	29.18	6.06	28.21	5.12	29.38	6.09	28.58	5.35	28.98	6.01	27.39	6.25
Pa	14.06	4.45	14.93	4.15	13.62	4.99	14.24	4.43	14.70	4.07	15.62	3.76
Pt	36.25	7.64	34.57	7.14	34.48	8.05	33.72	7.41	38.02	6.83	35.42	6.82
Sc	38.05	10.89	37.47	8.79	37.10	12.55	37.86	9.30	39.00	8.98	36.96	8.21
Ma	20.29	4.47	20.94	3.29	21.22	4.39	20.54	4.16	19.36	4.38	20.94	3.62

TABLE 3

Mean Differences between Comparable Scale Scores of the MMPI and Mini-Mult for Three Groups: Total, Male, and Female

Scale	Total	Male	Female
L	.00	.30	.30
F	1.86	2.16	1.20
K	.80	.30	1.30
Hs	3.09	3.68	2.50
D	.55	1.68	2.78
Hy	.11	1.01	1.34
Pd	.97	.80	1.59
Pa	.87	.62	.92
Pt	1.68	.76	2.60
Sc	.58	.76	2.04
Ma	.65	.68	1.58

TABLE 4

Values of t and Estimate of Standard Error of Difference between Comparable Scales of the MMPI and the Mini-Mult for Three Groups: Total, Male, and Female

	Total		Male		Female	
Scale	t	s_{diff}	t	s_{diff}	t	s_{diff}
L	0.00	.173	1.76	.17	.45	.66
F	4.13*	.45	3.13*	.69	2.40**	.50
K	3.01*	.265	.77	.387	3.94*	.33
Hs	4.83*	.64	4.04*	.91	2.81*	.89
D	1.17	.47	2.67**	.63	5.68*	.49
Hy	.19	.57	.99	1.02	1.34	.71
Pd	2.37**	.41	1.21	.66	2.12**	.75
Pa	2.72*	.32	1.95	.41	2.24	.41
Pt	3.73*	.45	1.01	.75	4.19*	.62
Sc	.71	.82	.64	1.196	1.84	1.11
Ma	1.67	.39	1.10	.62	2.77*	.57
	df = 99		df = 49		df = 49	
	*p < .01		*p < .01		*p < .01	
	**p < .05		**p < .05		**p < .05	

TABLE 5

Comparison of the MMPI and the Mini-Mult with Respect to the Ordinal Position of the Three Clinical Scales Highest in Rank

Rank on MMPI	Rank on Mini-Mult			
	1	2	3	4 or more
1	46	15	14	25
2	12	20	23	45
3	8	24	22	46

TABLE 6

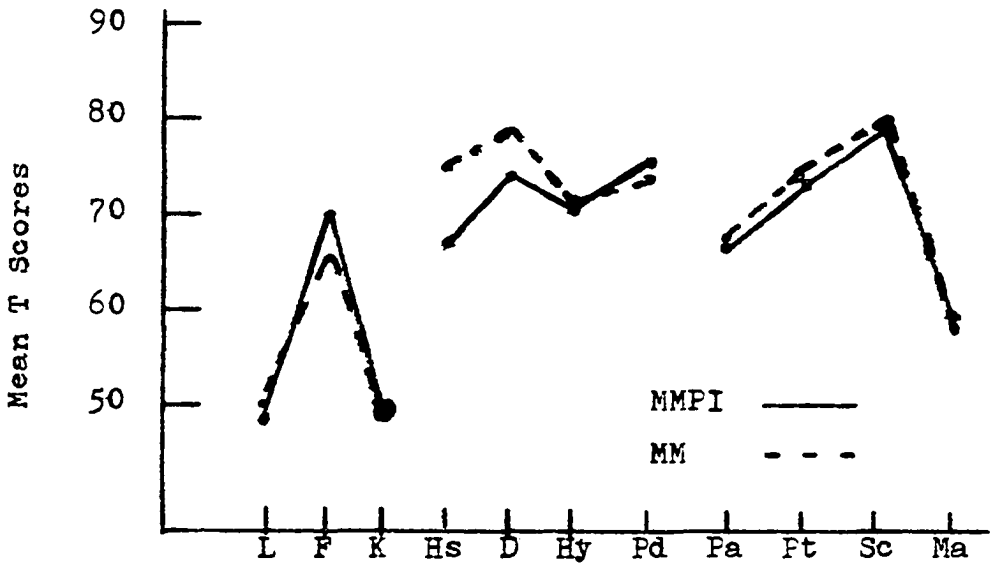
Comparison of the MMPI and the Mini-Mult with Respect to the Ordinal Position of the Three Clinical Scales Highest in Rank for Males

Rank on MMPI	Rank on Mini-Mult			
	1	2	3	4 or more
1	26	8	5	11
2	5	13	10	22
3	4	12	10	24

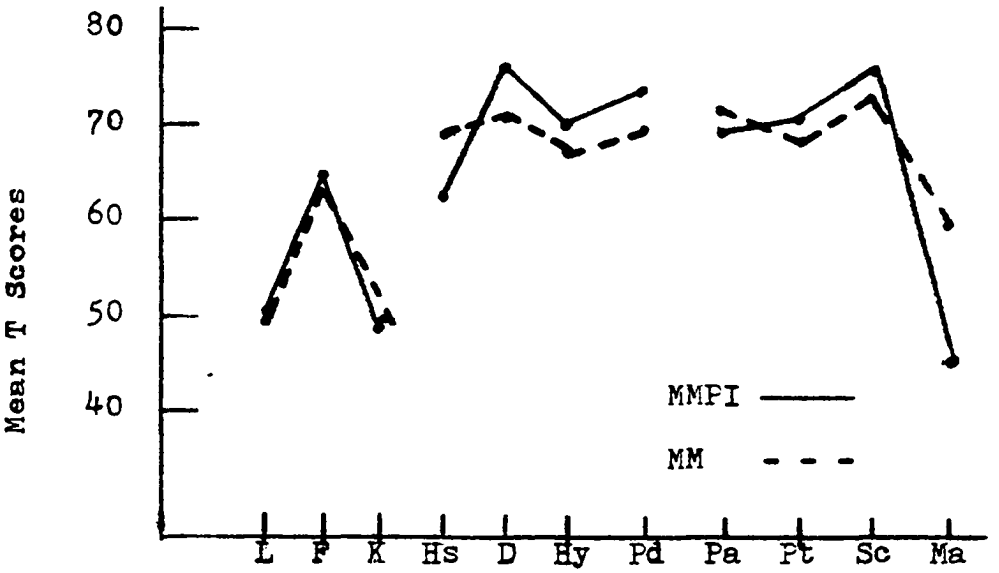
TABLE 7

Comparison of the MMPI and the Mini-Mult with Respect to the Ordinal Position of the Three Clinical Scales Highest in Rank for Females

Rank on MMPI	Rank on Mini-Mult			
	1	2	3	4 or more
1	20	7	9	14
2	7	7	13	23
3	4	12	12	22



Mean T Scores of Males
for the Standard MMPI
and the Mini-Mult



Mean T Scores of Females
for the Standard MMPI
and the Mini-Mult

DISCUSSION

Considering the popular concept that error should be kept to a minimum, the use of the Mini-Mult will not be justified until the accuracy of its prediction of the MMPI is established with a great degree of confidence.

Let us first consider the range of product-moment correlations. In Kincannon's comparison of the standard MMPI and the Mini-Mult (S_1M_1), the correlations ranged from .80 to .96 with a median of .87. The adult outpatient psychiatric clinic from which the files for this study were obtained, was the population from which a sample was selected by Gerald Hartman for a study comparing the MMPI and the Mini-Mult. In his study, correlations for the standard MMPI and the Mini-Mult extracted from the MMPI answer sheets (MM_2) ranged from .66 to .89 with a median of .83. Correlations for this study ranged from .26 to .84 with a median of .75. Although this range is considerably broader than those obtained in the above two studies, the results are similar in all cases. However, the median obtained in this study is considerably below the median obtained in the other studies, see Appendix A. When the male and female groups are considered separately, the results are slightly different. For the male group, the correlations ranged

from .13 to .85 with a median of .77. The Hs scale for this group was not significant and the Hy scale was significant only at the .10 level. The correlations obtained for the female group ranged from .33 to .85 with a median of .66. All scales for this group were significant ($p<.01$) except for scale Hs which is significant at the .02 level. However, the median for this group is slightly lower than the medians for either the total group or the male group.

Next consider the mean and standard deviations obtained in this study and those obtained by Kincannon in his S_1M_1 comparison and Hartman in his MMPI and MM_2 comparison. For the total group in the present study, the standard deviations for comparable scales were lower on the Mini-Mult than on the MMPI. The standard deviation was greater on the Mini-Mult than on the MMPI in only two cases, on scale L for the male group and scale Pd for the female group. In Kincannon's comparison, the standard deviation was lower for the Mini-Mult than for the MMPI for all scales. Hartman obtained only one case, scale Pt, for his comparison, where the standard deviation was higher for the Mini-Mult than for the MMPI.

The next point to consider is the mean differences for comparable scales obtained in these three studies. Kincannon's study revealed significant differences between the means for scales F, Hs, and Ma in his S_1M_1 compari-

son. He attributed the differences for scales F and Ma to the tendency of the Mini-Mult to underestimate extreme scores for these scales. The difference for scale Hs, he indicated, was probably reflected in sampling error. Hartman obtained significant differences between the means for scales F, K, Pd, and Pa ($p<.01$) for his MMPI and MM_2 comparison. The differences for scales F and Pa were attributed to the tendency of the Mini-Mult to underestimate the scale scores for these scales. He attributed the difference for scales K and Pd to the tendency of the Mini-Mult to overestimate scale scores for these scales. In the present study, significant differences were found for scales F, K, Hs, Pa, and Pt for the total sample ($p<.01$). At the .05 level of significance, the mean difference for scale Pd was also significant. Considering the scales for which mean differences were found, the results of this study are quite similar to the results of Hartman's study. However, when the reason for these mean differences are considered, the only similarity found was for the F scale. For this scale, the mean difference was attributed to the tendency of the Mini-Mult to underestimate extreme scores for this scale, in both studies. In the present study, differences for scales K, Pd, and Pt were also attributed to a tendency for the Mini-Mult to underestimate extreme scores for these scales. The difference for scales Hs

and Pa reflect a tendency for the Mini-Mult to overestimate extreme scores for these scales. Similar results were found for the male group which showed significant mean differences for scales F and Hs ($p<.01$) and D ($p<.05$). As in the total group, the difference for scale F was attributed to a tendency for the Mini-Mult to underestimate the extreme scores for that scale; and the difference for scale Hs was attributed to a tendency for extreme scores to be overestimated. The difference for scale D, which was not found for the total group, was attributed to a tendency for the Mini-Mult to overestimate extremes for these scales. Results for the female group were somewhat similar to the male group and quite similar to the total group. With $p<.01$, significant mean differences were found for scales K, Hs, D, Pt, and Ma for the female group. Further, differences for scales F and Pd were significant with $p<.05$ for this group. The differences for scales F, K, Pd, and Pt were attributed to the tendency for the Mini-Mult to underestimate extreme scores, for this group as well as for the total group. In addition to the difference for scale Hs, which was attributed to the tendency for the Mini-Mult to overestimate the extreme scores for the total and male groups, the mean difference for scale Ma was found to be significant for the female group and this difference was also attributed to a tendency for overestimation of ex-

treme scores. A significant mean difference was found for scale D in both male and female groups but not in the total group. However, unlike the reason for the difference reflected by the male group, the difference for scale D for the female group was attributed to the tendency for the Mini-Mult to overestimate the extreme scores. In view of these results, it is apparent that the original hypothesis, that there are no statistically significant differences between the corresponding scale scores of the MMPI and the Mini-Mult extracted from the MMPI answer sheets, must be rejected.

One method of studying the degree of correspondence between validity scales of the MMPI and the Mini-Mult was presented by Armentrout and Rouzer (1970). The results they obtained by evaluating profiles as invalid when either scale L, F, or K was equal to or above a T score of 70, were slightly higher than the results obtained in this study. Using this method of classification, their study found that, for the total group, the Mini-Mult misclassified 26% of the profiles as to validity. Using the same method of classification for this study, the Mini-Mult misclassified 21% of the profiles for the total group as to validity. Further analysis indicated that the Mini-Mult misclassified 24% as to validity for the male group and 18% for the female group. Revaluating profiles as invalid when either scale L was equal to

or above a T score of 60, or scale F was equal to or greater than a T score of 80, and with K unrestricted, Armentrout and Rouzer reported that the Mini-Mult misclassified a similarly high proportion of profiles as to validity. Applying this second method of classification to the present study, the Mini-Mult again misclassified 21% of the profiles for the total group, 24% of the profiles for the male group and 18% of the profiles for the female group as to validity.

When the three point code is considered, there is evidence of appreciable instability. The evidence obtained in this study is similar to the evidence obtained by Lichtenstein and Bryan in their study of test-retest stability of the MMPI. In their study, the probability that the top ranked score would remain among the top three on retesting was 87%. This probability was slightly lower for the present study, being 75% for the total group, 78% for the male group, and 72% for the female group. However, the probability that second and third ranked scores would fall outside the three point code was 37% and 39% respectively, as evidenced by their study (1966). The slightly higher results of this study showed a probability that the second and third ranked score would fall outside the three point code 45% and 46% respectively, for the total group. Equivalent probabilities occurred in both male and female groups.

This evidence indicates that clinical judgment based on information obtained from the Mini-Mult is likely to result in a high rate of classification errors.

Another method of evaluating profile correspondence was presented by Armentrout and Rouzer in 1970. They studied similarity in elevation by comparing the occurrence of clinical scales above or below a T score of 70 for profile pairs. The results they obtained were consistently lower than the results obtained in this study. Their results indicated that the Mini-Mult misclassified 8% of the cases for the total group, 14% for the male group, and 4% for the female group. Further, only 10% of the profile pairs for the total group, 8% for the males, and 20% for the females, had the same scales above a T score of 70 for both tests. The results of this study indicated that the Mini-Mult misclassified 15% of the cases for the total group, 14% for the male group, and 16% for the female group. Also, only 12% of the profile pairs for the total group, 16% for the males, and 8% for the females, had the same clinical scales above 70 on both tests.

Although the amount of error acceptable for practical purposes is a matter of judgment, errors should be kept to a minimum. The results of this study showed statistical significance for correlations between comparable scales on the MMPI and the Mini-Mult. Signi-

ficant differences between the means of comparable scales were found in 5 of the 11 scales. Also, a variable and generally low degree of profile correspondence was obtained by three different measures in this study. Therefore, the correlational results of this study, which support Kincannon's results, suggest that, whenever use of the MMPI is not possible, the Mini-Mult may be used. However, other results of this study suggest that, whenever the Mini-Mult is used, considerable caution should be exercised in extrapolating the results.

APPENDIX A

Product-moment correlations between K Corrected Raw Scores from the MMPI and the extracted Mini-Mult: A Comparison of Three Studies

APPENDIX A

Product-moment Correlations between K Corrected Raw Scores from the MMPI and the Extracted Mini-Mult: A Comparison of Three Studies

Scale	Present	Kincannon	Hartman
L	.76	.82	.74
F	.80	.87	.83
K	.84	.93	.88
Hs	.26	.93	.87
D	.78	.91	.89
Hy	.48	.82	.82
Pd	.74	.90	.82
Pa	.75	.84	.85
Pt	.82	.96	.87
Sc	.67	.90	.79
Ma	.55	.80	.66
	Mdn. = .75	Mdn. = .87	Mdn. = .83

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