A COMPARISON OF THE MMPI, FASCHINGBAUER'S ABBREVIATED MMPI, AND THE MMPI-168 WITH SELECTED MEDICAL PATIENTS AND MEDICAL SCHOOL APPLICANTS

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The Minnesota Multiphasic Personality Inventory (MMPI) is often used for evaluating candidates for gastric bypass surgery, chronic pain patients, head trauma victims, and medical school applicants. However, due to the considerable time involved in completing and scoring the standard MMPI, researchers have attempted to devise short versions of this instrument to reduce the time required while providing similar results. In recent years, the Faschingbauer Abbreviated MMPI (FAM) and the MMPI-168 have been proposed as viable MMPI substitutes. The present study examined the comparability between profiles using these short versions of the MMPI with the patterns obtained using the entire measure. Participants consisted of equal numbers of gastric bypass candidates, chronic pain patients, head trauma victims, and medical school applicants. Scores on the FAM tended to be similar to scores on the complete MMPI for gastric bypass, chronic pain and head trauma patients. In contrast, the MMPI-168 yielded profiles which were similar to complete MMPI profiles with chronic pain and head trauma patients.
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A COMPARISON OF THE MMPI, FASCHINGBAUER'S ABBREVIATED MMPI, AND THE MMPI-168 WITH SELECTED MEDICAL PATIENTS AND MEDICAL SCHOOL APPLICANTS

The widespread use of the MMPI (Minnesota Multiphasic Personality Inventory) in clinical research and practice has led to the development of an extensive body of literature regarding its utility. In fact, empirical data based on the MMPI now exceeds that for any other psychological test and, coupled with that, numerous additional papers are published each year further examining the utility and versatility of this measure. The variety of possible uses for this instrument allows for provision of useful information in many professional settings, including medical, counseling, educational, and industrial, making it one of the most popular and widely used psychological tests (Newmark, Newmark, & Faschingbauer, 1974; Poythress & Blaney, 1978).

Despite its value as an assessment tool, the length of the standard MMPI form often prohibits its use in clinical and research settings (Faschingbauer, 1974; Newmark, Newmark, & Faschingbauer, 1974; Edinger, Kendall & Hooks, 1976). Because of the MMPI's length, when repeated or serial measures are desired the time requirement and the possibility of initiating oppositional behavior sometimes mitigate against its use. Another difficulty is that when rapid completion is required
and cannot be accomplished due to psychiatric, physical, educational, and/or sociocultural handicaps, the MMPI may often be eliminated from a test battery. Even if a persistent examiner is able to obtain a completed MMPI answer sheet, completion may require multiple assessment sessions with the inherent possibility that patient responses could reflect situational variables. In a severely disorganized patient, the MMPI cannot usually be administered until there has been some relief of the patient's distress. In such a case, the MMPI profile obtained after professional intervention may not correspond with the patient's condition on admission and, thereby, occlude diagnostic and treatment issues. In addition, the time required for completion of the MMPI may preclude the gathering of other corroborative information which could increase its predictive power. Because of these primarily practical limitations inherent to the MMPI, several theorists have recommended the development of a brief version of the MMPI.

One of the chief objections to the development of abbreviated MMPI's concerns the reliability of a shorter measure. Generally speaking, with all other variables held constant, the longer a test is, the more reliable it should be (Guilford, 1954). In the longer test, nonsystematic errors should cancel each other more completely than in the shorter test. An importance of this theory is the phrase "all other things held constant". In actual practice, this
would seldom, if ever, prove to be the case (Faschingbauer, 1978). For example, the effects of fatigue and declining motivation might be expected to be greater on the standard MMPI than on a short form, which may be completed in one-third to one-half the time required for the MMPI.

The Spearman-Brown Formula may be used to predict changes in test reliability as a function of test length. Predicted reliabilities for shortened MMPI scales based on this formula were once considered to be too low to consider development of a shorter instrument. For example, when the F-scale was reduced from the usual sixty-four to fourteen items, the Spearman-Brown reliability estimate was 0.47 (Kincannon, 1968). This is a considerable decrease in reliability from the 0.73 to 0.92 split-half reliabilities presented for the full F-scale by Dahlstrom and Welsh (1960).

However, the Spearman-Brown Formula makes theoretical assumptions that may not apply to the development of recent short forms. The first of these assumptions is that all test items are equivalent. Several studies have shown the thirteen MMPI scales to be quite heterogeneous (Astin, 1959; Comrey, 1957a, b, c, 1958a, b, c, d, e, f; Comrey & Marggraff, 1958; Gocka & Mees, 1960). Kincannon (1968) has argued that the Spearman-Brown estimates of reliability, based on equivalency of items, may be too low.

A second assumption of the Spearman-Brown Formula is that all deletions of items are made at random. In the
development of the forms considered here, a shorter test form has been developed by systematically deleting items, using both item and factor sampling or by differentially weighting items for scoring. Although theory would predict a loss in reliability, given these assumptions, in producing a short form instrument, there is reason to expect considerably less loss in reliability when a heterogeneous test like the MMPI is systematically shortened (Kincannon, 1968; Faschingbauer, 1968).

It has been argued that the elimination of items from a test instrument has unknown and potentially disadvantageous effects on the item context or question environment (Gough, 1946). For example, a question regarding frequency of headaches may be interpreted differently if asked in the context of general somatic complaints as opposed to a context of neurological symptoms (Faschingbauer, 1976). Studies comparing the booklet form MMPI, with a fixed order of items, with the card form, with a random order of items which varies from one test occasion to the next, have yielded comparable results for the two forms (Rosen, Hales, & Peek, 1958; Wiener, 1947). Subsequent research has supported the contention that contextual effects are minimal for MMPI response patterns (Faschingbauer, 1974; Lieberman, 1968; Lieberman & Walters, 1968; Perkins & Goldberg, 1964).

Early Short Forms

Researchers have argued that the possibility of designing an adequate short form of the MMPI may be more feasible than
originally anticipated, and in recent years have attempted to provide a shortened version of the MMPI which would resolve some of the difficulties associated with its length while retaining the utility, reliability, and validity of the original long form instrument. The first of these short forms to be introduced was Kincannon's (1968) Mini-Mult. A number of studies indicate that, while the Mini-Mult profiles may be valuable for group studies, individual profiles often fail to predict MMPI validity, code-type, and diagnostic classification (Armentrout, 1970; Armentrout & Rouzer, 1970; Hartford, Lubetkin, & Alport, 1972; Percell & Delk, 1973; Platt & Scura, 1972). More recently, it has been stated that the Mini-Mult has no utility for any type of patient or normal sample (Newmark, 1981).

The Midi-Mult, developed by Dean (1972), represents an attempt to improve and correct alleged deficiencies of the Mini-Mult and provide a more useful short form instrument. Indications are that the Midi-Mult may be appropriately used with relatively normal subjects, such as college students. However, its insensitivity to extreme psychopathology makes its use with psychiatric populations seem questionable (Newmark, Cook, & Greer, 1973; Newmark, 1981). Because of the shortcomings noted with both the Mini-Mult and the Midi-Mult and the promise shown by newer short form instruments, they are rarely used today. Hence, they were not considered in the present study.
The MMPI-168 (Overall & Gomez-Mont, 1974) was devised by scoring only the first 168 items of the standard MMPI. A least squares regression method was used to estimate the conventional K-corrected raw scores from the abbreviated version. The authors have presented evidence that most of the reliable variance of the standard MMPI clinical scales is contained in the first 168 items.

Numerous other studies have made further attempts to compare this abbreviated form with the MMPI. Newmark, Newmark, and Cook (1975), using a sample of psychiatric inpatients and Newmark and Raft (1976), using medical outpatients compared raw score means and standard deviations of the two instruments. In the medical patient group paired t tests yielded no significant mean differences for any scale for either males or females. However, the 168 did significantly underestimate scale Si for both sexes in the psychiatric sample.

Correspondence of high-point codes was determined by rank ordering the K-corrected T scores of the clinical scales of each profile and comparing profile pairs. Of the 88 valid profile pairs for psychiatric patients, the MMPI-168 score permitted prediction of the one or two most elevated scales on the MMPI profiles in approximately 75% of the cases. Of the 100 valid profile pairs for medical patients, the MMPI-168 score permitted prediction of the one or two most elevated scales in
approximately 64% of the cases. These results compare favorably with Kincannon's (1968) repeated administration of standard form MMPI's.

Application of the Meehl-Dahlstrom (1960) rules for discriminating psychotic from neurotic profiles yielded a 79% match for psychiatric patients. Henrich's (1964) rules for discriminating character disorders yielded a 67% and 69% match for males and females, respectively. An additional analysis compared the profiles of the forms in terms of consensual diagnosis. Agreement for general diagnostic categories (psychotic, neurotic, personality disorder) was 83% for both sexes, combined.

Newmark and Finch (1976) investigated the diagnostic efficacy of extracted MMPI-168's in a sample of 232 psychiatric inpatients. Each MMPI profile was interpreted independently by two clinical psychologists who were asked to concur on a general diagnosis for each patient. Agreement between the two raters' diagnoses occurred for 91% of the profiles. Each rater obtained perfect reliability when 10 profiles were repeated as an assessment of rater reliability.

In a 1976 investigation, Newmark, Falk, and Finch compared the interpretive accuracy of the MMPI-168 and the standard MMPI with a sample of psychiatric inpatients. The primary investigator (CSN) interpreted each profile. One week later, the primary care psychiatric team was requested to evaluate the accuracy of each interpretation for each
patient on a five-point scale. Based on a comparison of the means and standard deviations obtained, interpretation ratings on the standard MMPI were not significantly different from ratings obtained from the MMPI-168.

Not all authors have found the MMPI-168 to be an acceptable instrument, however. Hoffman and Butcher (1975) compared the MMPI-168 and standard MMPI with a sample of 1028 psychiatric patients. While short-to-standard form correlations were generally high, the MMPI-168 accurately predicted code-type in only 40.4% of the cases. These authors concluded that there is insufficient evidence to advocate the clinical use of the MMPI-168.

Svanum, Lantz, Lauer, Wampler, and Madura (1981) compared MMPI-168 and standard MMPI profiles of candidates for intestinal bypass surgery. They found that group profiles were similar and scale correlations were uniformly high. However, analyses of individual profile pairs revealed high variability and considerable differences between profile pairs.

**Faschingbauer Abbreviated MMPI (FAM)**

The Faschingbauer Abbreviated MMPI or FAM (Faschingbauer, 1973), is a 166-item short form MMPI instrument developed by a cluster analysis technique. Studies have suggested that it may be an acceptable substitute for the MMPI. For example, Faschingbauer (1973) found significant correlations between the FAM and the full MMPI with both college students and psychiatric patients. Using correlations between the scales
as the research criteria, the FAM has been shown to have utility with psychiatric inpatients (Newmark, Cook, Clarke, & Faschingbauer, 1973), prison inmates, psychiatric outpatients (Edinger, Kendall, & Hooks, 1976), medical patients (Freeman, Caslyn, & O'Leary, 1977), and patients referred for back pain (Turner & McCreary, 1978). According to Faschingbauer (1978), correlations between the MMPI and the extracted FAM have averaged at least as high as the 0.85 correlation coefficient originally anticipated.

In an examination of "clinical validity", Faschingbauer (1974), in three separate samples, reported that code-type correspondence between FAM predicted and actual MMPI profiles was comparable to or better than those for an MMPI retest sample and other short forms (Mini-Mult, Midi-Mult, and Hugo). In addition, FAM's ability to correctly classify profiles as neurotic, psychotic, character disorder, or indeterminate compared favorably or exceeded that of a test-retest MMPI. The FAM exceeded the Midi-Mult and Hugo in correctly classifying the profiles of the 200 subjects and was equal to the Mini-Mult in the number of correct classifications.

Poythress and Blaney (1978) compared q-sort descriptions based on the standard profile and the FAM as a measure of interpretive similarity between the long form and the short form. Their results suggest that the FAM may be an acceptable substitute for the full MMPI for clinical purposes. Another study by Newmark, Ziff, Finch & Kendall (1978) reported that
the empirical validity of the FAM seems comparable to the standard form MMPI when compared with a direct measure of psychopathology (Brief Psychiatric Rating Scale). The FAM has also been shown to discriminate between "functional" and "organic" back pain patients, as judged by independent ratings of physicians which Turner and McCreary (1978) suggest warrants further attention to its use in such a setting. In a 1978 review, Poythress concluded that FAM or MMPI-168 forms should be selected over other short forms and that they seem to provide the most accurate diagnostic and interpretive information.

In contrast to these studies, Hoffman and Butcher (1975) found only a 49.4% rate of predicting 58 MMPI code-types for the FAM. They point out that a number of variables such as age, type and severity of disorder, and sex may influence the relative accuracy of a short form in predicting MMPI full scale scores. These authors concluded that comprehensive standardization and clinical evaluation will be necessary before a short form can be recommended for standard clinical use. It has also been noted (Edinger, Kendall, & Hooks, 1976) that the majority of studies comparing the FAM and MMPI-168 have been with college students and psychiatric patients and the literature reveals little regarding the use of these instruments with other groups. Typically, studies concerning use of the short forms have focused on comparison between them and the full MMPI. This methodological
approach assumes that if correspondence between the two forms is high, the wealth of clinical information accumulated for the standard form may be applicable to and used with the short form scores. Svanum, Lantz, Lauer, Wampler, and Madura (1981) point out the need to further validate such an assumption in various populations.

While most authors have concluded their studies with a blanket statement regarding the appropriateness or inappropriateness of the use of a particular short form, this provides little information for the researcher or clinician. A more fruitful approach may be to specify subject groups for which a particular short form may be considered, rather than assuming generalizability of results from student or psychiatric populations. In this extension of previous studies, the FAM and MMPI-168 will be compared in a population which will include medical school applicants, candidates for intestinal bypass surgery, head trauma patients, and chronic pain patients. These groups are often given the MMPI as a component of screening procedures or as an aid to diagnosis and treatment of the presenting disorders. In groups such as the medical school applicants and bypass candidates, a short form which provides information equivalent to that of the MMPI would allow more time for interviews and other types of assessment to aid in the selection process. Chronic pain and head trauma patients are many times unwilling or
unable to complete the 400 MMPI items. A short form could enhance the probability of obtaining a completed instrument.

One of the difficulties involved in evaluating the available short form research is the varying criteria by which recommendations regarding usage are made. Correlations between individual scales are often cited as a means of comparing the various short forms with the MMPI and some authors have interpreted statistically significant correlations as support for the use of a given form. However, in this case, a correlation between scales may be statistically significant and yet still not account for a sufficient degree of the variance between scores for the instrument to be considered as a substitute. Validation studies, by nature of their purpose, often include a large N which decreases the size of the correlation required for statistical significance. For instance, with a sample of 102 subjects, a correlation of .20 is significant at the .05 level and a correlation of .25 is significant at the .01 level. These correlations, although significant, are not high enough to assume that one score accurately predicts the other (Spence, Cotton, Underwood, & Duncan, 1976).

So, in addition to specifying subject groups for which a particular short form may be considered, it is also necessary to specify what parameters may govern its use. As an example, lower correlations may be tolerable for basic research while a much higher relationship would have to be shown when making
precise clinical decisions. For research, increasing reliabilities much beyond .80 is often wasteful of time and funds. At that level, correlations are attenuated very little by measurement error. To obtain a higher reliability, strenuous efforts at standardization and an increase in the number of items might be required. Thus, a more reliable test might be excessively time-consuming to construct, administer, and score.

In research, the concern is with the size of correlations and differences in group means, for which purposes a reliability of .80 is adequate (Nunnally, 1978).

However, in many applied settings, reliability of .80 is not adequate. When important decisions are made with respect to specific scores, a reliability of .90 is the minimum that is acceptable, and a reliability of .95 is the desirable standard (Nunnally, 1978).

Since the purpose of this study is to determine whether the FAM and MMPI-168 accurately predict the scale scores of the MMPI, Nunnally's .80 and .90 reliability criteria, rather than statistical significance of correlations will be applied for group data, although statistical significance of the correlations will be reported for comparative purposes.

It has also been noted that correlations between short and long forms offer little of value concerning the utility of short form profiles for individual profile interpretation and clinical decision-making (Faschingbauer, 1974; Poythress,
1978). High scale correlations are not sufficient for guaranteeing high hit rates in predicting MMPI code types. The degree to which a short form provides relevant information, permits classification, or facilitates clinical decisions appears to be a more germane test of the utility or practical validity of a short form (Hoffman & Butcher, 1975).

The degree of code-type correspondence between short and long form MMPI's has been compared by some authors in an effort to determine the clinical viability of the shorter instruments (Faschingbauer, 1975; Hoffman & Butcher, 1975; Newmark, Newmark, & Cook, 1975; Newmark & Raft, 1976). Kincannon (1968) found a 64% accuracy of prediction of the one or two highest scales in a test-retest MMPI sample and this figure has been used as a basis for comparing short form predicted and actual MMPI scores (Faschingbauer, 1975; Newmark & Finch, 1976). For the present study, a 64% accuracy in predicting the two highest MMPI scales will be considered as evidence supporting the use of the FAM or MMPI-168.

Although medical use of the MMPI was originally developed as a diagnostic device for use with psychiatric patients, currently, it is also frequently used as a general personality inventory (Neil, 1974). Shortly after publication of the first articles concerning the development and use of the MMPI with psychiatric patients appeared in the literature, McKinle and Hathaway (1943) reported on the utility of the instrument
in general medical practice. In the years since, hundreds of studies have explored MMPI correlates with a variety of disorders, ranging from flat feet (Weiner, 1952) to gastric ulcers (Sullivan & Welsh, 1952).

Although positive results have not always been obtained, the MMPI has been shown to be a useful adjunct in the medical management of some patient groups. One such use is in the discrimination of psychological from physiological components in the disease process and in the detection of malingering and factitious phenomena. In cases where there is shown to be a large psychological component, it has often been found that little improvement in the condition is reported by the patient, regardless of the form of medical treatment. In other cases, psychological characteristics and defenses may actually interfere with the patient's ability to comply with or participate in treatment or patients may simply demand treatment that is not necessary. As will be shown, the MMPI has been, and is currently, used with obese patients seeking surgery, chronic pain patients, and head trauma patients and researchers have reported on MMPI patterns seen in these groups. The information contributed by the MMPI serves as an adjunct to other psychological and medical tests in determining whether medical treatment is indicated (such as in malingering or factitious disorders) the type of treatment indicated, and possible complications of treatment. In
addition, the MMPI may be helpful in distinguishing patients who require psychological treatment instead of, or in addition to, medical treatment.

Although the MMPI has shown utility with these patients and is often (sometimes routinely) a component of the medical work-up of these patients, it is sometimes difficult to administer an instrument the length of the MMPI. Due to their real or imagined disabilities, these patients are sometimes unable to expend the time, effort, and concentration required to complete the MMPI. Additionally, the evaluation process for these patients includes the administration of a variety of extensive procedures and interviews, which can be quite time-consuming. Clinicians would be well-served by an instrument, such as the FAM or MMPI-168 given their shorter administration and scoring times, if the FAM and MMPI-168 profiles are shown to be reliably similar to MMPI's for specific patient groups.

The appropriate evaluation and selection of potential medical students is also an area where personality characteristics are of some concern. In addition to other variables, such as academic ability, information concerning the individual's emotional functioning is an important consideration for acceptance into medical training. The process of medical training can be quite stressful and demanding, both psychologically and physically and the student's ability to cope with these demands is very much related to successful completion of
the degree. In addition, due to the nature of their profession, it is vital that physicians are free of pathology which would interfere with their ability to interact with patients. So, in order to detect personality conflicts which might interfere with either a student's ability to withstand the rigors of medical training or in the effective practice of medicine, measures of personality are used as a component in the selection process. Since the number of applicants for medical school greatly exceeds the number of positions available, it is not feasible to administer full test batteries and extensive interviews to all candidates so screening procedures are used. At the University of Arkansas, for example, the Medical Sciences applicants are scheduled for a brief interview and also administered the MMPI. Those applicants who produce questionably valid or deviant MMPI profiles are required to participate in further interviews and more extensive assessment before being considered for admission. The use of shorter instruments, such as the FAM or MMPI-168, if they are found to accurately replicate the MMPI, could allow more time for the gathering of additional evidence regarding the applicant's suitability for admission.

Purpose of This Study

One purpose of the present study was to compare the MMPI, FAM and MMPI-168 profiles of chronic pain patients, bypass surgery candidates, head trauma patients, and medical students.
A second purpose of this study was to compare the profiles generated in this study with those previously reported for each of the groups. A final purpose was to examine the suitability of the FAM and MMPI-168 as an MMPI substitute, considering the composition of the group being considered and the parameters of use (i.e., for research or clinical purposes, group or individual profiles).

Method

Subjects

Subjects were 75 patients from the Psychiatry Consultation Services of the University of Arkansas for the Medical Sciences. The population sample included 25 patients from each of the following groups: chronic pain patients, candidates for intestinal bypass surgery, and head trauma patients. In addition, the protocols of 25 medical school applicants were included in the analysis. The subjects were selected in order of their appearance at the clinic.

The subjects ranged in age from 16 to 81 years, with a mean age of 32.6 years. Sixty-one percent of the subjects were female and 39% were male. The marital status of the subjects was as follows: 27 were single, 49 were married, 21 were divorced, and 3 were widowed. Socioeconomic status was determined by the occupation and/or income of the head of the household. Seventy percent of the subjects were from middle class households, 24% were from a low socioeconomic
level, and six percent were from upper class households. Fourteen subjects had received previous outpatient psychiatric treatment. The remainder had no previous psychiatric experience.

Procedure

Subjects completed the standard MMPI long-form. From this long form, FAM and MMPI-168 items were extracted and scored. Although the raw score correlations for extracted FAM's have tended to be somewhat higher than the correlations obtained from independent administrations, this has been interpreted as a function of temporal error (Faschingbauer, 1978). In addition, the conversion of raw scores to K-corrected T scores will reduce the correlations somewhat, due to regression to the mean. T scores, rather than raw scores are also used most often in clinical practice.

In order to examine group data, means and standard deviations were computed for the K-corrected T scores for each scale of the three instruments. Paired t tests for related samples and correlations of the scales between each short form and the standard MMPI were computed.

The T scores for each profile were rank ordered from the most elevated to the least elevated. Frequency counts were used to compare: a) the number of times the FAM and MMPI-168 agree with the MMPI that the highest peaks are the same, b) the number of times the FAM and MMPI-168 agree with the MMPI that the two highest peaks are the same, and c) the number of times the FAM and MMPI-168 agree with the MMPI that
the three highest peaks are the same. In addition, the number of times that each short form agreed with the long form that the raw score of scale F was greater than 15 was calculated as a means of comparing profile validity.

Results

Preliminary Analyses

Prior to investigating the comparability of MMPI short and long forms, the validity of participants' test results were examined. Using an F scale score in excess of 15 raw score points as an indicator of questionable validity, the MMPI and FAM differed on the profiles of four individuals. The MMPI indicated one invalid profile which did not appear invalid based on FAM scoring. Three FAM profiles had an F scale which exceeded 15 raw score points while the corresponding MMPI profiles had F scales of less than 15 points.

The MMPI-168 and MMPI disagreed regarding validity on one profile. For one subject the MMPI F scale was greater than 15 points and the MMPI-168 F scale was less than 15 points. There were no MMPI-168 profiles which were scored as invalid with a corresponding valid MMPI profile.

Figures 1, 2, and 3 represent the profiles of each subject group on the MMPI, FAM, and MMPI-168, respectively. The four groups did produce varying profiles on each instrument, indicating the desirability of examining each group separately, in addition to the subject group, as a whole.
Short and Long Form Results for All Participants

The correlations and t test comparisons for all subjects are available in Table 1 (Appendix A) and presented graphically in Figure 4 (Appendix I). Correlations for the FAM ranged from .34 to .91 with an average correlation of .75. All correlations were significant at the .01 level. Results of the t test comparisons revealed five of the FAM scales to be significantly different from the corresponding MMPI scale. The FAM correctly predicted the highest MMPI scale for 39 of the 100 profiles, the two highest for 17, and the three highest for 7 of the total group.

Correlations between the MMPI-168 and MMPI scales ranged from .54 to .90 with an average correlation of .87. All correlations were significant at the .01 level. T tests showed significant differences between the means of the MMPI-168 sample and the MMPI sample for four scales.

The highest scales were the same for 48% of the sample, the first two highest points were the same for 24%, and the first three highest points were the same for 10%.

Short and Long Form Results for Medical School Applicants

The results for the medical school applicants are presented in Table 2 (Appendix B) and Figure 5 (Appendix J). The scale correlations between the FAM and MMPI ranged from .03 to .93, with an average correlation of 60.5. The correlations of scales 5, 7, and 8 failed to reach statistical
significance. Results of the t tests revealed that nine of the thirteen FAM scales were significantly different from the MMPI scales. Twenty-four percent of the FAM profiles had the same high point code as the MMPI profiles, 16% had the same first two high point codes, and 4% had the same first three high point codes.

For the MMPI-168 and standard MMPI, although all correlations were significant at, or beyond the .01 level, the coefficients ranged from .28 to .86 with an average of .60. Further, significant differences were found between the means of the two forms for six of the thirteen scales. Individual profiles shared the same high point codes in the following percentages: highest scale, 28%; two highest scales, 12%; and three highest scales, 8%.

**Short and Long Form Results for Bypass Candidates**

Table 3 (Appendix C) and Figure 6 (Appendix K) present the results for the intestinal bypass candidates. Correlations between the FAM and the MMPI ranged from .34 to .90. The average correlation between scales for this group was .76. Correlations were significant at the .01 level, with the exception of scale five. The means of four scales were found to be significantly different between the two forms. Sixteen percent of the profiles had corresponding high code points and four percent of the profiles had the same two highest code points. None of the FAM profiles matched the MMPI on more than two high code points.
The correlations between the scales of the MMPI-168 and the MMPI ranged from .09 to .92 for the intestinal bypass group. The average correlation was .70. All scales were significantly correlated, except Scale L. One scale was shown, by t-tests, to have significantly different mean scores on the MMPI and the MMPI-168. High point code correspondence was as follows: highest code point, 48%; two highest code points, 28%; and three highest code points, 4%.

Short and Long Form Results for Chronic Pain Patients

The results for patients presenting with chronic pain are summarized in Table 4 (Appendix D) and Figure 7 (Appendix L). The average correlation between the FAM and MMPI scales was .78. The correlations between these two forms ranged from .41 to .92. The correlations between the scales of the FAM and the MMPI for the chronic pain sample were significant at the .01 level, except for Scale 8, which was significant at the .05 level. There were significant differences between the means of two scales. The FAM and MMPI showed corresponding high point codes for 44% of the subjects and 4% of the subjects matched for the two highest scales. There were no subjects that matched on more than two highest scales.

Correlations between the scales of the MMPI-168 and the MMPI ranged from .44 to .89 and the average correlation was .76. Scale correlations were significant at the .01 level, with the exception of Scale 8 which attained a significance
level of .05. There were no significant differences shown between means of the scales. Fifty-two percent of the MMPI-168 profiles had the same highest scale as the corresponding MMPI profile, 12% matched on the two highest scales, and 8% matched on the three highest scales.

Short and Long Form Results for Head Trauma Patients

The results for the head trauma patients are presented in Table 5 (Appendix E) and Figure 8 (Appendix M). The average correlation between the FAM and MMPI scales was .77. The correlations ranged from .64 to .92. All correlations were significant at the .01 level. T test results indicate significant differences between the means of two scales. The percentage of matching high scales was as follows: highest scale, 72%; two highest scales, 44%; and three highest scales, 24%.

The correlations between the scales of the MMPI-168 and the MMPI ranged from .56 to .93, averaging .76. These correlations were significant at the .01 level, with the exception of Scale 8 which attained a significance level of .05. Six of the scales had significant mean differences, according to t tests. Sixty-four percent of the highest scales on the MMPI-168 were also the highest scales on the MMPI. Forty-four percent of the MMPI-168 profiles matched the MMPI for the two highest scales and 20% of the profiles matched for the three highest scales.
The overall major purpose of this study was to explore the comparability of two short form MMPI's, the FAM and the MMPI-168, with the complete MMPI for use with populations common in medical settings. Four subject groups completed the long form of the MMPI. From this long form, FAM and MMPI-168 scores were derived. These three sets of scores were analyzed using correlations and matched group t tests. The four participant groups were medical school applicants, candidates for intestinal bypass surgery, chronic pain patients, and head trauma patients.

Comparability of MMPI and FAM profiles for all Groups

The average FAM and MMPI scale correlation for the combined subject group of .75 fails to meet the average correlation of .85 which was set by Faschingbauer as the normative criteria in the development of the FAM. In addition, 6 of the 13 scales show a correlation of less than the .80 recommended by Nunnally (1978) for basic research and only two scales exceed the minimum of .90 suggested for clinical purposes. The t test comparisons suggest that the FAM does not adequately predict the standard MMPI. In general, the FAM scores tended to overestimate the corresponding MMPI scores with most of the significant differences in the psychotic tetrad, a finding that has also been noted by Faschingbauer (1978).
In regard to high code points, the FAM does not appear to accurately predict the profiles obtained with the MMPI. Newmark (1981) has reported that the FAM has shown some deficiencies in high-point code correspondence with mildly pathological outpatients (in contrast to psychiatric inpatients and normal college students). The deficiency observed in this heterogeneous sample may be related to low levels of pathology in one or more of the subject groups and reflect a particular shortcoming of the FAM in dealing with subtle forms of psychopathology. In any case, the 56% rate of prediction of the one or two highest scales with the FAM fails to meet the 64% criteria suggested by previous research.

The results of this study indicate that, based on correlations between the scales, t test comparisons, and code-point comparison, results obtained using the FAM cannot be considered to be comparable to the results using the full MMPI for either research or clinical purposes for the subject group as a whole.

Comparability of the MMPI and MMPI-168 Profiles for All Groups

The average MMPI and MMPI-168 correlation of .87 for the combined group exceeds the average correlation between the FAM and MMPI. However, seven scales show a correlation less than the chosen criteria of .80 for basic research using correlational data. In addition, the significant differences between the means of four scales indicates the MMPI-168 does
not appear similar enough to the MMPI to advocate its use in research where the concern is differences between group means.

The correlations obtained from this sample do not indicate that the MMPI-168 could be used as an equivalent for the MMPI in a clinical setting, as only one scale meets the .90 criteria. This is confirmed by the comparison of code-types. Although the percentage of identical high point scales between the MMPI-168 and the MMPI exceeds that of the FAM and the MMPI, the MMPI does not appear to be an appropriate measure for making clinical decisions about individual patients or clients based on code-type or actuarial interpretation systems. The highest scales matched for less than 50% of the subject group and when the two highest scales are considered the rate of correspondence is further reduced.

The results of the present study indicate that the scores obtained on the FAM and the MMPI-168 are not equivalent to those obtained with the full MMPI for the subject group as a whole. The low magnitude of the scale correlations and the number of significant differences between corresponding scale means suggest that interpretations or conclusions based on MMPI data regarding groups of subjects using MMPI-168 or FAM scores would not be accurate. In addition, the low correspondence of high code points for both abbreviated instruments must argue against their use as a clinical substitute, either as a screening device or means of personality assessment.
Comparability of MMPI and FAM Profiles for Medical School Applicants

The scale correlations between the FAM and the MMPI for the medical school applicants showed the greatest range for any group. Of the 10 scales that achieved statistical significance, only four scales exceeded the .80 criteria for research. This lack of correspondence between the FAM and the MMPI is also supported by the results of the t test comparisons, with the majority of the means shown to be significantly different. Given this inconsistency between group results, it is not surprising that the individual profiles did not show a high degree of similarity. Although the use of the FAM, as an MMPI substitute, has been advocated by some authors (Faschingbauer, 1978; Newmark, 1981) for normal populations, such as college students, the results of the present study do not support this conclusion.

Comparability of MMPI and MMPI-168 Profiles for Medical School Applicants

Comparisons of the MMPI-168 and the MMPI for the medical school applicants group reveal similar results. Ten scales showed a correlation of less than .80, with no correlation higher than .86 and almost half the scale means were significantly different. Thus, the MMPI-168 does not appear to reliably predict the MMPI scores for this sample. The majority of individual profiles did not match the standard MMPI profile, with regard to highest scales.
The means of the medical school applicants are generally somewhat lower than those reported by Overall and Eiland (1982) in their attempt to establish MMPI-168 norms for medical school applicants. More specifically, in the present study, Scale 5 had a mean T score of 61.12, compared with a score of 70 which has been reported in the previous research. Also, Overall and Eiland's subjects produced a mean T score of 61 on Scale 9 while the subjects in this study had a mean score of 53. This difference could be related to the smaller number of subjects that were employed for the present study and it is not suggested that the current results should be considered as normative for this group. In any case, the group results do not appear to generalize from one group of medical school applicants to another.

Comparability of MMPI and FAM Profiles for Intestinal Bypass Candidates

The majority of the correlations between the FAM and MMPI profiles of the intestinal bypass group approach or exceed Nunally's criteria for correlational research, indicating that the FAM may have some utility for research with bypass candidates, if correlational data only is considered. However, further standardization is required before the FAM could be recommended as a research instrument for this group. Specifically, larger groups of subjects should be studied in order to determine if the correlations from this small sample
are replicated. In addition, those scales that failed to achieve the criteria of .80, particularly Scale 5, must be scrutinized to ascertain the possibility of raising these correlations.

If comparisons between means or clinical interpretation of profiles are to be considered, the FAM appears to be an inadequate substitute for a full MMPI for bypass candidates, due to the number of significantly different means. The difference between the FAM and MMPI means of Scale 5 was 12.58 T score points which could lead to considerable differences of interpretation about the characteristics of an individual or group.

The correspondence between high point codes was lower for this group than for any other group in the study and are too low to be considered clinically significant. The MMPI is often used with candidates for intestinal bypass surgery in order to determine their suitability for the procedure and to detect personality traits which might complicate or interfere with treatment. The results of this study indicate that the FAM does not provide the same clinical information for these patients that the MMPI does and is not interchangeable with the MMPI for making these decisions.

Comparability of MMPI and MMPI-168 Profiles for Intestinal Bypass Candidates

Only four scales of the MMPI-168 and MMPI achieved a correlation greater than .80 for the bypass candidates. The
correlations for this group of bypass candidates tend to be somewhat lower than those obtained by Svanum, Lantz, Lauer, Wampler, and Madura (1981) when studying the MMPI-168 in a similar population. This may be due to the fact that in the Svanum et al. study, correlations were obtained using raw score data, rather than K-corrected T scores. Another difference between the two studies is the considerably larger N(161) used in the previous research effort. Although the effect of these methodological differences is unknown, this disparity of results does indicate the need for further investigation of the MMPI-168 with samples of bypass candidates in order to determine its utility as a group instrument.

In a comparison of individual profile pairs of the bypass candidate group, the MMPI-168 showed a higher percentage of matching high scales with the MMPI than did the FAM. However, the rate of correspondence is still much too low to consider interpretation of MMPI-168 profiles based on data accumulated from the full MMPI instrument.

Comparability of MMPI and FAM Profiles for Chronic Pain Patients

Nine of the 13 correlations between scales of the FAM and the MMPI for the chronic pain sample approach or exceed .80, suggesting that, with some revision and further standardization the FAM may be suitable for correlational research with this group. In addition, the low number of
significantly different means indicates some potential utility for the FAM in chronic pain research when group means are being considered.

However, it appears that the FAM cannot be recommended for use with individual patients. Only two scales attained the .90 minimum criteria suggested for clinical validity (Nunnally, 1978) and there was no scale that reached .95. In addition, individual profiles exhibited a low degree of code-point correspondence when considering the three highest scales of both instruments.

Comparability of MMPI and MMPI-168 Profiles for Chronic Pain Patients

Six MMPI-168 scales exceeded a correlation of .80 with the corresponding MMPI scales and four additional scales are within five points of this criteria. Although the correlations of the MMPI-168 are not sufficient to recommend its use, it appears that further investigation and possible alterations in item selection may produce an instrument which would be suitable for research purposes. In addition, there were no significant differences between the scale means of the MMPI-168 and the MMPI for the chronic pain patients. If this finding is replicated with other groups of chronic pain patients, the MMPI-168 may prove to be a useful alternative to the MMPI for research purposes with this group.

The similarity of group results does not extend to individual profiles, however. Although the MMPI-168 was a
better predictor of MMPI high code points than the FAM, the rate of correspondence was too low to be considered clinically valid.

Comparability of MMPI and FAM Profiles for Head Trauma Patients

Eight FAM scales obtained a correlation near .80 or higher and the moderate correlations of the remaining five scales (.60 or higher) suggests that further standardization efforts may produce a suitable short form instrument for group research with head trauma patients. This is further supported by the t test results.

The individual FAM profiles for the head trauma patients compared favorably with the MMPI profiles. The percentage of matching high code points exceeded that of either short form with any other sample in the study. The similarity of profiles for this subject sample is especially interesting in light of the fact that neurological items from the MMPI do not appear on the FAM. Since it is expected that neurological symptoms might be of special concern with victims of head trauma, it is possible that inclusion of some or all of these items might improve the correspondence of the FAM and MMPI for these patients.

Comparability of MMPI and MMPI-168 Profiles for Head Trauma Patients

Seven scales of the MMPI-168 and MMPI approach or exceed a correlation of .80 and a good number of scales showed no significant differences between means, indicating that the
MMPI-168 might be revised for use with groups of head trauma patients. In addition, there was a high correspondence of high point codes between individual profiles. Thus, the MMPI-168 compares relatively favorably with the MMPI for this group. However, based on the results of this study, the FAM would appear to be superior to the MMPI-168 for potential use with head trauma patients.

A related area of clinical interest when considering the use of the MMPI or MMPI substitutes, particularly for specific groups, is the comparability of the profiles obtained with those reported in the MMPI literature. For this reason, the configuration of the mean MMPI, FAM, and MMPI-168 profile for each group was examined in terms of the similarity or dissimilarity of clinical interpretations based on each profile and also compared with profiles previously reported for each group.

**Configural Comparison of All Forms for All Subjects**

A comparison of plotted profiles of the three instruments for all subjects, indicates that clinical interpretations of the mean profiles would differ. The configuration of scales of the FAM and MMPI is similar for scales one through three. However, the MMPI-168 appears to be more similar to the MMPI for scales five through 0. Thus both the FAM and the MMPI-168 produced different profile configurations than the MMPI, when the mean profile of all subjects is examined. Furthermore,
the highest elevations on the MMPI appear on scales three and one, while scales three and four are the most elevated on the MMPI-168. For purposes of clinical interpretation, particularly with the use of actuarial systems, the relationship between scales must be considered and the configural differences between the scales of the MMPI, FAM, and MMPI-168 would produce different interpretations.

**Configural Comparisons of All Forms for Medical School Applicants**

Examination of the medical school applicant mean profiles on the three instruments reveals configural dissimilarities. In a study of a medical school population, Wood (1980) found all mean scale values to fall within one standard deviation of the general population mean which is consistent with the results on the MMPI and both the shorter forms. However, he also reported peak scores on scales K and 4 for the medical school group. In the present study, scales K and 4 of the MMPI were found to be significantly underestimated by both the FAM and the MMPI-168. Moderate elevations of scales K and 4 may indicate an individual who is well adjusted, self-reliant, individualistic, enthusiastic, and frank (Dahlstrom, Welsh and Dahlstrom, 1972), qualities which would be advantageous to the study and practice of medicine. However, higher elevations of these scales would denote someone who might be described as aggressive, immature, sarcastic, resentful, tending to maintain a facade of adequacy in an exhibitionistic manner.
and denying difficulties to themselves (Dahlstrom, Welsh, & Dahlstrom, 1972). Thus, an underestimation of these scales is a matter of some concern.

Several studies have reported the most common elevations of medical school applicants to be scales 5, 3, 9, and 4 (Golden, Marchionne, & Silver 1967; Schofield & Merwin, 1966; Solkoff & Markowitz, 1967). The mean MMPI profile for the medical school group in this study is consistent with these previous results, having the highest elevations on these scales. However, the FAM and MMPI-168 mean profiles depart from this pattern somewhat. The MMPI-168 mean profile did indicate scales 5, 9, and 4 as being elevated in relation to other scales, but scale 3 was not among the higher scales. Scale 6 was included in the most elevated scales of the MMPI-168. In fact, it was the highest clinical scale with the exception of scale 5, which is primarily a measure of aesthetic interest and culturally stereotypic sex-role behavior. In addition, the mean MMPI-168 scale 6 score was shown to be significantly higher than that of the MMPI when compared by t test.

The FAM mean profile contained scales 5 and 4 in the most elevated scales, in keeping with the current MMPI and previous research. However, scales 3 and 9 do not appear in the highest scales. In fact, scale 9 was the lowest scale on the FAM mean profile and was significantly lower than the mean scale 9 score on the MMPI. Scale 6, which was significantly overestimated,
in comparison with the MMPI scale 6, was second only to scale 5 as the most elevated scale on the FAM mean profile. In addition, scale 8, also significantly overestimated, appears as one of the higher scales on the FAM, but not on the MMPI.

The MMPI is sometimes used with populations, such as these medical school applicants, as one component of a selection process. Individuals who produce abnormal profiles are selected for further interviews and evaluation to determine their suitability for medical education. The lack of correspondence between both FAM and MMPI-168 profiles and full MMPI profiles for the medical school applicant group suggests that the use of either short form in such a context is limited.

**Configural Comparison of All Forms for Bypass Candidates**

The most common use of the MMPI for patients considered for bypass surgery is to screen for emotional disorder which would complicate recovery and post-surgical compliance, and the general rule of thumb is to exercise caution with those patients with any T score greater than 65 (Lundgren, Scott, & Grabski, 1977; Wadden & Lucas, 1980). Previous studies have found that approximately 50% of these patients show significant pathology, as indicated by the MMPI. However, mean profiles do not accurately reflect the level of individual psychological disturbance and tend to show all scales within normal limits (Hutzler, Keen, Molinari, & Carey, 1981). This finding is replicated in the present study. The mean profiles for the
obesity patients within normal limits for all three MMPI instruments. However, individual profiles had at least one scale greater than 65 T in the following percentages: MMPI, 64%; FAM, 88%; MMPI-168, 76%. In addition, to highlighting the differences between mean and individual profiles for this group, these percentages also indicate a tendency for individual MMPI's to reveal less pathology than either of the abbreviated versions.

Hutzler, Keen, Molinary, and Carey (1981) have studied the MMPI profiles of applicants for gastric stapling. These patients, in common with those in the present study, were considered to be morbidly obese, had a long history of various attempts at weight loss, and had requested a surgical procedure to aid in weight reduction. The mean profile of the Hutzler, et al. (1981) patients was shown to have slight elevations on Scales 4 and 9, which was interpreted as a reflection of difficulties with impulse control and conformity. In addition, Scale 5 was depressed in relation to other scales. The mean MMPI profile of the bypass patients in the present study did show the elevation on Scale 4 and a depressed Scale 5. Scale 9 was not elevated.

Although Scale 4 of the FAM mean profile was not statistically different from the MMPI Scale 4, it was not elevated in comparison to other scales as it was on the MMPI in this and previous research. The mean FAM profile significantly underestimated the MMPI Scale 9 and overestimated Scale 5.
Thus the mean FAM profile shows very little configural similarity to the mean MMPI profile for the intestinal bypass patients.

The mean MMPI-168 profile did not differ significantly from the mean MMPI profile on Scales 4, 5, and 0 and appears to be more similar to the MMPI than does the FAM. Although Scale 4 is the most elevated scale, as on the MMPI, it is closely followed by Scale 3, which is significantly higher than on the MMPI. Scale 3 elevations have been shown to be negatively correlated with weight loss in nonsuccessful dieters (McCall, 1980; Wadden & Lucas, 1974), but not specifically with patients requesting surgical intervention.

Configural Comparison of All Forms for Chronic Pain Patients

More than one profile of the "average" chronic pain patient has been presented in the literature, depending on duration of pain, pre-morbid personality traits, secondary gain, and other factors (Brown, 1979; Sternback, 1972). However, a relatively consistent finding has been the presence of the conversion V, a marked elevation on Scales 1, 2, and 3 with Scale 2 appearing lower than Scales 1 and 3 (Adams, Heillbron, Silk, Reider, & Blumer, 1981; Brown, 1979; Havnic, 1951; Timmermans, & Sternback, 1974). This is interpreted as being consistent with some chronic pain patients in that they appear to focus on physical symptoms in order to avoid awareness of depression, which is repressed. They often focus exclusively on a single pain symptom, indicating no other life
problems. This pattern would be consistent with the sample used here since the patients were referred pending a medical intervention for a specific pain problem, although the exact nature of the problem varied.

The mean MMPI profile for the chronic pain sample does reveal a conversion V configuration, which is in agreement with the findings cited previously. In addition, there was an elevation of Scale L, indicating a naive and simplistic denial of common faults and problems, which is also in agreement with previous research involving chronic pain patients (Brown, 1979).

The mean FAM profile appears to be very similar to the mean MMPI profile. In particular, the conversion V appears and there are no significant differences between the elevations of Scales 1, 2, and 3 between the two instruments. It is important that these scales match in both configuration and elevation, as the level of elevation of the V pattern has been shown to have treatment and prognostic value (Leavitt & Garron, 1982; Timmermans & Sternback, 1974).

However, the large clinical (18T) and statistical (p < .004) difference between the means of the L scales of the FAM and MMPI is cause for some concern. The L score for the FAM group falls in the range typical of most MMPI respondents. However, the mean L score for the MMPI group falls into the range of clinically significant scores (Dahlstrom, Welsh, & Dahlstrom, 1972). Elevations of this magnitude are often
associated with hysteroid defensive mechanisms and somatic pre-occupation which is consistent with the 1-3 clinical scale elevations of the mean MMPI profile of the chronic pain sample. In addition, this supports a previous finding by Brown (1979) that the mean L scale scores of chronic pain patients tend to be higher than those of acute pain patients and the normal population. The underestimation of Scale L by the FAM could very well lead to a difference in interpretation of the test profile, particularly in regard to selection of treatment modalities and the prediction of prognosis and response to treatment.

The configuration of mean scales of the MMPI-168 is very similar to that of the MMPI for the chronic pain sample. In fact, clinical interpretations of the two profiles would be essentially the same, providing additional support for the use of the MMPI-168 as a substitute for the MMPI as a group test for research purposes.

It has been demonstrated that group MMPI results for chronic pain samples may reveal very little about actual individual profiles within the group and researchers have advised against using group profiles for individual diagnosis or prediction (Adams, Heilbronn, Silk, Reider, & Blumer, 1981; Goldberg, 1972; McCrea, Turner, & Dawson, 1977). This may account, in part, for the fact that the present study shows a high degree of correspondence between FAM, MMPI-168, and
MMPI mean scale scores for the chronic pain sample, but a poor correspondence of individual profiles.

Configural Comparison of All Forms for Head Trauma Patients

The group mean profiles of the head trauma sample appear to be very similar, clinically. In addition, it has been reported that group profiles of head trauma patients have been found to be reasonably representative of individual profiles (Black, 1974).

Previous studies of the MMPI with this patient group have consistently produced MMPI profiles with primary elevations on the neurotic triad, with occasional secondary elevation of psychotic scales, particularly Scale 8 (Black, 1974; Dikmen & Reitan, 1974; Dikmen & Reitan, 1977; Reitan, 1955). Black (1974) reported Scales 1, 2, and 8 as the most likely to be elevated and related this finding to the symptoms of depression, anxiety, somatic problems, and strange sensory experiences which often accompany head injury.

The group mean MMPI profile of the head trauma sample in the present study is in agreement with the previous studies cited, with elevations of the "neurotic triad" and Scale 8. The mean FAM profile bears a remarkable similarity to the MMPI profile and clinical interpretations of the two profiles and would be essentially the same. When the clinical profile results are considered with the favorable results of the correlations, t tests, and individual profile comparisons,
there appear to be encouraging support for further, more intensive study of the FAM with head trauma patients.

The MMPI-168 group profile is grossly similar to the MMPI profile of the head trauma group. The major difference appears to be in the relationship of Scales 3 and 4. However, this difference is of little significance, clinically. Reading the MMPI as a 2-3-1 profile and the MMPI-168 as an 8-2 profile, as would be indicated by the scale score rankings, the profiles would be interpreted quite similarly. Among the symptoms that are shared by these two groups, clinically, are the following: manifest depression, sleep disturbances, forgetfulness, somatic complaints, dependency conflicts, nausea, vomiting, tension, and slowing of thought processes (Marks, Seeman, & Haller, 1975). Not only are these symptoms common to these particular profile groups, they are also symptoms which are often attributed to the consequences of head trauma. In fact, in the sample reported by Marks, Seeman, and Haller (1975), organic brain syndrome was the diagnosis for 15% of the 8-2 (MMPI-168) sample and for 17% of the 2-3-1 (MMPI) sample.

Summary

It appears from the results of this study that neither the FAM nor the MMPI-168 can be recommended as a substitute for the MMPI for general use. As suggested by Hoffman and Butcher (1975), the nature of the population being examined
produces differential effects on the accuracy of prediction of the short form instruments. In addition, the potential utility of the FAM and MMPI-168 is related to the type of information that is being sought.

This is some evidence that the FAM may be suitable, as a research instrument with intestinal bypass, chronic pain, and head trauma patients. However, before use of the FAM is considered, further standardization with these specific populations will be necessary. Due to the size of the samples in this study, it is suggested that these results may represent an indication of the usefulness of the FAM that requires replication with large numbers of subjects. A researcher wishing to include the FAM as one component of an assessment battery may consider the construction of local norms with the population of interest, as favorable results have been reported with this procedure (Anastasi, 1976; Bennett & Cimbolic, 1976; Faschingbauer & Newmark, 1978). Somewhat relatedly, it may also be possible to improve the relationship between results obtained using the FAM and MMPI long form by increasing the number of items which relate to the scales being considered.

The only group for which the FAM was shown to approach the MMPI in terms of clinical validity was the head trauma patients. As noted previously, the exclusion of neurological items from the FAM may have reduced its accuracy with this population sample, a possibility that may be considered in future research.
The MMPI-168 appears to be potentially useful for research purposes with chronic pain and head trauma patients, based on the results of this study. However, the cautionary note regarding standardization and local norms which were recommended regarding the FAM, apply also to the MMPI-168.

Although the FAM showed greater accuracy of MMPI high code point prediction with the head trauma patients, the rate of prediction of the MMPI-168 was favorable. In addition, the entire MMPI-168 appears in the first portion of the MMPI, rather than being scattered throughout the long form as is the FAM. Thus, if a patient or subject begins an MMPI, but fails to complete it, an MMPI-168 profile may be obtained if the first 168 items are answered.

Although the results of this study suggest some circumstances in which the FAM or MMPI-168 may or may not be appropriate, the execution of the research and interpretation of the results revealed some difficulties in comparing MMPI short forms with the original instrument from which they were derived. The issue of statistical significance and clinical utility is of prime importance here. As has been noted, many of the scales were shown to achieve correlations which while statistically significant do not indicate that the short form could be considered as an alternate form instrument. Since the items from the short forms appear exactly as they do on the MMPI and using the extracted method of scoring, they are answered identically, it is not surprising that the
scales are positively correlated. In fact, in some cases, it is surprising that the correlations are not higher. With the use of the extraction method, scoring errors are random, so it appears that the major source of error is related to the selection of item content. Therefore, when the FAM or MMPI-168 has failed to achieve adequate levels of reliability, it must be concluded that the inadequacy lies with the instrument itself. In addition, there appears to be no particular pattern regarding which scales fail to be adequately correlated, making it difficult to ascertain how the FAM or MMPI-168 might be corrected for general use. It is suggested that in future research, consideration be given to obtaining comparisons of short forms with large numbers of specific demographic groups in order to develop individual norms for each of these instruments, rather than relying on MMPI norms.

In most previous studies, as in the present one, there has generally been greater concordance between group results than individual results when comparing the MMPI with either the FAM or the MMPI-168. While possible explanations and predicted consequences of this finding have varied, it is usually viewed as a flaw in the abbreviated instrument. However, other possibilities remain to be explored. In the present study, for example, the favorable group results for pain patients did not translate into a high level of agreement between individual profiles. However, previous studies have indicated a low correspondence between group and individual
profile patterns of the complete MMPI for chronic pain samples. On the other hand, the group profiles of the head trauma sample were similar and the individual profiles had a relatively high correspondence of high code points. In this case, previous research has found group MMPI profiles to be somewhat representative of individual profiles of head trauma victims. Thus, some conflicting results may be related to characteristic MMPI performances for specific groups or other extraneous variables.

It must be noted, that when any abbreviated test form is shown to be "inadequate", this inadequacy refers only to its ability to predict the scores obtained on the parent form. The FAM and MMPI-168 were developed with the intent of both conserving the time and effort required of the subject and utilizing the considerable data that has been accumulated with the MMPI. However, it has been noted that each short form is a test in its own right and may be validated as such (Greene, 1982). In fact, Newmark (1981) has postulated that when there is disagreement between two instruments the short form may actually be more correct. Both Greene (1982) and Newmark (1981) have suggested that short forms should be empirically validated, using external criteria with different populations in various settings. While the development of independent FAM or MMPI-168 norms would require development of an independent interpretive and research data base and exclude the use of MMPI data, the end result would still be
a shorter personality instrument. As previously noted, there are many reasons why an abbreviated personality instrument is both necessary and desirable.

For the individual clinician, the following alternatives are suggested: a) if interpretations are to be based on data accumulated with the MMPI, an MMPI should be attempted, b) if it is doubtful that an MMPI will be completed, an alternative method of personality assessment should be selected, and c) local norms may be constructed with the population being considered, giving emphasis to the relationship between the FAM or MMPI-168 and an external measure of the criteria of interest. For instance, if the clinician is primarily interested in short form profiles which are associated with a positive response to intestinal bypass procedures, he may construct norms specific to this purpose.

The selection of subjects for this study was on the basis of presentation. The object of this method of selection was to obtain a "typical" clinic sample of persons who were thought to require the administration of an MMPI and to provide for a random and heterogenous sample. Since the University Hospital of the University of Arkansas is the major medical center and the only medical school in the state of Arkansas, it is felt that the sample groups are representative of these patients as a whole, which is a favorable indicator for the generalizability of group results. However, there
were no controls for age, race, or sex. In addition, head trauma patients were assessed on the basis of physician referral. This may indicate that these patients represent those who are presenting particular diagnostic and/or treatment difficulties for the attending physician, rather than the head trauma population as a whole. Because the background of participants were somewhat heterogenous, the generalizability of these results to individual patients or research subjects must be considered to be limited.

Further investigation would be required in order to determine what, if any, effect age, race, sex, and referral criteria has on the relation between MMPI, FAM, and MMPI-168 scores since this was not addressed in the present study. As previously mentioned, another limitation of this study is the small size of each subject group. Due to the size of the groups, it is felt that the findings should not be considered as conclusive. However, the findings do contribute to the growing data base regarding the potential use of short form MMPI's and indicate several areas that would appear to be fruitful for further investigation and application of the two short forms considered.
Appendix A

Table 1

Results For All Subjects

<table>
<thead>
<tr>
<th>Scale</th>
<th>( \frac{\text{MMPI}}{X} ) s.d.</th>
<th>( \frac{\text{FAM}}{X} ) s.d.</th>
<th>( \frac{\text{MMPI-168}}{X} ) s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>52.08 8.04</td>
<td>49.59 8.33 .0001 .85</td>
<td>47.57 4.63 .0001 .54</td>
</tr>
<tr>
<td>F</td>
<td>55.31 10.71</td>
<td>56.46 13.45 .18 .78</td>
<td>56.57 12.16 .07 .83</td>
</tr>
<tr>
<td>K</td>
<td>55.51 10.21</td>
<td>54.49 10.00 .08 .85</td>
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Table 2

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Table 5

Results For Head Trauma Patients

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Appendix F

Figure 1: MMPI Profiles by Subject Group

- ○ Medical School Applicants
- ● Intestinal By-pass Candidates
- △ Chronic Pain Patients
- ▲ Head Trauma Patients
Figure 2: FAM Profiles by Subject Group

- Medical School Applicants
- Intestinal By-pass Candidates
- Chronic Pain Patients
- Head Trauma Patients
Figure 3: MMPI-168 Profiles by Subject Group

- Medical School Applicants
- Intestinal By-pass Candidates
- Chronic Pain Patients
- Head Trauma Patients
Figure 4: MMPI, FAM, and MMPI-168 Profiles for Combined Subject Group
Figure 5: MMPI, FAM, and MMPI-168 Profiles for Medical School Applicants

- MMPI
- FAM
- MMPI-168
Figure 6: MMPI, FAM, and MMPI-168 Profiles for Intestinal By-pass Candidates

- ○ MMPI
- ● FAM
- △ MMPI-168
Figure 7: MMPI, FAM, and MMPI-168 Profiles for Chronic Pain Patients

- O MMPI
- FAM
- MMPI-168
Figure 8: MMPI, FAM, and MMPI-168 Profiles for Head Trauma Patients

- MMPI
- FAM
- MMPI-168
References


Wiener, D. N. (1947). Differences between the individual and group forms of the MMPI. *Journal of Consulting Psychology, 11*, 104-106.
