

THE PREDICTIVE VALIDITY OF MMPI SUBTLE
AND OBVIOUS ITEMS UNDER HONEST AND
EXAGGERATED RESPONSE CONDITIONS
IN A CLINICAL POPULATION

By

DONAL E. BRANTLEY

Bachelor of Science
The University of Texas
Arlington, Texas
1978

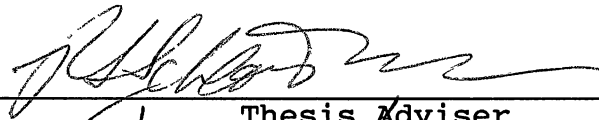
Master of Science
Oklahoma State University
Stillwater, Oklahoma
1982

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
July, 1991

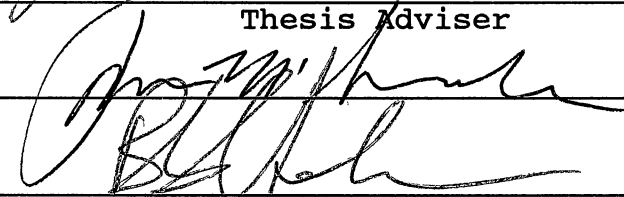
Thesis
1991D
B821P
cop.2

THE PREDICTIVE VALIDITY OF MMPI SUBTLE
AND OBVIOUS ITEMS UNDER HONEST AND
EXAGGERATED RESPONSE CONDITIONS
IN A CLINICAL POPULATION

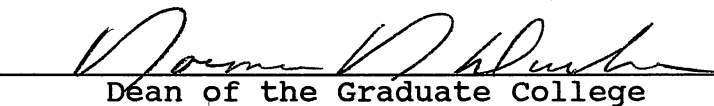
Thesis Approved:



Thesis Adviser



H. Stephen Caldwell, Ph.D.



Dean of the Graduate College

PREFACE

This study is concerned with the relative predictive validity of subtle and obvious items on the MMPI (MMPI-2). Of primary interest is whether the subtle items contribute to the predictive validity of the MMPI under either honest or exaggerated response conditions. Ratings of subjects on the Brief Psychiatric Rating Scale (BPRS) are employed as criterion against which MMPI-2 subtle and obvious scores are compared. Correlational procedures are utilized to measure the strength of relationship between MMPI-2 predictor scores and BPRS criterion measures.

I would like to express my sincere appreciation to Dr. Robert Schlottmann, my major advisor, for his patience, support, and guidance throughout this study. I also appreciate the assistance of my other committee members, Dr. Stephen Caldwell, Dr. Robert Helm, and Dr. James Seals.

I would also like to express my thanks to Dr. Jeffrey Burke for assisting me with my subject populations, to Ms. Brenda Ingram, Ms. Shirley Bealer, and Ms. Olga Swan for their assistance with subject ratings.

My most special thanks and appreciation go to my wife, Debbie, and our sons, Chris and Matthew, who responded to my absences, preoccupation, and frustration with understanding, support, and love.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
II. LITERATURE REVIEW	4
Theoretical Implications of MMPI	
Item Subtlety	4
The Empirical Case	4
The Rational Case	8
Practical Implications of MMPI	
Item Subtlety	11
Item Subtlety and Deceptive Response Sets	11
Item Subtlety and Predictive Validity	21
III. STATEMENT OF THE PROBLEM	34
IV. METHOD	40
Subjects	40
Instruments	41
Minnesota Multiphasic Personality Inventory (MMPI-2)	41
Brief Psychiatric Rating Scale (BPRS)	41
Procedure	45
Data Analysis	47
V. RESULTS	50
Subject Group Differences	50
The Relationship of Subtle and Obvious Items to Psychopathology	56
VI. DISCUSSION	65
Subject Group Differences	66
The Relationship of Subtle and Obvious Items to Psychopathology	68
Summary and Conclusions	72
SELECTED BIBLIOGRAPHY	75
APPENDIX	80

LIST OF TABLES

Table	Page
I. Assignment and Direction of Scoring for BPRS Symptom Constructs by MMPI-2 Scale	43
II. Means, Standard Deviations and Tests for Differences Between Groups on BPRS Variables	51
III. Means, Standard Deviations and Tests for Differences Between Groups on MMPI-2 Variables	53
IV. Zero-Order Correlations and Tests for Differences Between Correlations of MMPI-2 Scores with Scale-Specific BPRS Ratings	57
V. Zero-Order Correlations and Tests for Differences Between Correlations of MMPI-2 Scores with Total BPRS Ratings	58
VI. Multiple and Semi-Partial Correlations of MMPI-2 Scores with Scale-Relevant BPRS Ratings	60
VII. Multiple and Semi-Partial Correlations of MMPI-2 Scores with Total BPRS Ratings	61
VIII. Zero-Order Correlations of Selected MMPI-2 Full-Scale Scores with Relevant BPRS Single-Item Ratings	62
IX. Zero-Order Correlations of MMPI-2 Full-Scale and Obvious and Subtle Subscale Scores with Selected BPRS Item Ratings	64
X. Means and Standard Deviations by Rater and Tests for Differences and Correlations Between Raters on BPRS Variables	81

CHAPTER I

INTRODUCTION

The ability to accurately quantify relevant variables is a pivotal factor in the development of any field of scientific endeavor. Within the field of psychology, this goal is often pursued through the use of self-report instruments (tests) designed to assess or measure individual differences in personality and interests. Psychological researchers and clinical practitioners frequently rely on such measures to both develop and to evaluate their hypotheses and clinical inferences. The Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1967) is undoubtedly the best known instrument of this type. The MMPI has been the most widely used objective measure of psychopathology in both clinical and research applications for several decades (King, 1978; Faschingbauer, 1979) and despite having been developed almost fifty years ago, the MMPI continues to be the most commonly employed standardized psychometric instrument today (Tarter, 1988).

The MMPI was developed using a strictly empirical approach to test construction. Under this strategy, individual items are selected for inclusion in a measure solely on the basis of their ability to differentiate between

subject groups which vary along a particular dimension of interest. Test-item content (and its apparent relatedness to the construct being measured) is generally considered irrelevant so long as an adequate statistical relationship between item response and a criterion can be demonstrated (Meehl, 1945; Berg, 1959). As a result of this approach, the MMPI contains many items which are scored on scales to which they have no obvious logical relationship. These particular items are commonly referred to as "subtle," in contrast to more "obvious" items which possess a relatively clear relationship to the scales they are included on.

Proponents of more rational or construct-relevant methods of test construction have challenged the inclusion of these subtle items on the MMPI. They have claimed that responses to such subtle items are not reliably relevant to the scales involved and therefore do not contribute to the MMPI's predictive validity (Duff, 1965; Jackson, 1971). Supporters of the MMPI, on the other hand, have argued that instruments composed entirely of obvious items are highly susceptible to respondent's efforts to manipulate (fake) test results and that the presence of subtle items on the MMPI may offer potential proof against such deception (Meehl, 1945; Wiener, 1948).

This debate over empirical versus construct approaches to test construction and the relative merits of subtle and obvious test items has raised significant questions regarding the predictive validity of the MMPI as well as its

resistance to deceptive response sets. The present study is designed to further the understanding of these issues through an examination of the predictive validity of both subtle and obvious items on the MMPI with subjects who vary in their motivation to produce deceptive results.

CHAPTER II

LITERATURE REVIEW

Theoretical Implications of MMPI Item Subtlety

The Empirical Case

In the development of the Minnesota Multiphasic Personality Inventory (MMPI: Hathaway & McKinley, 1967), individual test items were assigned to clinical scales solely on the basis of differential endorsement frequencies between "normal" and "clinical" subject groups. This strictly empirical approach to the construction of the MMPI resulted in many items being included on clinical scales to which they have no apparent theoretical connection. These particular items have been referred to as "subtle," in contrast to other items which bear a more "obvious" relationship to psychopathology.

In a classic treatise on the empirical approach to test construction, Meehl (1945) strongly defended the presence of subtle items in personality measures. Meehl argued that an individual's response to an item on a questionnaire was itself a meaningful behavior rather than just a sample or approximation of the actual behavior of interest to the

questionnaire. As a meaningful behavior, the response to the questionnaire item could then be expected to correlate with other behavioral tendencies of the individual. Provided that the behavior (response) elicited by the questionnaire item correlates with the behavior of interest to the questionnaire, then the item will contribute to the questionnaire's overall validity. Meehl contended that the meaning of the response to a questionnaire item was a function of its correlates, which can only be determined through empirical means and are not necessarily deducible from the content of the item (question) itself. Therefore, a questionnaire item need not possess an identifiable rational connection to the dimension of interest to the questionnaire so long as response to the item can be shown by empirical methods to be a reliable correlate of the dimension of interest.

The presence of subtle items on the MMPI and other measures have not only been defended by the empiricists, but they have also been viewed as potentially beneficial. Both Weiner (1948) and McKinley, Hathaway, and Meehl (1948) hypothesized early on that the subtle items on the MMPI may be less susceptible to attempts at deception than are the more obvious items and, therefore, could provide a mechanism for both detecting and buffering the effect of deceptive response sets. Weiner (1948) further suggested that, while the obvious items on the MMPI are important for identifying extremely deviate individuals, the subtle items are

necessary in order to "differentiate among the [personality] characteristics of a normal population" (p. 164).

In order to test and utilize these hypothesized characteristics of subtle items, Weiner and Harmon (1946) developed the first subtle and obvious item scoring keys for the MMPI. They assigned each of the items on the MMPI to either a subtle or obvious scale based upon their own judgement as to whether the item's indication of emotional disturbance was relatively easy to detect (obvious) or relatively difficult to detect (subtle). They found that five scales had sufficient subtle item content to justify separate subtle and obvious subscales: Depression (*D*), Hysteria (*Hy*), Psychopathic Deviate (*Pd*), Paranoia (*Pa*), and Hypomania (*Ma*). Scoring MMPI protocols for these new Subtle (*S*) and Obvious (*O*) subscales, Weiner (1948) found, as expected, that normal subjects endorsed relatively few items on the obvious subscales and considerably more items on the subtle subscales. This tended to support his contention that the obvious items on the MMPI are not very useful in distinguishing differences within a normal population, since obvious items are generally not endorsed by normal subjects at all. Weiner (1948) then attempted to demonstrate the superior ability of subtle items for differentiating within a normal population by comparing subtle and obvious scores between successful and unsuccessful students and trainees. Weiner did not find that subtle scores alone were any more useful in identifying factors which differentiated the two

groups than were obvious scores or total scale scores. However, he did find that the unsuccessful group endorsed significantly more obvious items across all scales than the successful group while the successful group endorsed significantly more subtle items. Weiner (1948) concluded that:

"There is some very limited evidence that high "Lie" scale scores are associated with higher S than O scores, whereas the converse is true for low "Lie" scores; that individuals of high ability have equal O and S scores, while those of low ability have higher O than S scores; that psychologically sophisticated individuals almost completely avoid significant O responses and have much higher S scores; that high MMPI profiles without neuropsychiatric diagnoses show higher S scores and lower O scores than high profiles with neuropsychiatric diagnoses." (p. 169)

Seeman (1952) attempted to provide a more operational definition of item subtlety than had Weiner. He considered item subtlety to represent a continuum with obvious items being those whose psychological significance can be easily recognized by psychologically trained individuals and subtle items being those whose psychological significance cannot be readily identified. Using 15 each of Weiner's subtle and obvious items, Seeman (1952) had clinical psychology students rate the psychological significance of the items. The students were able to readily identify the obvious items but not the subtle items. Even training the students on the

MMPI did not significantly improve their ability to identify the proper scale or direction of scoring for the subtle items (Seeman, 1953). These findings were considered to substantiate Weiner and Harmon's original classification of items.

The Rational Case

Duff (1965) was among the first to directly challenge the empiricist stand regarding the use of subtle items in structured personality inventories. Citing Weiner's (1948) own results as well as those of McCall (1958) and others, Duff argued that the highly subtle items on the MMPI actually decreased the efficiency of the inventory. Duff also questioned the use of a dichotomous distinction between subtle and obvious items. He developed a three point scale for assessing item subtlety based upon the percentage of clinical and counseling psychology students who could correctly identify both the item's relevant MMPI scale and scored response (true or false).

Duff then calculated a discrimination index for each item from three MMPI scales - Hysteria (*Hy*), Psychopathic Deviate (*Pd*), and Schizophrenia (*Sc*), based upon the differential endorsement rate of the item between a relevant clinical group and normal controls. Examining the relationship between his ratings of item subtlety and discrimination, Duff found, as he had predicted, that discrimination power was inversely related to item subtlety. He found that only

40% of the most subtle items in the *Hy* and *Pd* scales demonstrated a discrimination index of 2.0 or higher (the proportion of scored responses for the clinical group exceeded the proportion of scored responses for the normal group by at least two times the standard error of proportion for the normal subject group) while over 90% of the most obvious items had a discrimination index exceeding 2.0. A minimum discrimination index of 2.0 had been reported for every item in the original validation of the MMPI. Duff interpreted this finding to indicate that many of the MMPI subtle items had been included due to sampling error and that "the discrimination of inventory scales could be markedly increased by eliminating from consideration material whose content relevance is extremely obscure" (p. 569).

Duff's (1965) call for greater attention to item content and at least a minimum of face-validity in personality inventory items was forcefully echoed by Douglas Jackson (1971) in his articulation of the internal consistency model of test construction. Refuting the strictly empirical approach, Jackson postulated:

"personality measures will have broad import and substantial construct validity to the extent, and only to the extent, that they are derived from an explicitly formulated, theoretically based definition of a trait."
(p. 232)

Jackson acknowledged the valuable role of Meehl's "radical empiricism" at a time when some questioned whether

personality traits could be measured at all. The empirical approach provided a method for continued development in the field of personality assessment during a period when much of personality theory was in disrepute. Jackson argued that by 1971, however, considerable progress had been made in the development of personality and trait theory and that to now approach measuring a trait of interest by starting with an unselected, heterogeneous group of items, hoping to discover significant correlates of the trait, was highly inefficient. Jackson further argued that psychologists do not typically employ personality measures strictly to predict a specific criterion. They are instead interested in the psychological significance of the characteristics underlying the criterion. He considered empirically derived test items, in the absence of a rational theoretical connection with the trait of interest, to provide no basis for such understanding. Jackson acknowledged the value of empirical methodology in the final selection and validation of items for use in personality inventories, but contended that the initial item pool for a particular scale should be developed such that it "adequately and representatively reflects the content domain or universe of content implied by the definition" (p. 237) of the trait of interest.

Jackson (1971) did not deny the potential benefit of subtlety in items selected for use in personality trait measurement, particularly when assessing traits which may arouse defensiveness in the subject, such as sadistic

tendencies. However, he did insist that a rational theoretical connection between the trait and the subtle item was still important. Since this was not the case for most subtle items included on the MMPI, Jackson concludes:

"It is my hunch that the great majority of subtle items uncovered with the MMPI (Weiner, 1948), and considered a positive virtue by the proponents of empiricism, are present in MMPI scales due to errors in sampling items and subjects in the initial item-selection procedures of the MMPI. Most subtle items have been shown to correlate negatively with the rest of the items contained in a particular MMPI scale, raising the suspicion that they did not belong there in the first place." (p. 234)

Practical Implications of MMPI Item Subtlety

Item Subtlety and Deceptive

Response Sets

Empirical supporters of item subtlety on the MMPI have based much of their argument on the relative ability of subtle items (or the inability of obvious items) to resist the effects of distorted response sets. Research findings to date have tended to support this claim. Studies have repeatedly demonstrated that subjects can successfully modify their responses to MMPI obvious items when given

instructions to respond in a particular fashion, i.e., more are endorsed in a pathological direction in fake-bad scenarios and fewer in fake-good scenarios. Subtle item endorsement rates, however, show either no change between honest and faking conditions or they may demonstrate a paradoxical response wherein more subtle items are endorsed in a pathological direction under fake-good conditions and fewer are endorsed under fake-bad conditions.

Cofer, Chance, and Judson (1949) reported one of the first assessments of subtle items' resistance to distortion when they measured MMPI items' susceptibility to malingering as a function of the frequency of response change under honest, fake-good, and fake-bad instruction sets. They found that responses to subtle items were left unchanged under malingering conditions much more frequently than were responses to obvious items. Similar findings were reported by Gloye and Zimmerman (1967) and Hiner, Ogren, and Baxter (1969) when they asked college students to respond to MMPI items based upon their "real self" and their "ideal self" in counterbalanced order. In both studies, subtle items demonstrated significantly less change in response across conditions than did the obvious items. Posey and Hess (1984, 1985) utilized this model with prison inmates who were instructed to respond to the MMPI as though they were either highly aggressive or highly nonaggressive. Once again, MMPI subtle item responses were significantly different across test conditions on only one of the five MMPI clinical scales

analyzed (scale *D*). Obvious item responses differed significantly across test conditions on all five scales (*D*, *Hy*, *Pd*, *Pa*, & *Ma*).

Wales and Seeman (1968) provide the earliest published report of the sometimes paradoxical effect of deceptive response sets upon MMPI subtle item endorsement. They found that college students, as expected, endorsed fewer obvious items in a pathological direction when instructed to "make a good impression" (fake-good). For subtle items, however, endorsement in a pathological direction actually increased under this instruction relative to honest responding conditions. Similar paradoxical response patterns were found for subtle items with psychiatric inpatients (Wales & Seeman, 1969) and with nursing students (Wales & Seeman, 1972) who were instructed to present their "ideal self" on the MMPI.

Anthony (1971) was the first to demonstrate that this paradoxical response of MMPI subtle items also occurs under fake-bad conditions. He instructed male Air Force personnel referred for psychiatric evaluation to take the MMPI a second time while exaggerating whatever difficulties had brought them to the clinic, and to do so in such a way that the test interpreter would not be able to tell the test was faked. Results indicated that pathological endorsement of obvious items increased significantly from the first MMPI administration to the second (faked) one. Subtle item endorsement, however, actually decreased when the subjects were instructed to exaggerate their difficulties.

In a scale by scale analysis of MMPI subtle and obvious item endorsement under deceptive response sets, Peterson, Clark, and Bennett (1989) found that graduate students in counseling psychology endorsed significantly fewer obvious items in a pathological direction when instructed to fake-good as opposed to a standard instruction condition. This pattern was apparent across all five relevant clinical scales (*D*, *Hy*, *Pd*, *Pa*, & *Ma*). For the most part, subtle item endorsement rates did not change significantly across the fake-good and standard instruction conditions. The one exception is for the Hypomania (*Ma*) scale in which significantly more subtle items were endorsed in a pathological direction under fake-good conditions than under honest conditions. It should be noted that three of the four other scales (*D*, *Hy*, & *Pd*) also showed tendencies toward this same paradoxical response, but they did not reach significance.

Under the fake-bad condition, responses to obvious items were once again consistent, with endorsement in a pathological direction increasing significantly across all relevant scales (as compared to the standard instruction condition). Endorsement patterns for subtle items on two of the MMPI scales, *Pd* and *Pa*, did not differ significantly across the fake-bad and standard instruction conditions. Subtle items on two other scales, *D* and *Hy*, did show a paradoxical decrease in pathological endorsement under the fake-bad condition. However, subtle item endorsement on the Hypomania (*Hy*) scale showed a significant increase under the

fake-bad condition, similar to but much smaller than that seen with the obvious items. Interestingly, Peterson, Clark, and Bennett found that more subtle items were endorsed in a pathological direction on the *Ma* scale under faking conditions, whether faking good or faking bad, than under standard instruction conditions.

One methodological limitation of these studies is their exclusive reliance upon the use of instructional sets to generate fake-good and fake-bad MMPI protocols. It can be argued that these protocols are not necessarily identical to those produced by subjects who are intrinsically motivated to distort responses despite instructions to respond honestly. Taylor (1990) included a comparison of MMPI scale scores and subtle and obvious subscale scores for psychiatric inpatient groups who were thought to differ naturally in their motivation to exaggerate psychopathology on the MMPI. She obtained significant differences between groups on only one MMPI scale (*Pt*) and failed to obtain any significant differences across groups on either subtle or obvious subscale scores. As always, caution must be used in interpreting the absence of significant differences. However, Taylor's results do emphasize that more research is needed on subtle and obvious item endorsement patterns for subject groups having naturally occurring motivation to distort their responses on the MMPI.

For now, it appears that several conclusions can be drawn from these studies. First, it is apparent that MMPI

obvious items are highly susceptible to subjects' deliberate attempts to modify or distort their test results. This appears to be true across all MMPI scales, across varying subject populations, and for both fake-good and fake-bad response set conditions. Second, MMPI subtle items are less susceptible to subjects' attempts to deliberately distort test results than are obvious items. This also appears to be true across relevant scales, across different subject populations, and across both fake-good and fake-bad response sets. Third, MMPI subtle items are not entirely unaffected by subjects' deceptive response sets. The paradoxical effect of deceptive response sets upon subtle item endorsement under certain conditions substantiates this. While the meaning of this paradoxical response is not entirely clear, some have pointed out that it may simply indicate that subtle item endorsement is not only irrelevant to psychopathology but even indicative of healthy adjustment (Peterson, Clark & Bennett, 1989; Wales & Seeman, 1969). This would be consistent with findings that "psychologically minded" persons, and possibly those with higher intellectual ability or achievement, tend to endorse more subtle items and fewer obvious items than individuals who are less psychologically minded (Burkhart, Christian, & Gynther, 1978; Weiner, 1948) and less intellectual or educated (Weiner, 1948).

Clinical practitioners and researchers quickly identified that the differential response of MMPI subtle and obvious items to subjects' efforts to fake test results might

prove useful in detecting such dissimulation (Weiner, 1948; Cofer, Chance, & Judson, 1949). Wales and Seeman (1968) provided one of the first controlled studies which directly examined faking detection strategies involving subtle and obvious item scores. Employing scores for MMPI zero items, a subset of subtle items which are answered in a pathological direction by the majority of normal respondents, with college students instructed to take the MMPI under both honest and fake-good conditions, they found that the difference score between obvious items and zero items ($X-O$) effectively identified 100% of the fake-bad profiles using a cut-off score of -4 (-4 or below identifying a fake-good profile). This same cut-off score, however, inappropriately identified 29% of the honestly completed profiles as attempts to fake-good. For comparison, the use of zero items scores alone correctly identified 84% of the fake-good profiles while mis-identifying 25% of the honest profiles. Cofer's Positive Malingering scale (Mp) correctly identified only 68% of the fake-good profiles while mis-identifying 6% of the honest profiles. Unfortunately, Wales and Seeman did not provide comparisons with more traditional indices of faking, such as the MMPI L and F scales, Gough's (1950) $F-K$ index, or the MMPI Dissimulation Scale (Ds).

Anthony (1971) compared the ability of the O scale (MMPI zero items), X scale (MMPI obvious items), Ds scale, F scale raw score, and $F-K$ index to differentiate between honest and exaggerated (fake-bad) MMPI profiles produced by the

same group of Air Force clinic patients. These same indices were also used to differentiate between exaggerated profiles and presumably honest profiles from other patients which were matched with the exaggerated profiles in terms of high point scales and overall scale elevation. This latter differentiation scenario more closely approximates the type of distinctions that must be made in actual clinical practice. Anthony found that each of the indices tested was able to differentiate successfully between the exaggerated and honest protocols from the same person and that the optimum hit rate in correctly classifying profiles did not differ significantly among indices (*O* scale, 90%; *X* scale, 86%; *Ds* scale, 86%; *F* raw scores, 81%; and *F-K* index, 81%). Differentiation of the exaggerated and matching profiles was more difficult, and although the optimum hit rates for the various indices again did not differ significantly (*F* raw scores, 66%; *Ds* Scale, 64%; *F-K* index, 62%; *X* scale, 59%; and *O* scale, 56%), only the *F* raw scores, *Ds* scale, and *F-K* index successfully differentiated the exaggerated from the matching profiles.

One of the most comprehensive studies of methods for detecting faking on the MMPI was conducted by Grow, McVaugh, and Eno (1980). In the first part of the study, they compared seven different indices for detecting fake-bad profiles and six indices for detecting fake-good profiles using college students who were instructed to either fake-good, fake-bad, or respond honestly on the MMPI. In the second

part of the study, they employed these same indices to classify MMPI profiles from psychiatric inpatient and outpatient clients who had been identified as faking bad, faking good, or responding honestly based upon other known clinical and motivational factors.

In general, they found that the MMPI *F* scale raw score (with 15 or higher defining a fake-bad profile) and the *F-K* index (with 7 or greater defining fake-bad) were the most effective methods of detecting fake-bad profiles with both college students and psychiatric clients. The total raw score for Weiner and Harmon obvious item across scales was somewhat effective in differentiating fake-bad and honest profiles (83% and 77% accuracy with college students and psychiatric clients respectively) when a cut-off score of greater than or equal to 100 was used to define a fake-bad profile. The subtle item raw scores summed across scales were of mixed effectiveness (41% and 79% accuracy) using a cut-off score of less than or equal to 45.

Among the fake-good detection strategies examined, the *F-K* index, using a cutoff of less than or equal to -11, also proved to be the most efficient at differentiating between fake-good and honest profiles with both college students and psychiatric clients. Once again, obvious item scores were only somewhat effective (63% and 85% accuracy) and subtle item scores were of mixed effectiveness (29% and 70% accuracy). In the detection of fake-good profiles, however, the total obvious minus total subtle raw score difference (0-S

raw) does show some potential, at least with psychiatric clients. While O-S raw scores could only accurately classify 69% of the college student profiles, they did properly classify 91% of the psychiatric client profiles. Using a cutoff of less than or equal to -4, the O-S raw score correctly classified 92% of the fake-good profiles while misclassifying 0% of the fake-bad profiles and 23% of the honest profiles. This is still inferior to the *F-K* index with a cutoff of less than or equal to -11, which correctly classified 92% of the fake-good profiles while misclassifying none of the fake-bad or honest profiles.

It appears from these studies that MMPI subtle and obvious items may have some value in the detection of faked profiles. In particular, the obvious minus subtle difference score may be helpful in the detection of fake-good profiles within clinical populations. It does not appear, however, that either obvious, subtle, or obvious minus subtle difference scores offer faking detection abilities any better than that found with the traditional *F* scale or *F-K* index. This does not mean, however, that the examination of subtle and obvious scores and obvious-subtle difference scores might not provide useful information. For example, Greene (1988) selected MMPI profiles of specific codetypes (2-7/7-2, 7-8/8-7, & spike 4) from outpatient clinic files and divided them into three categories (within each codetype) based upon the difference in total obvious and total subtle subscale *T*-scores (O-S). An O-S score of

less than -8 defined a profile as underreporting and an O-S score of greater than +89 defined a profile as overreporting. Profiles with O-S scores between -8 and +89 were defined as standard reporting. Whether these classification labels are accurate or not, given the research reviewed earlier, is debatable, particularly since Greene found that the *F-K* index did not differentiate between these groups at all. Of importance, however, is that the clients who were classified as overreporting according to Greene's O-S criteria stayed in treatment significantly less time than those classified as standard reporters. This was true within both the 2-7/7-2 and the 7-8/8-7 codetypes. It may be that some factor such as psychological mindedness (Burkhart, Gynther & Christian, 1978) more accurately accounts for the treatment differences between Greene's groups rather than tendencies to overreport psychopathology. The high O-S group clients may have been less psychologically minded than the other clients and therefore found counseling less beneficial or desirable. What is apparent, however, is that the use of subtle and obvious item scores provided a clinically meaningful distinction within codetypes which was not otherwise apparent from the standard validity scales.

Item Subtlety and Predictive Validity

The critical question which divides the empirical and rational camps on the issue of subtle items on the MMPI is that of predictive or criterion validity. If MMPI subtle

items are valid predictors of the characteristics which their particular scales are purported to measure, then their apparent resistance to dissimulation may be a significant benefit. However, if MMPI subtle items lack true predictive validity, as some proponents of rational test construction have claimed (Duff, 1965; Jackson, 1971), then their resistance to faking attempts may reflect only this and may be irrelevant to the purpose of the MMPI scales on which they are found.

Duff's (1965) research, discussed earlier, represents one of the first investigations of the relationship between item subtlety and criterion validity. He assigned a subtlety score to each item contained in the MMPI *Hy*, *Pd*, and *Sc* scales based upon judges ability to correctly identify the item's appropriate scale and scored response direction. He then assessed each item's ability to discriminate between normal subjects and appropriate clinical groups. Duff found that the majority of highly subtle items did not adequately discriminate between groups and that, in general, item discrimination decreased as item subtlety increased. The actual congruence between Duff's highly subtle items and Weiner and Harmon's subtle items is not clear, but Duff's findings certainly raise questions regarding the validity of subtle items in general.

Barry Burkhart, Malcolm Gynther, and their colleagues at Auburn University have completed a series of studies designed to determine the relative criterion validity of

subtle, obvious, and neutral items on the MMPI. They developed their own system for classifying items as either subtle, neutral, or obvious based upon college students' ratings of all 566 MMPI items on a five-point subtle-obvious scale (Christian, Burkhart & Gynther, 1978). Using this new item classification scheme, Gynther, Burkhart, and Hovanitz (1979) found that, for college students, both obvious and subtle items on MMPI scale *Pd* correlated significantly with a self-report non-conformity measure of their own design while neutral items did not. Multiple correlation procedures indicated that the majority of variance was accounted for by the obvious items while the subtle items made a smaller, yet significant, independent contribution.

Hovanitz and Gynther (1980), also using college students as subjects, compared the predictive validity of subtle, neutral, and obvious items on the *Ma* scale with a variety of measures including the Sensation Seeking Scale (SSS), an Activity-level Biographic Questionnaire, the Porteus Maze Test, and the Harris and Lingoes (1968) rationally defined *Ma* subscales. Results from this study were mixed. Of the four factors identified for the SSS, the obvious items (*Ma-O*) correlated significantly with only one (Experience Seeking) while the subtle items (*Ma-S*) correlated with a different one (Thrill and Adventure Seeking). The full *Ma* scale correlated significantly with two SSS factors, Experience Seeking and Disinhibition. The Activity-level Biographic Questionnaire was correlated

significantly with only the *Ma-S* subscale and did not correlate with either *Ma-O*, *Ma-N*, or the full *Ma* scale. For the Porteus Maze Test, however, both the time taken to complete the mazes and the total error score were correlated significantly with the *Ma-O* subscale, while neither the *Ma-S*, *Ma-N*, or the full *Ma* scale correlated with either measure. Similar mixed findings were obtained when the *Ma-O*, *Ma-N*, and *Ma-S* subscales were compared with Harris and Lingo's *Ma* subscales. Both the *Ma-O* and *Ma-N* subscales correlated significantly with all four of Harris and Lingo's subscales; however, their correlation with the Imperturbability subscale was in a negative direction. The *Ma-S* subscale correlated slightly with the Psychomotor Acceleration subscale in the same direction as the *Ma-O* and *Ma-N* subscales, yet its correlation with the Imperturbability subscale was strongly positive. Hovanitz and Gynther concluded that the MMPI *Ma* scale is a highly heterogeneous scale and that the subtle and obvious subscales tend to correlate with different aspects of hypomanic behavior.

Turning next to the MMPI *D* scale, Burkhart, Gynther, and Fromuth (1980) compared college students' scores on the *D-O*, *D-N*, and *D-S* subscales, as well as the full *D* scale, with their scores on the Beck Depression Inventory (BDI), the Pleasant Events Schedule (PES), and the Profile of Mood States (POMS). The full *D* scale, as well as the *D-O* and *D-N* subscales, were significantly correlated with each of the criterion measures in the expected direction. The *D-O* and

D-N subscales actually exhibited higher correlations with the BDI and POMS than did the full *D* scale. This was apparently due to the influence of subtle items on the full scale, since *D-S* scores demonstrated a significant negative correlation with both the BDI and the POMS. Thus, in this study, subtle items on the *D* scale actually detracted from the criterion validity of the overall scale.

Again using college students, Hovanitz, Gynther, and Marks (1983) assessed the relations between obvious, neutral, and subtle subscale scores on the MMPI *Pa* scale and criteria that included Mehrabian's Stimulus Screening Scale (MS), Rotter's Interpersonal Trust Scale (ITS), a Paranoia Questionnaire, the Einstellung Test, and a measure of personalization. They found that the full *Pa* scale as well as the *Pa-O* and *Pa-N* subscales correlated significantly with the MS scale while the *Pa-S* subscale did not. Both the *Pa-O* and *Pa-N* subscales correlated with the ITS, in the expected negative direction. However, the full *Pa* scale did not correlate with the ITS. This was undoubtedly due to the influence of a strong positive relationship between the *Pa-S* subscale and the ITS. Both the full *Pa* scale and the *Pa-O* subscale correlated positively with the results from the Paranoia Questionnaire. The *Pa-O* subscale was more strongly related than the full *Pa* scale (including the *Pa-S* items), since the *Pa-S* items themselves exhibited a non-significant negative correlation with the questionnaire results. The *Pa-N* subscale was the only one to demonstrate a significant

correlation (negative) with the Einstellung Test while only the *Pa-S* subscale correlated with a measure of personalization based upon the number of items a subject "personalized" on the Paranoia Questionnaire by qualifying either the question or their answer in some fashion. Thus, as with the *Ma* scale, it appears that the criterion validity of the *Pa-O* and *Pa-S* subscales depends upon the particular criterion being predicted and that, for some criteria, the *Pa-O* subscale is a better predictor than the full *Pa* scale due to the influence of subtle items on the full scale score.

Hovanitz, Gynther, and Green (1985) took a somewhat different approach in order to assess the discriminant validity of the MMPI *Pa* and *Ma* subtle and obvious subscales. They found that *Pa-O* and *Ma-O* subscale scores each correlated with both paranoia and hypomania criteria and therefore had little discriminant validity. The *Pa-S* and *Ma-S* subscales scores, on the other hand, exhibited minimal positive correlations with their respective criteria, but were negatively correlated with non-relevant criteria. Thus, while the full *Pa* and *Ma* scales demonstrated little superiority in direct predictive validity over their obvious item subscales, they did exhibit greater discrimination due primarily to the effect of the subtle items.

The subtle and obvious item validity studies discussed so far are limited by their exclusive use of college students, who are not truly representative of the clinical populations most frequently administered the MMPI in actual

practice. Furthermore, the majority of criterion variables employed in these studies consist of self-report measures containing highly obvious items themselves. Ward (1986) has noted that when the obvious items from the MMPI correlate highly with such obvious criterion measures, "these results record the consistency with which subjects respond to items of similar content, but they reveal little concerning the comparative efficiencies of subtle and obvious items in clinical prediction" (p. 77).

One study which is not subject to these criticisms was conducted by Wrobel and Lachar in 1982. They used two clinical samples, the first consisting of inpatient and outpatient evaluatees at a military medical center and the second consisting of inpatients at a psychiatric teaching hospital. Their criterion measures consisted of factors derived from either an 81-item symptom checklist completed by treatment staff (subject sample one) or from 14 major clinical criteria extracted from medical records (subject sample two). Factor analysis revealed the same four primary factors for each subject group, although the amount of variance accounted for by each factor varied across samples. When full scale scores and the Weiner and Harmon subtle and obvious scores for MMPI scales *D*, *Hy*, *Pd*, *Pa*, and *Ma* were compared for their ability to predict the four derived factors, the full scales obtained 12 (out of 40 possible) significant correlations at the .01 level, the obvious subscales obtained 15 significant correlations, and the subtle

subscales obtained only 6 significant correlations. While only two of the 27 significant correlations obtained for the full scales and the obvious subscales were negative, 5 out of the 6 significant correlations obtained for the subtle subscales were in a negative direction. Wrobel and Lachar concluded that "the obvious MMPI scales of Weiner (1948) do have both content and empirical validity and that the subtle scales do not" (p. 470). They also note that "elevations on the subtle scales are only suggestive of the relative absence of psychopathology on dimensions other than that associated with the comparable standard and obvious scales" (p. 470). Although Wrobel and Lachar do not present their full table of correlations, this latter statement appears to imply that the negative correlations obtained for the subtle items were with generally non-relevant criteria. This would be similar to the findings of Hovanitz, Gynther, and Green (1985) in which *Pa* and *Ma* subtle items added to their respective full scales' discriminant validity through correlating negatively with non-relevant criteria.

Hovanitz and Jordan-Brown (1986) employed psychiatric inpatients in their assessment of the convergent and discriminant validity of the MMPI *D*, *Pd*, *Pa*, and *Ma* scales along with their respective subtle, neutral, and obvious subscales (scored according to Christian, Burkhart, & Gynther, 1979). They found that the *D* scale, *D-0* subscale, and *D-N* subscale correlated significantly with the Beck Depression Inventory (BDI) in the expected positive

direction while the *D-S* subscale correlated significantly with the BDI in a negative direction. Also, the *D* scale with subtle items removed correlated more strongly with the criterion than did the full scale including subtle items. A similar pattern was found for the *Pa* scale, in which the full scale, *Pa-O*, and *Pa-N* were all significantly correlated with Rotter's Interpersonal Trust Scale in the expected negative direction while the *Pa-S* subscale was significantly correlated with Rotter's scale in a positive direction. Once again, the full scale minus subtle items was a better criterion predictor than was the full scale including subtle items. For the *Pd* scale, only the full scale and *Pd-O* subscale were significantly correlated with a nonconformity questionnaire. The *Pd-N* and *Pd-S* subscales were correlated in the same positive direction but at a non-significant level. In this case, the full *Pd* scale, including subtle items, was slightly more effective at predicting the criterion than was the full scale without the subtle items. For the *Ma* scale, the full scale as well as the *Ma-O* and *Ma-N* subscales were significantly correlated with the Sensation Seeking Scales in the expected positive direction. The *Ma-S* subscale also correlated positively with the criterion but failed to reach significance. Little difference was noted in the criterion prediction ability of the full *Ma* scale with or without the subtle items included.

In addition to the self-report measures discussed so far, Hovanitz and Jordan-Brown also employed psychiatric

diagnosis, medications prescribed, and mental status information obtained from patient medical records as criterion measures. They compared scores for the *D* and *Ma* scales, as well as their corresponding subscales across three diagnostic groups, depressive, manic, and other. For the *D* scale, only the full scale and the *D-S* subscale significantly differentiated diagnostic groups. For the *Ma* scale, the full scale, the full scale without subtle items, the *Ma-N* subscale, and the *Ma-S* subscale significantly differentiated diagnoses. Interestingly, neither obvious item subscale was able to differentiate diagnostic groups. For prescribed medications, the MMPI scales *D*, *Pa*, and *Ma* along with their respective subscales were compared. The full *D* scale and the *D-S* subscale were both able to differentiate patients on antidepressants from those receiving other medications while none of the *Pa* scale scores were able to differentiate between medication groups. Only the *Ma* full scale differentiated between the lithium treated patients and those receiving antipsychotic or antidepressant medication. The mental status information was obtained by scoring items on the Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962) as either present or absent based upon a review of the clinical record. Selected items were then combined to provide measures of depression, hostility, paranoia, and hypomania. Correlations between the mental status measures and the MMPI scores were generally low; however, all of the *D* scale scores did correlate significantly with the depression

criterion except for the *D-S* subscale. Similarly, all of the *Pa* scale scores correlated significantly with the paranoia criterion except for the *Pa-N* and *Pa-S* subscales. For the *Pd* scale scores, neither the full scale scores nor any of the subscale scores correlated significantly with hostility criterion, although all of the *D* scale scores except for *D-0* did correlate negatively with this criterion. As for the *Ma* scale scores, only the *Ma-S* subscale managed to correlate with the hypomania criterion. Hovanitz and Jordan-Brown's results, using psychiatric patients and non-self-report criteria, further indicate that the predictive validity of subtle and obvious items depends upon the particular criteria being examined and that the discriminant validity of MMPI subtle items may be superior to that of MMPI obvious items under certain circumstances.

While the overall weight of findings suggests that MMPI obvious items possess greater predictive validity than do subtle items, the subtle items' potential discriminative ability and their ability to predict certain relevant criteria means that they cannot be ruled out altogether. In addition, there remains the question of resistance to deceptive response sets. If subtle items are able to maintain what predictive validity they do possess under conditions where obvious items do not, then their value might be further enhanced. Worthington and Schlottmann (1986) approached this issue using the MMPI *Pd* scale and a new "*PdX*" scale comprised of 21 subtle and 21 obvious items taken from the

Pd scale and other items on the MMPI which had been found to correlate with a nonconformity questionnaire. The obvious and subtle scores from both the *Pd* and *PdX* scales were then correlated with scores on the nonconformity questionnaire obtained from college students under three conditions: honest response, fake good, and fake bad. Worthington and Schlottmann found that both the *PdX* obvious and subtle scores but only the *Pd* subtle scores correlated significantly with the nonconformity questionnaire under honest response conditions. However, none of the *Pd* or *PdX* subscales (subtle or obvious) correlated with the nonconformity measure under either faking condition. While this study did not substantiate the ability of subtle items to resist deceptive response sets, it did provide an example wherein the subtle subscale from the MMPI *Pd* scale provided superior predictive validity than the obvious subscale under honest response conditions.

Using a Veteran's Administration inpatient psychiatric population, Taylor (1990) examined the ability of Weiner and Harmon's subtle and obvious subscales to predict a total pathology score obtained from the Brief Psychiatric Rating Scale (BPRS) for patients classified as either with or without motivation to exaggerate psychopathology based upon financial and benefit information. Taylor employed two psychologists as raters for obtaining BPRS total pathology scores and her results differed across raters. For one rater, no significant relationships were found between BPRS

total pathology scores and any of the subtle and obvious subscale scores for either subject group. For the second rater, the *Pd-O*, *Pa-O*, and *Ma-O* subscales as well as the sum of obvious subscales were all positively correlated with total pathology for the group without motivation to exaggerate. The *Hy-S* subscale and the sum of the subtle subscale scores were both negatively correlated with total pathology for this same group. For the group with motivation to exaggerate, the second rater's total pathology scores were positively correlated with the *Hy-S* and *Pa-S* subscales as well as the sum of the subtle subscales. The results obtained by Taylor's second rater are suggestive that subtle items may actually gain in predictive validity relative to obvious items when subjects are motivated to exaggerate psychopathology (fake-bad); however, the inconsistency in findings across raters preclude any definitive interpretation of these results.

CHAPTER III

STATEMENT OF THE PROBLEM

There continues to be a great deal of debate and disagreement regarding the influence and benefit of subtle items on the MMPI. Considerable evidence has been generated in support of the empiricist contention that obvious items are easily influenced by subjects' desire to present themselves in either a positive or negative manner while subtle items are more resistant to such manipulations (Anthony, 1971; Cofer, Chance, & Judson, 1949; Peterson, Clark, & Bennett, 1989; Wales & Seeman, 1968).

Efforts have been made to utilize the MMPI subtle items' resistance (or paradoxical response) to faking attempts in the detection of invalid profiles. Although the difference between the total obvious score and total subtle score shows some promise in this regard, it still appears less effective than traditional methods such as the *F-K* index for differentiating fake-good, honest, and fake-bad profiles (Anthony, 1971; Grow, McVaugh, & Eno, 1980).

There is also the possibility that the presence of subtle items on the MMPI may provide a buffer which reduces the overall impact of deceptive efforts. Furthermore, the profile of subtle subscales may prove to be a more useful

indicator of true psychopathology than the profile of full scale scores under conditions in which dissimulation is suspected. However, both of these potential benefits depend heavily upon the basic validity of the subtle items in relation to the scales on which they are scored. This is exactly the characteristic which proponents of rational test construction claim that most subtle items are lacking in.

So far, efforts to demonstrate the predictive validity of MMPI subtle items have met with mixed results. It appears that for certain criteria and certain MMPI scales, obvious items are clearly superior predictors while subtle items correlate in a negative direction and actually detract from the overall predictive validity of the full scale (Burkhart, Gynther, & Fromuth, 1980; Duff, 1965). For other criteria and MMPI scale combinations, subtle items may not detract from full scale validity, but they seem to contribute little if anything toward it (Gynther, Burkhart, & Hovanitz, 1979). However, there are still other studies which indicate that, for some criteria, subtle items are actually better predictors than obvious items (Hovanitz & Gynther, 1980; Hovanitz & Jordan-Brown, 1986).

Many of these validity studies employed college students as subjects, and therefore their relevance to actual clinical application of the MMPI may be questionable. However, similar mixed results have been found in studies employing clinical samples. For example, Duff (1965) found that subtle items did not differentiate between patient

groups and normal subjects as well as obvious items. On the other hand, Hovanitz and Jordan-Brown (1986) found that subtle items were more effective at differentiating between patient groups than were obvious items. They also found that subtle items were better predictors of the type of psychotropic medication prescribed for patients (anti-depressants versus anti-psychotics).

Overall, across MMPI scales and across criteria, it appears that obvious items possess greater predictive validity than do subtle items. Of particular interest, however, is what happens to these items' predictive validity when subjects attempt to exaggerate or deny psychopathology on the MMPI. From studies regarding the impact of faking on item endorsement frequencies, most assume that obvious items' predictive validity will suffer under these circumstances. However, subtle item endorsement rates demonstrate little or even paradoxical changes in response to faking efforts. Does this mean that their predictive validity is maintained or even improved under faking conditions? How is the predictive validity of the overall scale effected when obvious and subtle items respond to faking efforts in different ways? Does this serve to buffer the impact of the subject's intended exaggeration or denial of psychopathology?

To date, only two studies have addressed these questions directly and both have produced results which are of limited interpretability. Worthington and Schlottmann

(1986), using the *Pd* scale with college students, found that under honest response conditions the subtle item subscale correlated with a self-report measure of nonconformity while the obvious item subscale did not. However, neither the subtle or the obvious subscale correlated with the same nonconformity measure when subjects were instructed to either fake-good or fake-bad. Taylor (1990) used MMPI obvious and subtle item subscales scores to predict total pathology scores from the Brief Psychiatric Rating Scale (BPRS; Overall and Gorham, 1962) for one group of psychiatric inpatients who were believed to be honestly responding to the MMPI and for another group of patients who were believed to be motivated to exaggerate psychopathology on the MMPI. Taylor found that the MMPI obvious item subscales were the best predictors of BPRS scores for the honest response group while the subtle item subscales were the best predictors for patients who were believed to be exaggerating their psychopathology on the MMPI. Unfortunately, this pattern of results was found with only one of Taylor's two BPRS raters. The second rater's BPRS scores did not correlated significantly with either the subtle or obvious item subscale scores for either patient group. This rater inconsistency seriously limits the significance of Taylor's findings.

The present study was designed as a partial replication of Taylor (1990) with the addition that adequate inter-rater reliability for the BPRS was established prior to the beginning of the study and both raters were asked to complete the

BPRS on each subject in the study. Veteran's Administration psychiatric inpatients, categorized as either motivated to exaggerate psychopathology or not (using the same criteria employed by Taylor), served as subjects for the study.

Where Taylor utilized only the total BPRS score as a gross criterion measure of psychopathology, the present study employed a procedure similar to that of Hovanitz and Jordan-Brown (1986) in which combinations of particular BPRS items were used to provide specific criteria for comparison with corresponding MMPI scales.

The MMPI-2 (Hathaway & McKinley, 1989), rather than the original MMPI, was selected for use in the present study since the MMPI-2 was already in use for clinical purposes at the site of the study. Initial comparison studies indicate that the thirteen basic validity and clinical scales for the MMPI-2 possess adequate continuity with their counterparts from the original MMPI to allow this substitution (Graham, Timbrook, Ben-Porath, & Butcher, 1990). In addition, the subtle and obvious subscales on the MMPI-2 are virtually identical to those developed by Weiner and Harmon for the original MMPI (Graham, 1990).

Of primary interest in the present study was the relative extent to which MMPI subtle and obvious items contributed to the overall prediction of clinical (BPRS) criteria. With subjects who were believed to be without motivation to exaggerate psychopathology on the MMPI, it was expected that, in general, MMPI obvious items scores would exhibit

greater positive correlations with criteria than would MMPI subtle item scores and that subtle items scores would account for little if any unique criterion variance above that accounted for by obvious item scores. For subjects who were presumed to possess motivation to exaggerate psychopathology on the MMPI, no specific prediction was made regarding the relative size of the correlation of subtle and obvious item scores with criteria; however, subtle item scores were expected to account for significant amounts of criterion variance beyond that accounted for by obvious item scores alone. Across subject groups, it was expected that MMPI obvious item scores would exhibit a greater positive correlation with criteria for subjects without motivation to exaggerate psychopathology than for subjects with such motivation. No specific prediction was made regarding differences in the size of the correlation between MMPI subtle item scores and criteria across subject conditions.

CHAPTER IV

METHOD

Subjects

The subjects employed in this study consisted of 40 male psychiatric inpatients from a large southwestern Veteran's Administration Medical Center. Twenty subjects were selected from each patient group, those who were considered to possess motivation to exaggerate psychopathology on the MMPI-2 (Group W) and those who were not considered to possess such motivation (Group WO). Subjects ranged in age from 29 to 65 years with a mean age of 43.98 years. Seven of the subjects were black (17.5 percent) and 33 were caucasian (82.5 percent). Twenty-three of the subjects (13 in Group W and 10 in Group WO) had a primary diagnosis of mood disturbance (depression and/or mania) and seven (3 in Group W and 4 in Group WO) had a primary diagnosis of thought disturbance (schizophrenia, paranoia, or atypical psychosis). The remaining ten subjects (4 in Group W and 6 in Group WO) had some other primary diagnosis such as post-traumatic stress disorder or chemical dependency.

In order to ensure that subjects selected for the study were able to read and comprehend the MMPI-2, patients who

did not possess a high school diploma or general equivalency diploma (GED), who had been diagnosed with an organic disorder, or who were unable to comprehend initial items on the MMPI-2, were excluded from the study. No other criteria were employed for excluding subjects from participation in the study. Education level ranged from a high school diploma (or GED) to a graduate level college degree with a mean education level of 12.68 years.

Instruments

Minnesota Multiphasic Personality

Inventory (MMPI-2)

All 567 items of the MMPI-2 (Hathaway and McKinley, 1989) were administered to each participant via computerized presentation. Scaled scores for each of the thirteen standard MMPI-2 scales (*L, F, K, Hs, D, Hy, Pd, Tf, Pa, Pt, Sc, Ma, & Si*) were calculated for use in assessing clinical differences between subject groups. Of primary interest to the hypotheses of this study were the endorsement frequencies for the subtle and obvious subscales for the *D, Hy, Pd, Pa, and Ma* scales. No specific validity or clinical requirements were placed upon the MMPI-2 profiles and no completed profiles were rejected from the study.

Brief Psychiatric Rating Scale (BPRS)

Originally developed for the assessment of treatment

response in clinical psychopharmacology research, the BPRS has become the most widely used general purpose psychiatric rating scale (Overall, 1988). In its current form, the BPRS consists of 18 symptom constructs. Each construct is rated using a seven-point scale ranging from "not present" to "extremely severe". Hovanitz and Jordan-Brown (1986) used combinations of BPRS symptom constructs from an earlier 16-item version of the BPRS in order to establish independent measures relevant to each of four MMPI scales (*D*, *Pd*, *Pa*, & *Ma*). The five BPRS constructs selected for each MMPI scale were those deemed to be closest to the descriptors listed by Graham (1977) for high point elevations on each of the relevant MMPI scales. The same combinations of BPRS constructs employed by Hovanitz and Jordan-Brown were used in the present study as independent measures of psychopathology against which the predictive validity of the MMPI-2 subtle and obvious subscales could be measured. One variation from the Hovanitz and Jordan-Brown procedure was that one of the symptom constructs added to the BPRS in 1966, "excitement," was used in place of the "mannerisms and posturing" symptom construct used by Hovanitz and Jordan-Brown for assessing mania. This substitution was made due to the obvious relevance of the "excitement" symptom construct to the concept of mania as well as Overall and Gorham's (1962) description of the "mannerisms and posturing" symptom construct as relating to abnormality of movement, not heightened motor activity. Another modification

was that the present study utilized the full rating range (0 = not present to 6 = extremely severe) for BPRS items rather than the dichotomous (0 = not present, 1 = present) rating system employed by Hovanitz and Jordan-Brown. All 18

TABLE I
ASSIGNMENT AND DIRECTION OF SCORING FOR
BPRS SYMPTOM CONSTRUCTS BY MMPI-2 SCALE

MMPI-2 SCALE	BPRS SYMPTOM CONSTRUCTS	SCORED
Depression (<i>D</i>)	Depressive mood	+
	Guilt feelings	+
	Motor retardation	+
	Somatic concern	+
	Tension	+
Psychopathic Deviance (<i>Pd</i>)	Hostility	+
	Uncooperativeness	+
	Guilt feelings	-
	Anxiety	-
	Hallucinatory behavior	-
Paranoia (<i>Pa</i>)	Hallucinatory behavior	+
	Conceptual disorganization	+
	Grandiosity	+
	Unusual thought content	+
	Suspiciousness	+
Hypomania (<i>Ma</i>)	Excitement	+
	Motor retardation	-
	Hallucinatory behavior	+
	Grandiosity	+
	Tension	+
Items used only in the total BPRS score	Emotional withdrawal	
	Mannerisms and posturing	
	Blunted affect	
	Disorientation	

BPRS symptom constructs, their assignment by MMPI-2 scale (if any), as well as the direction of scoring are presented in Table I. The total score for each group of five BPRS symptom constructs, with values ranging from 0 to 30, served as the criterion measure for each of the respective MMPI scales. A total pathology score, ranging from 0 to 108, was calculated by summing the rating score for all 18 BPRS items scored in a positive direction.

BPRS ratings for this study were completed by two experienced psychiatric nurses who had worked with each subject in the inpatient psychiatric setting. In order to establish reliability between the two raters, the symptom construct definitions provided by Overall and Gorham (1962) were reviewed and five test subjects were then rated separately by both raters. Since inter-rater reliability scores (Pearson product-moment correlation coefficients) did not exceed a minimum of .60 for these five subjects, they were excluded from the study. Differences in ratings for these subjects were discussed with the raters in order to minimize any differences in conceptualization of the symptom constructs. The raters then completed ratings on five additional subjects and achieved an overall inter-rater reliability of .62 across all 18 BPRS items, .66 for the depression criterion score, .61 for the psychopathic deviate criterion score, .62 for the paranoia criterion score, and .71 for the hypomania criterion score.

Procedure

Each patient admitted to the inpatient psychiatric ward utilized in this study were reviewed for possible inclusion in the study. Those patients who were female, did not have a high school diploma or GED, or who had been diagnosed with any type of organic brain dysfunction were excluded. The remaining patients who consented to participate in the study were grouped into those presumed to have motivation to overreport psychopathology on the MMPI-2 and those who were presumed to be without such motivation. Patients who met any of the criteria presented below (Taylor, 1990) were assumed to possess motivation to overreport psychopathology. Those who did not meet any of the criteria were assumed to possess no motivation to overreport.

- A. Factors relating to compensation claims for psychiatric disabilities
 1. Patient indicated an intention to file a claim
 2. Patient acknowledged a current pending claim
 3. Patient applied for an increase in current benefits
 4. Patient acknowledged an appeal of a decrease in benefits
 5. Appropriateness of current benefits is being assessed during the hospitalization
- B. Financial factors
 1. Patient is unemployed with no source of income

2. Patient has partial benefits which will increase to 100% during hospitalization

If the applicability of any of these criteria could not be determined through a review of the social history and admitting documentation, then the investigator questioned the patient directly in order to obtain the necessary information. In addition, each patient's subjective rating of his financial status on a five-point scale (1 = no financial problems and 5 = severe financial problems) was also obtained either from the hospital social history or direct questioning.

Once an appropriate patient consented to participate as a subject in the study and answered any questions necessary to complete his classification into one of the two subject groups, he was then oriented to the computer terminal through which the MMPI-2 was to be administered. The investigator monitored each subject's responses to the first five MMPI-2 items and asked the subject to explain his or her rationale for at least two of these responses. Based on this procedure, each subject appeared able to read and comprehend the items from the MMPI-2. Subjects were encouraged to complete the MMPI-2 in one sitting, although they were shown how to log on and off the computer should they need to stop and return to the test at a later time. Some subjects had already completed the MMPI-2 as a part of their clinical evaluation. If the test had been completed less than three weeks earlier, then data from that administration

was utilized in the study rather than requiring the subject to complete the test again. However, the investigator still required that the subject read the first five items from the test and explain his answers to ensure comprehension.

Once a subject had completed the MMPI-2, the two ward nurses who served as raters were each asked to complete an independent BPRS rating form based upon their observations and clinical knowledge of the subject. Each nurse-rater completed ratings on all 40 subjects. Since inter-rater reliability (Pearson product-moment correlation) was deemed adequate across all subjects in the study, only the averages of the two raters' scores for each subject were employed in the study and rater was not included as a factor ($r = .65, .55, .69, .67, \& .56$ for BPRS-D, BPRS-Pd, BPRS-Ma, BPRS-Pa, & BPRS-TOT, respectively; $p < .01$ in each case). Mean comparisons and inter-rater correlations for all BPRS items and scores are presented in Table X (see Appendix).

Data Analysis

The initial set of analyses was aimed at determining differences between subject groups (patients with motivation to exaggerate psychopathology and those without). First, a t -test was planned to examine possible age and education differences between subject groups. If differences were found, then either or both variables would be employed as covariates in subsequent analyses. Next, a t -test was planned to assess mean differences in ratings of financial

status between subject groups. This measure provided an assessment of the effectiveness of the classification criteria used to separate subjects into those with and without motivation to exaggerate psychopathology. Additional *t*-tests examined subject group differences for the remaining dependent variables: BPRS criterion measures for each relevant MMPI-2 scale (BPRS-*D*, BPRS-*Pd*, BPRS-*Pa*, & BPRS-*Ma*) and the total pathology score from the BPRS (BPRS-TOT; *T*-scores for all standard MMPI scales (*L*, *F*, *K*, *Hs*, *D*, *Hy*, *Pd*, *Mf*, *Pa*, *Pt*, *Sc*, *Ma*, & *Si*); *T*-scores for the subtle item subscales for each of the five relevant MMPI-2 scales (*D-S*, *Hy-S*, *Pd-S*, *Pa-S*, & *Ma-S*); and *T*-scores for the obvious item subscales for each of the five relevant MMPI-2 scales (*D-O*, *Hy-O*, *Pd-O*, *Pa-O*, & *Ma-O*). Within these groups of *t*-tests, the overall Type I error rate was controlled through the multistage Bonferroni procedure recommended by Larzelere and Mulaik (1977).

Zero-order Pearson product-moment correlations for MMPI full-scale and subscale (subtle and obvious) *T*-scores with relevant BPRS criterion scores (BPRS-*D*, BPRS-*Pd*, etc.) were calculated to provide an assessment of the strength of relationship between the different MMPI measures and BPRS criteria. Individual *z*-tests (Walker & Lev, 1953, p. 255) were conducted to determine if obvious item subscale scores exhibited a greater positive correlation with criteria for the group without motivation to exaggerate psychopathology than for the group with motivation as predicted. In

addition, individual *t*-tests (Walker & Lev, 1953, p. 256) were completed to test the prediction that obvious item subscale scores would be more positively correlated with criteria than subtle item subscale scores for the group without motivation to exaggerate psychopathology. In order to determine both the unique criterion (BPRS) variance accounted for by each MMPI subtle and obvious subscale and the total criterion variance accounted for using both subtle and obvious subscale scores, corresponding semi-partial and multiple correlations were also calculated. The analyses described thus far were the primary ones planned for testing hypotheses put forth in this study. However, the same zero-order, semi-partial, and multiple correlations and corresponding tests for differences between correlations were also calculated using the total score from the BPRS as the criterion measure for each MMPI full-scale and subscale score. This analysis was included in order to provide data which could be directly compared to that obtained by Taylor (1990).

CHAPTER V

RESULTS

Subject Group Differences

The initial set of analyses was designed to test for differences between subject groups on each of the variables employed in the study. The demographic variables: age, education, and subjective financial status, were examined first. The mean age of the group with motivation to exaggerate psychopathology (Group W) was 41.45 years ($SD = 8.73$). The mean age of the group without motivation to exaggerate psychopathology (Group WO) was 46.50 years ($SD = 8.83$). These means were not significantly different ($t(38) = .1.82, ns$). For education level, Group W had a mean of 12.55 years ($SD = 1.85$) and Group WO had a mean of 12.80 years ($SD = 1.40$). These means were also not significantly different ($t(38) = .48, ns$). Since neither age or education level differed significantly across subject groups, these variables were excluded from further analysis.

On the subjective rating of financial status, Group W obtained a mean rating of 4.05 ($SD = 1.23$). This was significantly higher than the Group WO mean rating of 2.80 ($SD = 1.2; t(38) = 3.25, p < .01$). The rating of financial status

was included as a check on the effectiveness of the subject classification procedures. If the criteria employed to differentiate subject groups were successful, it was expected that Group W members would report greater financial stress than Group WO members. The procedures employed appear to have been effective in this regard. The ratings of financial status were not included in any of the further analyses.

Next, the subject groups were compared on the primary BPRS measures employed in the study. The means, standard deviations, and the results of tests for mean differences for these variables are presented in Table II. As may be seen from this table, Group W tended toward higher scores on

TABLE II
MEANS, STANDARD DEVIATIONS AND TESTS
FOR DIFFERENCES BETWEEN GROUPS
ON BPRS VARIABLES

Dependent Variable	Group				<i>t</i> (38)
	With Motivation		Without Motivation		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
BPRS- <i>D</i>	10.45	5.09	8.38	3.73	1.47
BPRS- <i>Pd</i>	15.90	4.06	16.53	2.78	-0.57
BPRS- <i>Pa</i>	7.13	6.10	5.63	3.93	0.93
BPRS- <i>Ma</i>	12.83	4.40	10.48	3.75	1.02
BPRS-TOT	31.85	11.55	26.48	7.96	1.71

all BPRS measures except for BPRS-Pd; however, none of these differences were statistically significant. These findings indicate that the nurse-raters did not perceive significant differences in psychopathology between the two groups. This is not surprising since the subjects were classified according to their presumed motivation to exaggerate psychopathology, not actual differences in pathology.

Mean comparisons of subject groups on the MMPI-2 variables present a very different picture (see Table III). Among the validity scales, *L* and *K* are significantly higher for Group WO than for Group W. This was due to lower than typical scores on these scales for Group W rather than elevations for Group WO. *F* scale scores, on the other hand, were significantly higher for Group W than for Group WO. This was due to the extremely elevated scores obtained on this scale by Group W subjects. Overall, this pattern of validity scale differences is consistent with expectations based upon the rationale employed in defining subject groups. Group WO presents a non-elevated "inverted V" pattern which has been previously reported for hospitalized patients who do not obtain significant elevations on clinical scales (Marks, Seeman, & Haller, 1974, p. 22). Group W, however, presents an average validity scale pattern highly indicative of a tendency to exaggerate symptomatology. Their "inverted V" pattern, with scale *F* elevated above normal levels and Scales *L* and *K* below normal, suggests that this group tended to deny social virtues while acknowledging

TABLE III
 MEANS, STANDARD DEVIATIONS AND TESTS
 FOR DIFFERENCES BETWEEN GROUPS
 ON MMPI-2 VARIABLES

Dependent Variable	Group				$t(38)^a$
	With Motivation		Without Motivation		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>L</i>	46.65	7.05	55.40	8.58	-3.52*
<i>F</i>	101.20	14.42	67.60	17.05	6.73***
<i>K</i>	33.85	4.49	49.45	11.81	-5.52***
<i>Hs</i>	66.60	19.02	69.45	17.27	-0.50
<i>D</i>	77.85	15.09	71.10	13.83	1.48
<i>Hy</i>	59.25	14.69	69.30	15.41	-2.11
<i>Pd</i>	73.05	14.49	68.65	11.39	1.07
<i>Mf</i>	54.50	8.67	49.65	10.14	1.63
<i>Pa</i>	86.90	14.75	66.85	17.67	3.89**
<i>Pt</i>	81.75	10.50	68.70	16.24	3.02*
<i>Sc</i>	96.25	12.05	71.65	19.15	4.86**
<i>Ma</i>	71.45	8.00	54.65	17.85	3.84**
<i>Si</i>	66.80	8.76	57.60	9.93	3.11*
<i>F-K</i>	19.80	9.15	-4.95	9.22	8.52***
<i>D-Obvious</i>	86.60	12.75	69.85	15.78	3.69**
<i>Hy-Obvious</i>	81.55	17.59	70.00	19.19	1.98
<i>Pd-Obvious</i>	87.45	10.47	65.30	12.96	5.95***
<i>Pa-Obvious</i>	98.50	13.98	66.40	19.45	5.99***
<i>Ma-Obvious</i>	78.75	7.62	54.80	16.85	5.79***
<i>D-Subtle</i>	38.30	8.10	53.35	9.43	-5.41***
<i>Hy-Subtle</i>	34.40	3.97	51.85	10.28	-7.08***
<i>Pd-Subtle</i>	48.30	8.16	60.15	8.71	-4.44**
<i>Pa-Subtle</i>	47.45	8.46	53.75	11.90	-1.93
<i>Ma-Subtle</i>	55.75	7.50	50.40	11.71	1.72
Sum O Scores	432.85	44.54	326.35	70.56	5.71***
Sum S Scores	224.20	21.93	269.50	30.88	-5.35***
Sum O-S Scores	208.65	50.52	56.85	87.42	6.72***

^a A two-tailed multistage Bonferroni procedure was employed. p_{FW} is based on the familywise Type I error rate; p_T is based on the Type I error rate per test.

* $p_{FW} < .05$; $p_T < .0045$;

** $p_{FW} < .01$; $p_T < .0006$;

*** $p_{FW} < .001$; $p_T < .00006$;

a large number of abnormal or deviant characteristics. The *F-K* raw index, which is frequently employed as a method for detecting invalid or "faked" profiles, was significantly higher for Group W than for Group WO. Using a cut-off score of greater than or equal to 7 as indicative of efforts to fake bad (Grow, McVaugh & Eno, 1980), the *F-K* index in this study correctly identified 18 out of 20 Group W subjects (90 percent) and 19 out of 20 Group WO subjects (95 percent) for an over-all accuracy rate of 92.5 percent.

Differences in MMPI-2 clinical scales between subject groups were consistent with the validity scale indications. Group W obtained significantly higher scaled scores on five of the ten clinical scales (*Pa*, *Pt*, *Sc*, *Ma*, & *Si*) when compared to Group WO. Group differences for the remaining scales were insignificant although Group W also tended toward higher scores on scale *Hy*. This pattern of results indicates that Group W endorsed more items indicative of psychopathology on the MMPI-2 than Group WO. If the BPRS ratings are accurate in their indication that no actual differences in psychopathology existed between groups, then the observed differences in MMPI-2 scores between groups may be attributable to differences in their motivation to exaggerate psychopathology.

An examination of the mean differences in obvious and subtle item subscale scores indicated that Group W obtained significantly higher obvious subscales scores than Group WO on all but the *Hy-0* subscale. The *Hy-0* subscale score

difference was in the same direction but did not reach significance. Group W obtained significantly lower scores than Group WO, however, on three of the five subtle subscales (*D-S*, *Hy-S*, & *Pd-S*). Of the remaining two subtle subscales, *Pa-S* was nonsignificantly lower for Group W while *Ma-S* was nonsignificantly lower for Group WO. The sum of the obvious subscale scores (Sum-O) and the sum of the subtle subscales scores (Sum-S) demonstrated differences consistent with those found for their constituent subscales, i.e., the Sum-O scores were significantly higher for Group W while the Sum-S scores were significantly higher for Group WO. These findings suggest that the group motivated to exaggerate psychopathology successfully manipulated the MMPI-2 obvious items. Most of their subtle item scores, however, demonstrated the often found paradoxical effect in which the subjects motivated to exaggerate psychopathology actually endorsed fewer subtle items in a pathological direction than those subjects presumed to be reporting honestly. The difference between the Sum-O scores and the Sum-S scores (the O-S score) was therefore significantly greater for Group W. Using a cut-off score on O-S of greater than or equal to 150 as indicative of a "fake-bad" profile provided the best subject classification accuracy. With this cut-off, the O-S score correctly identified 90 percent of the subjects with motivation to exaggerate psychopathology and 85 percent of the subjects without such motivation.

The Relationship of Subtle and Obvious Items to Psychopathology

The primary hypotheses of this study related to the relative ability of MMPI-2 subtle and obvious subscales to predict psychopathology as portrayed on the BPRS. Tables IV and V present the zero-order correlations of MMPI-2 full-scale and subscale scores with scale-specific BPRS scores and total BPRS scores (BPRS-TOT), respectively. When the familywise Type I error rate was controlled ($p_{FW} < .05$) for logical groupings of items within each of these tables using the multistage Bonferroni procedure (Larzelere & Mulaik, 1977), none of the zero-order correlations reached significance. This was an unexpected finding, particularly for the correlations of MMPI-2 full-scale and obvious subscale scores with BPRS criterion scores for subjects who were presumed to not be motivated to exaggerate psychopathology.

Also evident from Tables IV and V is that the planned z -tests for comparing selected correlations between groups did not support the hypothesis that obvious item subscales would correlate in a more highly positive fashion with criterion scores for Group WO than for Group W. In addition, planned t -tests for comparing correlations within groups failed to support the hypothesis that, for Group WO, MMPI-2 obvious item subscale scores would correlate more highly in a positive direction with criterion scores than would subtle item subscale scores.

TABLE IV
 ZERO-ORDER CORRELATIONS OF MMPI-2 SCORES WITH
 SCALE-SPECIFIC BPRS RATINGS AND TESTS FOR
 DIFFERENCES BETWEEN CORRELATIONS

BPRS Criterion	MMPI-2 Predictor	Group		z^a for H: $r_{oc}(WO)$ $>r_{oc}(W)$	$t(17)^b$ for H: $r_{oc}(WO)$ $>r_{sc}(WO)$
		With Motivation r	Without Motivation r		
BPRS-D					
	<i>D</i>	-.03	.32		
	<i>D-O</i>	-.02	-.03	0.03	1.33
	<i>D-S</i>	.06	.42		
BPRS-Pd					
	<i>Pd</i>	.48	.30		
	<i>Pd-O</i>	.45	-.01	1.44	1.28
	<i>Pd-S</i>	.48	.41		
BPRS-Pa					
	<i>Pa</i>	.06	.09		
	<i>Pa-O</i>	.16	.27	0.34	1.27
	<i>Pa-S</i>	.01	-.20		
BPRS-Ma					
	<i>Ma</i>	.48	.13		
	<i>Ma-O</i>	.42	.12	0.95	0.59
	<i>Ma-S</i>	.29	.24		

^a Test of the hypothesis that the correlation between the obvious subscale and criterion (r_{oc}) is greater for Group WO than for Group W.

^b Test of the hypothesis that, for Group WO, the correlation between the obvious subscale and criterion (r_{oc}) is greater than the correlation between the subtle subscale and criterion (r_{sc}).

TABLE V

ZERO-ORDER CORRELATIONS AND TESTS FOR DIFFERENCES
BETWEEN CORRELATIONS OF MMPI-2 SCORES
WITH TOTAL BPRS RATINGS

MMPI-2 Predictor	Group		z^a for H: $r_{oc}(WO)$ $>r_{oc}(W)$	$t(17)^b$ for H: $r_{oc}(WO)$ $>r_{sc}(WO)$
	With Motivation r	Without Motivation r		
<i>D</i>	-.44	.00		
<i>D-O</i>	-.49	-.14	1.15	0.62
<i>D-S</i>	-.03	.09		
<i>Hy</i>	-.40	.04		
<i>Hy-O</i>	-.28	.00	0.84	0.28
<i>Hy-S</i>	-.29	.11		
<i>Pd</i>	-.21	.28		
<i>Pd-O</i>	-.19	.24	1.27	0.20
<i>Pd-S</i>	-.07	.17		
<i>Pa</i>	-.04	.11		
<i>Pa-O</i>	.01	.08	0.20	0.35
<i>Pa-S</i>	-.02	.21		
<i>Ma</i>	.53	-.13		
<i>Ma-O</i>	.41	-.10	1.56	0.10
<i>Ma-S</i>	.25	-.08		
Sum-O	-.22	.01	0.68	0.38
Sum-S	-.01	.16		

^a Test of the hypothesis that the correlation between the obvious subscale and criterion (r_{oc}) is greater for Group WO than for Group W.

^b Test of the hypothesis that, for Group WO, the correlation between the obvious subscale and criterion (r_{oc}) is greater than the correlation between the subtle subscale and criterion (r_{sc}).

The semi-partial and multiple correlations of subtle and obvious item subscales with BPRS criteria were also examined in order to determine both the unique and combined criterion predictive ability of the subtle and obvious subscales. These correlations are presented in Table VI for the scale-specific BPRS criterion condition and in Table VII for the BPRS-TOT criterion condition. None of the semi-partial or multiple correlations under either criterion condition reached significance when familywise Type I error rate was controlled ($p_{FW} < .05$). Thus, the specific hypothesis that, for Group W, MMPI-2 subtle item scores would correlate positively with BPRS criterion scores even when the variance accounted for by MMPI-2 obvious item scores was removed was not supported. While this is contrary to expectation, it is not surprising given the non-significant zero-order correlations found between the MMPI-2 subtle subscale scores and BPRS criteria in Tables IV and V.

The generally weak relationships found in this study between MMPI-2 measures and nurse's ratings of subjects on the BPRS raises concerns regarding the validity of the criterion measures. In order to examine this further, a post-hoc analysis of the correlations between the MMPI-2 measures and the individual BPRS items which made up the scale-specific BPRS criteria was completed. The results of this analysis are presented in Table VIII. It was expected that all correlations in this table would be positive, particularly for Group WO. The presence of both positive and negative

TABLE VI
 MULTIPLE AND SEMI-PARTIAL CORRELATIONS OF
 MMPI-2 SCORES WITH SCALE-RELEVANT
 BPRS RATINGS

BPRS Criterion	MMPI-2 Predictor	Group			
		With Motivation		Without Motivation	
		R-Square	F	R-Square	F
BPRS-D	D-O	.000	0.01	.001	0.02
	D-S	.003	0.06	.176	3.85
	D-O/S ^a	.001	0.01	.002	0.04
	D-S/O ^b	.004	0.06	.177	3.66
	D-OS ^c	.004	0.03	.178	1.84
BPRS-Pd	Pd-O	.198	4.46	.000	0.00
	Pd-S	.233	5.46	.172	3.74
	Pd-O/S	.063	1.13	.001	0.02
	Pd-S/O	.097	1.82	.173	3.56
	Pd-OS	.295	3.56	.173	1.78
BPRS-Pa	Pa-O	.026	0.48	.071	1.38
	Pa-S	.000	0.00	.040	0.75
	Pa-O/S	.026	0.46	.049	0.87
	Pa-S/O	.000	0.00	.018	0.30
	Pa-OS	.026	0.23	.089	0.83
BPRS-Ma	Ma-O	.176	3.85	.015	0.28
	Ma-S	.086	1.69	.056	1.08
	Ma-O/S	.183	3.80	.001	0.01
	Ma-S/O	.092	1.73	.042	0.74
	Ma-OS	.268	3.12	.057	0.52

^a O/S refers to the contribution of the obvious items with the effects of the subtle items removed.

^b S/O refers to the contribution of the subtle items with the effects of the obvious items removed.

^c OS refers to the two predictor model using both obvious and subtle items.

TABLE VII
 MULTIPLE AND SEMI-PARTIAL CORRELATIONS OF
 MMPI-2 SCORES WITH TOTAL BPRS RATINGS

MMPI-2 Predictor	Group			
	With Motivation		Without Motivation	
	R-Square	F	R-Square	F
<i>D-O</i>	.243	5.79	.020	0.37
<i>D-S</i>	.001	0.01	.008	0.15
<i>D-O/S</i>	.243	5.47	.016	0.28
<i>D-S/O</i>	.001	0.01	.004	0.08
<i>D-OS</i>	.244	2.74	.025	0.21
<i>Hy-O</i>	.076	1.77	.000	0.00
<i>Hy-S</i>	.085	1.68	.011	0.21
<i>Hy-O/S</i>	.087	1.62	.002	0.03
<i>Hy-S/O</i>	.096	1.81	.013	0.23
<i>Hy-OS</i>	.172	1.77	.013	0.11
<i>Pd-O</i>	.036	0.67	.059	1.12
<i>Pd-S</i>	.005	0.08	.029	0.55
<i>Pd-O/S</i>	.032	0.55	.067	1.23
<i>Pd-S/O</i>	.000	0.01	.038	0.68
<i>Pd-OS</i>	.036	0.32	.097	0.91
<i>Pa-O</i>	.000	0.00	.007	0.12
<i>Pa-S</i>	.000	0.01	.044	0.83
<i>Pa-O/S</i>	.000	0.00	.021	0.36
<i>Pa-S/O</i>	.000	0.01	.058	1.05
<i>Pa-OS</i>	.000	0.00	.065	0.59
<i>Ma-O</i>	.165	3.55	.009	0.16
<i>Ma-S</i>	.065	1.24	.006	0.10
<i>Ma-O/S</i>	.170	3.49	.004	0.07
<i>Ma-S/O</i>	.070	1.28	.000	0.01
<i>Ma-OS</i>	.235	2.61	.010	0.11
Sum Obvious	.049	0.94	.000	0.00
Sum Subtle	.000	0.00	.027	0.50
Sum O/S	.050	0.89	.007	0.12
Sum S/O	.000	0.01	.034	0.60
Sum OS	.050	0.45	.034	0.30

TABLE VIII
 ZERO-ORDER CORRELATIONS OF SELECTED MMPI-2
 FULL-SCALE SCORES WITH RELEVANT
 BPRS SINGLE-ITEM RATINGS

MMPI-2 Scale	BPRS Item Description*	Group	
		With Motivation <i>r</i>	Without Motivation <i>r</i>
<i>D</i>	Somatic Concern	.20	.10
	Guilt Feelings	.03	.04
	Tension	-.25	-.05
	Depressive Mood	.34	.44
	Motor Retardation	-.41	.37
<i>Pd</i>	Anxiety (-)	-.22	.06
	Guilt Feelings (-)	.08	-.34
	Hostility	.46	.24
	Hallucinatory Behavior (-)	.31	.16
	Uncooperativeness	.57	.58
<i>Pa</i>	Conceptual Disorgan.	-.21	-.17
	Grandiosity	.08	.01
	Suspiciousness	.25	.33
	Hallucinatory Behavior	.00	.09
	Unusual Thought Content	-.06	-.05
<i>Ma</i>	Tension	.33	-.27
	Grandiosity	.49	.40
	Hallucinatory Behavior	.35	-.09
	Motor Retardation (-)	-.15	.22
	Excitement	.35	.04

* Negatively scored items are indicated by (-).

correlations indicates that the items chosen to make up the scale-specific BPRS measures were inconsistent in their relationships with the associated MMPI-2 scales. This undoubtedly contributed to the non-significant correlations found between many MMPI-2 scales and their scale-specific BPRS measures. Although none of the correlations in Table VIII reached statistical significance (i.e., $p_{FW} < .05$), it does appear that the strongest relationships with MMPI-2 scales were evidenced by those BPRS items which most directly address overt behavior as opposed to those addressing inferred thoughts or feelings.

As a further post-hoc analysis, zero-order correlations were calculated for the MMPI-2 obvious and subtle subscales with the highest correlating BPRS items for each scale. These correlations are presented in Table IX along with the zero-order correlations for the corresponding full-scale scores. Even for these selected BPRS items, none of the correlations with MMPI-2 scores attained statistical significance when familywise Type I error rate was controlled ($p_{FW} < .05$). Tests for differences between selected correlations in Table IX also did not reach significance, once again failing to support the hypothesis that obvious item subscales would exhibit greater positive correlations with criteria for Group WO than for Group W and the hypothesis that, for Group WO, obvious item subscales would exhibit greater positive correlations with BPRS criteria than would subtle item subscales.

TABLE IX

ZERO-ORDER CORRELATIONS OF MMPI-2 FULL-SCALE
AND OBVIOUS AND SUBTLE SUBSCALE SCORES
WITH SELECTED BPRS ITEM RATINGS

BPRS Item Description	Group		z^a for H: $r_{oc}(WO)$ $>r_{oc}(W)$	$t(17)^b$ for H: $r_{oc}(WO)$ $>r_{sc}(WO)$
	MMPI-2 Scale	With Motivation r		
Depressive Mood				
<i>D</i>	.34	.44		
<i>D-O</i>	.34	.12	0.68	0.74
<i>D-S</i>	.11	.37		
Motor Retardation				
<i>D</i>	-.41	.37		
<i>D-O</i>	-.36	.36	2.20	0.31
<i>D-S</i>	-.34	.26		
Hostility				
<i>Pd</i>	.46	.24		
<i>Pd-O</i>	.28	.15	0.40	0.64
<i>Pd-S</i>	.53	.37		
Uncooperativeness				
<i>Pd</i>	.57	.58		
<i>Pd-O</i>	.50	.26	0.83	1.73
<i>Pd-S</i>	.56	.56		
Suspiciousness				
<i>Pa</i>	.25	.33		
<i>Pa-O</i>	.22	.30	0.25	0.26
<i>Pa-S</i>	.25	.21		
Grandiosity				
<i>Ma</i>	.49	.40		
<i>Ma-O</i>	.46	.43	0.11	0.07
<i>Ma-S</i>	.28	.41		

^a Test of the hypothesis that the correlation between the obvious subscale and criterion (r_{oc}) is greater for Group WO than for Group W.

^b Test of the hypothesis that, for Group WO, the correlation between the obvious subscale and criterion (r_{oc}) is greater than the correlation between the subtle subscale and criterion (r_{sc}).

CHAPTER VI

DISCUSSION

The present study proposed to examine the relative criterion predictive validity of MMPI-2 obvious and subtle items for subjects with and without motivation to exaggerate psychopathology on the MMPI-2. Veteran's Administration psychiatric inpatients were classified as being motivated to exaggerate psychopathology if they were in a position to gain financial benefits from a psychiatric disability or hospitalization. Patients who were not in a position to gain financial benefit from a psychiatric disability or hospitalization were presumed to be without motivation to exaggerate psychopathology. The classification procedure employed for assigning subjects to groups was at least partially successful, since the subject group believed to be motivated to exaggerate psychopathology due to potential financial gains did rate themselves higher on a scale of financial distress.

The criterion measures employed to examine obvious and subtle item predictive validity were taken from two psychiatric nurses' ratings of each subject on the Brief Psychiatric Rating Scale (BPRS). The nurses were trained in the use of the BPRS prior to the study and evidenced acceptable

inter-rater reliability. Due to this, BPRS ratings were averaged between nurses and these average ratings were employed in the analysis of the study.

The hypotheses of the study were examined under two conditions. In one condition, a separate scale-specific criterion measure was obtained for each relevant MMPI-2 scale using selected items from the BPRS (Hovanitz & Jordan-Brown, 1986). In the second condition, the BPRS total score, summed across all 18 items, was employed as the criterion measure for all MMPI-2 scales and subscales.

Subject Group Differences

No significant differences were found between subject groups on either the total score or the scale-specific scores from the BPRS. This suggests that the nurse raters did not perceive substantial differences in psychopathology between the subjects with and without motivation to exaggerate psychopathology. This may mean that the two subject groups were actually equivalent in terms of their level of psychopathology or that the group with motivation to exaggerate psychopathology was somewhat less disturbed than the group without motivation to exaggerate but their symptom exaggeration influenced the nurse raters' judgements of their pathology.

Highly significant differences were obtained between subject groups on the MMPI-2 full-scale scores and the obvious and subtle subscale scores. Both the *F* and *F-K*

scores were significantly higher for the group with motivation to exaggerate as opposed to the group without motivation. This is consistent with previous findings for VA patients with financial motivation to exaggerate psychopathology (Gallucci, 1984). The group with motivation to exaggerate obtained significantly lower scores on validity scales *L* and *K* than did the group without such motivation. Overall, the group with motivation to exaggerate psychopathology obtained an average validity scale pattern on the MMPI-2 which was consistent with either extreme psychopathology or an attempt to "fake-bad." Given the method employed for defining groups and the apparent absence of differences in psychopathology between groups based on the nurses' BPRS ratings, the latter explanation seems most plausible.

Consistent with their validity scale pattern, the subject group with motivation to exaggerate psychopathology obtained significantly higher scaled scores on five of the ten MMPI-2 clinical scales (*Pa*, *Pt*, *Sc*, *Ma*, & *Si*) and on four of the five obvious subscales (*D-O*, *Pd-O*, *Pa-O*, & *Ma-O*). The group without motivation to exaggerate obtained significantly higher scaled scores on three of the five MMPI-2 subtle subscales (*D-S*, *Hy-S*, & *Pd-S*). Thus, these three subtle subscales demonstrated the often reported paradoxical effect of actually being lower (fewer items endorsed in a pathological direction) for the subject group presumed to be attempting to exaggerate psychopathology. The

difference between the sum of the obvious item scaled scores and the sum of the subtle item scaled scores was highly effective in differentiating between subject groups (87.5 percent accuracy); however, the *F-K* raw score index was even more effective in this regard with an over-all accuracy rate of 92.5 percent.

The Relationship of Subtle and Obvious Items to Psychopathology

The primary hypotheses of this study related to the relative ability of MMPI-2 obvious and subtle item subscales to predict (correlate with) BPRS criterion measures. An underlying assumption was that at least some of the MMPI-2 measures would correlate positively with the BPRS criteria; However, this was not the case. None of the zero-order correlations obtained in this study between MMPI-2 scales and BPRS measures were significant for either subject group under either criterion condition. The same is true for semi-partial and multiple correlations designed to measure the unique and combined criterion variance accounted for by subtle and obvious item subscales.

The MMPI-2 predictor - BPRS criterion correlations obtained in this study were not substantially smaller than those reported by Hovanitz and Jordan-Brown (1986) using dichotomous ratings of the same scale-specific BPRS measures taken from archival data or those found for one of Taylor's (1990) two raters using BPRS total scores. These other

studies obtained more significant results due in part to their larger subject groups. It had been expected that more powerful relationships between MMPI-2 predictors and BPRS criteria would be demonstrated in the present study due to the use of direct full-scale ratings of subjects on scale-specific BPRS measures. This was obviously not the case. It should also be noted that, while correlations of similar magnitude to those reported by Hovanitz and Jordan-Brown (1986) and Taylor (1990) were obtained, the present study had significantly more correlations in the opposite direction to that which had been predicted.

In terms of specific predictions, the hypothesis that subtle item subscales would account for significant amounts of criterion variance over and above that accounted for by obvious item subscales for the group with motivation to exaggerate psychopathology was not supported since none of the semi-partial correlations were significant. It had also been specifically predicted that obvious item subscales would exhibit a greater positive correlation with BPRS criteria for those subjects without motivation to exaggerate psychopathology than for those subjects with such motivation. A comparison of the relevant correlations across subject groups indicated insignificant differences and thus did not support this hypothesis. Another hypothesis, that obvious item subscales would exhibit a greater correlation with BPRS criteria than would subtle item subscales for

subjects without motivation to exaggerate psychopathology, was similarly not supported.

The failure to obtain significant correlations between MMPI-2 measures and BPRS criteria for subjects with motivation to exaggerate psychopathology might be attributed to the subjects' ability to manipulate their MMPI-2 results but not necessarily the nurses' perceptions. However, the insignificant correlations between MMPI-2 predictors and BPRS criterion measures for subjects without motivation to exaggerate cannot be so easily accounted for. Some of the subjects in this group may have actually been motivated to deny or underreport their psychiatric problems in order to achieve an earlier release into a less restrictive setting. The minimal elevations obtained on the MMPI-2 clinical scales for this group (Table III) are rather surprising considering they were all patients in an acute inpatient psychiatric ward. Any tendency to deny symptoms by members of this group may have weakened the relationship between MMPI-2 measures and nurses' ratings on the BPRS. However, this tendency does not seem to fully account for the consistently insignificant correlations obtained between MMPI-2 scales and BPRS criteria for this group.

To conclude that the results of this study are due to a the MMPI-2's inability to predict psychopathology does not seem plausible considering its close relationship to the original MMPI, which has a wealth of clinical and research data to support its predictive validity. A much more likely

explanation for the insignificant correlations between MMPI-2 scales and the BPRS criteria is that the BPRS ratings employed in this study were themselves not valid measures of psychopathology. This is probably not a reflection of the BPRS itself, since it has previously proven useful in both diagnostic classification and in predicting treatment response to various psychiatric medications (Overall, 1988). It may be that the validity of the ratings on the BPRS were adversely effected by deviations from the rating procedure described by Overall (1962). In particular, the ratings in this study were not based upon a specifically structured clinical interview conducted by an evaluator who did not otherwise know the patient. Idiosyncracies in the nurse-patient relationships may have impacted the BPRS ratings in unexpected ways. In future studies employing the BPRS as a measure of psychopathology, it may be best to follow rating procedures closer to those under which the BPRS has been validated. It is also conceivable that the BPRS training which was provided to the nurse-raters in this study was not sufficient. Although inter-rater correlations of .60 had been considered adequate, this still meant that only about one-third of the variance in BPRS ratings was shared between raters. Additional rater training and higher inter-rater reliability may have contributed to a more valid assessment of psychopathology on the BPRS.

Summary and Conclusions

The results of this study replicated several findings reported in previous research on the MMPI. Strong evidence was obtained in support of the effectiveness of both the total obvious minus total subtle *T*-score difference (O-S) and the *F-K* raw score index for differentiating between exaggerated and non-exaggerated MMPI-2 profiles. The O-S score classified profiles with 87.5 percent accuracy using a cut-off score of greater than 150 to indicate exaggeration. Further research is needed to determine if this is a reliable cut-off score, since Grow, McVaugh, and Eno (1980) and Anthony (1971) both used O-S raw scores rather than *T*-scores. The *F-K* raw score index correctly classified 92.5 percent of the profiles with a score greater than or equal to seven indicating exaggeration. This particular *F-K* raw score cut-off appears to be relatively stable, since it also correctly identified 98 percent of Grow, McVaugh, and Eno's exaggerated and honest MMPI profiles. This study also replicated the previously reported paradoxical effect of faking efforts upon subtle item subscale scores. Most of the subtle item subscale scores were lower for those subjects who were motivated to exaggerate on the MMPI-2 than for those who were not so motivated. This is the opposite of the pattern exhibited by the obvious item subscales.

The results of this study did not, however, support any of the specific hypotheses originally set forth. In fact,

the results indicated that neither the MMPI-2 full-scale scores or the subtle or obvious subscale scores were effective at predicting the BPRS criteria for either subject group. The MMPI-2 measures and the nurses' BPRS ratings were apparently not tapping the same underlying dimensions. Given the extensive use and documented effectiveness of the MMPI in assessing psychopathology, this discrepancy between measures seems most likely to be due to problems with the BPRS criterion measures, rather than the MMPI-2 itself. The BPRS ratings may have been compromised by the use of rating techniques which differed from those recommended by Overall (1962). In future studies employing the BPRS as a criterion measure for the MMPI-2, it may be advisable to employ a structured interview process using raters who are not otherwise familiar with the patient. It may also be advisable to train raters more extensively in order to obtain greater inter-rater reliability than was evidenced in the present study.

This study demonstrates two of the primary difficulties involved in effectively addressing the question of obvious and subtle item predictive validity under deceptive response set conditions. The first difficulty is determining with accuracy the motivation or response set of clinical subject groups when taking the MMPI-2. It appears that the classification procedure used in this study can select out those Veteran's Administration patients who are motivated to exaggerate psychopathology; however, some measure of attitude

toward continued hospitalization might be helpful in order to separate out patients who are motivated to deny psychopathology from patients basically intended to serve as an "honest response" control group.

The second major difficulty in this area of research is selecting an appropriate criterion measure against which to compare the obvious and subtle items. The use of different criterion measures probably accounts for many of the discrepancies in the literature at the present time. What is needed are criterion measures which possess some intrinsic value or validity of their own. Examples of such criteria might include response to different therapies or medications, post-treatment adaptation, or even likelihood of remaining in treatment (Greene, 1988). The appropriate criteria against which to compare MMPI-2 subtle and obvious items may vary depending upon the patient population, the treatment setting, and the particular questions or decisions to which the MMPI-2 results might be applied. It may be discovered that the relative predictive validity of MMPI-2 obvious and subtle items also varies depending upon these same considerations.

SELECTED BIBLIOGRAPHY

- Anthony, N. (1971). Comparison of clients' standard, exaggerated, and matching MMPI profiles. *Journal of Consulting and Clinical Psychology, 36*, 100-103.
- Berg, I. A. (1959). The unimportance of test item content. In B. M. Bass and I. A. Berg (Eds.), *Objective approaches to personality assessment* (pp. 83-99). New York: Van Nostrand.
- Burkhart, B. R., Christian, W. L., & Gynther, M. D. (1978). Item subtlety and faking on the MMPI: A paradoxical relationship. *Journal of Personality Assessment, 42*, 76-80.
- Burkhart, B. R., Gynther, M. D., & Fromuth, M. E. (1980). The relative predictive validity of subtle vs. obvious items on the MMPI depression scale. *Journal of Clinical Psychology, 36*, 748-751.
- Christian, W. L., Burkhart, B. R., & Gynther, M. D. (1978). Subtle-obvious ratings of MMPI items: New interest in an old concept. *Journal of Consulting and Clinical Psychology, 46*, 1178-1186.
- Cofer, C. N., Chance, J., & Judson, A. J. (1949). A study of malingering on the Minnesota Multiphasic Personality Inventory. *Journal of Psychology, 27*, 491-499.
- Duff, F. L. (1965). Item subtlety in personality inventory scales. *Journal of Consulting Psychology, 29*, 565-570.
- Faschingbauer, T. R. (1979). The future of the MMPI. In C. S. Newmark (Ed.), *MMPI: Clinical and Research Trends*. New York: Praeger Publishers.
- Frank, L. F. (1948). *Projective methods*. Springfield, IL: Charles C. Thomas.
- Gallucci, N. T. (1984). Prediction of dissimulation on the MMPI in a clinical field setting. *Journal of Consulting and Clinical Psychology, 52*, 917-918.

- Gloye, E. E., & Zimmerman, I. L. (1967). MMPI item changes by college students under ideal-self response set. *Journal of Projective Techniques and Personality Assessment*, 31, 63-69.
- Gough, H. G. (1950). The F minus K dissimulation index for the Minnesota Multiphasic Personality Inventory. *Journal of Consulting Psychology*, 14, 408-413.
- Graham, J. R. (1977). *The MMPI: A practical guide*. New York: Oxford University Press.
- Graham, J. R. (1990). *MMPI-2: Assessing Personality and Psychopathology*. New York: Oxford Press.
- Graham, J. R., Timbrook, R., Ben-Porath, Y. S., & Butcher, J. N. (1990). MMPI - MMPI-2 code-type congruence: separating fact from artifact. Submitted for publication.
- Greene, R. L. (1988). The relative efficacy of F-K and the obvious and subtle scales to detect overreporting of psychopathology on the MMPI. *Journal of Clinical Psychology*, 44, 152-159.
- Grow, R., McVaugh, W., & Eno, T. (1980). Faking and the MMPI. *Journal of Clinical Psychology*, 36, 910-917.
- Gynther, M., Burkhart, B., & Hovanitz, C. (1979). Do Face-valid items have more predictive validity than subtle items? The case of the MMPI Pd scale. *Journal of Consulting and Clinical Psychology*, 47, 295-300.
- Harris, R. E., & Lingo, J. C. (1968). Subscales for the MMPI: An aid to profile interpretation (corrected version). Mimeographed materials. University of California, Department of Psychiatry.
- Hathaway, S. R., & McKinley, J. C. (1967). *Minnesota Multiphasic Personality Inventory (revised manual)*. New York: Psychological Corporation.
- Hathaway, S. R., & McKinley, J. C. (1989). *Minnesota Multiphasic Personality Inventory-2*. Minneapolis, Minn.: The University of Minnesota Press.
- Hiner, D. L., Ogren, D. J., & Baxter, J. C. (1969). Ideal-self responding on the MMPI. *Journal of Projective Techniques and Personality Assessment*, 33, 389-396.
- Hovanitz, C. A., & Gynther, M. D. (1980). The prediction of impulsive behavior: Comparative validity of obvious

- vs. subtle MMPI Hypomania (Ma) items. *Journal of Clinical Psychology*, 36, 422-427.
- Hovanitz, C. A., Gynther, M. D., & Green, S. B. (1985). Discriminant validity of subtle and obvious items: the MMPI Pa and Ma scales. *Journal of Clinical Psychology*, 41, 42-44.
- Hovanitz, C. A., Gynther, M. D., & Marks, P. A. (1983). The prediction of paranoid behavior: Comparative validities of obvious versus subtle MMPI Paranoia (Pa) items. *Journal of Clinical Psychology*, 39, 407-411.
- Hovanitz, C. A., & Jordan-Brown, L. (1986). The validity of MMPI subtle and obvious items in psychiatric patients. *Journal of Clinical Psychology*, 42, 100-108.
- Jackson, D. N. (1971). The dynamics of structured personality tests: 1971. *Psychological Review*, 78, 229-248.
- Jackson, D. N. (1973). Structured personality assessment. In B. B. Wolman (Ed.), *Handbook of general psychology* (pp. 775- 792). Englewood Cliffs, NJ: Prentice-Hall.
- King, G. D. (1978). Review of the MMPI. In O. K. Buros (Ed.), *The Eighth Mental Measurements Yearbook*, pp. 935-938. Highland Park, N.J.: The Gryphon Press.
- Larzelere, R. E., & Mulaik, S. A. (1977). Single-sample tests for many correlations. *Psychological Bulletin*, 84, 557-569.
- Marks, P., Seeman, W., & Haller, D. (1979). *The Actuarial Use of the MMPI with Adolescents and Adults*. New York: Oxford University Press.
- McCall, R. J. (1958). Face validity of Minnesota Multiphasic Personality Inventory items in personality disorders. *Journal of Clinical Psychology*, 14, 77-80.
- McKinley, J. C., Hathaway, S. R., & Meehl, P. E. (1948). The Minnesota Multiphasic Personality Inventory: VI. The K scale. *Journal of Consulting Psychology*, 12, 20-31.
- Meehl, P. E. (1945). The dynamics of "structured" personality tests. *Journal of Clinical Psychology*, 1, 296-303.
- Meehl, P. E., & Hathaway, S. R. (1946). The K factor as a suppressor variable in the Minnesota Multiphasic

- Personality Inventory. *Journal of Applied Psychology*, 30, 525-564.
- Overall, J. E. (1988). A review of the Brief Psychiatric Rating Scale. In M. Herson and A. Bellack (Eds.), *Dictionary of Assessment Techniques*, pp. 302-305. New York: Pergamon Press.
- Overall, J. E., & Gorham, D. R. (1962). The Brief Psychiatric Rating Scale. *Psychological Reports*, 10, 799-812.
- Peterson, G. W., Clark, D. A., & Bennett, B. (1989). The utility of MMPI subtle, obvious scales for detecting fake good and fake bad response sets. *Journal of Clinical Psychology*, 45, 575-583.
- Posey, C. D., & Hess, A. K. (1984). The fakability of subtle and obvious measures of aggression in male inmates. *Journal of Personality Assessment*, 48, 137-144.
- Posey, C. D., & Hess, A. K. (1985). Aggressive response sets and subtle-obvious MMPI scale distinctions in male offenders. *Journal of Personality Assessment*, 49, 235-239.
- Seeman, W. (1952). "Subtlety" in structured personality tests. *Journal of Clinical Psychology*, 16, 278-283.
- Seeman, W. (1953). Concept of "subtlety" in structured psychiatric and personality tests: an experimental approach. *Journal of Abnormal Social Psychology*, 48, 239-247.
- Tarter, R. E. (1988). A review of the Minnesota Multiphasic Personality Inventory. In M. Herson and A. Bellack (Eds.), *Dictionary of Assessment Techniques*, pp. 302-305. New York: Pergamon Press.
- Taylor, D. M. (1990). *The role of obvious and subtle items in the detection of exaggeration on the MMPI*. Unpublished doctoral dissertation, Oklahoma State University, Stillwater.
- Wales, B., & Seeman, W. (1968). A new method for detecting the fake-good response set on the MMPI. *Journal of Clinical Psychology*, 24, 211-216.
- Wales, B., & Seeman, W. (1969). What do MMPI zero items really measure: An experimental investigation. *Journal of Clinical Psychology*, 25, 420-424.

- Wales, B., & Seeman, W. (1972). Instructional sets and MMPI items. *Journal of Personality Assessment*, 36, 282-286.
- Walker, H. M., & Lev, J. (1953). *Statistical inference*. New York: Holt.
- Ward, L. C. (1986). MMPI item subtlety research: Current issues and directions. *Journal of Personality Assessment*, 50, 73-79.
- Weiner, D. N. (1948). Subtle and obvious keys for the Minnesota Multiphasic Personality Inventory. *Journal of Consulting Psychology*, 12, 164-170.
- Weiner, D. N., & Harmon, L. R. (1946). *Subtle and obvious keys for the MMPI: Their development*. (Advisement Bulletin No. 16, Regional Veterans Administration Office, Minneapolis).
- Worthington, D. L., & Schlottmann, R. S. (1986). The predictive validity of subtle and obvious empirically derived psychological test items under faking conditions. *Journal of Personality Assessment*, 50, 171-181.
- Wrobel, T. A., & Lachar, D. (1982). Validity of the Weiner subtle and obvious scales for the MMPI: Another example of the importance of inventory-item content. *Journal of Consulting and Clinical Psychology*, 50, 469-470.

APPENDIX

TABLE X

MEANS AND STANDARD DEVIATIONS BY RATER AND TESTS FOR
DIFFERENCES AND CORRELATIONS BETWEEN
RATERS ON BPRS VARIABLES

BPRS Item	Rater 1		Rater 2		$\underline{t}(78)^a$	\underline{r}
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
Somatic Concern	2.90	1.82	3.10	2.25	0.44	.67***
Anxiety	3.63	1.85	4.15	1.82	1.28	.44**
Emotional Withdrawal	3.00	1.68	3.15	1.85	0.38	.32*
Conceptual Disorganization	2.85	2.07	2.73	1.94	0.28	.48**
Guilt Feelings	2.28	1.65	2.28	1.81	0.00	.36*
Tension	3.58	1.87	3.50	2.17	0.17	.35*
Mannersims & Posturing	1.53	1.15	1.40	1.15	0.49	.38*
Grandiosity	1.53	1.20	2.10	1.80	1.69	.54***
Depressive Mood	3.45	1.43	4.20	1.79	2.07	.48**
Hostility	2.23	1.46	2.60	1.91	0.99	.62***
Suspiciousness	2.33	1.80	2.68	1.89	0.85	.60***
Hallucinatory Behavior	1.68	1.33	1.63	1.43	0.16	.75***
Motor Retardation	1.78	1.48	1.78	1.54	0.00	.61***
Uncooperativeness	2.30	1.47	2.93	1.86	0.17	.65***
Unusual Thought Content	2.55	1.92	2.40	1.80	0.36	.46**
Blunted Affect	2.85	1.48	2.63	1.64	0.64	.35*
Excitement	3.45	1.84	3.70	1.90	0.60	.49**
Disorientation	1.90	1.39	1.63	1.48	0.86	.63***

TABLE X (Continued)

BPRS Item	Rater 1		Rater 2		$t(78)^a$	r
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
BPRS- <u>D</u>	13.98	5.15	14.85	4.84	0.20	.65***
BPRS- <u>Pd</u>	20.95	3.78	21.48	4.07	0.38	.55***
BPRS- <u>Pa</u>	10.93	5.10	11.53	6.06	0.42	.69***
BPRS- <u>Ma</u>	16.45	3.89	17.15	4.89	0.23	.67***
BPRS-TOTAL	45.78	12.97	48.55	9.97	0.12	.56***

^a A two-tailed multistage Bonferroni procedure was employed. No differences were significant at $p_{FW} < .05$.

- * $p_I < .05$;
- ** $p_I < .01$;
- *** $p_I < .001$;

2
VITA

Donal Eugene Brantley
Candidate for the Degree of
Doctor of Philosophy

Thesis: THE PREDICTIVE VALIDITY OF MMPI SUBTLE AND OBVIOUS
ITEMS UNDER HONEST AND EXAGGERATED RESPONSE
CONDITIONS IN A CLINICAL POPULATION

Major Field: Clinical Psychology

Biographical:

Personal Data: Born in Gatesville, Texas, June 5,
1958, the son of Mr. and Ms. D. E. Brantley.

Education: Graduated from Temple High School, Temple,
Texas, in May, 1976; attended Temple Junior
College, 1975-76; received Bachelor of Science
degree in Psychology from the University of Texas
at Arlington in 1978; received Master of Science
degree from Oklahoma State University in 1982;
completed requirements for the Doctor of
Philosophy degree at Oklahoma State University in
July, 1991.

Professional Experience: Graduate teaching assistant,
Department of Psychology, Oklahoma State
University, 1980-82; Psychotherapist, Edgemeade
of Texas, 1982-83; Intern in Clinical Psychology,
Austin State Hospital, 1983-84; Psychotherapist,
Tejas Home for Youth, 1984-85; Chief of Clinical
Services, Tejas Home for Youth, 1985; Program
Director, Tejas Home for Youth, 1985-87; Facility
Director, Tejas Home for Youth, 1987-90; Program
Director, Willowbrook Hospital, 1990.