JOURNAL OF PERSONALITY ASSESSMENT, *78*(2), 334–347
Copyright © 2002, Lawrence Erlbaum Associates, Inc.

# Assessing General Maladjustment With the MMPI–2

John R. Graham and Deanna L. Barthlow
*Department of Psychology*
*Kent State University*

L. A. R. Stein
*Center for Alcohol and Addiction Studies*
*Brown University*

Yossef S. Ben-Porath
*Department of Psychology*
*Kent State University*

John L. McNulty
*Department of Psychology*
*University of Tulsa*

The validities of 7 MMPI–2 (Butcher, Graham, Ben-Porath, Tellegen, & Kaemmer, 2001) measures of general maladjustment were compared using a composite criterion measure based on self-reported symptom severity and clinicians' ratings of symptom severity and level of functioning. Participants were 274 male and 425 female clients at a community mental health center and 105 male and 247 female clients at a university psychological clinic. All MMPI–2 measures were significantly related to the composite criterion measure for both male and female clients in both settings. The mean score on 8 clinical scales (M8) consistently was the best indicator of maladjustment. Although other MMPI–2 measures sometimes added significantly to the variance accounted for in the criterion measure, increments were small and probably not clinically meaningful. However, M8 added significantly and meaningfully to each of the other MMPI–2 measures in predicting maladjustment. Implications for using the MMPI–2 to assess general maladjustment in outpatient mental health settings are discussed.

Often when the Minnesota Multiphasic Personality Inventory–2 (MMPI–2; Butcher, Graham, Ben-Porath, Tellegen, & Kaemmer, 2001) is administered and

interpreted in clinical settings, the primary goal of the assessment is to produce a comprehensive and detailed description of the test taker to facilitate diagnosis, treatment, or other important decisions. However, there are some circumstances in which the MMPI–2 is administered routinely, and its results are used first to identify persons with significant levels of psychiatric symptomatology or other general maladjustment. Results may later be used to generate more comprehensive descriptions of test takers. It may be necessary to make immediate judgments concerning severity of maladjustment to determine if someone can be treated as an outpatient or if a more structured inpatient setting is needed. When all persons cannot be offered mental health services immediately, decisions about which persons should receive services first are formed by information about the level of maladjustment. Selection of treatment approaches often takes into consideration the maladjustment level of clients.

Graham (2000) pointed out that there are several important components to psychological maladjustment. One has to do with symptom severity and how much discomfort and distress a person is experiencing. Another has to do with impairment in day-to-day functioning. Although there are occasional exceptions, these two components are usually closely related to each other. Persons who are not functioning very well also experience considerable psychological distress and vice versa. The MMPI–2 includes scales and indexes that should be sensitive to both components of maladjustment. Examination of contemporary MMPI–2 interpretive guides and texts suggests considerable agreement concerning how best to assess general maladjustment (Butcher & Williams, 2000; Friedman, Lewak, Nichols, & Webb, 2001; Graham, 2000; Greene, 2000).

Scores on the F scale have been demonstrated to be related to symptom severity and level of functioning (e.g., Blumberg, 1967; Gross, 1959; Lutzker, 1961; Shaffer, Ota, & Hanlon, 1964; Walters, 1987 ). However, because the F scale also is related to test-taking attitudes (e.g., malingering, random responding), it often is difficult to determine the extent to which elevated F scale scores indicate serious maladjustment and the extent to which they are the product of invalid responding.

It has been noted that the Psychasthenia (Pt) scale is a good marker of the general maladjustment factor of the MMPI (Hathaway & McKinley, 1943) and MMPI–2 (Butcher et al., 2001). Previous research has suggested that a wide variety of symptoms and problems (e.g., anxiety, depression, physical complaints, difficulty with concentration) are associated with higher scores on the Pt scale (Graham, 2000), but no research to date has examined the relation between Pt scale scores and criterion measures of general maladjustment. However, several studies have suggested that when the Pt scale is elevated along with other clinical scales, general maladjustment, particularly of a neurotic kind, is more likely (e.g., Davis & Widseth, 1977; Strupp & Bloxom, 1975).

Several supplementary scales have been suggested as indicators of level of maladjustment. Welsh's Anxiety (A) scale (Welsh, 1956) was developed to assess a major dimension emerging from factor analyses of the standard MMPI validity and

clinical scales. Higher scores on the A scale are thought to indicate not only symptoms of anxiety, as the label suggests, but also general maladjustment (psychological turmoil and poor functioning). Several studies have supported the use of the A scale as a measure of maladjustment (e.g., Graham, Ben-Porath, & McNulty, 1999; Shaffer et al., 1964; Welsh, 1956). The Ego Strength (Es) scale (Barron, 1953) was developed to predict response to individual psychotherapy, but subsequent research indicated that it also is related to availability of psychological resources needed to function in one's day-to-day life situation (e.g., Archer, Elkins, Aiduk, & Griffin, 1997; Gottesman, 1959; Graham et al., 1999; Himelstein, 1964; Kleinmuntz, 1960; Schuldberg, 1992), with higher scores indicating better adjustment and lower scores indicating greater maladjustment. The Posttraumatic Stress Disorder (PK) scale was developed by Keane, Malloy, and Fairbank (1984) to discriminate between veterans with diagnoses of posttraumatic stress disorder and those with other psychiatric diagnoses. Items in the PK scale address emotional turmoil—including anxiety, depression, sleep disturbance, and guilt—suggesting that the scale might also serve as a measure of general maladjustment. Several studies have demonstrated the relation between PK scores and symptoms of general emotional distress and psychological maladjustment (Graham et al., 1999; Miller, Goldberg, & Streiner, 1995; Moody & Kish, 1989). Kleinmuntz (1960) developed the College Maladjustment (Mt) scale to discriminate between psychologically adjusted and maladjusted college students. Subsequent research has suggested that scores on the Mt scale are related to general maladjustment as assessed by psychiatric diagnosis, mental health treatment seeking, or scores on other maladjustment scales (Kleinmuntz, 1961; Kuczka & Handal, 1990; Stewart, 1994; Svanum & Ehrmann, 1993).

Although each of these MMPI/MMPI–2 indicators of maladjustment has received some support in the research literature, the findings have not always been consistent, and no studies have compared directly the relative validity of the various indicators of maladjustment. The purpose of this study was to examine the relative validity of seven MMPI–2 measures of maladjustment in two clinical settings: F scale; Welsh's (1956) A scale; Barron's (1953) Es scale; mean *T* score on eight clinical scales (M8); Pt scale; Keane et al.'s (1984) PK scale; and the Kleinmuntz (1961) Mt scale. Such information can be very helpful to clinicians making decisions about clients that are, at least in part, influenced by judgments about general maladjustment.

## METHOD

### Study Settings

To be able to have greater confidence about generalizability of results, the study was conducted in two settings, a community mental health center (CMHC) and a university psychological clinic (UPC). The CMHC was a large, urban facility of-

fering services to clients representing a diverse range of diagnoses and backgrounds. A variety of treatment programs was available at the CMHC, including individual and group therapy, psychiatric consultations, partial hospitalization, dual diagnosis treatment, and specialized programs related to family or child abuse and shoplifting. The most frequently used approach was individual or group counseling (or both) or psychotherapy. The 55-member staff included psychologists, psychiatrists, registered nurses, counselors, social workers, and chemical dependency counselors.

The UPC was located in the Midwest and served as a training facility for the university's American Psychological Association accredited clinical psychology doctoral program. Services provided by advanced graduate students under the supervision of clinical faculty included psychotherapy for individuals, couples, families, and children, and assessments of intelligence, neuropsychological problems, and parental competence.

## Participants

Potential participants in the CMHC setting were 1,035 men and 1,447 women who requested services at the center during a 21-month period. Clients were included in this sample if they had completed a valid MMPI–2 and had intake and termination information available in their records. The final CMHC sample consisted of 274 men and 425 women. These clients were part of a larger study of the correlates of MMPI–2 scales and code types (Graham et al., 1999). Mean age of clients was 33.10 years (*SD* = 10.31), and mean years of formal education was 12.23 (*SD* = 2.05). Most of the clients were White (81%), with African Americans being the most frequent ethnic minority clients. Most clients (42%) were never married; 23% were divorced and 21% were married. Many of the clients were unemployed (43%) with only 22% reporting full-time employment. Approximately 53% of the clients reported previous outpatient mental health treatment and approximately 26% had histories of psychiatric hospitalizations. The most common Axis I diagnoses among the clients were adjustment disorder (32%), depression (24%), anxiety disorders (17%), and substance abuse or dependence (11%). Thirty percent of the clients had Axis II diagnoses. Compared with clients who did not complete MMPI–2s or produced invalid MMPI–2s, clients in our sample were slightly more educated, had a greater proportion of Whites, were slightly less disturbed, and had fewer psychiatric hospitalizations. They did not differ from other clients on history of outpatient mental health treatment.

Potential participants in the UPC sample were 198 men and 452 women who voluntarily sought psychotherapy at the clinic during an 8-year period. Approximately 79% of these clients were university students and the remainder were community residents. The final UPC sample consisted of 105 men and 247 women who had valid MMPI–2s and for whom intake and therapist ratings were available.

Mean age of these clients was 24.63 years (*SD* = 7.34) and mean education completed was 14.53 years (*SD* = 2.08). Most of the clients were White (90%), were never married (81%), and were employed part-time while attending school (51%). Approximately 55% of these clients reported previous outpatient mental health treatment and only 7% had histories of psychiatric hospitalizations. The most common Axis I diagnoses were depression (17%), adjustment disorders (16%), and anxiety disorders (11%). Only 11% of the clients had Axis II diagnoses. As with the CMHC sample, the UPC sample had a greater proportion of Whites and was slightly less disturbed than the clients not included in the sample. In addition, those included were less likely to have had previous outpatient mental health treatment.

## Measures

The MMPI–2 (Butcher et al., 2001) is a 567-item personality inventory that is the revised and updated version of the original MMPI. It includes the validity and clinical scales of the MMPI, some new validity scales, content and content component scales, and supplementary scales. Norms were developed for the MMPI–2 that were representative of the population in the United States. Psychometric characteristics of the MMPI–2 scales are summarized in the manual (Butcher et al., 2001).

The intake form used in the CMHC setting was developed specifically for a study of the correlates of MMPI–2 scales and code types (Graham et al., 1999). A slightly modified version of this intake form was used in the UPC setting. For both settings, the intake form was developed to be completed by a trained intake worker on the basis of a personal interview with the client. It included demographic information, mental health history, substance abuse history, diagnostic impressions for all five axes of the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev. [*DSM–III–R*]; American Psychiatric Association, 1987) and ratings of mental status variables such as orientation, memory, and mood. Demographic and mental health information for both samples was obtained from the intake forms.

The Global Assessment of Functioning (GAF) scale from Axis V of *DSM–III–R* was used as a measure of clients' level of functioning. Ratings were completed by intake workers following an extensive interview with clients. GAF ratings were on a scale from 0 to 90, with higher scores indicating better functioning.

Several criterion measures of general maladjustment were available for all clients in the study. The Symptom Checklist–90–Revised (SCL–90–R; Derogatis, 1983), which was completed by clients at the time of admission, is a 90-item self-report inventory designed to reflect the psychological symptom patterns of psychiatric and medical patients. Responses are on a 5-point scale with scale points of 1 (*not at all*), 2 (*a little bit*), 3 (*moderately*), 4 (*quite a bit*), and 5 (*extremely*) and reflect how much distress was experienced during the preceding 7 days. The Global Severity index (GSI) of the SCL–90–R was used as a measure of clients' self-re-

ported symptom severity, with higher scores indicating greater symptom severity. The GSI is calculated as a mean rating across all items in the SCL–90–R. Although Derogatis (1983) did not report internal consistency or test–retest reliabilities for the GSI, these values for the nine symptom scales ranged from .77 to .90 and .78 to .90, respectively.

The Global Psychopathology scale of the SCL–90 Analogue (GPSA; Derogatis, Rickels, & Rock, 1976) was used as another measure of clients' symptom severity. The entire SCL–90 Analogue was completed by each client's therapist after three therapy sessions had been completed. Therapists were blind to the MMPI–2 scores of their clients when these ratings were completed. The SCL–90 Analogue has 10 visual analogue scales by which therapists rated their clients on nine primary symptom dimensions represented in the SCL–90–R (Derogatis, 1983). There also is an analogue scale for rating global psychopathology. Each scale is represented on a 100-mm line and is rated from 1 (*not at all*) to 10 (*extremely*), with higher scores indicating greater maladjustment. Derogatis (1976) reported interrater reliability coefficients for the Analogue scales ranging from .83 to .96 for a sample of 72 outpatients. Although validity data have not been reported for the analogue scales, previous research supports the use of visual analogue scales to measure clinical phenomena (for a review, see Wewers & Lowe, 1990).

Therapists provided a general rating of clients' level of functioning (LOF) after three therapy sessions had been completed. Ratings were on a 6-point scale with scale points of 1 (*poor*), 2 (*marginal*), 3 (*fair*), 4 (*adequate*), 5 (*good*), and 6 (*very good*). This rating instrument had been developed for an earlier study in a CMHC setting (Graham et al., 1999).

## Procedure

Persons requesting services at the CMHC participated in extensive intake interviews conducted by experienced professional mental health workers, mainly social workers and nurses who had been trained by research project staff on how to complete the intake form. In the UPC setting, intake forms were completed by advanced graduate students following extensive interviews with clients. The student clinicians had been trained to complete the intake form by clinical faculty supervisors. In both settings, the MMPI–2 and the SCL–90–R were administered to clients after the intake interviews had been completed, and intake workers did not have access to MMPI–2 data until after their ratings were completed. The median time between the intake interview and the administration of MMPI–2 and SCL–90–R was 7 days in both settings.

Clients were assigned to therapists and treatment programs after completing intake interviews and without consideration of MMPI–2 results. Therapists completed the SCL–90 Analogue, the rating of level of functioning, and several other measures not included in this study. The median length of time between the admin-

istration of the MMPI–2 and the completion of these therapist measures was 38 days in the CMHC setting and 21 days in the UPC setting. Therapists did not have access to MMPI–2 data until after their ratings were completed.

MMPI–2s were considered valid if 30 or fewer items were omitted, VRIN *T* scores were 80 or less, TRIN raw scores were between 6 and 12, F raw scores were less than 27 for men or 29 for women, and Fb raw scores were less than 23 for men or 24 for women. These validity criteria have been recommended as appropriate for outpatient mental health settings by several investigators (Graham et al., 1999; Graham, Watts, & Timbrook, 1991). The MMPI–2 measures of general maladjustment included in this study were raw scores on the F, Es, A, Pt, PK, and Mt scales, and the mean *T* score on eight clinical scales (Hs, D, Hy, Pd, Pa, Pt, Sc, Ma). These measures of general maladjustment were selected on the basis of a review of previous research literature and recommendations in contemporary interpretive guides (Butcher & Williams, 2000; Friedman et al., 2001; Graham, 2000; Greene, 2000).

## RESULTS

Table 1 reports intercorrelations between the MMPI–2 measures of maladjustment used in this study. In both settings all of the measures of maladjustment were significantly related to each other. As expected, there were negative correlations between Es scale scores and the other maladjustment measures. This is because higher scores on the Es scale indicate better adjustment, whereas higher scores on the other measures indicate poorer adjustment. Correlations among the MMPI–2 measures undoubtedly are due, in part, to overlapping items.

Table 2 reports correlations between the criterion measures of maladjustment. In the CMHC setting, all measures were significantly intercorrelated for both men and women. In the UPC setting, most measures were also significantly intercorrelated. The exception was that the GSI scores of male clients were not significantly related to other measures of maladjustment. As expected, the ratings of level of functioning (GAF, LOF), in which higher scores indicate better functioning, were negatively related to ratings of symptom severity, in which higher scores indicate more severe symptoms. It is interesting that, with the exception noted, therapist and intake worker ratings of level of functioning were significantly correlated, as were client and therapist ratings of symptom severity.

To develop a composite measure of maladjustment whose reliability should be greater than any of the individual measures, a factor analysis was conducted using a combined sample of 1,051 clients in the two settings. Scores for the four criterion measures of maladjustment were subjected to principal components factor analysis. Examination of eigenvalues and the scree plot suggested that a one-factor solution was optimal and accounted for 43% of the variance. Factor loadings for each

TABLE 1
Correlations Between Minnesota Multiphasic Personality Inventory–2 Measures

| | *Community Mental Health Center*[a] | | | | | | | *University Psychological Clinic*[b] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Measure* | *F* | *Es* | *A* | *M8* | *Pt* | *PK* | *Mt* | *F* | *Es* | *A* | *M8* | *Pt* | *PK* | *Mt* |
| F | — | –64 | 70 | 73 | 59 | 79 | 72 | — | –49 | 65 | 60 | 53 | 73 | 64 |
| Es | –65 | — | –81 | –74 | –69 | –83 | –84 | –56 | — | –77 | –66 | –66 | –77 | –76 |
| A | 69 | –79 | — | 72 | 74 | 91 | 93 | 66 | –81 | — | 69 | 73 | 89 | 89 |
| M8 | 74 | –76 | 72 | — | 88 | 82 | 80 | 68 | –68 | 70 | — | 88 | 74 | 72 |
| Pt | 67 | –73 | 78 | 89 | — | 78 | 77 | 57 | –68 | 77 | 86 | — | 73 | 73 |
| PK | 79 | –79 | 89 | 81 | 80 | — | 93 | 73 | –79 | 89 | 81 | 79 | — | 87 |
| Mt | 68 | –81 | 90 | 82 | 82 | 89 | — | 65 | –80 | 91 | 77 | 78 | 91 | — |

*Note.* Men are above the diagonal; women are below the diagonal. F = Infrequency scale; Es = Ego Strength scale; A = Welsh's Anxiety scale; M8 = mean $T$ score for eight clinical scales; Pt = Psychasthenia scale; PK = Keane's Posttraumatic Stress Disorder scale; Mt = College Maladjustment scale. All correlations are significant at $p < .001$.

[a]Men $n = 274$; women $n = 425$. [b]Men $n = 105$; women $n = 247$.

TABLE 2
Correlations Between Criterion Measure of Maladjustment

| | *Community Mental Health Center*[a] | | | | *University Psychological Clinic*[b] | | | |
|---|---|---|---|---|---|---|---|---|
| *Measure* | *GAF* | *LOF* | *GPSA* | *GSI* | *GAF* | *LOF* | *GPSA* | *GSI* |
| GAF | — | 31** | –20* | –34** | — | 34* | –45** | –14 |
| LOF | 27** | — | –38** | –40** | 36** | — | –46** | –11 |
| GPSA | –14* | –37** | — | 29** | –35** | –56** | — | 11 |
| GSI | –28** | –23** | 18** | — | –44** | –43** | 34** | — |

*Note.* Men are above the diagonal; women are below the diagonal. Higher scores indicate better adjustment for GAF and LOF. Higher scores indicate worse adjustment for GPSA and GSI. GAF = Global Assessment of Functioning Scale—intake rating level of functioning on Axis V; LOF = therapist's rating of level of functioning at third session; GPSA = Global Psychopathology scale of the Symptom Checklist–90 (SCL–90) Analogue therapist's rating; GSI = Global Severity Index—client's self-report of symptoms on SCL–90–Revised.

[a]Men $n$ = 274; women $n$ = 425. [b]Men $n$ = 105; women $n$ = 247.

*$p < .01$. **$p < .001$.

of the four criterion measures were as follows: GSI = .742; GAF = –.639; GPSA = .627; and LOF = –.621. A composite maladjustment score was determined for each client in the study based on these factor loadings.

Table 3 reports correlations between the seven MMPI–2 measures and the composite measure of maladjustment in both settings. Examination of the correlation coefficients in Table 3 suggests that M8 was most strongly and consistently related to the criterion measure of maladjustment in both settings for both men and women. In three of the four samples, M8 yielded the highest correlations with the criterion measure, and in the other sample M8 was tied with PK and Mt for the highest correlation.

Next, stepwise regression analyses were conducted using the seven MMPI–2 variables as predictors and the composite maladjustment score as the criterion variable. Consistent with the zero order correlations, M8 was the best predictor in all analyses (Tables 4 and 5). For men in the UPC sample, other MMPI–2 measures did not add significantly to M8. In the other three samples, one or more MMPI–2 variables added significantly to M8 in predicting maladjustment. However, the increments in variance were small, ranging from 2.7% to 5.8%.

To determine if M8 added significantly to other MMPI–2 measures in predicting maladjustment, hierarchical regression analyses with forced entry were conducted. For each sample, each MMPI–2 variable that added significantly to M8 in the stepwise regression analyses was entered first, and then M8 was added in a second block. The results of these analyses are also reported in Tables 4 and 5. In each analysis, M8 added significantly and meaningfully to the other MMPI–2 variable, with increments in variance ranging from 5.5% to 12.7%.

## DISCUSSION

The results clearly indicate that in the two clinical settings included in this study MMPI–2 variables were significantly related to the criterion measure of general maladjustment. Although all seven of the MMPI–2 measures were significantly related to the composite measure of maladjustment, M8 had the most consistently strong relations with the criterion measure in both settings and for both male and female mental health clients.

Although other MMPI–2 measures sometimes accounted for significant increments in criterion variance above that accounted for by M8, the increments were generally quite small and probably not clinically meaningful. By contrast, M8 accounted for larger increments in criterion variance above that accounted for by other MMPI–2 measures. It should be recognized that the MMPI–2 measures in this study are not independent of each other and that the M8 variable captures much of the variance also assessed by the other measures. Therefore, it is not surprising that other measures did not add much to M8 in the regression analyses.

M8 appears to be the MMPI–2 variable of choice in making inferences about general maladjustment among mental health outpatients. Although some simple calculations are necessary to determine M8 if hand scoring is utilized, computerized scoring programs calculate and report M8 for users.

There were several aspects of this study that suggest that we can have confidence in its findings. The pattern of results was essentially the same in two different kinds of outpatient settings that provide services to very different kinds of

TABLE 3
Correlations Between Minnesota Multiphasic Personality Inventory–2 Measure and Composite Maladjustment Criterion Measure

| | *Community Mental Health Center* | | *University Psychological Clinic* | |
|---|---|---|---|---|
| *Measure* | *Men*[a] | *Women*[b] | *Men*[c] | *Women*[d] |
| F | 60** | 52** | 38** | 51** |
| Es | –63** | –57** | –31* | –50** |
| A | 58** | 47** | 36** | 52** |
| M8 | 67** | 62** | 46** | 60** |
| Pt | 59** | 59** | 33* | 50** |
| PK | 67** | 54** | 39** | 57** |
| Mt | 67** | 55** | 38** | 57** |

*Note.* F = Infrequency scale; Es = Ego Strength scale; A = Welsh's Anxiety scale; M8 = mean *T* score of eight clinical scales; Pt = Psychasthenia scale; PK = Keane's Posttraumatic Stress Disorder scale; Mt = College Maladjustment scale.
[a]$n = 274$. [b]$n = 425$. [c]$n = 105$. [d]$n = 247$.
*$p < .01$. **$p < .001$.

TABLE 4
Regression Analysis Results—Community Mental Health Center

| *MMPI–2 Measure* | *Men*[a] $R^2_{adj}$ | $R^2_{Change}$ | $F_{Change}$ | *Women*[b] $R^2_{adj}$ | $R^2_{Change}$ | $F_{Change}$ |
|---|---|---|---|---|---|---|
| Stepwise | | | | | | |
| M8 | .447 | .449 | 198.25** | .381 | .382 | 240.69** |
| M8, Mt | .492 | .047 | 198.25** | | | |
| M8, ES | | | | .406 | .027 | 17.785** |
| M8, Mt, F | .499 | .009 | 4.16* | | | |
| Hierarchical with forced entry | | | | | | |
| Es | .391 | .393 | 157.59** | .328 | .329 | 191.11** |
| Es, M8 | .480 | .091 | 42.89** | .406 | .080 | 52.47** |
| F | .359 | .361 | 137.56** | .266 | .267 | 142.02** |
| F, M8 | .471 | .114 | 52.43** | .388 | .124 | 79.04** |
| Mt | .439 | .442 | 192.25** | .304 | .306 | 171.25** |
| Mt, M8 | .492 | .055 | 26.28** | .387 | .085 | 53.86** |

*Note.* MMPI–2 = Minnesota Multiphasic Personality Inventory–2; $R^2_{adj} = R^2$ adjusted, and estimate of the correlation in the population; M8 = mean *T* score on eight clinical scales; Mt = College Maladjustment scale; Es = Ego Strength scale; F = Infrequency scale.

[a]$n = 274$. [b]$n = 425$.

*$p < .01$. **$p < .001$.

TABLE 5
Regression Analysis Results—University Psychological Clinic

| *MMPI–2 Measure* | *Men*[a] $R^2_{adj}$ | $R^2_{Change}$ | $F_{Change}$ | *Women*[b] $R^2_{adj}$ | $R^2_{Change}$ | $F_{Change}$ |
|---|---|---|---|---|---|---|
| Stepwise | | | | | | |
| M8 | .199 | .208 | 23.11** | .359 | .363 | 104.27** |
| M8, Mt | | | | .385 | .028 | 8.52** |
| Hierarchical with forced entry | | | | | | |
| Es | .084 | .095 | 9.20** | .245 | .249 | 60.80** |
| Es, M8 | .190 | .113 | 12.445** | .369 | .127 | 37.00** |
| F | .135 | .145 | 14.88** | .260 | .264 | 65.61** |
| F, M8 | .213 | .086 | 9.73** | .374 | .117 | 34.29** |
| Mt | .135 | .145 | 14.89** | .322 | .325 | 88.28** |
| Mt, M8 | .197 | .070 | 7.81** | .385 | .066 | 19.75** |

*Note.* MMPI–2 = Minnesota Multiphasic Personality Inventory–2; $R^2_{adj} = R^2$ adjusted, and estimate of the correlation in the population; M8 = mean *T* score on eight clinical scales; Mt = College Maladjustment scale; Es = Ego Strength scale; F = Infrequency scale.

[a]$n = 105$. [b]$n = 247$.

*$p < .01$. **$p < .001$.

clients. The CMHC setting services a rather disadvantaged clientele whose problems tend to be multifaceted and chronic. In the UPC setting clients tend to be younger college students whose problems are not as severe or chronic as in the CMHC setting. The pattern of results also was similar for male and female clients. However, relations between MMPI–2 measures and the criterion measure of maladjustment were noticeably lower for the UPC men than for the other three samples. This may be explained, at least in part, by a more restricted range of scores on the criterion measures for this sample, especially for the GSI measure.

In summary, the results of this study support the use of the MMPI–2 as a measure of general maladjustment for mental health outpatients. M8 emerged consistently as a good indicator of general maladjustment. Clinicians who use the MMPI–2 to assess general maladjustment, either solely or in the context of a more comprehensive evaluation of clients, are advised to place greatest emphasis on M8 as an index of general maladjustment. The extent to which this study's findings would be replicated in other settings (e.g., inpatient, forensic) remains to be determined by additional research.

## ACKNOWLEDGMENTS

This study was supported in part by a research grant to Yossef S. Ben-Porath and John R. Graham from the University of Minnesota Press. Some of the findings of this study were presented at the annual symposium on Recent Developments in the Use of the MMPI–2 and MMPI–A in Minneapolis, MN, March 1998.

## REFERENCES

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.

Archer, R. P., Elkins, D. E., Aiduk, R., & Griffin, R. (1997). The incremental validity of MMPI–2 supplementary scales. *Assessment, 4,* 193–205.

Barron, F. (1953). An ego strength scale which predicts response to psychotherapy. *Journal of Consulting Psychology, 17,* 327–333.

Blumberg, S. (1967). MMPI F scale as an indicator of severity of psychopathology. *Journal of Clinical Psychology, 23,* 96–99.

Butcher, J. N., Graham, J. R., Ben-Porath, Y. S., Tellegen, A., & Kaemmer, B. (2001). *MMPI–2: Minnesota Multiphasic Personality Inventory–2: Manual for administration, scoring, and interpretation.* Minneapolis: University of Minnesota Press.

Butcher, J. N., & Williams, C. L. (2000). *Essentials of MMPI–2 and MMPI–A interpretation* (2nd ed.). Minneapolis: University of Minnesota Press.

Davis, D. A., & Widseth, J. C. (1977). Prediction of help-seeking with the MMPI: The problem of base rates. *Journal of Clinical Psychology, 33,* 995–1000.

Derogatis, L. R. (1983). *SCL–90–R: Administration, scoring, and procedures manual–II for the (R)evised version.* Towson, MD: Clinical Psychometric Research.

Derogatis, L. R., Rickels, K., & Rock, A. (1976). The SCL–90 and the MMPI: A step in the validation of a new self-report scale. *British Journal of Psychiatry, 128,* 280–289.

Friedman, A. F., Lewak, R., Nichols, D. S., & Webb, J. T. (2001). *Psychological assessment with the MMPI–2.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Gottesman, I. I. (1959). More construct validation of the Ego Strength scale. *Journal of Consulting Psychology, 23,* 342–346.

Graham, J. R. (2000). *MMPI–2: Assessing personality and psychopathology* (3rd ed.). New York: Oxford University Press.

Graham, J. R., Ben-Porath, Y. S., & McNulty, J. L. (1999). *MMPI–2 correlates for outpatient mental health settings.* Minneapolis: University of Minnesota Press.

Graham, J. R., Watts, D., & Timbrook, R. (1991). Detecting fake-good and fake-bad MMPI–2 profiles. *Journal of Personality Assessment, 57,* 264–277.

Greene, R. L. (2000). *The MMPI–2: An interpretive manual* (2nd ed.). Boston: Allyn & Bacon.

Gross, L. R. (1959). MMPI L–F–K relationships with criteria of behavioral disturbance and social adjustment in a schizophrenic population. *Journal of Consulting Psychology, 23,* 319–323.

Hathaway, S. R., & McKinley, J. C. (1943). *The Minnesota Multiphasic Personality Inventory.* Minneapolis: University of Minnesota Press.

Himelstein, P. (1964). Further evidence of the Ego Strength scale as a measure of psychological health. *Journal of Consulting Psychology, 28,* 90–91.

Keane, T. M., Malloy, P. F., & Fairbank, J. A. (1984). Empirical development of an MMPI subscale for the assessment of combat-related post-traumatic stress disorder. *Journal of Consulting and Clinical Psychology, 52,* 888–891.

Kleinmuntz, B. (1960). An extension of the construct validity of the Ego Strength scale. *Journal of Consulting Psychology, 24,* 463–464.

Kleinmuntz, B. (1961). The College Maladjustment Scale (Mt): Norms and predictive validity. *Educational and Psychological Measurement, 21,* 1029–1033.

Kuczka, T., & Handal, P. J. (1990). Validity of the College Maladjustment scale for identification of distressed students. *Psychological Reports, 67,* 730.

Lutzker, D. R. (1961). A validity study of Tamkin's "MMPI scale measuring severity of psychopathology." *Journal of Clinical Psychology, 17,* 289–290.

Miller, H. R., Goldberg, J. O., & Streiner, D. L. (1995). What's in a name? The MMPI–2 PTSD scales. *Journal of Clinical Psychology, 51,* 626–631.

Moody, D. R., & Kish, G. B. (1989). Clinical meaning of the Keane PTSD Scale. *Journal of Clinical Psychology, 45,* 542–546.

Pickens, R. W., Errickson, E., Thompson, T., & Heston, L. (1979). MMPI correlates of performance on a behavior therapy ward. *Behavior Research & Therapy, 17,* 17–24.

Schuldberg, D. (1992). Ego Strength revised: A comparison of the MMPI–2 and MMPI versions of the Barron Ego Strength scale. *Journal of Clinical Psychology, 48,* 500–505.

Shaffer, J. W., Ota, K. Y., & Hanlon, T. E. (1964). The comparative validity of several MMPI indices of severity of psychopathology. *Journal of Clinical Psychology, 22,* 467–473.

Stewart, D. W. (1994). Using the MMPI–2 College Maladjustment scale in a Canadian university setting. *Canadian Journal of Counseling, 28,* 135–141.

Strupp, H. H., & Bloxom, A. L. (1975). An approach to defining a patient population in psychotherapy research. *Journal of Counseling Psychology, 22,* 231–233.

Svanum, S., & Ehrmann, L. C. (1993). Screening for maladjustment in college students: An application of receiver operating characteristics curve to MMPI scales. *Journal of Personality Assessment, 60,* 397–410.

Walters, G. D. (1987). Correlates of institutional adjustment in two groups of emotionally disturbed offenders. *International Journal of Offender Therapy & Comparative Criminology, 31,* 137–141.

Welsh, G. S. (1956). Factor dimensions A and R. In G. S. Welsh & W. G. Dahlstrom (Eds.), *Basic readings on the MMPI in psychology and medicine* (pp. 264–281). Minneapolis: University of Minnesota Press.

Wewers, M. E., & Lowe, N. K. (1990). A critical review of visual analogue scales in the measurement of clinical phenomena. *Research in Nursing and Health, 12,* 227–236.

John R. Graham
Department of Psychology
Kent State University
Kent, OH 44242

Received March 6, 2000
Revised July 10, 2001