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# MMPI-2 CLINICAL SCALE DIFFERENCES BETWEEN DYSTHYMIA AND MAJOR DEPRESSION

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Though dysthymia is considered less severe and more chronic than major depressive disorder, it is unclear whether the two disorders are truly different. In this study, MMPI-2 scales of 21 patients with dysthymia and 30 patients with major depressive disorder were compared. The average scores on Scales 2, 4, 6, 7, and 8 were in the clinical range for both groups. However, sizable differences between the two groups were found for Scale 1 and Scale 3. Smaller but reliable differences were found for Scale 2 and mean clinical scale *T* score with major depressives scoring higher on all of these measures. Results indicate that not only is major depressive disorder more severe than dysthymia, but also contains more physical/somatic symptoms than dysthymia.

*Keywords:* Dysthymia, major depression, MMPI, MMPI-2, *DSM-IV*

Dysthymia as a diagnostic entity has undergone a constant process of formulation and validation since its origins in the clinical literature. In 1863, Kahlbaum described dysthymia as a chronic form of melancholia, and distinguished it from cyclothymia which was characterized by fluctuations between depression and mania (Freeman, 1994). Research during the first half of the twentieth century also

emphasized dysthymia's chronicity, regarding it as a depressive temperament (Freeman). *DSM-II* (APA, 1968) did not include a category for dysthymia, but did include categories that can be viewed as antecedents to dysthymia in both the neurotic (depressive neurosis) and personality disorders (cyclothymic personality, depressive type).

With the advent of *DSM-III*, however, dysthymia was classified as an Axis I affective disorder (APA, 1980), and *DSM-III-R* and *DSM-IV* have preserved dysthymia's status as an Axis I mood disorder (APA, 1987, 1994). To meet *DSM-IV* criteria for dysthymia, one must have a long history (minimum 2 years) of specific depressive symptoms. The primary symptoms of dysthymia and major depressive disorder, as defined by *DSM-IV*, can be seen in Table 1.

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What remains unclear, however, is whether dysthymia and major depressive disorder are meaningfully different from one another (Akiskal, 1994; Frances et al., 1991; Freeman, 1994; Hirschfeld, 1994; Keller, 1994; Klein & Kelly, 1993; Klein, Riso, & Anderson, 1993; WPA, 1995). A quick glance at the *DSM-IV* criteria for these diagnoses (see Table 1) reveals a tremendous amount of symptomatic overlap. Generally, dysthymia is understood to be more chronic but less severe than major depression. It follows that many studies have reported severity differences between the two disorders, major depression being more severe (Frances et al., 1991; Freeman, 1994; Hirschfeld, 1994; Keller, 1994; Klein & Kelly, 1993).

However, the significant symptomatic overlap between dysthymia and major depression, and the high rate of comorbidity between dysthymia and major depression (estimates range from 38.9% to 90%), suggest that these two disorders are intimately related (Frances et al., 1991; Hirschfeld, 1994; Keller, 1994; Klein & Kelly, 1993; WPA, 1995). Do major depressives suffer from an intensified version of the dysthymic symptom pattern?

Or is the dysthymic symptom pattern somehow different from the major depressive symptom pattern? In short, researchers have yet to determine if major depressive disorder is anything more than a bad case of dysthymia.

Numerous researchers and theorists have sought to identify differences between dysthymia and major depression using varying approaches, without success (Akiskal, 1994; Frances et al., 1991; Hirschfeld, 1994; Keller, 1994; Klein & Kelly, 1993; WPA, 1995). For example, Klein and Kelly note that dysthymia and major depression often co-occur, and that the two disorders share similar familial, biological, and pharmacological correlates. Specifically, Klein and Kelly note that there are high rates of dysthymia in relatives of patients with major depression, that both dysthymics and major depressives exhibit shortened rapid eye movement latencies, and that both dysthymics and major depressives respond better to antidepressants than placebos. Klein and Kelly conclude that dysthymia and major depression are not different disorders, but rather are different phases in the evolution of the same depressive disorder.

Table 1  
*Primary Symptoms of DSM-IV Dysthymia and Major Depressive Disorder*

Dysthymia	Major Depressive Disorder
depressed mood	depressed mood
poor appetite or overeating	significant weight loss or gain, or decrease or increase in appetite
insomnia or hypersomnia	insomnia or hypersomnia
low energy or fatigue	fatigue or loss of energy
low self-esteem	feelings of worthlessness or excessive inappropriate guilt
poor concentration or difficulty making decisions	diminished ability to think, difficulty making decisions or concentrating, or indecisiveness
feelings of hopelessness	recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide
	markedly diminished interest or pleasure in activities
	psychomotor agitation or retardation

Note. *DSM-IV* = *Diagnostic and statistical manual of mental disorders*, 4th ed. (1994).

Akiskal (1994) most strongly asserts dysthymia's distinctness as a diagnostic entity, citing its unique evolution and course pattern. Dysthymia typically begins early in life and persists over many years, unlike bouts of major depression which occur suddenly and conclude after a couple weeks. However, like Klein and Kelly (1993), Akiskal acknowledges close associations between dysthymia and major depression, noting biological, symptomatic, and familial similarities. Though major depressive symptomatology appears more severe and acute than dysthymic symptomatology, the distinctions may end here.

This study sought to differentiate dysthymia from major depressive disorder by comparing and contrasting the scores of patients with these diagnoses who had taken the revised Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989). The MMPI was used originally to assess patient personality and psychopathology (Graham, 1993), but has been used repeatedly and successfully in recent years to differentiate between diagnostic populations (e.g., Ben-Porath, Graham, & Butcher, 1991; Garyfallos et al., 1994; Levin, Bertelson, & Lacks, 1984).

## Method

### Participants and Design

Participants were former clients of the Washington University Psychological Service Center, who met *DSM-IV* criteria for either dysthymia (300.40;  $N = 21$ ) or major depressive disorder (296.2x or 296.3x;  $N = 30$ ), and who had no other Axis I or Axis II diagnoses. Major depressive disorder subtypes (e.g., atypical or melancholic) were not considered in the diagnostic decision. Diagnoses were made by advanced clinical psychology doctoral students trained in the practice of making *DSM-IV* diagnoses. Diagnoses were based on an initial, semi-structured, psychological intake and three subsequent unstructured interviews. Domains covered by the intake included the following: identifying information and presenting complaint; behavioral observations; relevant history

(i.e., onset of problems, family constellation, education and employment history, interpersonal relationships, and previous psychological problems); and cognitive functioning. All diagnoses were arrived at by consensus with at least two other trained clinicians, including a senior-level supervisor with a doctoral degree in clinical psychology, all of whom observed the client on videotape. None of the clinicians were aware of this study. (It must be noted that MMPI-2 data for participants were available before diagnoses were made. However, therapists were instructed to adhere strictly to the *DSM-IV* criteria in making diagnoses, and it is reasonable to conclude that if the MMPI-2 did affect clinical judgment, the influence on the differential diagnosis of dysthymia and major depression was likely minimal.)

Participants were outpatients (not college students) from the greater St. Louis area and were gleaned from a very large sample of over 900 patients (primarily females and Caucasian) who received all possible *DSM-IV* diagnoses. Mean age for the combined sample in this study was 30 years ( $SD = 9$  years). The combined sample was 92% Caucasian, 8% African American, and 82% female. There were no statistically significant age, race, or gender differences between the two samples, nor did the two groups differ on the validity scales ( $L$ ,  $F$ , and  $K$ ).

### Data Analysis

Dependent variables were the  $K$ -corrected  $T$  scores on the 12 basic scales. Scale 5 (Masculinity-Femininity) was not used since the participant groups included both males and females, and  $T$  scores on Scale 5 are not comparable for men and women. We also examined the mean of eight clinical scale  $T$  scores (omitting Scales 5 and 0) for each group to measure severity differences. The mean of eight clinical scale  $T$  scores, though not traditionally used in previous MMPI studies, can be used as an estimate of psychopathological severity (Graham, 1993).

Statistical reliabilities ( $p$  values) and effect sizes ( $\eta^2$  and Cohen's  $d$ ) were applied to analyze differences across scales, on particular scales, and on

the mean of eight clinical scales. We first analyzed group differences on Scale 2 and the mean of eight clinical scales, expecting major depressives to score higher on both these measures. We next examined whether the two groups differed on all the remaining clinical scales.

## Results

Table 2 presents the mean *T* scores and standard deviations for each basic scale by group, along with the results of statistical tests evaluating the magnitude (Cohen's *d*) and statistical reliability (*p* value) of differences between scores found for the two groups.

One-tailed *t*-tests conducted on Scale 2 and the mean of eight clinical scales confirmed our hypothesis with the major depressive group scoring higher on these measures. A multivariate analysis of variance indicated that the two samples

differed marginally across all the MMPI-2 clinical scales (excluding Scale 5). Post hoc univariate analyses of variance revealed that the major depressive sample scored substantially higher than did the dysthymic sample on Scale 1 and Scale 3.

Further analyses were conducted on Scales 1, 2, and 3 since results for these scales were statistically significant. For each scale, we calculated the proportion of patients in each group with clinically elevated scores, optimal cutoff points for assigning diagnoses of either dysthymia or major depression, and, on the basis of that cutoff point, sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV).

On Scale 1, 33% of dysthymics versus 57% of major depressives generated elevations. An optimal cutoff point of 60 *T* accurately classified 68.6% of participants. For the dysthymic group,

Table 2  
Mean MMPI-2 Scale *K*-Corrected *T* Scores for Patients With Dysthymia or Major Depressive Disorder

Scale	Dysthymic patients <sup>a</sup>		Major depressive patients <sup>b</sup>		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>L</i>	45.6	6.6	48.1	6.7	.38
<i>F</i>	68.5	14.1	67.0	14.9	.10
<i>K</i>	42.0	8.4	46.0	9.7	.43
<i>Hs</i> (1)	55.0**	13.7	66.5**	14.2	<b>.83</b>
<i>D</i> (2)	73.9*	10.9	80.0*	13.7	<b>.48</b>
<i>Hy</i> (3)	58.6**	13.2	69.5**	13.0	<b>.83</b>
<i>Pd</i> (4)	67.6	12.8	71.2	12.7	.28
<i>Pa</i> (6)	69.9	13.9	67.2	9.4	.24
<i>Pt</i> (7)	73.2	14.0	77.0	11.3	.31
<i>Sc</i> (8)	70.0	14.0	75.1	12.5	.39
<i>Ma</i> (9)	53.6	10.4	50.8	9.9	.28
<i>Si</i> (0)	64.7	9.7	61.5	10.9	.32
Mean of 8 scales <sup>c</sup>	65.2*	9.0	69.7*	8.4	<b>.52</b>

Note. MMPI-2 = Minnesota Multiphasic Personality Inventory-2. The multivariate analysis of variance conducted across the clinical scales (excluding Scale 5) provided the following results:  $F(9, 41) = 1.87, p = .08, \eta^2 = .14$ . Bolded values had significant effect sizes.

<sup>a</sup>*n* = 21. <sup>b</sup>*n* = 30. <sup>c</sup>Mean of Scales 1, 2, 3, 4, 6, 7, 8, and 9.

\**p* < .05, one-tailed. \*\**p* < .007.

sensitivity was 67%, specificity 70%, PPV 61%, and NPV 75%. For the major depressive group, sensitivity was 70%, specificity 67%, PPV 75%, and NPV 61%.

On Scale 2, 81% of dysthymics versus 93% of major depressives generated elevations. An optimal cutoff point of 76.5 *T* accurately classified 66.7% of participants. For the dysthymic group, sensitivity was 71%, specificity 63%, PPV 58%, and NPV 76%. For the major depressive group, sensitivity was 63%, specificity 63%, PPV 76%, and NPV 58%.

On Scale 3, 43% of dysthymics versus 57% of major depressives generated elevations. An optimal cutoff point of 64.5 *T* accurately classified 56.9% of participants. For the dysthymic group, sensitivity was 57%, specificity 57%, PPV 48%, and NPV 73%. For the major depressive group, sensitivity was 57%, specificity 57%, PPV 73%, and NPV 48%.

## Discussion

This study was designed to assess distinctions between dysthymia and major depression using MMPI-2 scores. The two groups generated the same codetype (2-7) and elevations in common on Scales 2, 4, 6, 7, and 8. However, a modest difference emerged on Scale 2 and sizable differences emerged between the two groups on Scales 1 and 3 (with major depressives scoring higher on these scales). That major depressives scored significantly higher on Scales 1 and 3 may indicate only that major depressive disorder is more severe. The higher mean clinical scale *T* score generated by the major depression sample may further illustrate this severity difference. However, we conclude that, though the two groups are similar, there are some unique characteristics for major depressive disorder. Specifically the correlates of Scales 1 and 3 (i.e., physical/somatic symptoms and complaints) do not appear to play a prominent role in dysthymia but do so in major depression.

Results from this study were generally consistent with results from past MMPI studies. Like the samples in this study, dysthymic and major depressive

samples in other studies (using *DSM-III* or *DSM-III-R* criteria) generated their highest elevations on Scales 2 and 7<sup>1</sup>. In a study comparing patients with dysthymia and borderline personality disorder, dysthymics generated the highest elevations on Scales 2, 7, and 8 (Snyder, Pitts, Goodpaster, Sajadi, & Gustin, 1981). In a study comparing patients with major depression and schizophrenia, major depressives generated their highest elevations also on Scales 2, 7, and 8 (Ben-Porath et al., 1991). Lastly, a depressive sample combining patients with dysthymia and major depression generated a 2-7 codetype (Garyfallos et al., 1994).

Results from this study were also consistent with previous research regarding the symptom differences between dysthymia and major depression. The major depressive group alone generated elevations on Scales 1 and 3, which are measures of physical and somatic symptomatology. Though past studies find dysthymia and major depression to be very similar symptomatically (Frances et al., 1991; Hirschfeld, 1994; Keller, 1994; Klein & Kelly, 1993; WPA, 1995), a few studies have found major depression to be associated with more physical and somatic symptoms than dysthymia. For example, loss of appetite or weight, trouble thinking and concentrating, and reduced general activity level were found to be far more prevalent in patients with major depression than dysthymia (Kivelae, Pahkala, & Eronen, 1989; Klein et al., 1996; Steer, Beck, Brown, & Berchick, 1987).

This study contributes both to the MMPI literature and to the literature on *DSM* dysthymia and major depression. Whereas many studies have demonstrated the utility of the MMPI in differentiating between diagnostic populations, the vast majority of those studies compared diagnostic populations that were known to have important a priori symptom differences. This study compared two diagnostic groups known to be intimately related

<sup>1</sup>It should be noted that most MMPI studies were conducted using the original MMPI and not the revised version (i.e., MMPI-2). However, MMPI scale elevations and code-types are comparable to MMPI-2 scale elevations and code-types (Graham, 1993).

symptomatically yet different in severity. The mean MMPI-2 scores of the dysthymic and major depressive samples reflected such symptomatic similarity and severity differences, while shedding light on a specific area of symptomatic difference (Scales 1 and 3). Thus, the MMPI-2 has proved useful in distinguishing even between two highly similar diagnostic populations.

This study has an important limitation. The sample sizes were relatively small, increasing the chances of Type II error. We ameliorated this limitation somewhat by the inclusion of effect sizes in the statistical analyses so as to limit our reliance on statistical significance testing. Though additional participants with primary diagnoses of dysthymia or major depression and secondary Axis I or Axis II diagnoses could have been included to increase sample size, we felt it was important to keep our dysthymic and major depressive samples clean, and therefore excluded these potential participants from the study. We also note that, while employing a highly selected sample with no Axis I or Axis II comorbidity minimizes the role of confounds due to comorbidity, and is therefore an important strength, such a sample limits the generalizability of our data.

Another limitation of our study involves the averaging process we used to compare MMPI-2 profiles. The comparison of dysthymics and major depressives in this study was based on each group's mean MMPI-2 profile. It should be noted that once a mean profile is calculated for a group, what has been created is a profile that represents no single member of the group.

In summary, a comparison of the MMPI-2 scale scores of outpatients with dysthymia and major depression revealed that the two groups are remarkably similar, with the exceptions that the major depressive sample generated unique elevations on Scales 1 and 3, and generated higher Scale 2 and mean of eight clinical scale *T* scores. Effect sizes were largest for Scales 1 and 3, indicating that these scales may best differentiate dysthymics from major depressives.

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