

PREDICTORS OF SEVERITY OF DEPRESSION ON HAMILTON'S RATING SCALE

I. V. L. NARASIMHA RAO¹

N. JANAKIRAMAIAH²

D. K. SUBBAKRISHNA³

SUMMARY

An attempt was made to identify the predictors of the severity of depression as measured by Hamilton's Rating Scale for depression. The analysis was on the data of 48 patients with a functional depressive illness admitted to a mental hospital in connection with a project on Dexamethasone suppression test. A broadly conceived 'endogeneity' score was the only variable that explained a substantial part of the variance in the Hamilton's scores of depression. It was concluded that the score on the Hamilton's Rating Scale for depression indexes severity of depression when severity is conceived with the accent on endogenous features.

Problems in the measurements of depression had been discussed by several authors (Aitken and Zealley 1970, Beaumont 1977). Among the physician administered scales of depression, the scale developed by Hamilton (1960) has been used the most widely, especially in the clinical evaluation of antidepressant drugs. However, the ability of the Hamilton's rating scale (H.R.S) to measure the severity independently of the neurotic-endogenous connotations has never been examined. The features conventionally associated with an endogenous depression are over represented in Hamilton's rating scale. This means, therefore, that the ability of the H.R.S. to distinguish the more severe depression from the less severe derives at least partly from a corresponding weightage given to the endogenous features in the physician's concept of severity of depression.

The present study was conducted with the aim of identifying the determinants of the total score on H.R.S.

Material and Methods

As part of a project on Dexamethasone suppression test in depressive illness, 48 patients were admitted to the wards of

National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore. While organicity and complicating physical illness were the principal exclusion criteria, the following criteria were required for inclusion of the patients in to the study.

- (1) Diagnosable as having a functional depressive syndrome;
- (2) At least 2 out of 8 the inclusion criteria symptoms on the W.H.O. screen form (Sartorius et al 1980), and
- (3) A score of 14 or more on the H.R.S. (Hamilton 1960).

There were 11 males and 7 females with endogenous depression, 18 males and 4 females with a depressive neurosis and the remaining had an equal number of male and female neurotic patients with secondary depression. The clinical diagnosis of the patients and the division of above diagnostic groups was made according to I.C.D-9. The following scales were administered:

Social Readjustment Rating Scale (Holmes and Rahe 1967), Eysenck Personality Inventory (Eysenck and Eysenck 1964, Anomia scale (Srole 1956), and a checklist of 35 clinical features of depression (Kiloh and

1. Senior Resident,
2. Assistant Professor] Department of Psychiatry
3. Assistant Professor, Department of Biostatistics]

National Institute of Mental Health and Neurosciences,
Bangalore - 560 029.

Garside 1963). From the check list five scores were derived: (a) Antecedent endogeneity score (on items: age 40 or above, presence of anxiety, and obsessionality, and absence of inadequacy premorbidly, and presence of previous attacks of depression; the score ranges from 0 to 5, with each feature scoring one), (b) current endogeneity score (ranging from 0-19, with each of the following features scoring one: duration one year or less, insidious onset, absence of precipitation, moderate or severe depth of depression, distinct quality of depression, absence of reactivity of depression, depression worse in early morning, self reproach, retardation, agitation, weight loss of 7 lb or more, subjective anxiety, phobias, irritability, failure of concentration, hypochondriasis, paranoid features, restless sleep and early awakening). (c) sum of the antecedent and current endogeneity scores referred to simply as endogeneity score, (d) endogenous features score (ranging from 0-10) and (e) neurotic features score (ranging from 0-14). The (d) and (e) were obtained by the number of features in the patient out of the clinical features that correlated significantly with the respective diagnosis in the study of Kiloh and Garside (1963).

The details of the Dexamethasone suppression test procedure adopted and the results are under report separately. For the present purpose only one measure, Dexamethasone Suppression Index (the post-dexamethasone midnight plasma cortisol level expressed as a percentage of the predexamethasone midnight plasma cortisol level) is taken.

In statistical analysis, the probability level for significance was fixed at 0.05.

Results

The mean age in years in the 3 groups, i.e. endogenous, neurotic and secondary depression groups was 43.1, 32.0 and 32.2 respectively. The mean age of the endogen-

ous depression group is significantly higher than that of the other two groups. The mean scores across the three groups, revealed no differences on Anomia score, Life stress score on Holmes and Rahe's scale, and the five scores derived from the checklist of 35 clinical features. The mean HRS score is higher in the endogenous group (24.50) than in the depressive neurosis group (21.5) and the secondary depression group (18.38). The mean E and N scores on E.P.I. in three groups of depressed patients showed no significant difference (Table-1).

Table 1
Mean E and N Scores on EPI in three groups of depressed patients
(Figures in parentheses are standard deviation)

Score	Endogenous group	Depressive neurosis group	Secondary depression group	F ratio	df	p
E	8.40 (3.92)	10.22 (4.08)	9.25 (4.06)	.82	2,37	NS
N	16.53 (5.11)	15.50 (5.76)	18.37 (3.92)	.84	2,37	NS

The Dexamethasone Suppression Index narrowly missed significance in its correlations with HRS score ($r = .32$). When it was taken into the multiple regression the variance explained in the HRS score was decreasing and hence it had to be excluded from the predictors of the severity of depression. The correlation of the HRS scores with endogenous features score, age, anomia, EPI-E score, and life stress score are all not significant and very low (Table-2).

Table 2
Pairs of Variables which correlated significantly

Variable	r
HRS Score and current endogeneity score	0.70
HRS Score and endogeneity score	0.66
HRS Score and N score on EPI	0.45
Current endogeneity X Antecedent endogeneity	0.40
Current endogeneity X endogeneity	0.96
Current endogeneity X N score on EPI	0.39
Current endogeneity X E score on EPI	-0.36
Current endogeneity X life stress score	0.44

To conclude, only the current endogeneity score accounted for a substantial 46% of the variance in the severity of depression and measured by HRS with EPI-N score accounting for 9% in addition (Table-3).

Table 3
Results of Multiple Regression Analysis

Variables	Multiple Correlation Coefficient	F	p
HRS score and current endogeneity score	0.46	13.3	<0.001
HRS score, current endogeneity score and EPI-N score	0.55	9.8	<0.01

the neurotic features score showed significant correlation with the HRS score. The endogeneity score attained significant correlation with HRS score apparently because endogeneity was here rather broadly conceived. Thus, the score on HRS indexes severity of depression when severity is conceived with an accent on the endogenous dimension. To cross check with current professional opinion as to the diagnostic significance of the 24 selected clinical features in the neurotic-endogenous differential, 20 psychiatrists with two to five years of training and experience in psychiatry were requested for their opinion. The

Table 4
Percentage of psychiatrists indicating diagnostic significance of the features in relation to the neurotic endogenous differential

	Indicates endogenous depression or is more common	Against endogenous depression	Not against endogenous depression or neutral
1. Age 40 or above	85		15
2. Anxiety	15		85
3. Obsessionality] In premorbid personality	10	40
4. No inadequacy			
5. Previous attacks of depression	100		
6. Duration 1 yr. or less	60		40
7. Insidious onset	40	5	55
8. No precipitation	80		20
9. Moderate or severe depth of depression	90		10
10. Distinct quality of depression	95		5
11. No reactivity of depression	85		15
12. Depression worse in early morning	100		
13. Self reproach	100		
14. Retardation	95	5	5
15. Agitation	75		25
16. Weight loss of 6 lb. or more	90		10
17. Subjective anxiety	30	5	65
18. Phobias	10	15	75
19. Irritability	15		85
20. Failure of concentration	20		80
21. Hypochondriasis	25	5	70
22. Paranoid features	60		40
23. Restless sleep	20	5	75
24. Early awakening	100	5	

Though the content of the clinical features checklist closely correspond to the contents of the HRS, it is interesting to note that neither the endogenous features score nor

results (Table-4) indicate that none of the features was identified by a substantial percentage of them as indicating against endogenous depression.

Discussion

The finding that the HRS score is significantly more in the endogenously depressed patients indicates that the score is weighted in favour of the endogenous features. This conclusion is strengthened by the fact that a broadly conceived endogeneity score explains 46 percent of the variance in the HRS score. Further attempts to critically examine what we mean by severity of depression are advised.

References

- AITKEN, R. C. B. & ZEALLEY, A. K. (1970), Measurement of moods, *British Journal of Hospital Medicine*, 4, 215-224.
- BEAUMONT, G. (1977), Measurement of depression, *Journal of Internal Medicine Research*, 5 (Suppl. 1), 51-54.
- EYSENCK, H. J. & EYSENCK, S. B. G. (1964), The Eysenck Personality Inventory, University of London Press, London.
- HAMILTON, M. (1960), A rating scale for depression, *Journal of Neurology, Neurosurgery and Psychiatry*, 23, 56-62.
- HOLMES, T. H. & RAHE, R. (1967), The social readjustment rating scale, *Journal of Psychosomatic Research*, Res. 11, 213-218.
- KILOH, L. G. & GARSIDE, R. F. (1963), The independence of neurotic depression and endogenous depression, *British Journal of Psychiatry*, 109, 451-463.
- SARTORIUS, A., JABLENSKY, A., GULBINAT, W. & ERNBERG, G. (1980), Application of WHO scales for the assessment of depressives states in different cultures, *Acta Psychiatrica Scandinavica*, (Suppl. 285), 62, 204-211.
- SROLE, L. (1956) Social Integration and certain corrolaries: An exploratory study. *American Social Review*, 21, 709-716.