

The Leeds Scales for the Self-Assessment of Anxiety and Depression

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Summary. Self-rating scales are finding an increasing use in psychiatric work. Not only are they widely used in research, but they provide the clinician with a score indicating the patient's psychiatric state at any one time, and these scores if repeated throughout the duration of treatment may be considered to provide a continuing measure of the severity of the illness, as does a temperature chart in a febrile illness.

Most scales could be improved by item analysis, and in this study the Wakefield Self-Assessment of Depression Inventory, with added items, was subjected to statistical analysis. It was found that valid scales could be constructed for the measurement of anxiety and of depression in general psychiatric disorder, as well as scales for the measurement of the severity of endogenous (primary) depression and of anxiety states. In addition, the derivation of a 'diagnostic' score was confirmed in a cross-validation study and may be found of use both in research and in clinical practice.

INTRODUCTION

The use of self-rating scales in psychiatric practice and research is increasing. They possess certain inherent drawbacks, depending as they do upon the patient's literacy and ability to concentrate; they are also liable to be influenced by the patient's wish to present himself in a certain light. Other shortcomings, including 'overall agreement set', 'social desirability', 'end-users versus middle users' and 'positional bias', have been reviewed by Goldberg (1972). In spite of these and other difficulties, many scales have proved to be valid measures of the severity of certain psychiatric disorders, particularly in the field of depression. In this area self-assessment scales may be divided into those which measure the severity of the illness and those which assess depressed mood; yet others may be largely composed of personality 'trait' items rather than of illness 'state' items. An example of scales in the latter two categories are those of Costello and Comrey (1967), and the authors state that their scales have different purposes from those measuring the severity of

depressive illness and anxiety states. Instruments which measure severity may themselves be divided into those employing the technique of visual analogue of the overall severity (Aitken, 1969) and those which arrive at a measure based on the severity of the individual symptoms. More detailed discussion of these scales have appeared in reviews by Zung (1965), Hamilton (1969), and Aitken and Zealley (1970).

Self-rating scales which measure anxiety state (illness), as opposed to trait measures, have not been so highly developed as depression scales, but examples of recent scales which provide measures of a number of clinical dimensions (including anxiety and depression) are those of Crown and Crisp (1966) and Kellner and Sheffield (1973).

Points concerning the selection of appropriate rating scales for particular uses have been made by Kellner (1972), and a consideration of matters raised when self-rating scales are to be used as screening instruments has been made by Goldberg (1974).

Although self-rating scales are now numerous,

there can be little doubt that most of them could be further improved by item analysis and other techniques. In the paper introducing the Wakefield Self-Assessment of Depression Inventory (Snaith *et al.*, 1971) the authors concluded that the scale merited further development.

The present research is based upon the Wakefield SAD Inventory with added items. Through an item analysis based upon diagnostic assignment and comparison with other measures it seeks to:

- (a) determine whether individual items correlate significantly with age and sex and should therefore be excluded from scales designed to detect or measure illness in either sex at any age;
- (b) determine whether the same, or different groups of items are most appropriate as (i) measures of the severity of clinically diagnosed primary depressive illnesses and anxiety states, and (ii) measures of the severity of depression and anxiety throughout a range of psychiatric disorders;
- (c) determine whether the scores based upon these sub-scales confirm clinical diagnosis and so might be justified as a diagnostic instrument;
- (d) determine whether the scales so constructed are sufficiently sensitive and specific (for definition: see Goldberg, 1972, p. 67) for their use to be justified in screening work.

METHOD

The items

A further ten items were added to the original twelve of the Wakefield SAD Inventory. Two of these added items (Items 21 and 22—see Appendix) were taken directly from the Anxiety scale of the Symptom Rating Test (Kellner and Sheffield, 1973). These twenty-two items more nearly covered the range of common symptoms of depressive illness and anxiety states than did the original twelve. It is not possible to cover all the symptoms with an appropriate item without making the scale unwieldy by its length. The many and protean symptoms of somatic reference were not covered. No attempt was made

to include items for the diverse phobic and obsessional symptoms, with the single exception of an item indicating fear of leaving home unaccompanied. It was found to be difficult to phrase an item concerned with loss of libido for a scale designed for use with patients of any age, sex or marital state, and this was omitted. No item was included for weight loss, and restless sleep was omitted, though initial and delayed insomnia were both included.

The items selected for analysis appear in the Appendix. Future reference to these items will be by the number allotted to them therein.

Response to each item is on a four-point scale, i.e. 'definitely' (3), 'sometimes' (2), 'not much' (1) and 'not at all' (0). In order to lessen response-set, items 2, 5, 7 and 13 were reversed so that 'definitely' scored 0 and so on.

Patients were requested to complete the scale fairly quickly and on their own without the distraction of 'assistance' from staff, friends or family. They were always instructed to answer the items to indicate how they were at the time or within the last day or two of completion. This instruction also appeared on the scale.

The ratings

All the ratings were made by two of the authors (R.P.S. and G.W.K.B.). Each patient received a rating on a five-point scale of global severity, using Severely Ill, Moderately Ill, Mild Illness, Slight Residual Symptoms, and Recovered as the markers on the scale. The patients were then rated with the two observer rating scales, the assessments and scores being carried out during the same interview; these were the Depression Rating Scale (Hamilton, 1967) and the Anxiety Rating Scale (Hamilton, 1959). In this paper reference to these scales will be by the contractions HRS and HAS respectively. These observer rating scales are measures of the total syndromes of depressive illness and anxiety states respectively, and in keeping with the symptomatology of these disorders both contain items referring to anxiety, depression and symptoms of somatic reference. For one stage of the present research it was necessary to have observer ratings representing relatively 'pure' depressive symptoms and 'pure' anxiety symptoms. To obtain these, those scores

from the HRS were extracted which related to depressed mood, guilt ideation, suicidal preoccupation, delayed insomnia, work and interests, retardation, agitation, and loss of appetite, weight loss, energy and insight; these scores were summed and the result was the score of what is in this paper called the Symptoms of Depression Scale. Scores referring to symptoms of psychic anxiety were likewise extracted from the HAS; these were the following items: anxious mood, tension, fears, initial and middle insomnia, cognitive disturbance (memory and concentration) and observed anxious behaviour. The sum of the scores of these items will in this paper be called the Symptoms of Anxiety Scale. These two scales, extracted from the full HRS and HAS will be henceforth referred to by the contractions SDS and SAS.

Few of the ratings were undertaken jointly by both psychiatrists, but at an early stage in the research it was established that the inter-rater correlations over twenty joint ratings for the HRS and HAS were $+0.94$ and $+0.90$ respectively.

It was important to determine whether the patient's self-rating was influenced by the observer ratings; that is, whether being subjected to the psychiatric examination entailed in making the observer rating influenced the manner in which the patient subsequently rated himself. To examine this, 50 patients completed their self-rating shortly before the observer rating and a further 50 shortly after. It was reasoned that if the observer rating influenced the self-rating there would probably be a closer correspondence between the two ratings in the 'after' group. In each group the twelve items comprising the Wakefield SAD Inventory were summed (the self-rated depression score) and the score on the HRS (the observer rated depression score) subtracted. In this way a set of scores was obtained for each group, and it was found that there was no significant difference between these two sets ($F = 0.38$). The conclusion was drawn that prior psychiatric rating did not consistently alter the manner in which the patient subsequently rated himself, and accordingly it was considered justifiable to combine data from

both 'before' and 'after' self-raters in the analysis of the data.

In no case was there an interval of more than an hour between completion of self-ratings and observer ratings.

The patients

The ratings were made on patients suffering from the following psychiatric disorders: depressed phase of manic-depressive psychosis (endogenous depression), depressive neurosis, anxiety neurosis, phobic neurosis, hypochondriacal neurosis and obsessive-compulsive neurosis.* These are categories 296.2, 300.4, 300.0, 300.2, 300.7 and 300.3 of the International Classification, and the definitions of these disorders in the *British Glossary of Mental Disorders* (1968) were followed. It is necessary to recall that in the *Glossary* a depressive neurosis is defined as a depressive state in which excessive preoccupation with traumatic experience is prominent; in the present research this definition was slightly relaxed to include those cases in which both patient and psychiatrist were convinced that traumatic experience played a significant role in the genesis of the psychiatric disorder.

Diagnosis was based on the psychiatrists' previous knowledge of the patient or on preliminary interview. The diagnosis was always recorded before ratings were made, and was never altered in the light of information gained from these ratings.

Ratings may have been made on a single patient on two or more occasions during the course of their recovery, whilst others may have been rated only once. In this way ratings were obtained throughout the whole range from Severe Illness to Recovery in roughly equal proportions for each diagnostic group. However, in all computations no data from any patient appeared more than once, i.e. if data from his 'before treatment' state were used, then data from the recovery phase were not included and *vice versa*. No special criteria for

* The authors prefer the terms primary depression to endogenous depression, anxiety state to anxiety neurosis and reactive depression to depressive neurosis. In this text, however, they adhere to the nomenclature of the ICD.

selection of which ratings to use were adopted, the process being a random one.

For all computations based on correlations, whether within or between groups of illnesses, the number of ratings in the diagnostic categories were endogenous depression, 48; depressive neurosis, 31; anxiety neurosis, 26; phobic neurosis, 19; hypochondriacal neurosis, 8; obsessional neurosis, 5; the total being 137 ratings. For the computation providing information about patients in their sick phase (global 4 and 3 ratings) data from all patients at these global scores were used, but again the data from no patient appeared more than once. The numbers in the groups for this analysis were: endogenous depression, 41; depressive neurosis, 30; anxiety neurosis, 26; phobic neurosis, 13; hypochondriacal neurosis, 8; and obsessional neurosis, 5. Numbers in the latter two groups were too small to warrant statistical analysis, and therefore the analysis of variance was carried out on the first four groups only.

Data for the estimation of scores in the normal population were obtained from staff at Stanley Royd Hospital and at Wakefield Prison Training College. All participants completed the scale of items with the same instructions as the patients, i.e. to indicate their present state. They were assured of absolute anonymity and were not required to put their names on the scale, but were asked to provide information as to age and sex. In addition they were asked to provide answers to two other questions which were designed to filter out those who might be suffering from mild psychiatric disorder; these questions were: 'Have you recently consulted a doctor for any complaint which might be considered nervous in origin?' and 'Do you sometimes think you ought to see a doctor on account of nervous symptoms?' The data for the 'normal' population were assembled from the ratings of those who did not answer either of these two items in the affirmative.

RESULTS

Correlations of all the items with sex, calculated for all the patients, were insignificant, with the exception of:

Item 4 (weeping)

$r + .23$, $t = 2.8$, $p < .01$

Item 10 (tiredness)

$r + .19$, $t = 2.3$, $p < .05$

Item 15 (headaches)

$r + .19$, $t = 2.3$, $p < .05$

In all three, women scored higher than men. These items were excluded from further consideration.

None of the items achieved a significant correlation with age, although Item 12 (delayed insomnia) fell just short of significance at the 5 per cent level. It was not excluded.

Scales for diagnosed groups

For an item to be included in a scale to measure the severity of either endogenous depression or of anxiety neurosis it must be shown to have a high correlation with an independent measure of the severity of the illness. It must also be shown to be scored highly by patients suffering from the severer degrees of the illness. Furthermore, if the scales are to be used to distinguish endogenous depression from anxiety neurosis, then for an item to be included in one or the other scale it must be shown that higher scores were obtained by the patients in the relevant diagnostic group.

The data on which the selection of the items for these scales are based are given in Table I. No item was allotted to the relevant scale unless it achieved a correlation of $+ .58$ with the severity of illness as determined by global rating, and unless it achieved a higher mean score in patients of the appropriate diagnostic group before treatment (Global rating 4 and 3).

Using these criteria the scales are composed of the following items:

Endogenous depression

1. (Sadness of mood)
2. (Lack of energy)
5. (Loss of enjoyment)
9. (Apathy)
12. (Delayed insomnia)
16. (Suicidal thoughts)

Anxiety neurosis

3. (Panic)
8. (Agoraphobia)
17. (Palpitation)
20. (Dizziness)
21. (Fearful mood)
22. (Psychic tension)

These scales should be referred to as the Leeds Self-Assessment of Depression Specific Scale,

TABLE I

Mean scores of items for patients with Global 4 and 3 ratings and correlations of items with Global ratings throughout the total range (4-0)

Endogenous depression			Anxiety neurosis			Item	Difference in means
Item	Mean	Correlation	Item	Mean	Correlation		
9	2.59	.85	3	2.39	.80	1	+ .17
1	2.44	.90	6	2.35	.69	2	+ .53*
11	2.44	.69	11	2.31	.77	3	- .58*
2	2.15	.77	1	2.27	.67	5	+ .57*
6	2.12	.67	17	2.23	.64	6	- .23
12	2.02	.58	22	2.23	.83	7	+ .36
22	1.95	.77	8	2.19	.73	8	- .68*
7	1.90	.44	9	2.12	.73	9	+ .47*
17	1.88	.40	19	2.05	.13	11	+ .13
19	1.81	.37	20	2.00	.62	12	+ .29
3	1.81	.54	21	1.96	.80	13	+ .44
5	1.80	.78	14	1.85	.35	14	- .17
16	1.76	.61	12	1.73	.40	16	+ .57*
18	1.71	.55	18	1.65	.53	17	- .35
13	1.71	.46	2	1.62	.49	18	+ .06
14	1.68	.38	7	1.54	.30	19	- .24
20	1.67	.44	13	1.27	.54	20	- .33
21	1.59	.62	5	1.23	.53	21	- .37
8	1.51	.61	16	1.19	.38	22	- .28

* $p < .05$

and the Leeds Self-Assessment of Anxiety Specific Scale. Henceforth reference will be made to these scales by the respective contractions Leeds SAD Specific Scale and Leeds SAA Specific Scale.

Scales for undiagnosed illness

The selection of items for scales to measure the severity of depression and anxiety throughout all diagnostic groups depends on the individual correlations with observer ratings of depression (SDS) and anxiety (SAS) which were derived from the full Hamilton Depression and Anxiety Scales (HRS and HAS) as described previously. For an item to be placed in one or the other scale it must be shown first, to have correlation higher than + .52 with the appropriate observer rating, and secondly, to have a contribution to the variance which differed by at least .05 in the correlation of the item with two observer ratings.

The data on which selection of items for these scales was made are shown in Table II.

These scales are now composed of the following items:

Depression

1. (Sadness of mood)
5. (Loss of enjoyment)
9. (Apathy)
12. (Delayed insomnia)
13. (Loss of appetite)
16. (Suicidal thoughts)

Anxiety

3. (Panic)
6. (Restlessness)
8. (Agoraphobia)
11. (Irritability)
17. (Palpitations)
21. (Fearful mood)

These scales should now be referred to as the Leeds Self-Assessment of Depression General Scale and the Leeds Self-Assessment of Anxiety General Scale. Henceforth reference to these will be made by the contractions Leeds SAD General Scale and Leeds SAA General Scale respectively. They should be used in studies where patients have not been assigned a formal psychiatric diagnosis, or in studies where the group is composed of patients with a mixture of diagnoses.

The 'Diagnostic' scale

From the data of the Leeds Specific scale scores for all patients suffering from endogenous depression or anxiety neurosis in their ill phase (Global 4, 3 and 2) ratings were

TABLE II

Correlations of items with observer ratings, difference in variance of these correlations and resulting rank order of items

Item	D Correlation with SDS score	A Correlation with SAS score	Difference D-A ²	Rank order	
				d	a
1	.72	.65	+ .10	13	17
2	.61	.59	+ .02	16	21
3	.35	.55	- .18	5	3
5	.66	.56	+ .12	12	8
6	.55	.61	- .07	9	11
7	.39	.37	+ .01	1	6
8	.44	.59	- .15		
9	.74	.67	+ .10	2	20
11	.57	.67	- .12	7	19
12	.52	.40	+ .11		18
13	.61	.46	+ .16		22
14	.34	.37	- .02		14
16	.62	.48	+ .15		
17	.41	.64	- .24		
18	.46	.49	- .03		
19	.22	.28	- .06		
20	.20	.32	- .12		
21	.46	.65	- .21		
22	.58	.60	- .02		

calculated. For each patient the Leeds SAA Specific score was subtracted from the Leeds SAD Specific Scale score. The result is shown in the lower part of Fig. 1 (the Criterion group), and the score of no patient is represented there more than once.

It can be seen that within the range +4 to -4 there fall a number of cases which may be regarded (symptomatically) as 'anxiety-depressions'. Beyond these limits are to be found cases of a relatively more homogeneous symptom composition.

THE CROSS-VALIDATION STUDY

This study was designed to confirm the validity of the scales derived in the initial study. In the construction of rating scales it is relatively easy to group the items into scales, and for the original designers to confirm their validity. It is, however, important to know whether other clinicians, whose diagnostic habits may vary slightly from that of the designers, can confirm the original findings, and so whether the scales may be considered to possess universal validity. Accordingly, four other psychiatrists, in addition to the authors,

took part in a cross-validation study, having first been informed of the diagnostic scheme followed by the authors and of the markers of the Global Scale. They did not, however, carry out Hamilton observer ratings on their patients, for this requires the establishment of preliminary inter-rater correlations. Accordingly, in the report on the cross-validation study which follows calculations based on observer ratings were made only from the authors' cases, but all other calculations incorporated the data contributed by the other clinicians.

The Specific Scales

In the cross-validation study the correlations of the two Specific Scales (derived from the criterion study) with the Global ratings of patients suffering from endogenous depression (32 patients) and anxiety neurosis (20 patients) were:

Endogenous Depression (Global rating with Leeds SAD Specific Scale)

$$r = +.87, p < .01$$

Anxiety Neurosis (Global rating with Leeds SAA Specific Scale)

$$r = +.72, p < .01$$

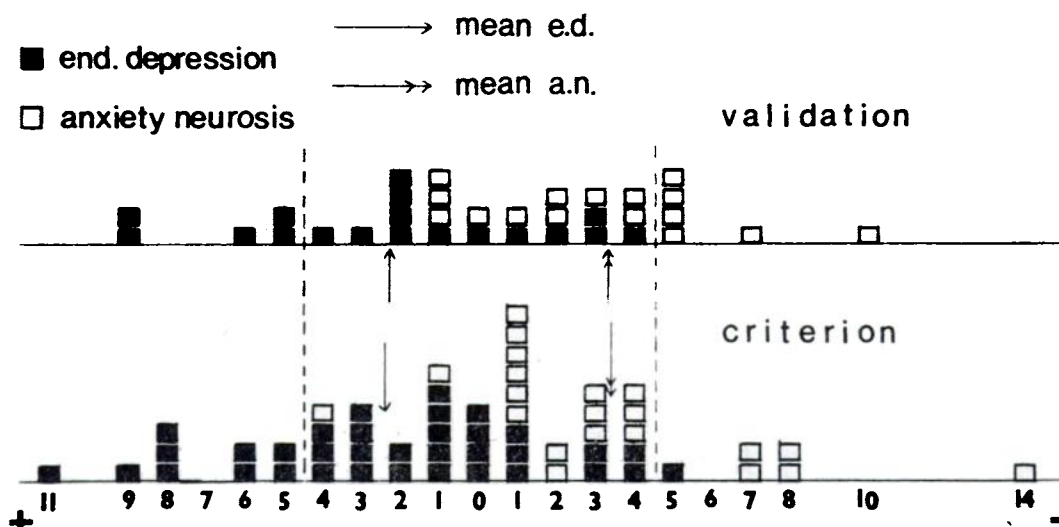


FIG. 1.—The distribution of scores resulting from the subtraction of the Leeds SAA Specific Score from the Leeds SAD Specific Score in groups of patients diagnosed as Endogenous Depression or Anxiety Neurosis. Criterion and Cross Validation Studies.

The 'diagnostic' scores of these same patients whose Global ratings were 4, 3 or 2 were calculated as in the previous section. The results are shown in the upper part of Fig. 1. It can be seen that the cross-validation study tends to confirm the findings of the criterion study, i.e. the means of the two diagnostic groups closely correspond in the two studies, and in both studies roughly equivalent proportions of cases fall outside the +4 to -4 limits.

It has been shown in this study that the anxiety scale scores have a significant negative correlation with age (see a later section). Since patients who receive a clinical diagnosis of anxiety neurosis are usually younger than those receiving a diagnosis of endogenous depression, it might be considered that the 'diagnostic' scores shown in Fig. 1 are in fact a reflection of the age difference between the two groups rather than of any genuine difference between the depression and the anxiety scores.

To examine this question it was necessary to eliminate the effect of age by an analysis of covariance. The Leeds SAD Specific Scale score minus the Leeds SAA Specific Scale score does in fact differ significantly between the two diagnostic groups of the cross-validation study

($F = 16.22$, $p < .0005$), but there is also a highly significant difference between the ages of the two diagnostic groups ($F = 33.31$, $p < .0005$). The analysis of covariance, having eliminated the effect of age, reveals that the difference between the two groups is still significant ($F = 6.26$, $p < .025$).

The General Scales

Correlations of Leeds General Scale scores with observer ratings of anxiety (SAS) and depression (SDS) were calculated from the data of all patients throughout the range of diagnostic groups considered in this study. There were 31 sets of ratings. These correlations are:

Observer rated depression (SDS) with Leeds SAD General Scale scores

$r = +.85$, $p < .01$

Observer rated anxiety (SAS) with Leeds SAA General Scale scores

$r = +.83$, $p < .01$

Dependence of the Scale scores on age and sex

Since the influence of these variables was largely removed in the original selection of the items for the scales, it was not expected that

significant relationships with the scale scores would be found in the cross-validation study.

The scale scores showed no significant differences between the sexes. Significant negative correlations of anxiety scores with age were found:

Age with Leeds SAD Specific Scale

$r = +.10$, NS

Age with Leeds SAA Specific Scale

$r = -.39$, $p < .01$

Age with Leeds SAD General Scale

$r = +.12$, NS

Age with Leeds SAA General Scale

$r = -.51$, $p < .01$

Should research require an age correction factor to nullify the relation between age and anxiety scores, it can be produced by adding points to the actual scores as follows:

For both Leeds SAA Specific Scale and Leeds SAA General Scale scores

Age <30 add no points to score

Age 30-39 add 1 point to score

Age 40-49 add 2 points to score

Age 50-59 add 3 points to score

Age >60 add 4 points to score

The effect of these additions on the present population was as follows:

Age with Leeds SAA Specific Scale (corrected)

$r = -.08$, NS

Age with Leeds SAA General Scale (corrected)

$r = -.21$, NS

Comparison with the healthy population

For these comparisons, patients in the study were divided into Moderately and Severely ill (Global 3 and 4 ratings), and Mildly ill (Global 2 ratings), and the scores of patients throughout the range of diagnoses were included. The comparisons between normals and patients have been made using only the General Scale scores, since it is only these that should be used in case-finding research.

Table III shows that a cut-off between score 6 and 7 provides the most satisfactory division between healthy and sick populations, both for the depression and for the anxiety scores.

At this cut-off level, for the Leeds SAD General Scale scores 6 per cent of the normals, 33 per cent of the Mildly ill and 3 per cent of the

TABLE III
Frequency distribution of scores in the healthy and the sick groups

Leeds SAD General Scale scores										
	0-2	3, 4	5	6	7	8, 9	10-12	13-15	16-18	Total
Normal ..	31	13	1	2	0	2	1	0	0	50
Mild ..	0	1	1	1	3	2	1	0	0	9
Moderate Severe ..	0	0	0	1	0	3	13	10	7	34

Leeds SAA General Scale scores										
	0-2	3, 4	5	6	7	8, 9	10-12	13-15	16-18	Total
Normal ..	21	16	6	4	2	1	0	0	0	50
Mild ..	0	2	0	0	1	0	5	1	0	9
Moderate Severe ..	1	1	0	1	1	1	5	14	10	34

Moderately or Severely ill are misclassified. For the Leeds SAA General Scales scores the respective figures are 6 per cent, 22 per cent and 11 per cent.

DISCUSSION

An item analysis of the Wakefield SAD Inventory with added items has led to the establishment of further valid self-rating scales providing separate measures for depression and anxiety. The scales in the first set measure the severity of endogenous depressive illness and anxiety neurosis respectively, and it is proposed that these should be called the Specific scales, i.e. the Leeds Self-Assessment of Depression Specific Scale (or Leeds SAD Specific Scale), and the Leeds Self-Assessment of Anxiety Specific Scale (or Leeds SAA Specific Scale).

The scales in the second set were constructed from an analysis of data from several diagnostic groups and may be considered suitable instruments for the assessment of the severity of a depression or anxiety in patients who have not received formal diagnoses of endogenous depression or anxiety neurosis. It is also proposed that this set of scales may be appropriately used as case-finding instruments. These scales should be called the General scales, i.e. the Leeds Self-Assessment of Depression General Scale (or Leeds SAD General Scale) and the Leeds Self-Assessment of Anxiety General Scale (or Leeds SAA General Scale).

The establishment of a 'diagnostic' score by the process of subtraction of the Leeds SAA Specific Scale score from the Leeds SAD Specific Scale score of an individual patient may be found to have both research and useful clinical applications; it must be emphasized that the determination of such a diagnostic score is only legitimate when the clinical diagnosis lies between endogenous depression and anxiety neurosis.

Other workers have examined the relation between anxiety and depressive symptoms using self-rating scales. Mendels *et al* (1972) used a number of self-rating scales in a study of patients undefined by diagnosis and could find little evidence that the clinical dimensions of anxiety and depression (as measured by the scales they used) could be separated from each other; in their review of the literature they

pointed out that this was a general difficulty and they considered several explanations.

Derogatis *et al* (1972) found that the dimensions of depression and anxiety discriminated poorly between diagnostic groups, although the only two groups which they chose to study were those of anxiety neurosis and depressive neurosis. Downing and Rickels (1974) used a self-rating scale in a group of patients who were classified as 'anxiety-depression' but were assigned by their therapists either to anti-depressant or anxiolytic medication; they questioned the continued use of such a hybrid diagnostic term but nonetheless found that in their patients there was a considerable admixture of depressive and anxiety symptoms.

Self-rating scales are in many respects imperfect research instruments, and most of those at present in use are capable of further improvement. It is possible that using more refined and accurate instruments some of the researchers quoted above would have arrived at other conclusions.

Zung (1967) found no evidence that the scores on his scale were affected significantly by age or sex. The Zung scale, like the Wakefield SAD Inventory, is composed of a mixture of depressive and anxiety items. It is of interest that when these dimensions are separated, as was done in the present research, there are significant negative correlations between age and anxiety scores and slight positive correlations between age and depression scores. It is likely that physical illness also affects scores on these scales, but the effect of this variable has not been examined in the present research. Scores on the Wakefield SAD Inventory were found to be significantly affected by physical illness (Snaith and McCoubrie, 1974), and it is suggested that if the Leeds scales are to be used in studies where a large proportion of patients are physically sick, then the effect of the variable should first be determined along the lines employed in that paper, and the effect removed by appropriate statistical techniques.

This study has provided some evidence that patients use self-rating scales thoughtfully, for the depression and anxiety scales that have been derived from the data are composed of the very items which might have been forecast from clinical experience.

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REFERENCES

- AITKEN, R. C. B. (1969) Measurement of feelings using the visual analogue scale. *Proceedings of the Royal Society of Medicine*, 62, 989-96.
- & ZEALLEY, A. K. (1970) The measurement of moods. *British Journal of Hospital Medicine*, 4, 215-24.
- COSTELLO, C. G. & COMREY, A. L. (1967) Scale for measuring depression and anxiety. *Journal of Psychology*, 66, 303-13.
- CROWN, S. & CRISP, A. H. (1966) A short clinical diagnostic self-rating scale for psychoneurotic patients. *British Journal of Psychiatry*, 112, 917-23.
- DEROGATIS, L. R., LIPMAN, R. S., COVI, L. & RICKELS, K. (1972) Factorial invariance of symptom dimensions in anxious and depressive neuroses. *Archives of General Psychiatry*, 27, 659-65.
- DOWNING, R. W. & RICKELS, K. (1974) Mixed anxiety-depression. *Archives of General Psychiatry*, 30, 312-20.
- GENERAL REGISTER OFFICE (1968) *A Glossary of Mental Disorders*.
- GOLDBERG, D. P. (1972) *The Detection of Psychiatric Illness by Questionnaire*, pp. 26-34. London: O.U.P.
- (1974) Psychiatric disorders. *Lancet*, ii, 1245-8.
- KELLNER, R. (1972) Improvement criteria in drug trials with neurotic patients. *Psychological Medicine*, 2, 73-81.
- & SHEFFIELD, B. F. (1973) A self-rating scale for distress. *Psychological Medicine*, 3, 88-101.
- HAMILTON, M. (1959) The assessment of anxiety states by rating. *British Journal of Medical Psychology*, 32, 50-5.
- (1967) Development of a rating scale for primary depressive illness. *British Journal of Social and Clinical Psychology*, 6, 278-96.
- HAMILTON, M. (1969) Standardized assessment and recording of depressive symptoms. *Psychiatry, Neurology and Neurochirurgia*, 72, 201-5.
- MENDELS, J. & WEINSTEIN, N. (1972) The relationship between anxiety and depression. *Archives of General Psychiatry*, 27, 649-53.
- SNAITH, R. P., AHMED, S. N., MEHTA, S. & HAMILTON, M. (1971) The assessment of the severity of primary depressive illness. *Psychological Medicine*, 1, 143-9.
- & MCCOUBRIE, M. (1974) Anti-hypertensive drugs and depression. *Psychological Medicine*, 4, 393-9.
- ZUNG, W. W. K. (1965) A self-rating depression scale. *Archives of General Psychiatry*, 12, 63-70.
- (1967) Factors influencing the self-rating depression scale. *Archives of General Psychiatry*, 16, 543-7.

APPENDIX

1. I feel miserable and sad.
2. I find it easy to do the things I used to.
3. I get very frightened or panic feelings for apparently no reason at all.
4. I have weeping spells, or feel like it.
5. I still enjoy the things I used to.
6. I am restless and can't keep still.
7. I can get off to sleep easily without sleeping tablets.
8. I feel anxious when I go out of the house on my own.
9. I have lost interest in things.
10. I get tired for no reason.
11. I am more irritable than usual.
12. I wake early and then sleep badly for the rest of the night.
13. I have a good appetite.
14. I feel in some way to blame for the way I am.
15. I get bad headaches.
16. I feel life is not worth living.
17. I get palpitations, or a sensation of 'butterflies' in my stomach or chest.
18. I often think I have done wrong.
19. I feel sleepy during the day.
20. I get dizzy attacks or feel unsteady.
21. I feel scared or frightened.
22. I feel tense or wound up.

NOTE The forms for the Leeds Scales, together with Scoring Device and other relevant material, are obtainable from Psychological Test Publications, Scamp's House, 107 Pilton Street, Barnstaple, Devon.

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