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Original Articles

A QUANTIFICATION OF DIAGNOSTIC DIFFERENTIAE

By

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INTRODUCTION

THE more recent and better designed studies of the reliability of psychiatric diagnosis (Schmidt and Fonda, 1956; Norris, 1959; Kreitman, 1961; Kreitman *et al.* 1961) suggest that the earlier pessimism may not be entirely justified. At the present time it seems safest to conclude that there are some states that some psychiatrists can diagnose reasonably reliably under some conditions. Nevertheless, even if psychiatrists could be shown to be highly reliable under optimal conditions, their diagnoses could only serve as the criterion by which to develop some more objective, public and quantitative means of classification, since the optimal conditions cannot readily be met in routine practice. It is desirable that any such quantitative scale should be reasonably compatible with existing psychiatric classification. As Eysenck (1960) has argued, "the degree of correspondence observed is of some interest in making possible the translation of experimental findings from one field to the other. . . . Even if there were no correspondence at all with psychiatric diagnostic classifications, this would not in any way invalidate the empirical findings".

Meehl (1954) has written convincingly about what the clinician can best do and what can best be left to actuarial tables. Much seems to depend upon the extent of generalization of a symptom. One can ask the question in an inventory, "Do you feel afraid in enclosed places?"; but the more specific question, "Do you feel afraid in tube trains?", would be unrewarding. "Do you feel afraid in tube trains between Holborn and Tottenham Court Road, but nowhere else?", would be a complete waste of time. Such a piece of information elicited in a clinical interview might, however, be exceedingly valuable. For diagnostic purposes all one need record would be "claustrophobia".

Clinicians have insisted, quite rightly, that they are concerned with the individual patient, as far as possible, as a whole. They are interested in historical facts and attitudes in the life of a particular person and in their antecedents and consequents. As Dalbiez (1941) has shown, criteria can be

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worked out for evaluating what are good and what are bad reasons for accepting inferences about such data, just as criteria can be set out for the evaluation of what are good and bad reasons for accepting ethical judgments (Toulmin, 1960).

It may be that the clinical interview, as generally practised, is a somewhat unsuccessful method of arriving at a diagnosis because the clinician is trying to combine two rather incompatible functions on the one occasion. These two functions are the diagnostic and the aetiological.

The diagnostic function consists principally in ascertaining *what* the subject does, *what* he believes and *how* he does what he does, the style of his behaviour. This is an extensive or horizontal process. The clinician trails the largest practicable net in order to catch as many traits or symptoms and signs as possible. The catch will probably be a mixed one; but it will most likely contain a sufficient degree of similarity with certain other catches and a sufficient degree of difference from yet other catches to be classified with the former rather than the latter.

The aetiological function, at least on the psychological side, consists principally in ascertaining *why* the subject does what he does, *why* he believes what he believes and, increasingly with severe abnormality, *what made him* do what he did, *what made him* believe what he believes. This is an intensive or vertical approach. Here the clinician is fishing with rod and line. It is difficult to fish with a large net and rod and line at the same time. It is not of the essence of the Compleat Angler that he should do so.

The two types of interview, with their different purposes and techniques, should perhaps be kept more consciously and deliberately distinct.

In the hope of clarifying some of the problems in the classification of mental illness an Inventory was constructed, which will be referred to as the RSSI.

The Runwell Symptom-Subjective-Sign Inventory

Content: The Inventory originally consisted of 81 items (see Appendix). More items have subsequently been added; but these are not dealt with here. Ten items, thought to be associated with each of the following categories, were selected: Hysteria (Hy.); Anxiety (Ax.); Neurotic Depression (N.D.); Obsessional (Ob.); Mania (Ma.); Psychotic Depression (P.D.); Paranoid Schizophrenia and Paranoid States (Pa.); and Non-paranoid Schizophrenia (Sc.). The final item, relating to diurnal variation, was assigned without conviction to the Psychotic Depression scale because of the widespread acceptance of this association.

Since some pairs of diagnostic categories are more alike than others, it follows that there can be no fixed scale for any category which will give optimal differentiation between this category and all others. It is proposed, therefore, to adopt the method used with the Extra- and Intro-punitives Scales (Foulds, Caine and Creasy, 1960).

Instead of making up an Anxiety Scale to distinguish Anxiety States from all other groups, four scales were made up which involve Anxiety States —Anxiety v. Neurotic Depression; Anxiety v. Psychotic Depression; Anxiety v. Hysteria; Anxiety v. Paranoid Schizophrenia. The remaining groups have not yet been studied. Items were only included in these scales if they differentiated at least at the 5 per cent. level in the first sample investigated and at the 10 per cent. level in the second or conversely. This was, in fact, rare and most of the items were well beyond these levels.

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The items making up the various scales are as follows:

Pa. v. Hy.: (D 3, 4, 6, 7, 9, 10; E 9; F 4, 7)—(A 2, 6, 7, 8; B 4, 10; G 5).

Pa. v. Ax.: (D 1, 3, 4, 6, 7, 9, 10; F 4, 7)—(A 1, 2, 3, 4, 6, 7, 8, 9; B 1, 4; C 2, 3, 4; G 5).

Pa. v. N.D.: (D 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; F 4, 5, 7, 8)—(A 6, 7, 8; B 1, 2, 3, 4).

Pa. v. P.D.: (D 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; F 7)—(A 2, 6, 8, 9; B 2, 3, 4, 7, 10; H 2, 4, 5, 8, 9, 10).

P.D. v. Hy.: (A 5; B 2, 3; F 8; H 2, 3, 4, 5, 6, 7, 9, 10)—(A 7: C 1; E. 1; G 5).

P.D. v. Ax.: (B 3, 7; D 10; F 5, 8, 10; G 9; H 1, 2, 3, 4, 5, 6, 7, 8, 9, 10)—(A 1, 3, 4, 7; C 2, 4).

P.D. v. N.D.: (A 6, 9; B 7, 10; D 10; F 5, 8, 10; G 9; H 1, 2, 4, 5, 6, 8, 9, 10)—(A 7; B 1; E 3).

Ax. v. Hy.: (A 1, 5, 9; C 2, 4)—(D 1; G 6, 9).

Hy. v. N.D. (C 6; D 1, 8; E 1, 5; F 3, 5; G 2, 9)—(A 5; B 3; E 3, 9).

Ax. v. N.D.: (A 1, 4, 9; C 4, 5, 6; D 8; E 2, 5, 6; G 3)—(B 3; G 6; H 3, 7).

The score, for example, on the Pa. v. Hy. Scale, is the number of items in the first bracket which are affirmed (i.e. items in which Paranoids significantly exceed Hysterics) minus the number of items in the second bracket which are affirmed (i.e. items in which Hysterics significantly exceed Paranoids).

The A items are those in the *a priori* Anxiety Scale; B is Neurotic Depression; C is Mania; D is Paranoid; E is Obsessional; F is Schizophrenia; G is Hysteria; and H is Psychotic Depression. The items are presented in blocks in that order.

Administration: The Inventory was administered orally. A choice had to be made between sacrificing a slight degree of objectivity and obtaining what was thought to be more accurate results.

The following instructions were provided for the guidance of interviewers:

1. In general, all responses are to be accepted, unless the interviewer feels that the item has not really been understood, in which case he should ask for an example of what the subject means.

2. The subject should be encouraged to answer the questions as they stand and not to reword them to fit his case—e.g. A 7, which reads, "Have you a pain, or feeling of tension, in the back of your neck?" "Well, I do have a feeling as if there's a weight pressing down on top of my head." After such a response, the actual question would be repeated.

3. In Set C (Mania), if an item is answered as true, the interviewer should enquire if it applied during the past week and, if so, he should score again. This latter score is the one used for totalling. The purpose of the double response was to try to discover the manic-depressive in the depressive phase.

4. If a known physical disability is associated with an item, the response is not scored even when positive—e.g. A 3, for heart conditions, asthma and G 5, 6, 9 and 10 for epileptics.

5. If the meaning of an item is questioned by the subject, repeat the question, emphasizing the important parts (see common non-scoreable responses in Appendix B).

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6. Complete inability to answer the question is shown as "?" and not scored, except Set D (Paranoid) items 3, 4, 7 and 10. A question mark for these questions is scored as positive.

7. Insistence that an item doesn't make any sense, after explanation, is not scored. Certain items, such as D 9, seem intelligible only to those who have the symptom in question.

Five psychologists contributed to the collection of the data. On 8 occasions a second psychologist "sat in" and scored the Inventory independently. The average number of items about which there was disagreement was about 4 and never exceeded 7 out of 81.

Subjects

The present report is concerned with women only, of whom 220 have been given the RSSI. There were three sources of subjects: (*i*) Clinical referrals at Runwell Hospital (approximately 80 cases); (*ii*) Groups collected in the course of other research at Runwell Hospital (approximately 110 cases); and (*iii*) Groups collected in the course of research at Claybury Hospital (30 cases).

The possibility of contamination with the clinical diagnosis can be excluded in sources (*ii*) and (*iii*), but not with complete certainty in source (*i*). Some of the 80 cases were, however, referred for reasons other than diagnostic difficulty and diagnostic reports from the Psychology Department were made on many tests other than the RSSI. Further, the great majority of the 80 referrals were placed in Sample I and were found not to differ from Sample II (see below). It is thought, therefore, that any possible contamination can have affected the results very little.

Frequency tables were prepared for the first 25 Anxiety States; 25 Neurotic Depressives; 25 Psychotic Depressives; 20 Hysterics; and 15 Paranoid Schizophrenics. Similar tables were prepared for the second sample, with the same numbers in each category. The two samples of each diagnostic category were then compared on each item by means of Chi Squared tests. The average number of differences significant at the 5 per cent. level over the five groups was about 4, the highest number was 6. Even 6 is less than one would expect by chance with 81 comparisons. It would appear, therefore, that in each case the two samples were drawn from the same type of population. These samples have, therefore, been combined to give 50 in each of the groups of Anxiety States, Neurotic and Psychotic Depressives, 40 Hysterics and 30 Paranoid Schizophrenics. The numbers of Non-Paranoid Schizophrenics, Manics and Obsessionals are as yet too small to be worth reporting. An additional 40 cases have been collected for further cross-validation.

Results

Table I shows the distribution of scores for the five groups on the Paranoid and Neurotic Depression Scale.

Since equal numbers, and almost equal proportions, of Paranoid and Neurotic Depressives scored 0, the diagnosis is considered to be uncertain for scores of 0, and this applies to 8 per cent. of the two key groups. There are 88 per cent. allocated in agreement and 4 per cent. in disagreement with the psychiatric diagnosis. The low scorers among Paranoids are those few who were so suspicious that they were determined to give nothing away.

The three groups with which the scale is not directly concerned behave much more like the Neurotic Depressives than the Paranoids. The percentages classified as Neurotic Depressives are: N.D. 92; Ax. 86; Hy. 72; P.D. 70; Pa. 7.

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TABLE I

Distribution of Scores on the Paranoid v. Neurotic Depression Scale of Psychiatrically Diagnosed Paranoid and Neurotic Depressive Groups

Score P–D	30 Par	50 Dep
9	1	
8	2	
7	7	
6	2	
5	4	
4	4	
3	2	1
2	1	
1	2	
0	3	3
−1	1	6
−2	1	11
−3		7
−4		10
−5		8
−6		3
−7		1

Table II shows the score distributions on the Paranoid v. Anxiety Scale.

TABLE II

Distribution of Scores on the Paranoid v. Anxiety Scale of Psychiatrically Diagnosed Paranoid and Anxiety Groups

Score P–A	30 Par	50 Anx
6	1	
5	1	
4	3	
3	6	
2	4	
1	5	
0	3	
−1	3	1
−2	2	3
−3	1	3
−4	1	2
−5		8
−6		7
−7		4
−8		10
−9		2
−10		4
−11		4
−12		2

Again Paranoids behave differently from the remaining groups. The percentages classified as Anxiety States are: Ax. 92; N.D. 88; Hy. 80; P.D. 76; Pa. 7.

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Table III shows the score distributions on the Paranoid v. Hysteria Scale.

TABLE III

Distribution of Scores on the Paranoid v. Hysteria Scale of Psychiatrically Diagnosed Paranoid and Hysteric Groups

Score P–H	30 Par	50 Hys
6	2	
5	4	
4	8	
3	6	
2	2	1
1	2	
0	1	1
−1	3	9
−2	2	6
−3		5
−4		13
−5		4
−6		1

Once more Paranoids are out on their own and the percentages classified as Hysterics are: Hy. 95; N.D. and Ax. 88; P.D. 82; Pa. 17.

Table IV shows the distribution of scores on the Paranoid v. Psychotic Depression Scale.

TABLE VI

Distribution of Scores on the Paranoid v. Psychotic Depression Scale of Psychiatrically Diagnosed Paranoid and Psychotic Depressive Groups

Score P–M	30 Par	50 P.D.
7	1	
6	1	
5	5	
4	2	
3	4	
2	3	
1	4	1
0	2	3
−1	2	2
−2	2	1
−3	2	
−4	2	2
−5		6
−6		4
−7		6
−8		8
−9		2
−10		7
−11		2
−12		4
−13		2

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Paranoids are markedly different from all other groups, except for Hysterics. The percentages classified as Psychotic Depressives are: P.D. 82; N.D. 66; Ax. 50; Hy. 26; Pa. 0.

Table V shows the percentage of cases allocated in agreement and in disagreement with the psychiatric diagnosis for the four scales involving the Paranoid group.

TABLE V

Comparison of the Psychiatric and RSSI Diagnoses for the four Paranoid Scales

Percentage	Pa. v. N.D.	Pa. v. Ax.	Pa. v. Hy.	Pa. v. P.D.
Agreement	88	90	88	79
Uncertain	8	6	3	20
Disagreement	4	4	9	1

Thus, on the four Paranoid Scales, all groups are rather easily distinguished from the Paranoid Schizophrenic group, particularly the neurotic dysthymic groups.

Discriminations for the remaining scales were calculated in the same way. Table VI shows the allocations made on the remaining three scales involving Psychotic Depressives.

TABLE VI

Comparison of the Psychiatric and RSSI Diagnoses for the remaining three Psychotic Depressive Scales

Percentage	P.D. v. N.D.	P.D. v. Ax.	P.D. v. Hy.
Agreement	66	88	83
Uncertain	19	3	0
Disagreement	15	9	17

Differentiation between the two depressive groups is the least successful.

Table VII shows the allocation in respect of the two remaining two scales involving Anxiety States.

TABLE VII

Comparison of the Psychiatric and RSSI Diagnoses for the remaining two Anxiety Scales

Percentage	Ax. v. N.D.	Ax. v. Hy.
Agreement	72	80
Uncertain	12	0
Disagreement	16	20

Differentiation from Neurotic Depressives is less successful than from Hysterics.

Table VIII shows the allocation for the Hysteria v. Neurotic Depression Scale.

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TABLE VIII

Comparison of the Psychiatric and RSSI Diagnoses on the Hysteria v. Neurotic Depression Scale

Percentage	Hys. v. N.D.
Agreement	52
Uncertain	39
Disagreement	9

This differentiation is the poorest in the whole series,

Table IX shows the overall comparison of Clinical and RSSI diagnoses. To obtain the final RSSI diagnosis for any individual, her score is assessed on—in this instance—each of the ten scales. On each scale, she is allocated to one or other of the pair, or recorded as "uncertain" as between the pair. Her final RSSI diagnosis is that of the group to which she is most frequently allocated. In the event of a tie, one simply records that, on the basis of the RSSI, the differential diagnosis between A and B cannot be made.

TABLE IX

Overall comparison of Clinical and RSSI Diagnoses

	Clinical Diagnosis						Percentage		
RSSI	Pa.	P.D.	N.D.	Ax.	Hy.	Total		Agree	Uncertain	Disagree
Pa. ..	19	1	0	0	0	20	Pa. ..	63	23	13
P.D. ..	0	39	10	2	6	57	P.D. ..	78	12	10
N.D. ..	2	3	28	6	5	44	N.D. ..	56	12	32
Ax. ..	1	1	4	35	6	47	Ax. ..	70	4	26
Hy. ..	1	0	2	5	17	25	Hy. ..	42	15	42
? ..	7	6	6	2	6	27		—	—	—
Total ..	30	50	50	50	40	220	Total group	63	12	25

From this table it is apparent that the RSSI tends to over-diagnose Psychotic Depressives as compared with the clinical diagnosis and to under-diagnose Paranoids and Hysterics. This latter seems a "good" error, as Hysteria is undoubtedly often diagnosed by some clinicians on the basis of a hysteroid personality rather than on symptomatology.

Had all cases been diagnosed as, say, Neurotic Depressives (one of the three large groups) 23 per cent. success would have been achieved; but the over-all figure for the RSSI is 63 per cent., with 12 per cent. uncertain and 25 per cent. incorrectly allocated. This figure of 63 per cent. is well above chance or the most favoured group and is fairly close to the figures for agreement between psychiatrists (Schmidt and Fonda, 1956 and Kreitman, 1961). The substitution of the RSSI diagnosis for the clinical diagnosis would not, therefore, do great violence to the meaning of the class terms. The Inventory would be about as likely to allocate the same individuals to a given class formed by one psychiatrist as would a second psychiatrist.

Table X shows a comparison of Clinical and RSSI diagnosis in an additional 40 cases.

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TABLE X

Overall comparison of Clinical and RSSI Diagnoses for an additional 40 cases

RSSI	Clinical Diagnosis: Pa.	P.D.	N.D.	Ax.	Hy.	Total
Pa.	4					4
P.D.	1	5		1		7
N.D.		1	2	2	1	6
Ax.			2	8	2	12
Hy.			1		3	4
?		1	5	1		7
Total	5	7	10	12	6	40

Percentage	
Agreement ..	55
Uncertain ..	17
Disagreement ..	27

Here it can be seen that 55 per cent. of the 40 cases were diagnosed by the RSSI in agreement with the clinical diagnosis, 17 per cent. were uncertain and 27 were wrongly allocated.

From all these figures it can be seen that diagnosis is more difficult among neurotic groups than among psychotic groups or than between neurotic and psychotic groups, with the exception of the between Depressives comparison. It is also evident that Hysterics are particularly hard to identify.

Distinction between frequency of occurrence and differentiating power of symptoms. Students of psychiatry often complain that, after reading text-books, they come away with the impression that everything occurs in everything. This confusion is generated because most authors fail to distinguish adequately between the frequency of occurrence of symptoms in a particular class and their differentiating power as between classes. The difficulty can be illustrated by the responses to certain items of the RSSI. Consider the percentages of women complaining of the following symptoms in relation to the following scheme of classification:

A symptom is *very common* if it be given by 65 per cent. or more of a given class; it is *common* if given by 40 to 64 per cent.; *rare* if given by 15 to 39 per cent. and *very rare* if given by less than 15 per cent.

Differentiae are symptoms which distinguish at least at the 5 per cent. level between the class in question and any other class. *Specific differentiae* are symptoms which distinguish at least at the 5 per cent. level between the class in question and at least 70 per cent. of all classes with which it is being compared.

Differentiae will be referred to as *positive* when the class in question is distinguished by a higher frequency of the symptom than the group or groups with which it is being compared. They will be referred to as *negative* when the class in question is distinguished by a lower frequency of the symptom than the group or groups with which it is being compared.

	Hy.	Ax.	N.D.	P.D.	Pa.
B 6: "I have found it difficult to concentrate recently"	55	64	64	64	57

This is a *common*, but *non-differentiating* symptom as between the five groups examined.

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		Hy.	Ax.	N.D.	P.D.	Pa.
B 5:	"I am depressed because of a particular loss (or disappointment)" ..	17	24	26	24	27

This is a *rare* and *non-differentiating* symptom in spite of what is usually written in textbooks about Reactive Depression.

		Hy.	Ax.	N.D.	P.D.	Pa.
H 2:	"I am an unworthy person in my own eyes"	25	20	22	*72*	30

This is a *very common* symptom in Psychotic Depression and a *positive specific differentia* in that it differentiates Psychotic Depressives from all other groups. From the point of view of the other groups, it is a *rare negative differentia* in that it is the relative absence of this symptom that differentiates each of them from Psychotic Depressives; but it does not differentiate any one of them from the others.

		Hy.	Ax.	N.D.	P.D.	Pa.
F 10:	"There is something unusual about my body, like one side being different from the other and meaning something different"	5	0	2	*20*	10

This is *rare* in Psychotic Depressives (it was, in fact, included for Non-Paranoid Schizophrenics); but it is *very rare* in the other four groups. It differentiates Psychotic Depressives from three out of the four groups. It is, therefore, a *rare, positive, specific differentia.* For the three neurotic groups, it is a *very rare, negative differentia,* since the absence of this symptom differentiates them from the Psychotic Depressives, but not from each other nor from the Paranoids. For the Paranoids, it is a *very rare non-differentia,* since it distinguishes them from no group.

		Hy.	Ax.	N.D.	P.D.	Pa.
A 8:	"I have difficulty in getting off to sleep (without sleeping pills)" ..	72	70	68	78	*43*

This symptom is *very common* in four groups and *common* in the fifth, the Paranoids. Since it differentiates them from all four groups, it is a *common negative specific differentia.* For the other groups, it is a *very common positive differentia,* since each group significantly exceeds the Paranoids, but no other group.

		Hy.	Ax.	N.D.	P.D.	Pa.
B 10:	"I have seriously thought of doing away with myself because I am no longer able to cope with my difficulties"	27	22	20	37	*7*

This is exactly as the previous question, substituting *rare* for *very common* and *very rare* for *common.*

		Hy.	Ax.	N.D.	P.D.	Pa.
A 9:	"I am afraid of going out alone" ..	35	*66*	32	*52*	20

This symptom is *very common* for Anxiety States and *common* for Psychotic Depressives and, since it differentiates each of them from all other groups, it is a *positive specific differentia.* For the other three groups, it is a *rare negative differentia.*

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		Hy.	Ax.	N.D.	P.D.	Pa.
F 3:	"I often wonder who I really am" ..	15	12	*6*	*22*	17

For Psychotic Depressives, this is a *rare positive differentia;* for Neurotic Depressives, it is a *very rare negative differentia;* and for Paranoids and Hysterics a *rare non-differentia.*

Description of groups: Each group will be described by symptoms which are specific differentiae only, whether positive or negative, common or rare.

Psychotic Depressives

Positive very common specific differentiae

H 2: I am an unworthy person in my own eyes.
H 5: I am troubled by waking in the early hours and being unable to get off to sleep again (though much of this is attributable to age).
H 10: I sometimes go to bed feeling I would not care if I never woke up again.

Positive common specific differentiae

B 7: The future seems pointless.
H 9: I sometimes get so worked up that I pace about wringing my hands.
F 8: I feel that I cannot communicate with other people because I don't seem to be on the same "wave-length".
H 4: I am a condemned person because of my sins.
H 6: Because of things I have done wrong, people are talking about me and criticizing me.
B 3: I have attempted to do away with myself.

Positive rare specific differentia

H 8: I cause harm to people because of what I am.

Negative rare specific differentia

A 7: I do not have a pain, or feeling of tension, in the back of my neck.

Paranoid States and Paranoid Schizophrenics

Positive very common specific differentia

D 3: There are people who are trying to harm me through no fault of my own.

Positive common specific differentiae

D 1: People are talking about me and criticizing me through no fault of my own.
D 7: People are plotting against me through no fault of my own.
D 6: Someone, other than myself, is deliberately causing most of my troubles.
D 9: I sometimes see someone do or say something which most people do not take much notice of, but which I know has a special meaning.
D 10: People can read my thoughts and make me do things against my will by a sort of hypnotism.
F 7: I sometimes hear voices without knowing where they come from.

Positive rare specific differentiae

F 4: I sometimes have very strange and peculiar experiences.
D 4: Someone is trying to poison me or make me ill in some way.

Negative common specific differentia

A 8: I do not have difficulty in getting off to sleep.

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Negative rare specific differentia
B 4: The simplest task is not too much of an effort.

Negative very rare specific differentiae
A 7: I do not have a pain, or feeling of tension, in the back of my neck.
A 6: I am not afraid that I might be going insane.

Anxiety States

Positive very common specific differentiae
A 4: There are times when I feel anxious without knowing the reason.
A 1: My hand often shakes when I try to do something.
A 9: I am afraid of going out alone.

Positive rare specific differentia
C 4: There are times when exciting new ideas and schemes occur to me one after the other.

Positive very rare specific differentia
C 2: I sometimes become very excitedly happy at times for no special reason.

Neurotic Depressives

Positive common specific differentia
B 3: I have attempted to do away with myself.

Negative very rare specific differentia
D 8: I never take strong action against an evil person for the sake of a principle.

Hysterics

Negative rare specific differentia
A 5: I am not afraid of being in a wide-open space or in an enclosed place.

It is clear that specific differentiae are difficult to find amongst neurotics, particularly Neurotic Depressives and Hysterics. This is in line with the greater unreliability of diagnosis within neurosis than within psychosis.

Consideration of the characteristics of Paranoids in particular makes it manifest that common and rare can only be interpreted in relation to the items as they are worded in this Inventory. Obviously many of the symptoms could be more widely classified under the more general heading of Ideas of Persecution.

Of the 25 positive specific differentiae, 17 come from the Scale originally associated with the diagnosis in question. Of the remaining 8, 4 might be said to have come from adjacent scales—2 of the Paranoid Schizophrenic positive specific differentiae came from the non-Paranoid Schizophrenic Scale and 2 of the Psychotic Depressive items came from the Neurotic Depressive Scale. This lends some credence to the belief that information acquired clinically is not entirely devoid of utility.

Possible advantages of the RSSI over clinical interviews are:

1. Symptoms and subjective signs have been used and personality traits have not, at least in so far as the distinction offered earlier is acceptable (Foulds, 1961).

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2. All questions are put to all subjects. When several psychiatrists were asked if they questioned a patient about early waking if they had already decided he was probably a Paranoid State, the answer was always "no".

3. Examiner influence is somewhat reduced, and suggestion, though not eliminated, is held more constant.

4. Quantitative scales are public scales, which eliminates one source of error in replication studies and assessments of clinical change. Replication studies might fail to conform to association between classification by means of the RSSI and diagnosis, as used in a particular hospital; but RSSI scores might still correlate in a similar way with other variables used in the original study. This would suggest some consistency of the measure.

5. The relationship between any symptom or cluster of symptoms and any other variables can be more precisely assessed, particularly as yet other variables can be held constant statistically.

6. The significance of the absence of certain symptoms can be assessed more easily than in the clinical interview.

7. No one scale can be maximally effective in distinguishing between classes A and B, C, D, etc. One needs scales for A v. B; A v. C; A v. D, etc.

Possible disadvantages of the RSSI compared with clinical interviews when used for diagnostic purposes are:

1. The RSSI is perhaps more fakeable; but this has to be weighed against 3 above.

2. Symptoms are accorded equal weight. Weightings in terms of the differentiating power of various symptoms, based on frequencies, cannot take adequate account of relatively monosymptomatic cases. These fortunately are rare; but a subject with, say, a functional paralysis and three or four anxiety and depressive symptoms of high frequency in most categories may be easily diagnosed clinically as Conversion Hysteria, but missed by the RSSI.

3. Non-Paranoid Schizophrenics in particular often have so little insight into their condition that reliance is more appropriately placed on objective signs in arriving at a diagnosis. A chronic mania, on whom the RSSI was tried in its initial stages, insisted that she did not "feel so cheerful that she wanted to wear lots of gay things like flowers" etc., whilst she was actually decorating her hair with them.

4. Phasic illnesses may be more difficult to identify without the aid of a history.

5. The number of symptoms does not necessarily indicate severity of illness, although in practice it has usually served reasonably well.

SUMMARY

It has been argued that the evidence for the unreliability of psychiatric diagnosis is based on studies that have been poorly designed and that the issue is still an open one. It is clear, however, that the routine diagnoses used in psychiatry are quite inadequate as a basis for furthering our knowledge of mental illness and that they must give way to some more public and quantitative instrument. This does not mean that the observations of psychiatrists as brilliant as Kraepelin cannot be used for the development of such an instrument, quite the contrary. It does not mean that the clinical interview does not serve other

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very valuable functions, nor is it implied that the Runwell Symptom-Sign Inventory is fully adequate as a quantitative instrument. It is hoped, however, that it does illustrate some of the problems at issue, and that the distinction between symptoms and signs on the one hand and personality traits on the other will aid progress in this field.

The results obtained with this Inventory for 80 psychotic and 140 neurotic women have been described. The overall agreement with the clinical diagnosis was 63 per cent. in the main sample and 55 per cent. in a small additional sample. In 12 and 17 per cent. respectively, the diagnosis on the RSSI was uncertain and in 25 and 27 per cent. respectively, the RSSI diagnosis was in disagreement with the clinical diagnosis.

As would be expected, diagnosis among neurotics was more difficult than among psychotics or between neurotics and psychotics. The Inventory tended to over-diagnose the depressive group and to miss Hysterics; but it was thought that this might be a benign error.

Frequency distributions in the various groups were used to distinguish between frequency of occurrence of a symptom in a particular group and its differential power as between groups. Utilizing this distinction, a description was given of the characteristics of five groups of women—Paranoids, Psychotic Depressives, Hysterics, Anxiety States and Neurotic Depressives as derived from responses on the Symptom-Sign Inventory. Characteristics which differentiated between any one neurotic group and at least three of the other four groups were very few. Psychotics were much better differentiated.

Appendix A

The Runwell Symptom-Subjective-Sign Inventory, with the percentage of subjects in each group answering "yes"

Set A	Hy.	Ax.	N.D.	P.D.	Pa.
1. Does your hand often shake when you try to do something?	40	66	40	42	23
2. Do you sweat very easily even on cool days?	47	58	46	60	27
3. Do you suffer from palpitations or breathlessness?	57	72	54	42	40
4. Are there times when you feel anxious without knowing the reason?	65	80	50	46	47
5. Are you afraid of being in a wide-open space or in an enclosed place?	20	52	42	46	37
6. Are you afraid that you might be going insane?	40	44	38	56	10
7. Have you a pain, or feeling of tension, in the back of your neck?	42	50	38	18	13
8. Have you difficulty in getting off to sleep (without sleeping pills)?	72	70	68	78	43
9. Are you afraid of going out alone?	35	66	32	52	20
10. Have you any particular fear not mentioned so far?	40	34	48	46	40

Set B	Hy.	Ax.	N.D.	P.D.	Pa.
1. Do you cry rather easily?	52	66	68	48	47
2. Have you lost interest in almost everything?	42	52	60	64	33
3. Have you ever attempted to do away with yourself?	17	10	40	40	7
4. Is the simplest task too much of an effort?	65	60	78	60	23
5. Are you depressed because of some particular loss or disappointment?	17	24	26	24	27
6. Have you found it difficult to concentrate recently?	55	64	64	64	57
7. Does the future seem pointless?	40	38	40	62	27
8. Are you more absent-minded recently than you used to be?	55	68	64	74	57
9. Are you slower recently in everything you do than you used to be?	62	74	78	74	57
10. Do you ever seriously think of doing away with yourself because you can no longer cope with your difficulties?	27	22	24	36	7

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Set C	Hy.	Ax.	N.D.	P.D.	Pa.
1. Do you ever feel so confident and successful that there is nothing you can't achieve?	12	2	2	0	10
2. Do you ever become very excitedly happy at times for no special reason?	0	14	4	2	0
3. Are you ever so cheerful that you want to laugh and joke with everyone?	7	16	4	6	0
4. Are there times when exciting new ideas and schemes occur to you one after another?	15	32	8	10	3
5. Are you ever so full of pep and energy that you carry on doing things indefinitely?	5	14	0	4	17
6. Do you ever become so excited that your thoughts race ahead faster than you can express them?	25	26	8	14	13
7. Are you ever so cheerful that you want to wear lots of gay things, like button-holes, flowers, bright ties, jewellery, etc.?	0	6	8	4	7
8. When you get bored, do you like to stir up some excitement?	5	8	2	6	7
9. Do you ever feel so full of energy and ideas that you don't want to go to bed?	2	6	2	2	7
10. Are you a much more important person than most people seem to think?	2	6	2	4	13

Set D	Hy.	Ax.	N.D.	P.D.	Pa.
1. Are people talking about you and criticizing you through no fault of your own?	45	12	16	28	63
2. Have you an important mission to carry out?	5	2	0	0	17
3. Are there people who are trying to harm you through no fault of your own?	15	4	4	8	67
4. Is someone trying to poison you, or make you ill in some way?	5	0	2	2	30
5. Have you some special power, ability or influence which is not recognized by other people?	10	2	4	8	27
6. Is someone, other than yourself, deliberately causing most of your troubles?	7	6	14	14	60
7. Are people plotting against you through no fault of your own?	5	0	0	6	63
8. Do you ever take strong action against an evil person for the sake of a principle?	12	12	0	4	30
9. Do you ever see someone do or say something which most people don't take much notice of, but which you know has a special meaning?	15	12	10	26	50
10. Can people read your thoughts and make you do things against your will by a sort of hypnotism?	7	4	2	20	50

Set E	Hy.	Ax.	N.D.	P.D.	Pa.
1. Are you distressed by silly, pointless thoughts that keep coming into your mind against your will?	32	22	14	8	20
2. Are you compelled to think over abstract problems again and again until you can't leave them alone?	12	20	6	10	20
3. Are you unnecessarily careful in carrying out even simple everyday tasks, like folding clothes, reading notices, etc.?	12	18	30	12	23
4. Are you unable to prevent yourself from doing pointless things—like tapping lamp-posts, touching things, counting windows, uttering phrases, etc.?	7	14	12	14	10
5. Are you afraid you might do something seriously wrong against your will?	32	20	6	20	13
6. Do distressing thoughts about sex or religion come into your mind against your will?	15	26	10	14	23
7. Do you feel you just have to check things again and again, like turning off taps or lights, shutting windows at night, etc.—although you know there is really no need?	22	34	22	28	27
8. Have you an unreasonable fear that some careless act of yours might have very serious consequences?	20	14	10	16	27
9. Are you excessively concerned about cleanliness?	7	16	28	18	30
10. Do you have an uneasy feeling that if you don't do something in a certain order, or a certain number of times, something might go wrong?	10	16	18	12	23

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Set F	Hy.	Ax.	N.D.	P.D.	Pa.
1. Do you feel that there is some sort of barrier between you and other people so that you can't really understand them?	30	26	22	40	40
2. Do you ever see visions, or people, animals or things around you that other people don't seem to see?	5	4	8	10	10
3. Do you often wonder who you really are?	15	12	6	22	17
4. Do you ever have very strange and peculiar experiences?	12	12	10	18	33
5. Do you think other people regard you as very odd?	35	20	16	50	40
6. Do you often feel puzzled, as if something has gone wrong either with you or with the world, without knowing just what it is?	42	36	36	44	43
7. Do you ever hear voices without knowing where they come from?	2	2	4	10	40
8. Do you feel that you cannot communicate with other people because you don't seem to be on the same "wave-length"?	27	22	18	56	40
9. Do you ever have very strange and peculiar thoughts?	20	18	18	32	37
10. Is there something unusual about your body, like one side being different from the other and meaning something different?	5	0	2	20	10

Set G	Hy.	Ax.	N.D.	P.D.	Pa.
1. Do you ever lose the use of an arm or leg or face muscle?	12	14	4	16	10
2. Do you ever have fits, or have difficulty in keeping your balance?	32	32	18	18	20
3. Do you ever completely lose your voice (except from a cold)?	22	32	14	18	13
4. Do you ever lose all feeling in any part of your skin, so that you wouldn't be able to feel a pin prick; or do you ever have burning or tingling sensations?	37	30	28	22	30
5. Do you ever have "black-outs", dizzy spells or faints?	57	52	46	36	27
6. Have you been in poor health during most of the past few years?	45	16	34	32	37
7. Do you often suffer from blurring of vision, or any other difficulty with your sight which no one seems able to put right?	30	32	16	24	20
8. Are you often bothered with pains over your heart or in your chest or in your back?	42	32	28	32	27
9. Do you ever do things in a dream-like state without remembering afterwards what you have been doing?	30	12	12	30	27
10. Are you worried about your physical health?	30	30	34	40	33

Set H	Hy.	Ax.	N.D.	P.D.	Pa.
1. Are you worried about having said things that have injured others?	25	24	16	42	27
2. Are you an unworthy person in your own eyes?	25	20	22	72	30
3. Have you some bodily condition which you find disgusting?	2	0	12	20	7
4. Are you a condemned person because of your sins?	12	6	12	44	20
5. Are you troubled by waking in the early hours and being unable to get off to sleep again (without sleeping pills)?	45	44	40	66	33
6. Because of things you have done wrong, are people talking about you and criticizing you?	12	10	4	42	27
7. Are you ever so low in spirits that you just sit for hours on end?	35	24	42	56	43
8. Do you cause harm to people because of what you are?	15	8	6	30	10
9. Are you ever so "worked up" that you pace about wringing your hands?	20	36	30	56	17
10. Do you ever go to bed feeling you wouldn't care if you never woke up again?	35	26	38	66	30
11. Are you at your worst in the mornings and rather better as the day goes on?	32	56	40	36	20

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