NEUROTICISM AND EMOTIONAL INSTABILITY IN HIGH-GRADE MALE DEFECTIVES

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It has been found (O'Connor, 1951) that certain psychological tests provide a means of predicting the amount of emotional instability in high-grade defectives, when the latter quality is rated by psychiatrists acquainted with the patients. The psychological tests were of primary suggestibility, general locomotor coordination, and persistence. The multiple correlation of the results of these tests with emotional instability was 0.463, and they accounted for 21% of the total variance. Neuroticism and instability are terms used by many writers as though they were interchangeable, and the amount of both, when operationally defined, can be measured in part by analysis of the results of psychological tests. The relationship between these two qualities in our sample of high-grade defectives can therefore be studied objectively. How far objective tests, appropriate for distinguishing healthy from neurotic persons of average intelligence, will serve as well to differentiate stable defectives from those defectives who are neurotic or emotionally unstable, can also be investigated.

Accordingly, the data were re-examined to provide answers to the following questions. Is there a relationship between stability-instability and intelligence as measured by tests, in a sample of high-grade defective boys? Can "emotional instability" and "neuroticism" be used as interchangeable terms in describing defectives? Do objective tests which have been found to differentiate normals and neurotics, also detect neurotic defectives, or emotionally unstable defectives, or both? If the two terms are not equivalent, what percentage of defectives can be considered emotionally unstable, and what percentage neurotic?

The Sample and Criterion Rating

The Sample.—This consisted of 104 high-grade defective boys of mean age 20.9 years who were consecutive admissions to the hospital. Most of them were below 20, and only three were more than 30 years old. All were in good health, and free from physical disabilities. The

mean of five mean I.Q.s on separate tests was 73.54 with a standard deviation of 16.12 points.

The Criterion Rating.—This was a four point rating of emotional stability-instability, and was made independently by three raters between whom agreement was 0.45, 0.50, and 0.78. After each had rated the members of the sample, disagreements were discussed, and a final rating agreed. The distribution according to the four points of the rating is given in Table I.

TABLE I
ANALYSIS OF PSYCHIATRIC RATING OF INSTABILITY

	N	
Very stable and mature group ..	44	58 = 55.7% stable 46 = 44.3% unstable
Stable but immature group ..	14	
Unstable group ..	32	
Markedly unstable group ..	14	

Those in the first grade, very stable and mature, were marked by a maturity of judgment, and their social attitude reflected confidence. They showed restraint, and an adult approach to the test interview situations. Those in the second group, stable but immature, were similar, but showed signs of social immaturity, shyness, and uncertainty. The rather unstable group, the third, was noticeably more anxious and preoccupied, or alternatively notably aggressive. They frequently asked questions about themselves and their future, and displayed clear signs of confusion concerning the purpose of the tests used. They appeared suspicious of the tester. Those who were aggressive often had a history of delinquency and truancy, and showed dominance in social group test situations. They seemed generally opposed to authority.

The fourth, or markedly unstable group, were the most difficult to test, and seemed to find concentration an effort. They showed all the symptoms exhibited by the third group in a more marked degree.

Tests

A number of cognitive, motor, and personality tests were given to the sample of 104 defectives. A list of these is given below with a brief description of the less well known tests.

Intelligence Tests.—Kohs blocks (Alexander version); progressive matrices (1938) untimed; vocabulary sub-

test of the 1937 Terman-Merrill revision of the Stanford-Binet test Form L; Porteus maze (Vineland revision, 1933); and Cattell non-verbal intelligence test, Form IB.

Aptitude Tests.—Subtests of the United States Education Service General Aptitude Test were used. (The battery consisted of tests A, C, D, F, G, H, K, L, M, N, O, and P.)

General Locomotor Coordination Test.—The Heath's rail walking test was standardized on an American Army sample of 1,013 infantrymen, and has a reported reliability of 0.94. The test material consists of three rails of wood, two of which are 9 ft. long, and one 6 ft. long. One of the longer rails is 4 in. wide, and the other 2 in. wide. The 6-ft. rail is 1 in. wide. Subjects are asked to walk bare-footed heel to toe along each of the rails three times in succession. Their raw score is the distance in feet they manage to traverse without falling off the rail which is raised a few inches above the floor. Scores are weighted 1, 2, and 4 for the widest, medium, and narrowest rail respectively. The more difficult rails are not attempted by a subject who scores less than eight (raw score) on the preceding rail.

Primary Suggestibility Test.—Hull's body sway test of primary suggestibility was employed.

Persistence Test.—Eysenck's leg test and Fessard's hand dynamometer test were used. In the second persistence test, the subject is asked to press a hand dynamometer until his strength is registered. The movable pointer on the scale is then set at two-thirds of this reading, and the subject is asked to hold the other pointer at this level as long as possible. His score is the number of seconds during which he succeeds in holding the pointer at this mark.

Level of Aspiration Test.—The track tracer test (Cambridge Laboratory) was used.

Results and Discussion

The results are presented and discussed under the headings of the problems considered.

Comparison of Intelligence and Emotional Stability.—Is intelligence as measured by tests correlated with emotional instability? This question is directly answered by considering the correlation between the matrices test and the criterion rating of stability-instability. This correlation, 0.233, is significant at the 5% level, and indicates a tendency for the emotionally unstable to perform badly on the matrices. Despite the fact that, as a predictor of emotional instability, the matrices test failed in the previous multiple regression study, the correlation must be accepted as established. This result compares with the findings of Dewan (1948) who, while not quoting a correlation coefficient, gives the following figures based on the examination of Canadian soldiers.

The results may be regarded as reliable, because closely similar percentages of instability were

recorded for the respective intelligence levels by a number of psychiatrists succeeding each other for duty.*

Evidence on the general question of the relationship between intelligence and emotional instability is conflicting. Weaver (1946), Neuer (1947), and Kingsley and Hyde (1945) hold that among defectives such a correlation exists. Passages in Duncan (1936), Henderson and Gillespie (1941), and Tredgold (1947) also support such a view. Pollock (1944) says "the general rate of incidence of mental illness is higher among subnormal persons than among the general population and our data indicates that the rate of mental disease declines as the degree of intelligence advances". There is, however, a considerable body of evidence suggesting that cognitive performance is not related to emotional stability or instability. Authors who appear to support this view sometimes quote very low correlations between intelligence test scores and emotional stability-instability measures. Pintner (1945), quoting Hartshorne and May, shows that they found a correlation of only 0.15 between persistence and intelligence. Persistence is regarded by many as a valid test of freedom from neurosis. Eysenck, in a recent discussion of the evidence (1947), notices its conflicting nature, and suggests that differences in findings may be due to sampling. Society may place greater stress on those of more than average intelligence in some circumstances, and greater stress on the subnormal in others. In his own work, he finds a very low correlation between matrices I.Q. (1941 version), and negative personality (—P) or neuroticism. Summarizing his own work, Eysenck holds (1947) that there is likely to be a factor of neuroticism distinct and independent of general intelligence. This is quite consistent with his statement that neurotic soldiers tend to be below average intelligence, providing the explanation of differential social stress, mentioned above, is accepted.

Our own findings and those of Dewan, Pollock, Neuer, Weaver, and others, point to the existence of a higher correlation between instability and I.Q. The first comment to be made about this fact is that these investigations were mostly conducted with defectives, whereas other work has been concerned with those of a higher general level of intelligence. Another point is that the term "emotional instability" may have a different meaning from "neuroticism" as defined operationally by Eysenck. Finally it is possible that stress for the

* It is conceivable that the results are affected by those lower grade recruits who attempt to use psychiatric disability as a means of avoiding military service, but this would probably account for only a part of the difference between low and high grade incidence.

defective of lower I.Q. living in an institution is disproportionately greater than the stress for the higher grade boy.

Definition of Terms.—Can emotional stability-instability and "neuroticism" be used interchangeably in describing defectives? We cannot answer definitively on the basis of our previous investigation because no diagnosis of "neuroticism" was made. However, subsequent work gives a clear indication. Although Tredgold (1947) says that at adolescence it is difficult to distinguish in cases of mental abnormality between high grade defect, psychoneurosis, and dementia; he nevertheless states that hysteria and anxiety neurosis are common among defectives. Defectives are more prone to neurosis than are normals. Penrose (1938), who shares this viewpoint to some extent, notes that hysteria and obsessions, psychopathic personality and depression frequently occur among defectives. In the same paper, Penrose gives figures for the incidence of mild and acute psychopathy, psychoneurosis, and psychosis in 1,280 cases of mental defect. He found 204 cases of psychopathy, 72 of psychosis, and 132 of psychoneurosis. The neurotic cases tended to come from higher mental grades than the average patient examined. The number of neurotic cases represent quite a small percentage of the total, i.e. 9.6%. This is a far lower figure than Dewan's 53.8%. Our own results on a psychiatric rating of instability, based on social behaviour and social competence, are similar to Dewan's (Table II). The 44.3% found

TABLE II
RESULTS OF TEST AND STABILITY-INSTABILITY RATING
(DEWAN, 1948)

	Defective	Dull Normal	Normal
Intelligence (M-score)	0-49	50-89	90-119
Instability (%) ..	53.8	39.9	26.7
N	736	2,595	4,695

to be unstable in this investigation includes 12.5% very unstable patients who would certainly be diagnosed as neurotic, but also includes many others. Most of these others, about 30% of the whole sample, do not show clear neurotic signs, and could not be classified as neurotics. Their breakdowns are social failures and cases of indiscipline. Doll (1932) has suggested that although defectives suffer from emotional disturbances, they forget them quickly, and lack the depth of mind to suffer neurosis, and this opinion seems to apply to the cases called emotionally unstable in our investigation. The difference between Penrose's and Dewan's findings

might be explained in many ways, but this difference is probably due chiefly to the use of different methods of classification. Our own test findings make it clear, as far as the present sample is concerned, that social incompetence of the high grade defective, often described as emotional instability, must be distinguished from neuroses which have been clinically diagnosed.

Describing the test performance of neurotic soldiers, Eysenck (1947) says that they lack persistence, and tend to be highly suggestible on the Hull body sway test of primary suggestibility. This test was one of the most successful in Eysenck's own battery. Another was the leg test of persistence, and both tests gave comparatively high correlations with psychiatric diagnosis of neuroticism. Our own findings will, therefore, be presented and compared with Eysenck's and those of his associates. The body sway results are presented first. These as well as the persistence scores are also compared with Brady's results obtained on a sample of defective men (1948).

It is clear from an examination of Tables III and IV that defectives as a group do not show a markedly neurotic mean score. This result suggests a need for caution in assuming that defectives as a group contain a high proportion of neurotics.

TABLE III
ANALYSIS OF TEST RESULTS COMPARED WITH THOSE OF
EYSENCK (1947) AND BRADY (1948)

Postural Suggestibility		Mean	S.D.	N
Source	Population			
Eysenck	Neurotics	4.18	—*	900
	Normals	1.02	—	60
Brady (1948) ..	Defective males	1.19	0.37	106
This investigation	Defective males	1.30	2.62	104

* Not given.

A similar conclusion must be reached after an examination of the findings of Brady and ourselves for defectives, when these findings are compared with those of Himmelweit, Desai, and Petrie (1946) for normals.

The performance of defectives in this test is clearly different from that of neurotics.

A further analysis of the results shows that whereas the most stable defectives have a lower leg persistence (Table V) than the least stable, the 20 most suggestible have a significantly lower persistence than the 20 least suggestible; "t" was significant at the 5% level. Thus, although these two tests do not select a high proportion of the unstable among defectives, they do show a significant

TABLE IV
POSTURAL SUGGESTIBILITY

Sway (in inches)	..	0	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	7	8	9	12
Eysenck (male)	..	8		18		20		12		10	6	4	3	2	2	16
This investigation	..	34	33	12	10	2	2	3	2				1			5

TABLE V
LEG STABILITY TEST RESULTS COMPARED WITH OTHER AUTHORS*

Persistence						Mean	S.D.	N
The leg test	..	..	..	..	normals	—	—	—
Petrie (1946, unpublished data)	}	neurotics			(dysthymics)	29.1	20.8	25
Eysenck (1947)					(hysteries)	14.16	9.6	25
Brady (1948)	..	..	..	..	male defective	120.01	20.4	106
This investigation	..	..	..	..	male defective	69.8	51.04	104

difference between the stable defective and the “neurotic” defective, as defined operationally in Eysenck’s terms. On the basis of an operational definition of neurosis in terms of test findings, and recalling the conclusions of Penrose and Dewan, it would seem advisable to use the term “neurotic” more exclusively than the term “emotional instability”. Factor analysis of subsequently collected data (to be published) suggests that unstable behaviour is a mild form of neurosis, but on the basis of our findings the two terms appear to have a somewhat different denotation.

Validity of Objective Tests.—Do objective tests, which have been found to differentiate normals and neurotics, detect “neuroticism” or “emotional instability” or both or neither among defectives?

This question has been answered in the course of our consideration of the previous problem. An operational definition in terms of tests, and their cut off points as found effective by previous workers, suggests that only a small proportion, about 12%, of defectives of high grade in an institution such as Darenth Park, can be classed as neurotic. A larger group, about 32%,* without neurotic test scores, can be regarded as emotionally unstable for practical purposes.

Conclusions

The view that I.Q. scores and emotional stability ratings are related among defectives is confirmed by the present test results. A low but significant correlation of 0.233 was found.

* Eysenck has recently advanced a theory of neuroticism which suggests that a continuous scale of neurotic predisposition exists (unpublished paper). Our own findings support this view. The 32% emotionally unstable may be mildly neurotic.

The terms “emotional stability-instability” and “neuroticism” or “neurosis” are sometimes considered equivalent when describing defectives. If an operational definition in terms of objective test results is given to “neuroticism”, the terms are found to have a different connotation.

Objective tests which were previously found to differentiate normals and neurotics separate a small percentage of defectives from their fellows, but do not reveal a larger percentage of unstable patients unless new cut off points are chosen.

It is suggested that previous findings concerning percentage psychoneurosis (Penrose), and percentage instability (Dewan) are confirmed. In the sample tested, 12% were classifiable as neurotic, and 44%, as emotionally unstable.

Summary

One hundred and four high grade adolescent defective boys living in a hospital were tested with cognitive, personality, and motor tests. The tests were used to predict a psychiatric rating of emotional instability. On the basis of an operational definition of “neuroticism” in terms of test findings, the incidence of emotional instability and neuroticism respectively was assessed.

About 43% of the sample are unstable and 12%, neurotic. This confirms findings with other samples of defectives (Penrose), and subjects of average intelligence (Dewan). The two terms would not seem to be interchangeable but instability may be a mild form of neurosis. In the sample tested, a low but significant correlation was found between the progressive matrices test and a psychiatric rating of emotional instability.

The work was carried out, in the course of investigations by the Occupational Psychiatry Research Unit of the Medical Research Council, by J. Tizard and the author. Patients were tested at Darenth Park, Dartford, and the author wishes to acknowledge the very considerable assistance which the Physician Superintendent, Dr. J. K. Collier Laing, has given to the investigators. We also wish to thank Dr. J. M. Crawford for the help which he gave in selecting patients and assisting with the criterion ratings.

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