

EXTREME RESPONSE SET, DRIVE LEVEL AND ABNORMALITY IN QUESTIONNAIRE RIGIDITY*

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INTRODUCTION

IN several recent experiments involving motor performance (1), learning (7), immediate recall (2), expressive movement (5) and confidence in performance (3), significant relationships with a questionnaire measure of rigidity have been obtained. In view of the fact that despite a considerable amount of work no general trait of rigidity has hitherto been recognized, it was decided to clarify the reasons for the above results. Two steps are undertaken. The first step, published separately, is concerned with a systematic analysis of the experimental variables which yielded significant correlations with rigidity. In a series of investigations, the attempt is made to discover the experimental conditions necessary for a significant interaction of rigidity with test responses to occur.

The second step deals with an analysis of questionnaire criteria of rigidity, as undertaken in the present study. Even in the questionnaire field rigidity has received little recognition as a general factor. More recently, results have been obtained which strongly point to the existence of such a factor which appears essentially independent of other dimensions like extraversion and neuroticism. Nigniewitzky (15, 16), using a representative French sample, found scales of rigidity, dogmatism, intolerance of ambiguity and of fascism to have high loadings on a factor termed rigidity. A cross-validation of this result is described in the present paper. The F-scale was omitted because of its specific prejudice content. With slight modifications, all other rigidity scales were used as in Nigniewitzky's original studies.

The determination of the generality of a factor of rigidity represents one task of the present experiment. A second aspect is devoted to an analysis of the specificity of the same factor. Rigidity is thought of as a complex of various modes of behaviour, the analysis of which may provide differential information. The rigidity factor of Nigniewitzky appears, for example, to be composed of characteristics like extreme response set, striving for unrealistic or unreasonable goals, high prejudice, obsessiveness, high intensity of motivation, and so forth. Apart from these features, our own empirical findings (6) have shown that the Nigniewitzky rigidity scale discriminates reliably between normals and abnormals. Abnormality of response may thus form a further aspect of rigidity.

Another suggestion was derived from a recent experiment in which abnormal and personality correlates of desire for certainty were studied (3). Of the various personality criteria used, a scale of rigidity was found to correlate highest with certainty, usually considered a motivational variable. Furthermore, rigidity appeared to give rise to curvilinear relationships with certainty when

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measured under suitable conditions. From this the suggestion may be derived that drive of one form or other is a property of rigidity.

These considerations suggest considerable complexity of the rigidity factor. Further discriminable aspects of rigidity could no doubt be found, and it is possible that the neglect of their analysis has contributed significantly to the existing disagreement in experimental results. The present investigation, therefore, deals with specific validity by including fairly heterogeneous questionnaires characteristic of several of the aspects mentioned. The main aspects chosen are extreme response set, drive level and abnormality.

Specificity of rigidity may be investigated not only by analysing various aspects of the factor as a whole but also by emphasizing the differences between the sub-scales. For this reason, item analyses of the four rigidity scales were carried out in order to increase the scale specific validities of the individual items.

Most of the scales used in the present study, with the exception of E, N and MAS which have been published by the respective authors, are appended in their item-analysed form.

Rigidity factor	{	NR: rigidity (15, 16)
		CPIR: California Psychological Inventory of Rigidity (12)
		Do: dogmatism (17)
		IA: intolerance of ambiguity (15)
		Dr: drive (new construction)
		PFCL +2: personal friend check list, extreme positive response set (derived from Soueif, 21)
		E: extraversion (9)
		N: neuroticism (9)
		MAS: manifest anxiety (22)

The scales which contributed outstandingly to the rigidity factor of Nigniewitzky were NR, CIPR, Do and IA. They are summarily referred to as "rigidity".

The Personal Friend Check List requires the subject to respond in degrees (+2, +1, 0, -1, -2) to 100 adjectives. While the item content is believed to be of relatively little importance, the main feature of this check list is the extremeness of response. Of the two extreme response types, only the number of positive extreme responses is used as a score for reasons indicated elsewhere (6). Significant correlations between rigidity and this score have been obtained on previous occasions (6).

MAS is included because it has been used as both an indicator of abnormal symptomatology and of drive strength (Inglis, 13; Jones, 14).

For similar reasons, N is employed to assess the abnormality and the drive aspect of rigidity. Although Eysenck has not elaborated a drive theory of his own, Inglis (13) has taken up a suggestion made by the former investigator (Eysenck, 10) and has accepted N and E in combination as indicators of drive strength. According to this view, drive strength increases along the composite continuum: neurotic extraverts—stable extraverts—stable introverts—neurotic introverts. A test of this theory will be attempted.

It is realized that all questionnaires quoted so far, with the exception of E, have a strong abnormal connotation in the sense that they discriminate reliably and significantly between normals and abnormal. Nevertheless, they have frequently been assigned a most important task as criteria of drive strength. Apart from this obvious complexity, the scales quoted do not express drive

verbally, with the exception of some of the rigidity items. In the instance of E, N and MAS drive is almost entirely inferred.

For these reasons a new drive scale (Dr) is constructed, the items of which express drive directly and in a manner which is hoped to prevent significant differentiation between normals and abnormals. This "manner" of construction is difficult to define, but the author intended to formulate statements expressing strong motivation and avoiding, at the same time, the connotations of lack of realism, prejudice and/or unreasonableness, as frequently found in the rigidity variables. Thus it was hoped to assess the intensity typical of a portion of the rigidity items while removing the effects of abnormality of response.

AIMS AND PREDICTIONS

As this study serves a number of purposes, aims and predictions may be briefly enumerated. The aims are as follows: to cross-validate the factor of rigidity, obtained by Nigniewitzky in France, using English samples; to establish the degree of correlational dependence of this factor on the personality dimensions of extraversion and neuroticism; to determine the relationships of extreme positive response set to the factors mentioned; to determine the differentiation between normals and abnormals of rigidity and related scales; to secure predictions for differences of the same kind between some abnormal categories and to assess the effects of irrelevant factors of occupational status and age.

The expectations, largely derived from the studies already mentioned, are as follows. With the exception of N and MAS, both of which are measures of neurotic tendencies, highest intercorrelations are between the rigidity variables. N, MAS and PFCL +2 correlate moderately or lowly with rigidity. E correlates insignificantly and, if anything, negatively with rigidity. Abnormals score significantly higher on all rigidity and related variables, with the possible exception of Dr. In general, predictions are less easily made for Dr, an entirely new scale. If the assumption is correct that rigidity, a.o., measures "unreasonable" and "abnormal" kind of motivation, whereas Dr expresses "reasonable" and "normal" drive, the following may be expected. The correlation between Dr and rigidity will be low, but possibly significant because of common drive elements. Dr will not correlate significantly with abnormal tendencies (N and MAS). The significance of differentiation between normals and abnormals will diminish in the order: neuroticism (N and MAS), rigidity (NR, CPIR, Do and IA), PFCL +2 and Dr. The latter variable should produce insignificant differences.

METHOD

1. *Questionnaires and scoring.* The questionnaires used have already been named in the introduction.

For MAS the number of items answered in the anxiety direction is used as score. As regards the PFCL, only the positive extreme response, or Extr. +2, is analysed at present. The number of +2s serves as score. For all remaining scales, two points are awarded for a response in the direction indicated by the scale name and one point for an undecided response, or response to a question-mark.

2. *Subjects.* Eighty-eight normal and 105 abnormal persons were tested with all questionnaires, except for MAS in the case of the normals. As occupational status has been demonstrated to interact significantly with a number of the scores used (Brenghelmann, 4), subjects are divided into four

sub-categories, as follows: I=unskilled occupations (untrained labourers, factory workers, shop assistants, etc.); II=skilled occupations (clerks, typists, trained craftsmen, technicians, etc.); III=higher trained and/or independent occupations (executives, independent business people, officers of forces, higher officials, etc.); and IV=academic professions. The frequencies for these sub-groups distribute as shown in Table I.

TABLE I
Distribution of Subjects to Four Occupational Categories

Occupational status	I Unskilled	II Skilled	III Higher- trained	IV Academic	Total
Controls (all males)	17	35	15	21	88
Abnormals	Males	20	22	4	66
	Females	18	0	5	39
	Total	38	36	22	9

As may be seen, occupational status is in the average lower for the patients than for the controls. When tested for significance, a chi-square of 12.75 (3 d.f.) is obtained, which is significant at the 1 per cent. level. This factor, therefore, requires consideration in the assessment of differences between normals and abnormals.

Clinical diagnosis may play an important part. A corresponding frequency distribution of the patients is given in Table II.

TABLE II
Number of Subjects in Clinical Categories

Number of Subjects	Males	Females	Total
Dysthymics	19	15	34
Hysterics	16	11	27
Schizophrenics	8	2	10
Depressions (psychotic)	3	6	9
Inadequate personalities	7	0	7
Schizoid personalities	3	1	4
Addicts (drugs or alcohol)	4	1	5
Others (unclassifiable)	6	3	9
Total	66	39	105

As to type of patients, no attempt for selection was made except that patients were volunteers and that testing was arranged in hospitals predominantly occupied by neurotics and less severe cases of psychotics. As a rule, the psychotics used in the present study were either well on their way to recovery or sufficiently recovered to be discharged. The chronicity of disease varied to a considerable degree. This factor was not assessed. Finally, only such patients were selected who did not receive any physical treatment save for ordinary night sedation. If physical treatment had been completed a period of four weeks was allowed to pass before patient was tested.

Age requires consideration because of its positive relationship to rigidity. In the present study the mean age was 37.24 (S.D.=12.01) for the normals and 35.85 (S.D.=11.25) for the abnormals. As assessed by a t-test analysis

($t=0.64$, with 191 d.f.), this difference is insignificant. For the overall differentiation between normals and abnormals age is therefore unlikely to play an important part.

3. *Item analysis.* As neither the Dr nor the four rigidity scales had been systematically analysed using samples drawn from the British culture, a double item analysis within and between these scales was carried out. The normal group, which was tested first, was used for this analysis. In the first analysis, those items were selected which correlated significantly with the respective scales but not so with any of the other scales. The analysis was then repeated with items found to be the best differentiators. The criteria of item acceptance were significant differentiation between the high and low scoring halves, using the 5 per cent. level of significance; linear relationship through the quartiles of the entire sample, and a response frequency with a minimum of 20 or a maximum of 80 per cent. The item analysed versions of the questionnaires were subsequently administered to the abnormals for comparison with the normals in terms of intercorrelations, effects of occupational status and differentiation.

RESULTS

1. *Item analysis.* As a result of the first analysis, the NR and Do scales lost a considerable number of their original items, partly because of insignificant correlation with the respective total scores and partly because of too great complexity (significant correlation with several other scales). The original and final numbers of items employed in the various scales are shown in Table III. A systematic item analysis of the PFCL has not yet been carried out.

TABLE III
Number of Items Pertaining to the Various Questionnaires

	Number of Items in Scales							Before Item-analysis	After Item-analysis
NR	28	14	
CPIR	14	15	
Do	36	16	
IA	20	17	
Dr	17	14	
E	24	*	
N	24	*	
MAS	50	*	

* Not item-analysed.

The item specificity of the analysed scales varies as follows. None of the items of NR, Do and Dr correlated significantly with any of the scales but their own, while the internal correlations with their own scales were significant at the 1 per cent. level for all items. Of CPIR and IA a number of items correlated significantly with other scales, but not higher than at the 2 per cent. level. Of CPIR, items 1, 7 and 10 correlated significantly with NR; 4 and 9 with Do; and 4, 10 and 11 with IA. Of IA, items 6, 13 and 14 correlated significantly with NR; 1, 5, 7, 8 and 10 with Do; and 13 with IA. In several instances items were exchanged between the scales.

As seen from Table IV, the overall size of intercorrelations was hardly affected by the item analysis. However, a considerable reduction in the range of coefficients occurred for all significantly intercorrelating scales (rigidity and

related scales plus N). High coefficients decreased and low coefficients increased in size. The former effect may be due to the weeding out of items which correlated significantly with several scales. The latter effect may be due to the selection of scale specific (significant) items, resulting in the measurement of a "purer" factor of rigidity.

Distributions of scores are shown in Figure 1, separately for normals and abnormals.

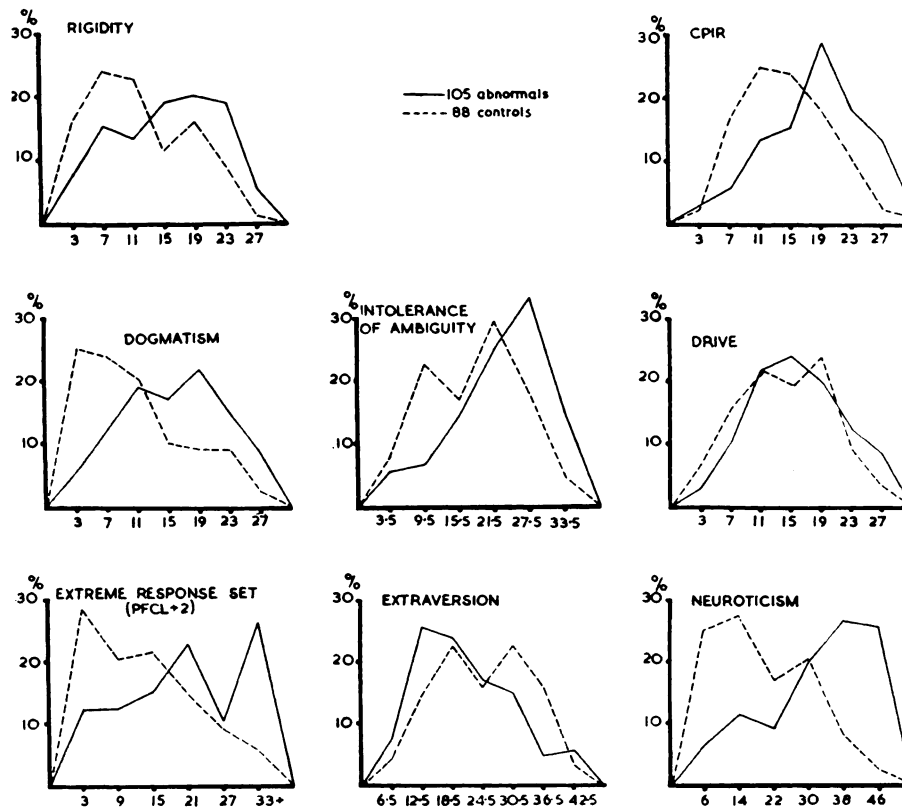


FIG. 1.—Score distributions for all scales used in both the normal and the abnormal sample. (MAS not used with the normals.)

The normal/abnormal dichotomy leads to considerable differences in distribution for all scales but Dr. This result is discussed in a later section.

2. *Correlational analysis.* All pairs of variables were inspected for linearity. No obviously non-linear relationships were observed. The coefficients of intercorrelation are given in Table IV, separately for normals (original scores), normals (item-analysed scores) and abnormals (item-analysed scores).

A number of conclusions may be drawn from these fairly clear-cut results, the inspection of which is facilitated by the arithmetically computed mean coefficients, shown in Table V.

The uniformly high correlations between NR, CPIR, Do and IA confirm the existence of a general factor of rigidity, obtained by Nigniewitzky on a French sample.

The drive scale correlates significantly with rigidity, thus confirming the

TABLE IV
Questionnaire Intercorrelations

Upper Figures in each Cell: 88 Normals (original scores); Centre Figures: Same Normals (item analysed scores); Lower Figures: 105 Abnormals (item analysed scores). MAS used with Abnormals only. PFCL +2, E, N and MAS not Item Analysed

	CPIR	Do	IA	Dr	PFCL +2	E	N	MAS	Age	Validity
NR	.. 51† 59† 57†	51† 45† 48†	65† 45† 54†	28† 23* 34†	45† 39† 28†	-30† -25* -14	40† 27* 29†	— — 37†	33† 25* 08	93†
CPIR	..	38† 45† 44†	31† 45† 58†	22* 23* 51†	18 31† 30†	-22* -25* -09	22* 33† 0	— — 09	19 25* 36†	84†
Do	..		57† 47† 67†	34† 35† 38†	32† 33† 29†	-08 -02 -12	49† 59† 38†	— — 34†	03 26* 13	69†
IA	..			26* 25* 35†	24* 12 26†	-05 -04 -04	55† 50† 27†	— — 32†	15 14 22*	89†
Dr	..				05 21* 33†	07 19 17	20 31† 04	— — 06	09 08 16	95†
PFCL +2						-16 16	19 17	— 15	40† 22*	—
E						-02 -39†	— -42†	-18 -05	—
N	..							79†	16 -21*	—
MAS	..								— -19*	—

Levels of significance: * = 5 per cent.; † = 1 per cent.

Validity: Correlations between original and item analysed scales

TABLE V
Correlations of Various Factors with the Rigidity Complex

	88 Controls	105 Abnormals
1. Mean intercorrelations of the rigidity complex (NR, CPIR, Do and IA)
2. Drive vs. 1 ..	0.48	0.55
3. PFCL +2 vs. 1 ..	0.27	0.40
4. Neuroticism vs. 1 ..	0.29	0.28
5. Manifest anxiety vs. 1 ..	0.42	0.24
6. Extraversion vs. 1 ..	—	0.28
7. Age vs. 1 ..	-0.14	-0.10
	0.23	0.20

hypothesis that rigidity scales, apart from other characteristics, have drive property. The fact that Dr correlates lower with rigidity than the rigidity variables amongst each other may indicate that the former factor is, as intended, related to a specific aspect of the relatively heterogeneous complex of rigidity. The specificity of this relationship is further demonstrated by the finding that all correlations but one between Dr and the remaining variables (N, MAS, E and age) are insignificant.

Extreme positive response set is significantly correlated with rigidity, indicating a high degree of (positive) response intensity in the rigid personality. This result has now been obtained on a number of occasions and may be considered an established fact.

The neuroticism variables (N and MAS) also correlate significantly with rigidity. This finding disagrees with Nigniewitzky's result of an insignificant relationship.

Extraversion correlates insignificantly with rigidity. The fairly high negative correlation with N and MAS in abnormals, in contrast to a corresponding insignificant coefficient in the normal group, agrees with frequent previous results obtained by various authors.

The significant relationship between rigidity and age is as expected.

3. *Differentiation between normals and abnormals.* A t-test analysis between normals and abnormals is shown in Table VI, separately for males and females.

TABLE VI

Statistical Assessment of Differences Between Normals and Abnormals. MAS not Tested in the Control Sample

	(1) 88 Male Controls		(2) 66 Male Abnormals		(3) 39 Female Abnormals		t-ratio		
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	1 vs. 2 152 d.f.	1 vs. 3 125 d.f.	2 vs. 3 103 d.f.
NR ..	11.44	6.62	14.92	6.33	15.43	7.47	3.29†	3.01†	0.37
CPIR ..	14.52	6.00	17.92	6.34	19.00	6.18	3.40†	3.85‡	0.85
Do ..	10.28	6.97	14.30	6.41	17.92	6.41	4.42†	5.84‡	2.80†
IA ..	16.43	7.97	20.21	7.53	22.51	7.96	2.98†	3.97‡	1.48
Dr ..	14.15	6.11	15.30	6.19	16.00	6.07	1.15	1.58	0.56
PFCL+2	12.93	9.38	20.29	13.02	22.54	13.24	4.08‡	4.67‡	0.85
E ..	23.61	9.12	20.96	8.17	19.82	11.40	1.87	2.00*	0.59
N ..	17.99	10.82	29.18	12.79	33.26	10.81	5.88‡	7.34‡	1.67
MAS ..	—	—	24.97	11.63	28.15	10.33	—	—	1.41
Age ..	37.24	12.01	34.27	10.99	33.92	11.81	1.68	1.57	0.15

Significance levels: * = 5 per cent.; † = 1 per cent.; ‡ = 0.1 per cent.
MAS was not employed in the control group.

Results are generally as expected. Neuroticism differentiates very sensitively between normals and abnormals, and the latter group shows a significant tendency to be more introverted.

The outstanding main finding is that all rigidity variables (NR, CPIR, Do and IA) discriminate at a high level of significance. The same applies to extreme positive response set (PFCL +2).

A further outstanding characteristic is the insignificance of the difference with regard to drive. This result may be taken to support the view that Dr is a measure of "normal" drive.

With the exception of Do, no appreciable differences are obtained between male and female abnormals.

4. *Effects of occupational status.* On a previous occasion, using the German translation of the present questionnaires on 200 German nationals, significant differences between status categories of the kind employed in the present study were found for Do, IA and PFCL +2 (Bregelmann, 4). As normals and abnormals were significantly different with respect to occupational level (Table I) this factor is assessed in the following analysis. Firstly, means and standard deviations were computed separately for the four occupational categories, results being shown in Table VII.

With one exception (NR, category IV), means are consistently higher for the abnormal sub-groups on all variables, which discriminated significantly between normals and abnormals. This indicates that the quality of response is similar regardless of occupational level. The relative, or quantitative differences between the occupational categories are assessed by means of analysis of variance. Analyses were carried out separately for normals and abnormals and the results are given in Table VIII.

TABLE VII
Means and Standard Deviations of Four Occupational Categories. MAS not Tested in the Normal Sample

		Occupational Status							
		I		II		III		IV	
		Unskilled		Skilled		Higher-trained		Academic	
		17 C	38 E	35 C	36 E	15 C	22 E	21 C	9 E
NR	\bar{X}	10.71	15.76	12.29	16.53	11.40	14.86	10.67	7.33
	SD	7.45	6.14	7.58	6.58	5.07	6.55	5.38	5.92
CPIR	\bar{X}	15.06	19.32	14.80	18.81	15.33	17.50	13.05	14.22
	SD	7.52	6.11	5.65	5.81	5.47	5.62	5.75	9.04
Do	\bar{X}	11.29	17.29	10.74	15.64	10.07	13.18	8.86	14.78
	SD	9.16	7.13	6.75	6.61	5.86	5.34	6.25	6.12
IA	\bar{X}	16.59	22.42	18.06	21.50	17.33	20.32	12.95	15.44
	SD	7.96	7.03	7.84	7.77	7.73	8.24	7.81	7.75
Dr	\bar{X}	14.18	16.32	14.14	16.56	12.80	14.18	15.10	13.00
	SD	6.25	6.40	5.54	5.79	6.57	6.56	6.81	4.70
PFCL +2	\bar{X}	15.88	24.26	13.00	20.58	10.73	18.86	11.86	16.67
	SD	12.07	13.50	9.08	13.95	11.11	10.84	8.56	4.47
E	\bar{X}	26.35	20.84	21.57	20.28	23.73	20.00	24.71	21.56
	SD	7.59	9.35	9.27	10.29	10.05	8.32	9.16	10.66
N	\bar{X}	21.59	32.61	17.26	29.33	18.13	30.18	22.67	29.33
	SD	12.24	11.01	10.69	13.06	12.04	11.84	8.82	4.81
MAS	\bar{X}	—	27.97	—	25.69	—	25.27	—	22.44
	SD	—	10.29	—	12.20	—	10.67	—	12.72

C=controls, E=experimental, abnormal sub-groups.

TABLE VIII
Analysis of Variance Between Occupational Categories

	F-ratio	88 Normals (3/84 d.f.)	Significance	105 Abnormals (3/101 d.f.)	Significance
NR	..	*	—	5.22	1%
CPIR	..	*	—	1.84	N.S.
Do	..	*	—	1.89	N.S.
IA	..	1.95	N.S.	2.14	N.S.
Dr	..	*	—	1.25	N.S.
PFCL +2	..	*	—	1.28	N.S.
E	..	1.21	N.S.	*	—
N	..	*	—	*	—
MAS	..	Not tested	—	*	—

* =within group variance larger than between group variance.
N.S.=not significant.

These findings are practically clear-cut. Significant differentiation between the occupational levels is found in one instance only (NR, abnormals). This single result may be considered to have occurred by chance, firstly, because the remaining rigidity scores did not differentiate significantly and, secondly, because in the previous study on Germans already mentioned (4), NR did not provide significant differentiation. It is concluded that occupation does not contribute significantly to rigidity as far as the present conditions are concerned.

5. *The role of hysteria/dysthymia.* In the light of the excellent discrimination between normals and abnormals, an analysis between abnormal categories would be of particular importance. Because of the small sub-samples (Table II) this analysis is at present restricted to the dichotomy hysteria/dysthymia, as

defined by Eysenck (11). According to this author hysterics and dysthymics are differentiated significantly along the E-dimension, not however along the N-dimension. As the rigidity variables correlate significantly with N only it may be expected that no significant relationship with the dichotomy in question is obtained. This is in fact borne out by the results shown in Table IX.

TABLE IX
Differences Between the Neurotic Dichotomy Hysteria-Dysthymia

			Hysterics	Dysthymics	t-ratio	Significance (59 d.f.)
NR	..	\bar{X}	16.00	15.79	0.12	N.S.
	..	SD	6.56	7.25		
CPIR	..	\bar{X}	18.59	19.18	0.37	N.S.
	..	SD	5.81	6.39		
Do	..	\bar{X}	16.67	16.68	0.01	N.S.
	..	SD	5.38	7.89		
IA	..	\bar{X}	22.11	22.15	0.03	N.S.
	..	SD	6.89	8.80		
Dr	..	\bar{X}	15.30	16.12	0.50	N.S.
	..	SD	6.81	6.02		
PFCL +2	..	\bar{X}	16.48	21.82	1.65	N.S.
	..	SD	9.85	14.32		
E	..	\bar{X}	24.52	17.58	2.72	1%
	..	SD	8.91	10.66		
N	..	\bar{X}	31.48	32.65	0.40	N.S.
	..	SD	11.49	11.42		
MAS	..	\bar{X}	25.33	29.06	1.47	N.S.
	..	SD	8.86	10.43		

Firstly, it is seen that the hysterics are significantly more extraverted than the dysthymics. Previously such result has been achieved when comparing psychopaths with dysthymics, not however between dysthymics and hysterics proper. The same applies to the present study where more than 80 per cent. of the "hysterics" were psychopaths.

The term "psychopath" was applied to patients categorized by clinicians as personality disorder, character disorder, or psychopathy. Schizoid and inadequate personality disorders were treated as separate categories.

As required, hysterics and dysthymics are not significantly differentiated by means of N. None of the remaining scores differentiates significantly between the two groups in question, indicating that rigidity and related variables are unspecific in this respect. Like neuroticism, they vary in the direction of general abnormality.

6. *Extraversion and neuroticism as a combined indicator of drive.* In the introduction the theory of Inglis (13) was quoted that drive intensity increases as a combined function of E and N in the order: neurotic extraverts (NE)—stable extraverts (SE)—stable introverts (SI)—neurotic introverts (NI). This theory requires a non-linear relationship of drive with neuroticism and a linear relationship with extraversion. As long as rigidity and Dr possess drive property of one kind or other, the above hypothesis is contradicted by the results shown in the correlation matrix (Table IV), all variables of which are linearly inter-related. As neuroticism correlates significantly with rigidity both NE and NI score higher on this factor than SE and SI, thus causing the hypothesized drive

continuum to assume non-linearity. For Dr, the "normal" drive scale, a linear relationship is possible. Because of its tendency to correlate positively with E, the ascent of the gradient would be opposite to prediction. All scores were actually inspected from the point of view discussed, but no support was found for the theory of Inglis.

DISCUSSION

Highly significant intercorrelations between two measures of rigidity and one each of dogmatism and intolerance of ambiguity have confirmed Nigniewitzky's finding of a general factor of rigidity, obtained in France. This result agrees well with two similar analyses carried out on German normal samples differing in occupational composition (4). Further agreement is derived from the study of Rokeach and Fruchter (19), who used scales very similar to those of Nigniewitzky. In this study a factor of rigidity was extracted on which dogmatism and authoritarianism had high loadings.

The finding that the latter variables had also positive loadings on a factor of anxiety agrees with the present result of a positive correlation between the rigidity variables on the one hand and neuroticism and manifest anxiety on the other. However, as neither the French nor the German samples gave rise to similar results the theory by Rokeach and Fruchter that "ideological dogmatism has its major motivational basis in anxiety" must be treated with reserve.

The main emphasis of Rokeach and Fruchter was not, however, as much on communality as on specificity. The authors took pains to point to differences between questionnaire criteria with high loadings on the same factor. Some such differences between dogmatism and rigidity were described. Furthermore, in a previous experiment, Rokeach, McGovney and Denny (18) have shown that differences of a qualitative kind may be attached to dogmatism and rigidity despite their high intercorrelation. Thus by analysing for specific rather than common effects important information may be gained.

A very similar point of view was adopted for the present experiment by employing questionnaires with the aim to validate differential aspects of rigidity. The significant but relatively low correlations with PFCL +2, Dr and neuroticism (N/MAS) suggest the possibility of isolating various aspects of rigidity postulated to be a rather complex factor. Experimental validation separately for these differential aspects may then be carried out.

Of the specific results the Dr scale has been particularly useful. As stated in the introduction the scale was constructed to represent a "normal", "reasonable" kind of motivation. This aim was achieved as demonstrated by lack of significant differentiation between normals and abnormals. Abnormals, therefore, do not judge themselves to be more motivated than normals as far as realistic striving is concerned. However, they mobilize an excessive degree of energy in stating their attitudes and in aiming for unrealistic, ambiguous and/or unreasonable goals. The consistently significant correlation between Dr and rigidity confirms the view that desire for motivation is part of the rigidity complex. The remaining scales of N, MAS and E correlate, with one exception (N in normal group), insignificantly with Dr. From this it is concluded that these criteria do not possess drive characteristics as measured by the present scale.

It may now be asserted that amongst other qualities the rigidity complex is characterized by desire for drive, extremeness of response and probably a fairly general intensity of set. This description is reminiscent of Duffy's (8)

syndrome of "energy mobilization" or "energy level", which covers such frequently used terms as "instincts", "drives", "urges", "tensions", "motives", or "libido". Energy mobilization may form the basis to rigidity. Following Duffy, it may then be contrasted with her second basic behavioural concept of "goal-direction". This deals with the form or direction of behaviour, while variables of the energy type are concerned with variations in the strength with which such behaviour is conducted. With a view on abnormality it may be added that economy in mobilization and adequacy in regulation of psychological energies represent important additional problems.

As abnormals score high on ("abnormal") rigidity, not however on ("normal") Dr, it may be said that they mobilize and use excessive energy in an uneconomic and inadequate manner. The question is now asked which type of psychiatric category or syndrome is typical of such behaviour. The present analysis of sub-categories, because of too small numbers of subjects, is insufficient to provide an empirical answer. Theoretically, of a number of possible generalizations, the following one is preferred. The psychology and pathology of Janet, following the review by Schwartz (20), revolves to a large extent around concepts of drive, tension, aspiration, beliefs and psychological "reserves". Activation and regulation of energy reserves form the basis of the discussion of a variety of disorders. Input and output must be kept in balance to preserve normality, as is neatly expressed in the therapeutic advice given by the following saying:—

*Roste nie—doch haste nie,
Dann hast du nie—Neurasthenie.*

The working hypothesis may be considered that manifest rigidity results from variations in such disturbances of the energy household. If this general hypothesis is pursued, more specific discrimination may be investigated along various lines. Intensity of energy mobilization may represent reactivity to traumatic or other stimuli and may, with advantage, be investigated using theories such as Selye's adaptation level. Adequacy of energy distribution may be thought of as a second aspect of the general problem. This may be investigated using theories of discrimination and generalization. As regards the present experiment, both intensity and adequacy have been represented by respective criteria of intensity of response set (PFCL +2) and adequacy of motivation (many rigidity items). In the latter instance, inadequate achievement motivation, for example, may have resulted in response generalization to unreasonable or unattainable goals.

In the pursuit of such tasks the problem of psychiatric categorization must be considered. Such categories have traditionally been described in terms of *forms* of behaviour (characterology) rather than in terms of variations in *energies* which, consequently, may cause lack of category discrimination by certain aspects of rigidity. The interaction between specific forms of personality and general energy level may result in overtly discriminable behaviour disorders, as described in great detail by Janet.

SUMMARY

Questionnaires of rigidity, extreme response set, drive, neuroticism and extraversion were given to 88 normals and 105 abnormals. Intercorrelations supported the existence of a general factor of rigidity, practically independent of extraversion. Main emphasis was on validation of some specific aspects of the rigidity complex. The rigid personality was shown to be characterized by

extremeness of response, high drive level and abnormality of response. Analyses between normals and abnormals revealed all rigidity measures to differentiate between these groups at a high level of significance. The finding that a scale of "normal" drive was not significantly related to neuroticism, manifest anxiety, or extraversion gave rise to a criticism of some current personality theories of drive. The theories of energy mobilization by Duffy and of energy activation and regulation by Janet are discussed in relation to the above results.

APPENDIX

The appendix contains the item-analysed versions of NR, CPIR, Do, IA and Dr. With the exception of Dr, item number 11 ("Friends have sometimes called me lazy"), all items are keyed for the true response to represent the scale direction. The frequent intermediate response made of "undecided", or "?", is not used. If subjects, against the instruction, decide to use an intermediate response, this is considered in scoring. Two points are scored for an answer in the scale direction and one point for an intermediate response.

The PFCL, added in the appendix, has not been item-analysed properly. It should be considered a preliminary version.

INSTRUCTIONS

Please answer each question by putting a circle round the "True" or the "False" following the question. Work quickly and do not ponder too long about the exact shade of meaning of each question. There are no right or wrong answers, and no trick questions.

REMEMBER TO ANSWER EACH QUESTION

Rigidity (NR)

- | | | |
|---|------|-------|
| 1. You make it a matter of principle never to permit your friends to come between you and your work | True | False |
| 2. Before undertaking a trip, you always plan well in advance and decide on an exact itinerary, from which you are reluctant to deviate .. | True | False |
| 3. The realization of a man's creative work is of greater value than leisure and enjoyment of everyday human relations, which are not important | True | False |
| 4. You always prefer the familiar, the safe and sure, to taking chances with the novel and untried | True | False |
| 5. A sound person will always judge another individual's behaviour according to what he would do himself | True | False |
| 6. Whenever the occasion arises to broaden your experience (new job, new residence, travel, etc.), your natural disposition "to belong" makes you reluctant to undertake a change | True | False |
| 7. The following essentials: will-power, determination, perseverance, and independence, are necessary and sufficient to make a true success of one's life | True | False |
| 8. A man ought to concentrate on one task at a time for the sake of doing a thorough job, otherwise he should not undertake it at all .. | True | False |
| 9. There are only a few styles and colours of clothes that you have found to your satisfaction and you would be most reluctant to change to something new | True | False |
| 10. You find it extremely bothersome when unexpected visitors invade your privacy without previous warning | True | False |
| 11. You never compromise on quality but only buy the most solid and lasting things or you do without | True | False |
| 12. Some of your most worthwhile experiences have been (or would be) in associations and talks with persons of great prestige in your field of work | True | False |
| 13. After writing and sending an important letter, you often go over in your mind the possible replies and make alternative plans for action accordingly | True | False |
| 14. Generally you are indifferent to people but you are devoted to a few close to you and dislike intensely certain others | True | False |

Rigidity (CPIR)

- | | | |
|---|------|-------|
| 1. You like to have a place for everything and everything in its place .. | True | False |
| 2. You find that a well-ordered mode of life is congenial to your temperament | True | False |
| 3. You always see to it that your work is carefully planned and organized | True | False |
| 4. It bothers you when something unexpected interrupts your daily routine | True | False |
| 5. It is better to be a dead hero than a live coward | True | False |

- | | | |
|---|------|-------|
| 6. A strong person will be able to make up his mind even on the most difficult questions | True | False |
| 7. It is hard for you to sympathize with a person who is always doubting and unsure about things | True | False |
| 8. Once you have your mind made up you seldom change it | True | False |
| 9. You have arrived at a conclusive philosophy of life by which you view the scheme of things in their true light | True | False |
| 10. Our thinking would be a lot better off if we would just forget about words like "probably", "approximately" and "perhaps" | True | False |
| 11. For most questions there is just one right answer once a person is able to get all the facts | True | False |
| 12. You set a high standard for yourself and you feel others should do the same | True | False |
| 13. Most of the arguments or quarrels you get into are over matters of principle | True | False |
| 14. Your blood boils whenever a person stubbornly refuses to admit he's wrong | True | False |
| 15. Your hardest battles are with yourself | True | False |

Dogmatism (Do)

- | | | |
|--|------|-------|
| 1. A man who does not believe in some great cause has not really lived | True | False |
| 2. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does | True | False |
| 3. It is when a person devotes himself to an ideal or cause that he becomes important | True | False |
| 4. Man on his own is a helpless and miserable creature | True | False |
| 5. Unfortunately, a good many people with whom you have discussed important social and moral problems don't really understand what's going on | True | False |
| 6. A person who thinks primarily of his own happiness is beneath contempt | True | False |
| 7. You have often felt that strangers were looking at you critically | True | False |
| 8. It is only natural for a person to have a guilty conscience | True | False |
| 9. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side | True | False |
| 10. While you don't like to admit this even to yourself, you sometimes have the ambition to become a great man, like Einstein or Beethoven | True | False |
| 11. To compromise with our political opponents is to be guilty of appeasement | True | False |
| 12. The United States and Russia have just about nothing in common | True | False |
| 13. In a heated discussion you generally become so absorbed in what you are going to say that you forget to listen to what the others are saying | True | False |
| 14. You'd like it if you could find someone who would tell you how to solve your personal problems | True | False |
| 15. On subjects of controversy it is always best to follow the authoritative opinion | True | False |
| 16. I rarely make a decision before asking other people for their advice | True | False |

Intolerance of Ambiguity (IA)

- | | | |
|---|------|-------|
| 1. Today everything is unstable and there is constant change; one never knows what to expect next, which makes one feel uneasy | True | False |
| 2. Certain people are cut out for certain things and are destined for a certain role in life | True | False |
| 3. You always mail your letters immediately upon completion, for it annoys you to leave things in an unsettled state | True | False |
| 4. Talking with a person who speaks indistinctly upsets you | True | False |
| 5. It upsets you not to know exactly what to expect in a pending situation | True | False |
| 6. Anybody worth anything at all does not remain at the bottom of the social scale | True | False |
| 7. It makes you feel uneasy when someone is speaking about something which you do not understand | True | False |
| 8. When you cannot decide what you should do on a personal matter, you always act on the advice of an older person whose judgment you respect | True | False |
| 9. One should avoid doing things in public which appear wrong to others, even though one knows that these things are really all right | True | False |
| 10. It upsets you when you are faced with an ambiguous situation of which you know absolutely nothing of the outcome | True | False |
| 11. One must fight to come out on top in a world made up of the weak and the strong | True | False |
| 12. First impressions about people are usually correct | True | False |

13. For most questions there is just one right answer once a person is able to get all the facts	True	False
14. In this world, definite choices must be made all the time	True	False
15. I like to be able to see beforehand how things will turn out	True	False
16. Life is a battle in which the strongest get the prize	True	False
17. One must fight to come out on top in a world which is full of competition	True	False

Drive (Dr)

1. In choosing between two things, it is better to make up one's mind rapidly rather than waste time	True	False
2. I am easily frustrated if I feel that I have not been able to accomplish my best in a task	True	False
3. When doing a task, I feel that my individual reputation is at stake	True	False
4. Frequently I have been the last to give up trying to do a thing	True	False
5. When confronted with difficult tasks I react with great effort knowing I will succeed	True	False
6. If given the opportunity I would conduct a job more efficiently and competently than most people	True	False
7. Whenever I do an important task I find myself extremely involved	True	False
8. I am usually considered a very hard worker	True	False
9. When I set my mind on a task or job I pursue it with relentless determination	True	False
10. In working with others my efforts usually contribute more than those of others	True	False
11. Friends have sometimes called me lazy	True	False
12. I am more motivated than others	True	False
13. If I know I am correct I will go to extremes to prove that my ideas are right	True	False
14. I work much harder than most other people	True	False

Personal Friend Check List (PFCL)

INSTRUCTIONS

Indicate, as shown on the scale below, how you would like your closest friend, of the same sex, to be. There are no right or wrong answers.

For:

—absolutely essential qualities; without this quality the person could not be a friend	score +2
desirable but not essential	„ +1
—no importance is attached to this quality	„ 0
—qualities which are undesirable but which can be tolerated	„ -1
—absolutely intolerable. If a person has this quality he could not be a friend	„ -2

PLEASE RATE EACH WORD

List of words responded to, numbered from 1 to 100 were:

Abstemious, active, adaptable, affectionate, amiable, ambitious, attentive, boastful, broadminded, careless, changeable, charming, cheerful, clean, conceited, confidential, considerate, courageous, cowardly, critical, deceitful, decent, dejected, delicate, dependable, dependent, discreet, dominant, eager, energetic, excitable, faithful, frail, frank, gay, generous, helpless, honest, honourable, humorous, idle, immoderate, immoral, impulsive, indecent, independent, intelligent, intolerant, irritable, jolly, kind, lazy, lustful, lying, malicious, mature, mean, miserable, moral, narrow-minded, obstinate, offensive, patient, pig-headed, popular, proud, quarrelsome, quiet, reliable, reputable, requiring help, restless, rude, sad, selfish, sensitive, sensuous, serious, shy, sickly, sincere, slovenly, stable, strong, successful, sullen, superficial, sympathetic, tactful, tidy, timid, tolerant, uncertain, understanding, unselfish, vain, verbose, vicious, well-known, witty.

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