

hypotheses concerning relationships between clinical interview assessment and level of social interaction were supported. Conditions yielding consistent and valid predictions by means of the clinical interview are discussed briefly.

#### REFERENCES

1. BASOWITZ, H., PERIRKY, H., KORCHIN, S. J. and GRINKER, R. R. *Anxiety and stress: an interdisciplinary study of a life situation*. New York: McGraw-Hill Book Co., 1955. 320 pages.
2. DEEMER, W. L. and RAFFERTY, J. A. Experimental evaluation of the psychiatric interview for prediction and success of pilot training. *J. Aviat. Med.*, 1949, 20, 238-250.
3. GESELL, A. *The first five years of life*. New York: Harper, 1940.
4. GLESSER, GOLDINE, HACCOCK, J., STARR, P. and ULETT, G. A. Psychiatric screening of flying personnel inter-rater agreement on the basis of psychiatric interviews. *USAF Sch. Aviat. & Med. Proj. Rep.*, 1954. Project No. 21-0202-0007, (Report No. 10), 9 pages.
5. HUNT, W. A., HERRMANN, R. S. and NOBLE, M. The specificity of the psychiatric interview. *J. clin. Psychol.* 1957, 13, 49-53.
6. NEWMAN, S. H., BOBBITT, J. M. and CAMERON, D. C. The reliability of the interview method in an officer candidate evaluation program. *Amer. Psychol.*, 1946, 1, 103-109.
7. RAINES, G. N. and ROHRER, J. H. The operational matrix of psychiatric practice. (I.) Consistency and variability in interview impressions of different psychiatrists. *Amer. J. Psychiat.* 1955, 111, 721-733.
8. WESSEN, A. F., BARBER, W. H. and GRANT, Q. R. Spontaneous interaction patterns among emotionally disturbed children. *J. Health Hum. Behav.*, In press.
9. WILKINS, W. L. ANDERHALTER, O. F., RIGBY, MARILYN K. & STINSON, PAIRLEE. Statistical description of criterion measures for USMC Junior officers. *Technical Report*. Dept. of Psychol. St. Louis University. 1955, No. 5, 34 pages.
10. WITTON, CECIL L., HUNT, W. A. and STEVENSON, I. A follow-up study of neuropsychiatric screening. *J. abnorm. soc. Psychol.*, 1946, 41, 71-82.
11. WITTON, CECIL L. and HUNT, W. A. The predictive value of the brief psychiatric interview. *Amer. J. Psychiat.* 1951, 107, 582-585.

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## A FACTORIAL STUDY OF AN INTERVIEW-QUESTIONNAIRE

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### INTRODUCTION

The disadvantages of the interview are too well known to need restatement. The questionnaire too has been much criticized as a method of obtaining information on personality traits. There has, however, been little research on a combination of the two methods, which will here be designated as the Interview-Questionnaire. In this, the questionnaire is designed along orthodox lines, but is administered by an interviewer who reads out the questions and records the answers. This technique is widely used in market research and industrial work, where many subjects have difficulty in reading, and in handling pencil and paper, and where personal contact with each interviewee is helpful in decreasing the number of refusals. It is also possible for the interviewer to explain the meaning of words unknown to the interviewee, a necessity that arises more frequently than might be supposed by those whose work is mainly concerned with university students.

On *a priori* grounds, the interview situation might differ greatly from that of the ordinary questionnaire administration in that subjects might be less willing to give away their troubles to a complete stranger; or else they might be more confiding to a person than to a piece of paper. In a series of ordinary questionnaire studies, both published and unpublished, leading up to the publication of the Maudsley Personality Inventory (MPI)<sup>(4)</sup>, large numbers of items have been used, inter-correlated and factor analysed in researches involving many different types of populations; we have therefore a considerable amount of background knowledge relating to the factorial composition of such items. The main question asked in the present research is whether the Interview-Questionnaire would reveal a factorial structure

essentially identical to that found with questionnaires administered in the orthodox manner.

A second problem arises from the fact that in the MPI there is usually found a slight negative correlation of approximately 0.1 between extraversion and neuroticism. It has sometimes been suggested that this may indicate a lack of orthogonality of these two factors. To us it has always seemed unreasonable to interpret the findings in such a fashion; the questionnaire items making up each of the two scales are not completely pure in the sense of having no loadings on the other factor, but have slight positive and negative loadings which, if one type should exceed the other in number might produce a slight positive or negative correlation between the scores for extraversion and neuroticism. The trend towards a negative correlation between extraversion and neuroticism could be reversed by including one or two items having positive loadings on both neuroticism and extraversion, and as such items were relatively rare in the original pool from which the MPI items were drawn, it seemed desirable to design some items which on theoretical grounds could be predicted to lie in that part of the factor space. According to the theoretical views put forward elsewhere<sup>(2)</sup>, the E+ N+ quadrant is occupied by people who would in psychiatric language be called *psychopaths*, and accordingly six items were drawn up which would describe certain habitual aspects of the behavior of many psychopaths.

#### METHOD

The 36 item questionnaire finally used is given in Table 1. Six questions (1, 7, 8, 13, 21 and 31) were included on the basis of previous work as defining the factor of neuroticism. Eight questions were included as defining extraversion and three as defining introversion; their numbers are 14, 18, 23, 26, 27, 28, 32 and 35, on the positive side, and 15, 17 and 34 on the negative side. In addition the following "psychopathic" items were included on an *a priori* basis: 2, 6, 16, 19, 24 and 36. Several buffer items were also included for purposes not relevant to this paper.

The sample consisted of 367 subjects, nearly all male; their mean age was 41. The higher social classes were over-represented, and the lower under-represented. The proportions in national sample and the present sample are as follows: Classes A and B, 15% vs. 30%; Class C, 53% vs. 63%; Classes D and E, 32% vs. 5%. They were interviewed in their homes by professional interviewers employed by one of the big British market research organizations (Mass Observation Ltd.) in connection with a survey whose purpose is irrelevant to the present study. There were no refusals, and although the sample departs in many ways from a truly representative national sample, there are some data to suggest that these departures are not very relevant to any conclusions that may be drawn.<sup>(3)</sup>

#### RESULTS

The data were coded in binary form, tetrachoric correlations were calculated, and a factor analysis (principal components) carried out. Three factors were extracted and rotated in conformity with the principles of simple structure.<sup>1</sup> Only two rotations in all were required, the second of which, involving the third factor, being so small as to make very little difference to the result. The main rotation involved was in factors one and two, and amounted to a 51° counter-clockwise rotation. This agrees quite well with a prediction made before the data were collected, to the effect that a rotation of approximately 45° would be required. This prediction was based on the hypothesis that the percentage of the variance contributed by neuroticism and extraversion would be approximately equal; in actual fact it turned out to be fourteen per cent for both (rotated) factors.

<sup>1</sup>The number of factors extracted is arbitrary, and represents a subjective judgment regarding the low values of residual correlations. As Cattell has pointed out: ". . . . . any decision as to the number of factors to be extracted from a naturally occurring correlation matrix is bound to be arbitrary" (1, p. 18). Peterson<sup>(2)</sup> adduces good reasons for preferring a small number of factors.

Table 1 gives the factor loadings on the three factors. All the questions predicted as defining neuroticism, extraversion, or the "psychopathic" group are found in the expected places, with the exception of item 16, which lacks the postulated extravert component. Questions 14 and 27 have slightly higher neuroticism loadings than had been expected and overlap slightly with the "psychopathic" group.

TABLE 1. INTERVIEW-QUESTIONNAIRE ITEMS WITH FACTOR LOADINGS

| Items  | E    |        | N    |        | X    |
|--|------|--------|------|--------|------|
| 1. Do you sometimes feel happy, sometimes depressed, without any apparent reason?  | .02  | (.12)  | .67  | (.58)  | .10  |
| 2. Do you often act on the spur of the moment?   | .50  | (.52)  | .54  | (.40)  | .00  |
| 3. Do you prefer action to planning for action?  | .32  | (.38)  | .01  | (.08)  | -.09 |
| 4. Do you mostly succeed in keeping the expression of your feelings under very good control?   | .01  | (-.11) | -.28 | (-.13) | .69  |
| 5. When you are drawn into a quarrel, do you prefer to 'have it out' to being silent, hoping things will blow over?  | .35  | (.24)  | .04  | (.06)  | -.35 |
| 6. Do you have to be careful to keep from being too aggressive or domineering?   | .43  | (.25)  | .37  | (.14)  | -.41 |
| 7. Does your mind often wander while you are trying to concentrate?  | -.21 | (.16)  | .77  | (.46)  | .11  |
| 8. Are you inclined to be moody?   | -.18 | (-.12) | .62  | (.53)  | -.06 |
| 9. Do you like someone else to make up your mind for you on occasions?   | -.25 | —      | .14  | —      | -.08 |
| 10. When people shout at you do you shout back?  | .19  | (.38)  | .32  | (.25)  | -.36 |
| 11. When the dentist hurts you do you try hard not to show it?   | -.06 | —      | .06  | —      | .52  |
| 12. Do you sometimes say the first thing that comes into your head?  | .23  | (.24)  | .33  | (.18)  | -.30 |
| 13. Do you have frequent ups and downs in mood, either with or without apparent cause?   | .01  | (-.13) | .75  | (.55)  | -.06 |
| 14. Do you go about your business rushing actively from one thing to another, e.g. eating fast, walking fast, etc.?  | .53  | (.10)  | .31  | (.14)  | .06  |
| 15. Is it pretty easy for people to win arguments with you?  | -.41 | —      | -.03 | —      | -.19 |
| 16. Do you sometimes slam doors when you are angry?  | .00  | (.29)  | .44  | (.26)  | -.26 |
| 17. Do you find it hard to tell anyone about yourself?   | -.41 | (-.21) | .19  | (.25)  | .03  |
| 18. Would you rate yourself as a lively individual?  | .75  | (.56)  | -.15 | (-.23) | .11  |
| 19. Have you known people who have pushed you so far that you came to blows?   | .17  | —      | .42  | —      | -.30 |
| 20. Do you prefer people who keep an open and hesitant mind for a long time to those who know at once exactly where they stand on issues (and even jump to conclusions)? | -.20 | (-.18) | -.04 | (.16)  | .00  |
| 21. Are you frequently 'lost in thought' even when supposed to be taking part in conversation?   | -.12 | (-.15) | .65  | (.38)  | -.12 |
| 22. Do you welcome responsibility for other people?  | .37  | —      | -.11 | —      | .24  |
| 23. Do you usually take the initiative in making new friends?  | .52  | (.54)  | .03  | (-.14) | .24  |
| 24. Do you, at times, feel like picking a fight with someone?  | .30  | (.23)  | .51  | (.25)  | -.26 |
| 25. Have you the tendency to elaborate or exaggerate an event when talking to friends about it afterwards?   | .19  | (.12)  | .30  | (.16)  | -.44 |

|   |      |        |      |        |      |
|---|------|--------|------|--------|------|
| 26. Are you inclined to be quick and sure in your actions?  | .80  | (.22)  | -.10 | (-.18) | -.03 |
| 27. Do you make up your mind quickly and get impatient with people who don't decide quickly?                    | .55  | —      | .34  | —      | -.12 |
| 28. Are you happiest when you get involved in some project that calls for rapid action?                         | .73  | (.40)  | .16  | (-.12) | .16  |
| 29. Do you resent having people tell you what to do?  | -.14 | —      | .27  | —      | -.08 |
| 30. When you experience pain of any kind, do you try to 'keep a stiff upper lip', hiding your true feelings?    | .03  | —      | .22  | —      | .64  |
| 31. Are you sometimes bubbling over with energy and sometimes very sluggish?                                    | .12  | (.19)  | .70  | (.50)  | .11  |
| 32. Do you think you would make a good leader?  | .78  | —      | -.20 | —      | .16  |
| 33. If you are annoyed by something do you find it absolutely necessary to talk to somebody to 'let off steam'? | .32  | (.36)  | .09  | (.33)  | -.24 |
| 34. Are you inclined to stop and think things over before acting?   | -.47 | (-.44) | -.20 | (-.19) | .38  |
| 35. Would you be very unhappy if you were prevented from making numerous social contacts?                       | .46  | (.47)  | .11  | (.12)  | .28  |
| 36. Do you lose your temper easily but get over it quickly?   | .38  | (+.20) | .41  | (.29)  | -.36 |
| V:  | 14%  |        | 14%  |        | 8%   |

These loadings may be compared with another set given in brackets in Table 1, and derived from another study in which a questionnaire containing 140 extraversion and neuroticism questions was administered to 300 university and evening class students ( $F = 160$ ;  $M = 140$ ), with a mean age of 27. Product moment correlations were calculated, and factor analyses (principal components) carried out on two sets of 66 items each; this terminated with a rotation to simple structure. (A few of the items in the original questionnaire had to be dropped from the analysis as the capacity of the computer used was limited.)

The two investigations differ in several ways. One was carried out by means of an interview, the other one anonymously by a written questionnaire. The number of questions asked, and the composition of the questionnaires, differed greatly, there being only a relatively small overlap. The samples differed markedly in composition, particularly with respect to age and the proportion of the two sexes. In one study correlations were calculated in the form of tetrachorics, in the other in the form of product moments. If the results had been dissimilar this lack of agreement might have been due to any of these differences. In actual fact, the similarities between the two studies are striking. There are 32 cases in which loadings of .3 or above occur in either study, and it is interesting to note that in every case the item in question is in the same quadrant in both studies, a fact which suggests the essential similarity of the factors in question. There is a slight difference in size of coefficients between the two sets, 25 out of 32 being larger for the interview questionnaire set. No very strong hypothesis suggests itself to account for this discrepancy.

The third factor which emerges from the interview questionnaire contributes eight percent of the total variance but only has high loadings on three items, numbers 4, 11 and 30. These suggest that we are dealing here with a person's ability to control the expression of his emotions, a person having high scores on this factor apparently succeeding in keeping the expression of his feelings in very good control, trying hard not to show it when the dentist hurts him, trying to "keep a stiff upper lip", and hiding his true feelings when he experiences pain of any kind. The items (5, 6, 10, 12, 16, 19, 24, 25, 33, 36) on this factor which have reasonably high negative loadings are all in the "psychopathic" cluster, *i.e.*, have positive loadings on both

extraversion and neuroticism. This suggests a possibility that "psychopathy" may be a personality trait containing something *suae generis* over and above the extraversion and neuroticism components, and opposed to emotional control.

#### SUMMARY

Our results suggest that the method of administration of a set of personality questions, *i.e.*, whether by inventory or by interview, does not affect in any pronounced way the factorial composition of the items. Neither do quite marked differences in sampling seem to affect the issue much. Furthermore the items analysed were part of longer inventories or interview questionnaires differing in many ways, and the factorial analyses were carried out on groups of items differing in size and in composition; all these factors had very little effect on the final result. It seems safe to conclude that the factors of extraversion and neuroticism remain invariant under a considerable variety of different conditions. The results also suggest that it is possible to write items with given positions in the factor space on the basis of theoretical considerations.

#### REFERENCES

1. CATTELL, R. B. Extracting the correct number of factors in factor analysis. *Advanc. Publ.*, No. 8, 1957. Lab. of Pers. Assessment, Univer. of Illinois.
2. EYSENCK, H. J. *Dynamics of anxiety and hysteria*. London: Routledge & Kegan Paul, 1957.
3. EYSENCK, H. J. A short questionnaire for the measurement of two dimensions of personality. *J. appl. Psychol.*, 1958, 42, 14-17.
4. EYSENCK, H. J. *Manual, Maudsley Personality Inventory*. London: Univer. of London Press, 1959.
5. PETERSON, D. R. The age generality of personality factors derived from ratings. *Educ. psychol. Measmt.*, 1960, 20, 461-474.

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## THE DL SCALE: THE MEASUREMENT OF CLINICAL STATUS OF A PSYCHIATRIC WARD

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#### PROBLEM

One problem confronting the researcher in mental hospitals is the absence of an instrument capable of assessing the clinical status of an entire ward of patients (4, 9). Such an instrument should be communicable, reliable, simple in design and administration. Preferably the information would be a supplement to or an extension of psychiatric evaluation; that is, it should reflect the dimensions used in standard psychiatric appraisal of individual patients. For maximum use, it should be possible to have non-professional personnel fill it out. With such a device, it would be possible to compare the status of wards, their clinical make-up, and change.

The present investigation is part of a larger study<sup>(2)</sup> dealing with the applicability of milieu therapy to chronic regressed female schizophrenics in which a six month program of intensive milieu therapy was carried out on a specially selected ward group. The attendants on the experimental ward were subjected to intensive indoctrination in techniques for dealing with patients, with particular emphasis on techniques for encouraging patients to substitute social interaction responses for their habitual autistic withdrawal. A major part of the indoctrination program was