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Chapter 13: The Screening of Psychoneurotics in the Army: Technical Development of Tests

--- screening devices are simply means of "cutting off a portion of a population in such a way that it contains a disproportionate number of some subpopulation to be detected"
--- psychoneurotic screening is criterion-inclusive, i.e. you attempt to get as high a proportion of psychoneurotics screened out of the total population as pssible, without too much regard for the number of normal individuals who get screened out along with them
--- inclusive screening is adpated to situations only where (a) there are ways of evaluating the screened group to separate out the normals who were falsely screened (b) there can either be no cheating or cheating will simply place the malingerer in the group to be further evaluated
--- as long as test is used just for screening, and not for individual diagnoses, the problem of "false negatives" is of no import, for psychiatric examination follows for the screened group
--- since Army was interested in excluding just those psycheneurotics who were incapable of doing "a fairday's work", the criterion group used was that of men in hospitals -- currently ineffective --- rather than men diagnosed as having mild neuroses or being pre-neurotic. The criterion group was contrasted to a cross-sedtion of the Army; this cross-section contained some neurotics, but in negligible proporitons.
--- men in station hospitals were selected as most representative group of ineffective psychoneurotics; for normal group, usual cross-section procedure was used
--- the original battery of questions contained over a hundred personality, atitude, and background items, selected in consultation with psychiatrists and psychiatric literature. They were grouped into 15 areas; 3 major areas:
  Aspects of Personality development
  Description of Present Personality
  War Motivation
--- These 15 areas had each been designed to yield a scale....the reasons for this design were obvious; if theseareas could be shown to scale, then each of them could be represented by a single numerical variable, and moreover, the simple correlation of these scale scores with any outside variable would be precisely the multiple correlation of that variable with all of the questions enterring into the scale.
--- All but 4 areas scaled when tested; these four formed "quasi-scales" which lack the propertyof scales of reproducing the behavior of an individual on all the questions of a single numerical variable, but do possessto a large extent the property of reproducing in its zero-order correlation with an outside variable the multiple correlation to be obtained from all the items.
--- There fore each of the 15 areas was scored with simple weights.For convenience, each of the questions was dichotemized and scored as zero or unity, unity being assigned to the responses presumed to indicate good adjustment. For some questions, there were found to be no differences between normals and neurotics, but in no case did the scale or quasi-scale scoring of an item prove to be the reverse of the empirically-found differences on that item. This outcome indicated, first, that our apriori judgment had been

correct, and, second, that the scale scoring, even on a dichotemous basis, preserved the predictive efficiency of the individual items. Since these item dichotemizations and the weights assigned them had been determined on the basis of the pretest made to determine the existence of scales, rather than the main study, the possibility that the scoring was capitalizing on chance error with the consequence that less discriminating results would be obtained in another trial was largely eliminated.

Table 1

area	percentage with relatively low scores		
	cross-section	neurotic patients	difference
psychosomatic complaints	29	89	60
personal adjustment	30	67	37
childhood neurotic symptoms	20	53	33
childhood fears	32	62	30
sociability	16	45	29
acceptance of soldier role	31	59	28
oversensitivity	19	46	27
worrying	25	49	24
childhood participation in sports	40	64	24
childhood fighting behavior	30	45	15
childhood relations with parents	41	53	12
identification with war effort	24	31	7*
mobility	49	55	6*
emancipation from parents	36	42	6*
school adjustment	51	56	5*

*not significant at 3 sigma level; all are sig, at 2 sigma level

--- it is clear from this data that psychosomatic complaints was the area which most sharply differentiated between psychoneurotics and non-psychoneurotics. ,but there remained the question of whether a combination of all the items in the battery could improve on these results or not. Accordingly, the product-moment correlations between the 15 scores were computed and their multiple correlation with the criterion was examined. From what we have said before it it is apparent that the multiple correlation ~~with~~ of the citerion with these 15 scores closely approximates the multiple correlation of the criterion on all the items in all of the 15 areas.

--- the multiple correlations are presented in Table 2 (each area with each of the other areas.) and Table 3 (intercorrelation among 15 personality and adjustment variable and criterion.) (with cross-section and hospitalized neurotics weighted equally and combined.) --- the correlation were found to be fairly close for both groups in Table 2, so they were combined in preparing Table 3.

--- by using Thurstone's centroid method plus Guttman's formulas it was determined that the single area of psychosomatic complaints would discriminate about as well as the entire combination of 15 areas. To test this, random subsamples of both groups (normal & neur.) were selected and scored; whereas 27% of thd non-psychoneurotic and 87% of the psychoneurotic received

critical scores on the entire test of 15 areas, 29% of the non-psychoneurotics and 93% of the psychoneurotics received the critical score on the psychosomatic complaints area alone (just dichotemous...) So other 14 areas were dropped, and the psychosomatic complaints area refined.

--- Since the 15 questions used in this score were known to form a quasi-scale, and the criterion also fitted into this pattern, it was to be expected that different methods of weighting would not yield essentially different results. Nevertheless experiments in weighting were carried out, for even a slight increase in the effectiveness of the instrument would have practical usefulness. The results of these experiments were essentially negative, although they bore out in striking fashion the stability of the quasi-scale pattern.

--- When it was decided to adapt the psychosomatic complaints score to induction station screening, certain questions affecting its transferability and usefulness arose. First of all, there was the easily answered question of reliability of test scores. Second: would giving these questions out of the context of the larger questionniare affect the results? Third: Would the requirement that the men sign their names affect the results? Fourth: would this test, which had been validated for psychoneurotics, screen psychopaths and psychotics as well? Fifth, would the test work on a civilian population - (two aspects here: (a) did hospitalization change scores? (b) did Army life change scores--- from unselected civilian population)

--- Reliability of test scores --- test-restest reliability was .93 and .90 for nonpsychoneurotic and psychoneurotic groups

--- Effect of context --- no sig. differences (15 ques. placed at beginning og questionnaire, so no effects from previous questions)

--- Effect of anonymity --- in two tests made in the Army and one at an induction center, small but consistent differences appeared in % receiving critical score --- but not a significant difference, and not important

--- Effect of change of situation and criterion --- .... Since the test was to be used for screening out men to be examined by psychiatrists, the test could be no more effective for screening men who would prove ineffective as soldiers than were the psychiatrists. So the only test of ~~reliability~~ that was useful here (....validity) was a comparison of test results with independent psychiatric daigneses. When critical scores were divided from non-critical scores at the same point as was arrived at by analysis of the Army data, 18.0% of the men found acceptable for service received critical scores, as compared with 81.8% of the men rejected for psychiatric reasons. It will be recalled that, in the Army study, 26.8% of the cross-section and 89.6% of the hospitalized psychoneurotic pateients had received critical scores. At first glance, then, the test was about as successful in screening with reference to the original criteria.

--- The difference in % of non-rejected men receiving critical scores suggested an upward revision in critical score. But the fact that the number of cases in this experiment was so small (38) and that the distributions for acceptable and non-acceptable men interesected at same point as in Army trials made it seem inadvisible to change the cutting score. In addition, it looked as if more questions would have to be added to screen psychotics & psychopaths, so changes would be made anyway.

--- Questions added to detect critical signs --- 8 questions added:

1 Have you ever had stomach ulcers?
2 Do you ever take dope?
3- Have you ever had fits or convulsions since you were 10 yrs. old?
4 Did you ever have a nervous breakdown?
5- Were you ever a patient in a mental hospital (because of your nerves) ?

6 Were you ever sent to reform school?
7 Have you ever gotten into serious trouble or lost your job because of drinking¾
8 Do you ever wet the bed? (this means urinate in bed, <u>not</u> wet dreams)

These items are not scored along with the original 15, but are used as a qualitative check. A positive answer on any of these questions is enough to have the respondent referred to a psychiatrist.

--> In this form (15 plus 8) the test was officially named Neuropsychiatric Screening Adjunct (NSA) and officially adpated for use at all induction stations beginning Oct., 1944

--> Analyses of discriminating utility of each question in the 15areas ....
--> Method of deriving wieghts via Guttman technique

(The 15 areas on which questions are asked: included in text. Summary scores on psychosomatic complaints area included above ..... individual questions re psychosomatic complaints are:

Do you have any particulat physical or health problem?
Have you ever had spells of dizziness¾
Have you ever been bothered by your heart beating hard?
Have you ever been bothered by pressure or pains in the head?
Do you often have trouble in getting to sleep or staying asleep?
Are you ever bothered by nervousness?
Are you ever bothered by your hands sweating so they feel damp and clammy?
How often are you bothered by having an upset stomach?
Have you ever had any fainting spells?
Do you ever bite your fingernails now?
Do your hands ever tremble enough to bother ypu?
Are you ever bothered by having nightmares (dreams that frighten or upset you very much)
Have you ever been troubled by 'cold sweats?'
Have you ever been bothered by shortness of breath when you were not exercising or working hard¾
Are you ever troubled with sick headaches?