PSYCHOLOGICAL PRACTICE IN GERIATRIC PROBLEMS*

By

JAMES INGLIS

THE argument to be put forward in this paper is that the way in which psychometric tests are often employed in geriatric problems may be less useful and, indeed, less sensible than is generally supposed. This applies to straightforward "intelligence testing" as well as to so-called "diagnostic testing". It is recommended that the principles and practices of experimental psychology should be applied to these problems instead.

The work of many clinical psychologists in the field of geriatric psychiatry seems to divide into two categories. The first kind involves studies in which emphasis is on psychometrics and *measurement;* this work began in educational-developmental psychology. The second kind is more concerned with *changes* in behaviour and is derived from general-experimental psychology.

In studies in the first category the behaviour observed by the psychologist is produced by subjects or patients in response to standard stimuli (i.e. test items) the hope being that inferences may then be made about other responses as yet unobserved. Test behaviour is, in fact, only useful as an index of non-test behaviour. Studies in the second category try to specify, and vary, the crucial stimulus conditions that will alter behaviour.

Spence (1944) in his analysis of the nature of theory construction in psychology argues that advances in the explanation and understanding of behaviour come from a specification of the functional relationships between stimulus (S) and response (R) variables, their connection often being mediated by intervening (I) variables. The relations given by psychometric tests are of the form $R_1 = f(R_2)$. From such tests responses to invariant stimuli are secured in the hope that they will then prove to be correlated with other responses. This, however, fails to provide a "handle" for the manipulation of behaviour, because even if the relation of responses to intervening constructs (e.g. "factors") is specified, their relation to stimulus variables is not described. In Spence's (1944) terms, to use the latter equation is to deal with relatively sterile "response-inferred" constructs. Work which fits the equation $R = f(S)$ involves the more fruitful "stimulus-response" constructs commonly used in experimental psychology.

There are, however, other differences between the two kinds of practice which deserve to be considered in more detail.

1. *Studies in the Measurement of Behaviour*

Within the first category, for example, there are certain practical difficulties in making the kind of inferences which are often required, although these difficulties have seldom been made explicit.

The clinical psychologist is commonly asked to make two kinds of inference from psychometric data in the case of geriatric patients; these are concerned with:

(*a*) Description of status in relation to a single group and

(*b*) Description of status in relation to two or more criterion groups.

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(*a*) *Description of status in relation to a single group.*

Often enough the psychologist is simply asked to say how bright (or dull, or "deteriorated") an elderly person may be. The best standardized test at his disposal is currently the Wechsler Adult Intelligence Scale (Wechsler, 1955). Here is a test which (unlike many others) has at least been given to groups of elderly persons. The data provided by Doppelt and Wallace (1955) well illustrate the dangers of making any statement about an older individual's test status on the basis of standardization data derived from younger people. What is required is a precise statement about the person's standing in relation to his own age group. Failure to take into account normal changes with age can, of course, result in a serious underestimate of the older individual's group status. It may perhaps be granted that this kind of error is seldom made today. There still remains, however, the fact that test results are only useful insofar as they permit valid inferences to be made about *non*-test behaviour. It has been suggested (American Psychological Association, 1954) that there are at least two ways of establishing the propriety of such inferences, through the estimation of concurrent validity and of predictive validity, usually by means of correlation techniques. The inferences which can be drawn from tests are valid to the degree to which their results are mirrored in the criterion situations. In the field where testing was first developed these situations were usually developmental, educational and vocational.

In the case of the elderly, however, not only is the *size* of any validation coefficient usually unknown, but the very *nature* of the validation criterion is commonly left unspecified. Thus, while there is a good deal of evidence that test scores do change with age and some evidence that factorially-defined abilities also change, there is very little evidence concerning what it is that test-performance refers to outside of the test situation (Jones, 1959). It certainly cannot be taken for granted that there is a one-to-one relationship between test score and performance in any given real-life situation. This is not even true for the younger age groups for whose test-performance external validation data are available. That is to say, when the clinical psychologist finds that a boy of 7 has an I.Q. of 75 on the WISC (Wechsler, 1949) he knows, within certain limits of error, that the score is related to the child's performance in other situations (for example, to school achievement). No such information is available about the correlates of an I.Q. of 75 in a seventy-year-old woman. Such a score is usually *believed* to have some other implications, but the basis of such belief is in faith rather than in works.

(*b*) *Description of status in relation to two or more criterion groups.*

Another task which the psychologist is often given is to determine, on the basis of test results, the "diagnostic group" to which a patient belongs.

Among the practical problems that must be resolved in the construction and use of diagnostic tests are the following.

(i) *The determination of the nature of the criterion groups.*

Any test designed to describe a particular clinical group must also be given to a number of other patient groups as well as to normal controls. It is obviously important that in the constitution of these groups the influence of such factors as age, intelligence and even sex should be controlled; otherwise differences in test results might reflect differences in one of these variables rather than in pathology.

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There is, however, even at this early stage another difficulty to be overcome; namely, in the definition and determination of the disorder itself. In geriatric psychiatry, for example, the definition of "dementia" is not nearly so simple as it might seem. Questions raised in connection with this label usually have a number of implications, among these being:

(*a*) *Aetiological implications*—The real question may be, "Is there any sign of brain-damage or intracranial pathology?" or

(*b*) *Descriptive implications*—Here the question may be, "Is there any evidence of a falling-off from a previously higher level of ability?" or, "Is there any evidence for some specific impairment such as amnesia or dysphasia?" Such questions must be investigated separately, since it is well known that *not* all intracranial pathology necessarily produces cognitive deficit, even in the elderly (Gellerstedt, 1932); and, conversely it is known that not all cognitive deficit is necessarily associated with intracranial pathology (Payne, 1961). Most of the standard, "diagnostic" tests are handicapped from the beginning because their constructors have failed to recognize that these different questions can go to make up the general problem of "dementia".

Another practical difficulty arises from

(ii) *The problem of criterion contamination*

It is, of course, well known that it is wrong to use the test results in which one is interested as part of the basis for the initial sorting of any criterion groups. It has even been shown (Shapiro *et al.*, 1956) that spuriously high validation coefficients may result if the tests to be validated are given to groups which have already been sorted on the basis of a clinical impression of the kinds of function which the tests themselves are supposed to sample. This fact, however, seems to create an impasse, since, if the characteristic assessed by both clinical impression and test is in fact a relevant one, then to deny this evidence to the person originally sorting the groups is in effect to deny him crucial information, and so to dilute the representation of the groups eventually chosen.

If these problems are surmounted it must still be asked what has really been achieved when tests have been shown to agree with criteria and these criteria are defined in terms of diagnostic groups. The criterion group members are usually chosen because of the "clear-cut" nature of their disorders, and at best there will be a more or less high correlation of test score with criterion estimates. No matter how valid the test there will be an overlap between group score-distributions. In practice, however, test results are most often asked for in those cases for whom the diagnosis is *not* clear-cut. But the better the correlation between test and criterion, the more likely it is that the test-scores of these "doubtful" cases will be in the area of maximum overlap. In other words, where the psychiatrist would be doubtful about diagnosis, the test will produce an uncertain score.

These difficulties, when taken together with others discussed elsewhere (Inglis, 1960), suggest that diagnostic testing, if not completely useless, certainly does not have the value commonly accorded to it by its practitioners. It is therefore suggested that psychological work in the second category has more to offer in the problems of geriatric psychiatry.

2. *Studies Concerned with Changes in Behaviour*

Some quite general points must be made about work in this second category.

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In the first place, concern here is with the specification of those variables which may influence and change responses. The sources of the hypotheses used to describe and interrelate such variables may differ from investigator to investigator. Some may prefer to use terms from physiological psychology, others may prefer the language of social psychology. So long as the system used can describe, relate, and generate testable explanations about behaviour then it is acceptable.

Secondly, the experimental psychologist who deals with abnormal behaviour may usually try to alter such behaviour for the better. This, however, need not necessarily be the case. It is possible that even a change for the worse may be more illuminating than no change at all, so long as it is related to the current hypothesis.

Thirdly, it is not suggested that techniques of measurement are irrelevant to work in this category. On the contrary, adequate measurement is quite essential for the proper assessment of change. Tests, however, do not in this context provide the sole basis for inference; they are used, rather, to evaluate inference. The concern of this kind of study, in fact, is not with psychological testing, as such, but with the testing of psychological hypotheses.

For examples of work in this category the apparent extremes of "sensory deprivation" on the one hand, and "social stimulation" on the other may be considered.

It was, for example, shown by D. E. Cameron (1941) that the wandering and confusion which make up the syndrome of nocturnal delirium could be brought on in some elderly patients by placing them in a darkened room during the day. This suggested that the condition did not depend only on fatigue, as had been formerly supposed, but could be produced by a reduction in environmental stimulation. Since these patients also showed a severe learning disability, Cameron suggested that such "delirium" could be based upon an inability to maintain a spatial image without the assistance of repeated visual stimulation. Some of these patients also showed a severe distortion of spatial imagery (e.g., in the displacement of the remembered positions of objects) within an hour of being blindfolded. Here, of course, we have an example of a change for the worse being produced by experimental manipulation. Confirmation of the effects of such reduction of sensation in the elderly can be obtained from Bartlet's (1951) review of the disturbances which may be produced by cataract on the behaviour of some elderly patients.

There seems to be an interesting resemblance between these findings and some of the experiments in sensory deprivation which were initiated in Hebb's laboratory at McGill. It is well known how Bexton *et al.* (1954), working with young, normal volunteers, found that such conditions, over relatively long periods of time (i.e., 2 to 3 days) could produce quite gross disturbances of behaviour. If Hebb's (1949) original neuropsychological model is used to explain these disturbances then it is possible to imagine that the maintenance of the satisfactory organization of "cell-assemblies" and "phase-sequences" requires, from time to time, that their spontaneous activity should be checked against external cues. The crucial factor producing a similar kind of disorder, but a different degree of disturbance in the old and the young might be the differential efficiency of recall of recent input. Thus, organized behaviour requires contributions from all assembly activity both internally and externally initiated. Failing immediately available *external* contributions the normal individual can depend, for some time at least, on those most recently acquired. When such acquisition no longer takes place, as in the case of the memory-

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disordered patient, only central activity is available when sensory stimulation is reduced, so that disorder and disorientation more rapidly supervene.

Conversely, it might be expected that a modest degree of stimulation should be beneficial for even the most deteriorated elderly patients. Emphasis here is on the adjective "modest" since any overload of stimulation is likely to call on other capacities which are also impaired in the elderly (Welford, 1960). There is an analogue to this in physical medicine, in that a modest amount of exercise may be good for wasted muscles where more strenuous activity would be bad.

The effect of social stimulation on patients suffering from persistent senile confusion has been studied by Cosin *et al.* (1957, 1958) in Oxford. The behaviour of such patients was rated before and after treatment, which involved organized social activity, craft-work, and the like. Such treatment was shown to have a significant, if transitory effect. The authors conclude that, "So far as medical practice is concerned, any of the treatments used in this investigation will maintain persistently confused patients, who on account of a relatively long expectation of life may rightly be called "chronic", at a more dignified level of existence than is usually achieved in the geriatric wards of general and mental hospitals" (Cosin, *et al.*, 1958, p. 42).

A neat demonstration of what simple variables may control social stimulation and interaction in geriatric wards is provided by the work of Sommer and Ross (1958) in Saskatchewan. In their study they were able to show that the mere redisposal of furniture could produce very significant changes in communication on a geriatric ward. If, for example, the chairs were grouped around small tables, instead of being neatly ranged against the walls, this in itself nearly doubled the amount of verbal interaction between patients.

Summary

It has been suggested that psychological activities in relation to the psychiatric problems of the aged fall into two categories. Firstly, there are those studies where the main emphasis is upon measurement. The bases of this kind of work are in developmental psychology. Here the investigator may often be concerned to define the status of an individual in relation to some group or groups. These procedures may be less straightforward than they seem at first sight and, since they underlie a good deal of "diagnostic" testing this kind of activity may not, in fact, have the value often accorded to it by some investigators.

Secondly, there are those studies, much less frequently conducted, where the main emphasis is upon manipulation. The foundations of this work are in experimental psychology. This approach is concerned with the specification and interrelation of variables which may influence and change behaviour. Such change may be, but is not necessarily, related to the amelioration of disorder. Even when this method of working does not seem to be directly related to the alleviation of distress there appear to be sound reasons for preferring it to the more static approach first outlined.

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J. Inglis, Ph.D., *Associate Professor of Psychology, Queen's University, Kingston, Ontario*

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