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*Veterans Administration Hospital*

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## **Mental Health Research in a Veterans Administration General Hospital**

By EDWIN COHEN

Opportunities for mental health research in a VA general medical hospital are in themselves not unique. Much of the research is similar in nature to clinical and experimental investigations conducted at other types of institutions. Of course the paucity of one of the sexes and children precludes the possibility of research in such areas as post-partum psychosis and childhood schizophrenia. Since, as you may have heard, we are not yet saturated with knowledge in any of the areas of mental health, this inequity of VA hospital populations has not been an obstacle of any appreciable proportion. On the other hand, what difficulty we have encountered in research we also share in common with other facilities, namely sufficient time from other duties. However, it must be said that the VA does recognize the vast importance of and the need for research in mental health; only diagnostic evaluation is regarded as more primary than research in the duties of the clinical psychologist.

A VA general medical hospital such as the one in Iowa City does hold a valuable and unique advantage for research purposes. Since a psychiatric service is included in the hospital make-up, psychologically abnormal subjects of various types are available. These often cover a wide range of mental illnesses. In addition to this wide range of subject material, we also have available subjects with more purely medical problems who may be used as controls. The advantage of such an arrangement is extremely important in view of the usual necessity for good controls in research. Frequently, the difference between good and poor studies in mental health is simply the difference between the methods or criteria for selecting controls. Of course, this problem must be faced and solved in all installations where research is conducted; our advantage lies in the easy availability of control material.

The use of a total hospital population for research poses a problem which in our installation has proved to be a minor one. Since it is often necessary to utilize patient subjects from most or all of the hospital services, the interest and cooperation of the total hospital must be enlisted. Thus far, the abundance of these elements has been extremely gratifying.

It has been our practice to outline the research in which we are interested with little or no special concern to securing subjects. In all instances where patients from psychiatric or other services were required, they were easily secured after some discussion of the study

with the chiefs of the various services. The active cooperation of all of the personnel involved was then forthcoming.

Mental health research in a general medical hospital might also pose an additional problem. Subjects in university research are routinely drawn from students who, by reason of their enrollment in certain courses, are required to participate. Those who serve as subjects in studies conducted within psychiatric installations expect to be subjected to various psychological examination procedures since their complaints are in this area. The use of subjects who are not psychiatric patients or students, therefore, might pose a special problem since their participation must be voluntary. Only in very isolated instances has this proved to be at all difficult. In most of the research in which such subjects have been used they have been informed that they were participating in research and that they were not singled out on any special basis other than their presence in the hospital. We have at all times sought to avoid the possibility of subjects' concluding that they were suspected of being psychologically abnormal and were thus being deviously examined. That our approach to subjects has been quite successful is attested to by the extreme lack of resistance or even negativism which we have encountered. We have known of no subjects who returned to their wards disgruntled or complaining after having participated in an experimental procedure. Were this to occur it would create a problem of huge proportion since it would seriously interfere with cooperation received from other subjects coming in contact with the disgruntled ones. Conversely, it might be said that it is extremely important that subjects be treated on a professional level, with respect, and as mature adults.

During the time our unit has been in existence we have been engaged in various types of research concerned specifically with verbal learning, organically deteriorated or impaired individuals, and the use of hypothalamic stimulation as the unconditioned stimulus in conditioning procedures. The latter studies have been conducted with cats as subjects; needless to say, they were not volunteers and were not informed that they were participating in a research project.

#### VERBAL LEARNING

The first of our studies in verbal learning by Cohen *et al* (4) was concerned with the use of the specific procedure as a technique for eliciting verbal learning as well as extinction of the conditioned response. In this instance, all subjects who participated were considered to be psychologically normal and intellectually intact.

Part I of this study was concerned with establishing a basis for proceeding on the assumption that the principle of reinforcement operates to influence verbal response patterns of normal subjects. Each subject was presented with 80 3x5 cards, on each of which was

centered a verb in the past tense. Below each verb were typed the pronouns I, We, He, She, You, and They. The order of the pronouns on each of the cards was randomly determined as was the order of presentation of the cards to each subject. All subjects were instructed to make up a sentence containing the verb indicated on the card and beginning with any one of the pronouns. One half the subjects were randomly selected for the conditioning procedure with the remaining one half used as controls. Experimental subjects were reinforced for beginning each sentence with I or We by the examiner's saying "good" each time the subject began his sentence in this manner. The examiner did not respond to any of the sentences composed by the control group. Dividing the 80 cards into 4 blocks of 20 each, it was determined that the experimental group increased their use of the reinforced pronouns while the control group did not.

Part II of the same study was concerned with extinction of the conditioned verbal response. All subjects were reinforced in the same manner for sentences begun with "I" or "We." An additional 80 cards were added for what may be referred to as the extinction phase. Beginning with the 81st card one-third of the subjects received no further reinforcement, one-third continued to be reinforced as previously, and one-third were reinforced for "He" and "They" instead of the original reinforced response. Again there was a significant learning effect to the reinforced responses, however, the only effective extinction procedure was that in which a competing response was reinforced.

The study demonstrated that the principle of reinforcement does operate to influence verbal response patterns. However, for perhaps various reasons, extinction of learned verbal responses does not occur as the result of simple straight extinction procedures.

The second study in this series (6) was concerned with the possible difference in verbal conditioning between neurotics and schizophrenics. Results of this study, similar in method to the first, indicated a significant difference between the two groups.

As in the previous study, the neurotic group conditioned as the normals had, but the schizophrenic group did not respond to reinforcement. The conclusion was drawn that schizophrenics are less amenable to social reinforcement than are normals or neurotics. Again, extinction of the conditioned response did not occur within the 80 cards presented for this purpose.

At present, Leventhal (7) is conducting a third study which is more specifically concerned with the parameters of social reinforcement. Three groups; normals, neurotics, and schizophrenics are being reinforced in one of four ways. One-fourth of the subjects are reinforced for use of the proper pronoun by the examiners saying "Good," one-fourth by "Not so good" to the use of the incorrect pronoun, one-fourth by "Good" to the correct and "Not so

good" to the incorrect, and one-fourth received no reinforcement. Preliminary results confirm the findings of the two previous studies and indicate conditioning by normals and neurotics when reinforced by any of the three methods. Schizophrenics, however, appear to be affected only by the most structured reinforcement, i.e., the examiner's response of both "Good" to the proper pronoun and "Not so good" to the incorrect pronoun. Such results tend to confirm the clinical impression that schizophrenics, as a group, function most adequately within the context of highly structured situations. These findings also serve as further confirmation of observations regarding schizophrenics' inability to integrate abstract interpretations in a psychotherapeutic setting.

#### BRAIN INJURY

The second area of study with which we have concerned ourselves is the ever present problem of distinguishing brain injured patients from their more fortunate brethren whose cortexes have remained intact. These investigations have been and are being conducted under the aegis of Arthur L. Benton. (1, 2, 3)

Attempts to separate the brain-injured from the normal subjects are being sought in three areas; reaction time, effect of fatigue, and response to special types of motivation. Results thus far, suggest that brain-injured subjects are slower, they are more affected by the fatigue factor, and that they do respond positively to motivation in which they are urged to improve their performance. They also perform better under conditions where they are encouraged to approach the task in a relaxed manner than when they are simply given the task with no attempt to structure their attitudes.

A projected study is aimed at furnishing further knowledge to answer the perennial problem of distinguishing brain-injured from non brain-injured patients in a clinical setting. In all but a few isolated instances we are able to make only an educated guess on the basis of present performance. We do not have routinely available to us objective measures of past performance with which to compare present functioning. However, everyone who served in the armed forces during World War II was given a General Classification Test. This, then may be the past objective performance which may be used for comparison purposes. Our present plan is to investigate the usefulness of this material in increasing clinical diagnosis of brain-injury. The plan is to study various clinical groups including brain-injured, neurotic, schizophrenic, as well as normal. This broad study is viewed as necessary since it is possible that brain-injured may differ from normals and yet not distinguish themselves from one or both of the deviant groups. In such an event, little would be gained toward increasing the precision of a differential diagnosis of brain-injury.

## HYPOTHALAMIC STIMULATION

The third area of research in which we have been engaged concerns the use of hypothalamic stimulation as the unconditioned stimulus in conditioning procedures. These studies involve implanting electrodes in the hypothalami of cats and are specifically concerned with stimulation to this area as a source of an energizing force for establishing conditioning.

The methodology of the first study by Cohen, Brown, and Brown (5) involved placement of the cats in a shuttle box. A warbling tone of 15 seconds duration preceded stimulation to the hypothalamus. Results showed conclusively that all of the cats learned to avoid hypothalamic stimulation by crossing a barrier following onset of the tone.

The second study in this series, just concluded, indicates that the same cats given similar hypothalamic stimulation can be conditioned to either approach and get or to avoid hypothalamus stimulation. The conclusion drawn is that this type of stimulation in this area can not be adequately interpreted as rewarding or punishing. The only hypothesis which is tenable in the light of these results is that this stimulation acts as a non-specific, non-directional energizing force for learning. Approach or avoidance is dictated only by the conditions of the experimental design. This is apparently the first instance in which conditioning has been demonstrated without the use of an unconditioned stimulus which had inherent in it either reward or punishment properties. This technique should then prove quite fruitful in adding to our present knowledge of behavior.

A projected study dealing with a physiological correlate of learning, electrical changes within the hypothalamus, may add further to our knowledge of behavior and learning.

## SUMMARY

It is evident from what I have said thus far that the psychologist in the VA hospital has a wide latitude in choosing the problems for investigation. This is evidenced by the fact that the research conducted in the VA is almost unlimited in scope and often is dependent only upon the interests of the investigators. Much research in mental health is being conducted in the VA. However, there is a great need for more, both there and in other installations. As ever we are in need of well planned and well executed research.

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## Mental Health Research in an Academic Setting

By ALFRED B. HEILBRUN, JR.

The goals of human research conducted by psychologists in an academic setting might seem at first glance as divergent as the varied interests of the individual researchers. While one concentrates on the relationships between motivational variables and "simple" learning, another investigates the conditions under which complex motor skills are acquired, another studies the effect of stress upon Rorschach performance, and still another attempts to devise some objective measure which can discriminate between individuals characterized by low and high achievement needs. There is, or at least should be, a goal common to all psychological research, however, that being the establishment of a well-defined body of relationships sufficient in scope to allow for prediction of human behavior in the same fashion as the behavior of masses is predictable for the physicist given information regarding certain well-defined variables. It is my position then that all psychological research, if it is worth doing, has implications for mental health insofar as it contributes to the establishment of this body of relationships. It seems logical to assume that we will be able to understand, predict, and control aberrant behavior only after we can accomplish these ends in the realm of normal behavior. The science of astronomy came to understand and predict the aberrant of the solar bodies such as the eclipse of the sun or the appearance of a comet only after it had formulated the laws governing the normal or expected behavior of bodies in our solar system.

However, this afternoon we are concerned with a delimited area of research—that bearing directly on mental health or mental illness—and I will confine my remarks to studies which fall at least broadly into this area. Let me preface such a survey with a few