

H A R V A R D M E D I C A L S C H O O L
Department of Psychiatry
B E H A V I O R R E S E A R C H L A B O R A T O R Y
Metropolitan State Hospital, Waltham, Massachusetts

STATUS REPORT 7

Period Covered: 16 November 1956 - 15 February 1957

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Project Title: New Techniques of Analysis of Psychotic Behavior.

Project Directors: B. F. Skinner, Professor of Psychology, Harvard University.
Harry C. Solomon, Professor of Psychiatry, Harvard Medical School.

Report Prepared By: Ogden R. Lindsley, Research Associate, Harvard Medical School.

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Previous Reports:

Status Report I	30 November 1953
Status Report II (Annual Technical Report 1)	31 May 1954
Status Report III	31 December 1954
Status Report IV (Annual Technical Report 2)	31 August 1955
Status Report 5	15 May 1956
Status Report 6	15 August 1956
Annual Technical Report 3	15 November 1956

Publications:

1. Lindsley, O. R. & Skinner, B. F. A method for the experimental analysis of the behavior of psychotic patients. Amer. Psychologist, 1954, 9, 419-420. (Abstract.)
2. Skinner, B. F., Solomon, H. C. & Lindsley, O. R. A new method for the experimental analysis of the behavior of psychotic patients. J.Nerv.Ment.Dis., 1954, 120, 403-406. (Interim Tech. Rept. 1.)
3. Skinner, B. F. Critique of Psychoanalytic Concepts and Theories. Scientific Monthly, 1954, 79, 300-305.
4. Azrin, N. H. & Lindsley, O. R. The reinforcement of cooperation between children. J.Abnorm.Soc.Psychol., 1956, 52, 100-102. (Interim Tech. Rept. 2.)

5. Lindsley, O. R. Operant conditioning methods applied to research in chronic schizophrenia. Psychiat.Res.Rep., 1956, 5, 118-139. (Interim Tech. Rept. 3.)
6. Raines, G. N., Chairman. Discussion of paper presented by Ogden R. Lindsley. Psychiat.Res.Rep., 1956, 5, 140-153. (Interim Tech. Rept. 4.)
7. Skinner, B. F. What is Psychotic Behavior? In Theory and Treatment of the Psychoses: Some Newer Aspects. St. Louis, Mo.: Washington University Studies, 1956, 77-99. (Interim Tech. Rept. 5.)

Additional Support:

In addition to the contract with the Office of Naval Research, the laboratory was supported by research grant MH-977 from the National Institute of Mental Health, of the National Institutes of Health, Public Health Service, since 1 December 1954. Work done under the Public Health Grant is not included in this report, but is described in Progress Report 1 of PHS Grant MH-977, 1 June 1956.

GENERAL STATEMENT

With the addition of a part-time psychiatrist and a part-time clinical psychologist to our office staff of the chief investigator, a USPHS Research Fellow, a secretary and two part-time data assistants, we will often have seven people trying to work in our 18 by 20 foot office at one time. This is, to say the least, crowded, so we plan to expand our office facilities during the early summer. The hospital dentist is moving from his old quarters adjoining our laboratory and we may use this space. However, we will need three new desks and two more typewriters, which we hope to get from ONR property warehouses.

Since the patients' behavior is modified very slowly, most of our investigations take so long that there are few new conclusions to add to our results at the three-month Status Report intervals. Also, we did not run the laboratory for three weeks around Christmas time because the patients were busy with holiday parties and preparations, and they were often satiated (full of candy) as a result of these parties. Therefore, this report does little more than list the investigations we are currently conducting.

STATUS OF WORK IN PROGRESS

1. Observations on New Patients:

We have increased our adult chronic psychotic sample from 51 to 53 patients.

2. Intensive Analysis of Individual Patients:

We are continuing the long-term investigations described in Annual Technical Report 3, p. 42, on eight patients.

3. Effects of Chlorpromazine:

It is possible that chlorpromazine might reduce the severity of the psychotic symptoms that interfere with the patients' responding within the experimental rooms. This might result in an increase in the patients' rates of response. It appears that the drug has increased the rate of response of some patients at certain dosages. The exploratory results were described in Annual Technical Report 3, and we are continuing this investigation with five patients.

4. Effects of Reserpine:

It is also possible that reserpine might reduce the severity of the psychotic symptoms and permit the patients to respond at higher rates. Three patients under dosages of 3 to 12 mg/day (1 to 4 mg tid) of reserpine have shown no increases in their rates of responding reinforced by candy, five-cent pieces, male or female nude pictures presented on a one-minute variable-interval schedule. These investigations continue.

5. Effects of Ritalin and Dexedrine:

Drugs that are thought to excite or increase the activity of patients might increase their rates of response. However, the drugs might also increase the frequency of their psychotic behavior and result in a decrease in the rate of the operant response. Three patients have been given dosages of ritalin ranging from 30 to 60 mg/day (10 to 20 mg tid) with no increases noted in their rates of response for candy and five-cent pieces

delivered on a one-minute variable-interval schedule. Two patients given 15 to 30 mg/day of dexedrine (5 to 10 mg tid) have shown no increase in rate of response after three weeks of medication. These investigations are also being continued.

6. Duration of Experimental Session:

Since our last report, we have not used any experimental sessions longer than four continuous hours. We have, however, increased the number of patients who have responded for four continuous hours.

7. Exploration of Useful Aversive Stimuli:

The use of a mild shock delivered to the manipulandum as an aversive stimulus is being continued. Our plans to use strong air-blasts demand the purchase of a large air compressor which will be quite expensive. Since we are not entirely sure the air-blasts will be aversive, we are postponing this purchase until we have tried the mild shocks with more patients. The use of vibration as an aversive stimulus is being postponed because the expense of a vibrating platform seems out of the question at this time.

8. Differential Reinforcement of Low Rates:

The apparatus to reinforce only those responses that occur after long pauses has been constructed and tested in operation. Several patients who respond at high rates will be reinforced on this DRL schedule to see if their rates of response will be reduced. If their rates are thus reduced, it will be clear that their responding is under the control of the reinforcing stimuli, and that they are not just "manic" or exhibiting a "high activity level."

PLANS FOR FUTURE WORK

We hope to initiate the following investigations:

1. Analysis of "responding through" period of conditioned reinforcement:

This analysis of the responses made during the period when the magazine operates (when no responses are reinforced) will provide a measure of the discriminative ability of each patient studied to date. Normal individuals soon learn to stop responding during this time, but many of the patients continue to respond through this period. The data have been recorded and await tabulation by our data assistants.

2. Analysis of Refusals and Withdrawals:

An analysis of the refusals to leave the wards and the withdrawals from the experimental rooms before the end of the experimental session will permit the inter-correlation of these measures to see if they occur together. Inter-patient differences and the effects of experimental variables on these measures can also be determined. The data have been collected but await tabulation by our assistants.