Operant Conditioning in a Vietnamese Mental Hospital

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Operant conditioning was applied in the special circumstances of a Vietnamese mental hospital with a largely untreated and idle patient population. Results demonstrated the remarkable effectiveness of this technique for motivating patients to resume productive activity. Interesting aspects of this treatment program, conducted under the difficulties of war-torn South Viet Nam, are described.

PRIOR TO LEAVING for South Viet Nam and my Project Viet Nam assignment at the Bien Hoa Mental Hospital, I was interested in learning the latest in the treatment of psychiatric hospital patients with the purpose of introducing these techniques to the mental hospital in Viet Nam.

Over a year previously I had been tremendously impressed by a demonstration of the effectiveness of operant conditioning in the treatment of autistic children. Doctor O. Ivar Lovaas of the Neuropsychiatric Institute at the University of California at Los Angeles had demonstrated, using hunger for food as motivation, that an autistic child could be trained in one hour to give up a degree of his withdrawn behavior.

When someone stated, "But he's just hugging you like a trained monkey. He doesn't really feel anything for you," Doctor Lovaas answered, "Of course not. Neither does an infant feel anything at first when it has been taught by its mother to kiss her. The action is the first step. The feeling comes later." He then showed moving pictures depicting use of the treatment technique in producing speech in autistic children—an outstanding breakthrough(4).

I learned that whereas Pavlovian (or respondent) conditioning involved arranging antecedents for conditioning of mainly smooth muscles and glands, operant (or Skinnerian) conditioning, as described by the Harvard psychologist, Dr. B. F. Skinner(8, 9), was mainly concerned with influencing the frequency of voluntary muscle responses by locating and arranging suitable consequences(3).

When I heard that operant conditioning was being used on chronic schizophrenic wards in a few hospitals(6), including nearby Patton State Hospital in California, I went there and talked with ward personnel about their techniques. Thus prepared, I left for Viet Nam in June 1966.

Two days each were spent in Hong Kong for acclimatization to tropical heat and in Saigon for processing. I then traveled 15 miles northeast by road to Bien Hoa, capital of the province of Bien Hoa. I found the mental hospital, located in the country two miles from Bien Hoa, to have quite beautiful grounds. Conditions for the patients within the wards varied from good to deplorable. No treatment program other than custodial care existed for more than three-quarters of the 2,000 patients. Dr. Robert McKinley, my Project Viet Nam predecessor, has in a recent article(5) given an excellent resume of the hospital's history, personnel, patients, and problems.

Viet Nam has been beset by war for over 25 years. In a sense the mentally ill have been among the casualties. When I arrived patients were dying at the rate of about one per day from diarrhea, beri-beri, protein deficiency, tuberculosis, malaria, etc. This was an increase from the usual mortality rate of five per month in past years, when food supplies were more adequate and varied. Inflation and increased food costs had decreased the hospital's ability to

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feed the patients adequately. Further evidence of the little attention paid to psychiatry in this country, busy struggling to survive, was the number of Vietnamese psychiatrists: there were only five in all of South Viet Nam.

All three of the psychiatrists at the Bien Hoa Mental Hospital spoke English. Since I was working closely with one or another of them all the time, I found I had little use for the interpreter provided me by the United States Agency for International Development (AID) and released her for duty elsewhere. I found the Vietnamese psychiatrists to be quite pleasant to work with, open-minded to innovations, and showing ingenuity and initiative in adapting suggestions to the special problems found in their hospital or with Vietnamese patients.

Problems of the Admitting Service

Dr. McKinley had apparently focused his attention mainly on the important area of the admitting service. He had taught the two young staff psychiatrists, Drs. Le and Hiep, his criteria for administering electroconvulsive treatment and psychotropic medication. The several thousand dollars' worth of tranquilizers contributed by a drug company which he had brought with him had been used by the time I arrived.

Except for the problems produced by this shortage, I found the admitting service functioning well. I felt I needed only to emphasize the importance of maintenance medication for the patients who had been adequately treated on the admitting ward and were being discharged from it. I described the criticism of the swinging doors of American mental hospitals resulting from failure to impress departing patients with the importance of regular maintenance dosages for their continued emotional equilibrium and to prevent rehospitalization and the eventual development of chronic schizophrenia.

The fact that most Vietnamese patients could not afford the cost of phenothiazine drugs, as well as the difficulty in obtaining them in Viet Nam today, were overcome temporarily by our dispensing a supply of the inexpensive drug reserpine sufficient for a lengthy period. This practice had to be discontinued when the hospital's supply of the drug sank too low.

I was able to obtain enough phenothiazine drugs from Army evacuation hospitals and the Bien Hoa Air Base, however, to maintain adequate treatment programs on the admitting ward, with some surplus remaining for other wards. Throughout my stay I found the service doctors, commanders, chaplains, etc., all extremely willing to give whatever help they could.

Operant Conditioning Applied to Chronic Patients

I turned my main attention to the patients on the chronic wards of the hospital, most of whom were schizophrenics. After a discussion with the Vietnamese psychiatrists, we decided that a mass treatment approach, utilizing operant conditioning and instituted immediately, would save many more of these patients than a more individualized approach requiring months or years before all the patients could be examined and treated. This decision was partially based on the axiom that, in general, the longer a schizophrenic is allowed to remain regressed, the less recovery one can expect.

We started the program on a ward of 130 male patients by announcing that we were interested in discharging patients to make the hospital less crowded. Who wanted to go home? About 30 patients indicated their interest. We explained to these patients that they would have to work and support themselves if they went home—that we could not send them home to live off relatives. We wanted them to work for three months or so in the hospital to prove their capability. If they would do this, we would make every effort to have them discharged. Ten or so indicated their willingness to work. The reaction of the remainder was, "Work! Do you think we're crazy?"

We sent the ten off to work. To all the remaining patients we announced, "People who are too sick to work need treatment. Treatment starts tomorrow—electroconvulsive treatment. It is not painful and is nothing to be afraid of. When you are well enough to work, let us know."

The next day we gave 120 unmodified electroconvulsive treatments. Although modified ECT was used on some of the patients

on the admitting ward, time and drug limitations precluded its use on the chronic wards. Perhaps because of the smaller size and musculature of the Vietnamese people, no symptoms of compression fractures were reported at any time.

The treatments were continued on a three-times-a-week schedule. Gradually there began to be evident improvement in the behavior of the patients, the appearance of the ward, and the number of patients volunteering for work. This latter was a result of the ECT's alleviating schizophrenic or depressive thinking and affect with some. With others it was simply a result of their dislike or fear of ECT. In either case our objective of motivating them to work was achieved.

Reinforcement

Reinforcement of selected behavior is the major concept of operant conditioning. Reinforcement which consists of presenting stimuli is called positive reinforcement, whereas reinforcement which consists of terminating stimuli is called negative reinforcement. It can be seen that the ECT served as a negative reinforcement for the response of work for those patients who chose to work rather than to continue receiving ECT.

The second ward where we started this procedure was a women's ward of 130 patients. Expecting the women to be more pliable, I hoped for quicker and better results. Instead, due perhaps to their greater passivity or the attitude that success in life is achieved when they can be idle, at the end of 20 treatments there were only 15 women working. We stopped the ECT then, and to the men and women still not working said, "Look. We doctors, nurses, and technicians have to work for our food, clothes, rent money, etc. Why should you have it better? Your muscles are just as good as ours. After this, if you don't work, you don't eat. Who is ready to start work immediately rather than miss any meals?"

About 12 patients made this choice. After one day without food, ten more patients volunteered for work and after two days without food, ten more. After three days without food, all the remaining patients volunteered for work. As has been repeatedly demonstrated, when the subject is hungry food is one of the strongest and most useful of positive reinforcements(1). This may be particularly true of schizophrenics who, as a group, tend to show enhanced interest in food.

The fear expressed by hospital personnel that some of the more severely catatonic or hebephrenic patients would starve to death was not borne out by our experience. None of them were that sick. A nurse at Patton State Hospital had told me of her experience with a chronic schizophrenic who refused to eat and who had been force fed for years. When the patient was told that if she did not work she would not be given food, she shortly started working. Her previous refusal to eat probably had to do with the gratifications she had derived from the reactions of the staff to her behavior; this has been concluded for other cases(2). When the doctors and nurses refused to give her these gratifications by changing their response to this behavior, she quickly gave it up. Both her refusal to eat and her going to work to get food are examples of operant conditioning with positive reinforcement by hospital personnel.

The argument that subjecting these patients to electroconvulsive treatments or withholding food might be considered cruel was countered by the comparison to a child with pneumonia receiving antibiotic injections. The injections hurt and even involve some slight risk to the patient, but the damage without their use is potentially much greater. Inflicting a little discomfort to provide motivation to move patients out of their zombi-like states of inactivity, apathy, and withdrawal was, in our opinion, well justified.

As time passed it became evident that even the patients felt this way. As I made my way among large groups of these newly working patients, who were clearing fields with their hands and with hoes in order to plant crops to help alleviate the food shortage, I was not struck or threatened. Instead I was greeted with smiles and comments which indicated that they were more satisfied with themselves in their more productive and useful role and grateful to us for having pushed them into it.

Previously, during a monthly meeting held by the hospital director, Dr. Nguyen Tuan Anh, to hear complaints by the patient representatives of each ward, one had stated that the poor quality of the food was killing the patients. Dr. Anh had agreed and stated he was making every effort to remedy the situation. The patients were glad to have the opportunity to do something themselves toward alleviating the problem.

As the patients started working they were placed on Vitamin B-complex capsules to insure that they were not suffering the weakening effects of beri-beri. They were also placed on phenothiazine drugs or reserpine to help prevent relapses and to help them make further improvement.

The patients' assumption of a working role was further encouraged by continuing and extending the hospital policy of paying workers one piastre for each day's work. A piastre is now equivalent to less than a cent, but with their earnings they could purchase articles in the patients' store at wholesale or below wholesale prices. A dress made from cloth donated by an airborne infantry unit could be purchased for 12 piastres. Chocolate drinks made from milk powder from the air base civic action warehouse could be purchased for one piastre, etc. These benefits were, of course, another positive reinforcement for continued productivity.

So they were working, earning money, and spending it, roughly approximating their functioning outside the hospital. Functioning as normal is usually of great assistance in the development or return of the patient's feelings and thoughts to a more healthy state. The most obvious mechanism in the case of work therapy is the decreased anxiety resulting from greater feelings of adequacy as the patient becomes productive and more worthwhile. Dr. Rimland(7) suggests another mechanism based on observations made while using operant conditioning with autistic children. Others have noted an unexpected generalized improvement occurring after these children had been conditioned to drop only a few bad habits(10). Rimland believes that this generalized improvement results from the improved ability to focus attention externally, since change in this ability is quite evident in "before and after" moving pictures. The autistic child, preoccupied by and responding mainly to inner stimuli, changes for the better in many ways when influenced by operant conditioning to develop the ability and habit of paying increased attention to events and tasks in the outside world.

Problems of the Program

The two Vietnamese psychiatrists and I were kept quite busy administering the several thousands of shock treatments required as we started about one new ward a week on the program. We also acted as occupational therapists since the hospital was temporarily lacking a professional trained in this area. Launching the new patient store and supervising its function occupied a number of hours for a period of time. Continuing activities included treating the sick and dying, participating in teaching seminars for the nurses, and doing work-ups on and treating the newly admitted patients who came in at the rate of one or two per day.

An additional task was obtaining funds for the piastre a day per working patient. At first this was no great problem since the hospital had a small sum budgeted for this purpose. As the number of working patients rose above 500, it became a matter of concern. It was solved by having some of the patients with woodworking ability manufacture Montagnard-type bows and arrows for sale to the American soldiers as souvenirs. Punji stick manufacture and sale also increased revenues.

We were sufficiently busy that we did not have much time to worry about the problem of how we would discharge those patients who completed their work period and then could not be discharged because they did not have a responsible relative to whom they could be discharged. However, it was a problem lurking in the back of our minds and one which eventually would have to be faced. An opportunity to solve this problem arose in a "happenstance" way.

Involvement with the Special Forces

After hours I did not live at the mental hospital but in the city of Bien Hoa, where

I shared the quarters of the Australian surgical team. A month after I arrived the team rotated some of its members. The new team included four surgeons and one anesthesiologist. These surgeons were the only surgeons available to the civilians in the entire province of Bien Hoa. With casualties flowing into the hospital day and night—sporadically, but at times quite heavily—the anesthesiologist was soon overworked and overtired. I volunteered to give him assistance in getting more sleep at night if he would check me out on his machines and supervise my giving anesthesia on several of the usual types of cases I might expect to encounter. This he was glad to do, and subsequently I gave anesthesia intermittently after my mental hospital hours.

The casualties that came into the provincial hospital included civilians and paramilitary personnel. The latter included the Montagnards (mountain people) fighting under the direction of the American Special Forces (Green Berets). Working with the surgical team, I became well acquainted with the two Green Beret physicians, as well as with other officers and men of the Special Forces headquarters.

Socializing in their officers' club one evening, I overheard the colonel who commanded the Third Corps Special Forces troops attempting unsuccessfully to obtain Viet Cong prisoners from the prison officer to use for tending crops in the headquarters area. When he learned that I could provide him with recovered patients, he said he would like ten-man agricultural teams to go to his A-camps, which are forts in Viet Cong territory manned by a 14-man American A-team and hundreds of volunteers from the local population who are willing to fight the Viet Cong. Growing crops at the A-camps would cut down on the cost of air transport of food and provide a better diet for the soldiers.

An arrangement was worked out with the hospital whereby the Special Forces would hire volunteer patients on discharge. A Green Beret trooper was sent to the hospital to help select and train these teams. When the first teams were about ready I made a helicopter tour of the A-camps to talk to the camp commanders and enlisted men medics about the program and the handling of agricultural team members in case any of them became irritable, withdrawn, etc. You can imagine the look of puzzlement I would produce when I would introduce myself in the A-camp saying, "I'm Dr. Lloyd Cotter, a psychiatrist. I'm here to talk with you about an agricultural program for your A-camp."

One frequently asked question was, "Won't they crack up under the stress of potential or actual VC attack or ambush?" I answered that by recounting the experiences of Londoners during the World War II bombing of their city. There was an unexpected but appreciable drop in the number of people developing mental breakdowns. The stress of the danger from the bombs was more than neutralized by the enhanced feelings of worthwhileness and being part of the team that the survivors had as they fought fires, rescued the injured, and worked to keep London functioning.

So, I explained, if these ex-mental patients could be incorporated into the life of the camp and made to feel that they were important members of the team, there would be little problem. The good pay these ex-patients would receive plus the ego-expanding effects of being part of an élite with high esprit de corps should function as a fourth positive operant reinforcer.

Exchange Program Opportunity

I returned from the A-camps to the mental hospital a few days before my two months' service in Viet Nam was due to end and discussed with the director of the hospital what I might do after my return to the United States which might benefit the hospital. He suggested that I attempt to find mental hospitals in the U. S. willing to become involved in an exchange program for doctors, nurses, technicians, social workers, and occupational therapists. Any hospital interested in exchanging one or more of these personnel should write directly to Nguyen Tuan Anh, M.D., Bien Hoa Mental Hospital, Bien Hoa, South Viet Nam.

Conclusions

I was so impressed by the effectiveness of operant conditioning techniques for the motivation of difficult-to-activate patients that on leaving Viet Nam I visited mental hospitals in Thailand, India, Lebanon, Egypt, Jordan, Turkey, Germany, Holland, and England, sharing my experiences with the psychiatrists in these hospitals. I also shared my conviction that those mental hospitals which feed, clothe, and shelter schizophrenics without effectively demanding anything from them in the way of productivity are perpetuating rather than treating the schizophrenic illness, with its sick needs for withdrawal, regression, and dependency.

There is, of course, nothing new about work therapy per se in the treatment of mental illness. The novelty of operant conditioning techniques as applied in this area lies in the possibility or probability of its being utilized effectively with all patients not totally physically incapacitated. If the less effective, but more usually relied on, reinforcements of productive behavior do not work, then a more effective reinforcement, such as food for hungry patients, will produce the desired results.

An operant conditioning program, as demonstrated in the Bien Hoa Mental Hospital, offers a treatment which results in better adjustment and probably in more rapid recovery for a very high percentage of patients treated. It would appear to be most indicated for long-term patients who have failed to respond to other treatment modalities. The use of effective reinforcements should not be neglected due to a misguided idea of what constitutes kindness.

REFERENCES

1. Ayllon, T., and Haughton, E.: Control of the Behavior of Schizophrenic Patients by Food, J. Exp. Anal. Behav. 5:343-352, 1962.
2. Ayllon, T., Haughton, E., and Osmond, H. O.: Chronic Anorexia: A Behaviour Problem, Canad. Psychiat. Ass. J. 9:147-154, 1964.
3. Holland, G. H., and Skinner, B. F.: The Analysis of Behavior. New York: McGraw-Hill Book Co., 1961.
4. Lovaas, O. I., Berberich, J. P., Perloff, B. F., and Schaeffer, B.: Acquisition of Imitative Speech by Schizophrenic Children, Science 151:705-707, 1966.
5. McKinley, R. A.: Psychiatry in Viet Nam–1966, Amer. J. Psychiat. 123:420-426, 1966.
6. Mishler, K. B.: Of People and Pigeons, SK & F Psychiatric Reporter 15:9-12, 1964.
7. Rimland, B.: Breakthrough in the Treatment of Mentally Ill Children, address given at the inaugural meeting of the National Society for Autistic Children in New York and Washington, Nov., 1965. (For copies write 4758 Edgeware Rd., San Diego, Calif. 92116.)
8. Skinner, B. F.: The Behavior of Organisms. New York: Appleton-Century-Crofts, 1938.
9. Skinner, B. F.: Science and Human Behavior. New York: MacMillan Co., 1953.
10. Wolf, M., Risley, T., and Mees, H.: Application of Operant Conditioning Procedures to the Behaviour Problems of an Autistic Child, Behav. Res. Ther. 1:305-312, 1964.

Men heap together the mistakes of their lives and create a monster they call Destiny.

—John Oliver Hobbes