1976

The use of habit reversal in reducing tics with two institutionalized individuals: a thesis ...

Phyllis Williamson
University of the Pacific

Follow this and additional works at: https://scholarlycommons.pacific.edu/uop_etds
Part of the Life Sciences Commons, and the Medicine and Health Sciences Commons

Recommended Citation

This Thesis is brought to you for free and open access by the Graduate School at Scholarly Commons. It has been accepted for inclusion in University of the Pacific Theses and Dissertations by an authorized administrator of Scholarly Commons. For more information, please contact mgibney@pacific.edu.
THE USE OF HABIT REVERSAL IN REDUCING TICS
WITH TWO INSTITUTIONALIZED INDIVIDUALS

A Masters Thesis
Presented to
the Faculty of the Graduate School
University of the Pacific

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Phyllis Williamson
August 1976
This thesis, written and submitted by

Phyllis N. Williamson

is approved for recommendation to the Committee

on Graduate Studies, University of the Pacific.

Department Chairman or Dean:

[Signature]

Thesis Committee:

[Signature] Chairman

[Signature]

[Signature]

Dated 5/25/76
ACKNOWLEDGEMENTS

This research was supported in part by NIMH Hospital Improvement Program, Grant Number 09-R-00316-02 0 MH-R20-C, Community Re-entry Project, to Stockton State Hospital, Stockton, California.

The author wishes to extend her thanks to the conscientious efforts made by her thesis committee members Martin T. Gipson, Ph.D. and Timothy Blackburn, Ph.D. to critique and improve this research. The author is especially appreciative of the advice, guidance and support provided by the committee chairperson, John R. Lutzker, Ph.D.

An additional acknowledgement and thanks should be given to the observers who spent a considerable amount of time on this project. These students, Kim Harbin, Van Felber, and Al Yasuda, were consistently dependable, efficient and patient.
Recently, nervous tics of 12 subjects were eliminated by using a procedure described as "habit reversal" (Azrin and Nunn, 1973). The subjects were non-institutionalized persons seeking help or who had been referred by a physician or family member. The procedures consisted of the subjects practicing movements incompatible with the habitual tics in which they engaged such as head jerking, eye lash plucking, and elbow flapping. Azrin and Nunn (1973) explain the successful results in terms of the subjects learning to become aware of the onset of their habits and then effectively controlling those habits by immediately engaging in the incompatible behavior.

Tics have also been observed in residents confined to institutions; that is, people in institutional settings have frequently been observed to engage in stereotypic tic behaviors that have no apparent functions (Kaufman, 1967). Many of these behaviors can be classified as self-stimulatory and may consist of hand-waving, rocking (Kaufman and Levitt, 1965), rubbing parts of the body (Hollis, 1965), or eyelash plucking (Azrin and Nunn, 1973). These behaviors help identify the residents as "institutional" and thereby contribute to keeping them from community re-entry.

Fox and Azrin (1973) conducted a study using
overcorrection to successfully eliminate self-stimulatory behavior in four day-care patients. While the procedure was successful, it required a considerable amount of staff time to effect the behavior changes. It might be more efficient if the patients could be taught a procedure that they themselves could implement in an attempt to change their behavior. This suggests the possibility of using self-control techniques to eliminate tic behaviors in institutionalized populations. The term "self-control" refers to the notion that the person is the primary agent of change. This is not to deny the influence of the environment on the individual but emphasizes that one can learn to manipulate one's own behavior and those situational variables around him. In essence, in self-control the partial determinants of the organism's behavior are under his/her own control (Mahoney, 1972). Since habit reversal requires the individual to be largely responsible for controlling his own behavior, it can be considered a self-control procedure.

Most self-control research has been conducted with non-institutional populations such as outpatients of community rehabilitation centers (Thomas, Abrams and Johnson, 1971) college students (McFall, 1970) or people from the community at large (Azrin and Nunn, 1973). Only a few studies applying self-control procedures have been conducted in institutional settings. For instance, Bucher (1968), trained a patient to self-administer shock to decrease the
frequency of his report of hallucinatory voices. The patient recorded both the number of shocks he applied and the number of voice appearances. The hallucinations were successfully eliminated. Rutner (1969) investigated the use of self-monitoring with and without social reinforcement to eliminate hallucinations. He found there was a decrease in hallucinations when self-monitoring without reinforcement was used, but a greater decrease and larger maintenance was observed when self-monitoring was used in conjunction with reinforcement.

The possible application of habit reversal to mentally ill institutional residents has not been investigated. While habit reversal holds considerable promise as a treatment mode, due to its rapid success and patient involvement in controlling his/her own behavior, further research is in order. To investigate the generality of habit reversal to an institutionalized population, the present study utilized self-monitoring, which has been found to be effective with hospitalized patients (Rutner, 1969), and habit reversal, which has been found to be effective with a non-hospitalized population (Azrin and Nunn, 1973), as a treatment package for eliminating nervous tics. There are four major purposes for doing this present study: a) to see if modified habit reversal techniques could be used to successfully treat tics in institutionalized mentally ill individuals, and in doing so look at, b) the effectiveness of procedures that involve the subject controlling his/her own behavior.
with that kind of population; c) to evaluate the within-subject generality of the procedures by using a generalization measure in each subject's living environment; and d) since Azrin and Nunn's (1973) use of habit reversal was restricted to baseline-treatment (AB) replications, to provide an experimental analysis using a multiple baseline design.

**Method**

**Subjects**

Two young adult residents at Stockton State Hospital who were classified as mentally ill, each with disturbing motor tics, served. Charlie was a 19-year old male who had been institutionalized for 12 years with a diagnosis of childhood schizophrenia. Bobby was a 22-year old male who had been institutionalized for 7 years with a diagnosis of encephalopathy. Both subjects were chosen on the basis of having readily observable, high frequency, inappropriate motor behaviors. The elimination of these behaviors was considered important because their occurrence is stereotypic of institutionalized mannerisms which inhibit possible community placement (Kaufman, 1967). The subjects were involved in a Hospital Improvement Program (HIP) whose major goal is the training of clients in skills that are necessary for residing in the community.
Setting

Observations of the subjects' behaviors took place in two settings: 1) The primary observations took place in a recreation room on the HIP day-unit. The room contained games, arts and crafts materials, a record player and records, and tables and chairs. A 12' x 8' (3.6 meters x 2.4 meters) interview room adjacent to the HIP recreation room, with table, chairs and a mirror was used to train the subjects in self-monitoring and habit reversal. 2) Generalization data were also gathered by a second observer on the subjects' wards.

Dependent variables and response definitions

Charlie's behavior consisted of frequent face touching. More specifically, the observer recorded that an inappropriate behavior had occurred if Charlie touched any part of his face or head without any apparent appropriate reason such as to scratch an itch.

Bobby's habit consisted of hand flicking. That is, he flicked his hands very rapidly in a rotating manner. He was scored as having engaged in an inappropriate behavior when observed to gesture with one or both of his hands by twisting, flapping, waving or flicking. These behaviors occurred at a very high rate for both subjects. The dependent variable measured was the percentage of two-minute intervals in which the behavior occurred during daily half hour sessions. The observers used a stop watch to determine when each interval began.
Procedure

A multiple baseline design across both subjects was used. That is, after baseline data were recorded for each subject in the recreation room setting, an information condition was instituted in a staggered fashion over time (see Figure 1). This consisted of informing the subject that he was engaging in an undesirable behavior, describing it to him, and telling him to stop it. He was then told that the experimenter was counting how often he engaged in the behavior. The purpose of this condition was to assess the effect on the subjects of knowing that their behavior was being observed. It was predicted that there would be a transitory decrease in the frequency of their inappropriate behaviors, but that the frequency would soon return to its original level (Skinner, 1966). At this time the subject was then provided habit reversal training and instructed in self-monitoring.

The habit reversal techniques were also introduced at different points in time. The procedures were similar to those described by Azrin and Nunn (1973). The major difference lies in the use of prompts. Azrin and Nunn (1973) use positive social support in which those people in the subjects' environment encourage and praise the decrease in the subjects' tics. The present study used more direct prompting to the subjects to engage in their exercise and praise when they did so. Training took place in two half-hour sessions in the interview room and consisted
of the following procedures:

1. The subject was told that he engaged in certain behaviors that are not considered appropriate by most people, and an example was given. The experimenter demonstrated the behavior in the following manner: "Remember (recent time and place) when you were (verbally describes the behavior). It looked like this (mimics the behavior). This behavior is extremely inappropriate, it bothers other people and it makes you look out of place."

2. To assure that the subject understood the behavior in question, the experimenter asked him to verbally describe it and then physically demonstrate it in front of the experimenter and a mirror. For example, Charlie was required to say something like "I touch my face a lot" and then touch his face the way he typically does.

3. The experimenter then explained that he was going to teach the subject a method of controlling that behavior. Three steps were involved. (a) Both subjects were given wrist counters and shown how to count every time they engaged in the behavior. It was also emphasized that this was to serve as a reminder to practice the habit reversal exercise. (b) The subjects were both taught the same habit reversal exercise, that is, to lower their hands to their side immediately upon engaging or noticing they were about to engage in the tic and clenching their fists for about one minute. The experimenter demonstrated this exercise. (c) The experimenter then demonstrated
three separate times the sequence of engaging in the tic, clicking the wrist counter and then performing the habit reversal exercise.

4. The subjects were required to practice the same sequence three times without error.

The data gathered by the subjects on the wrist counters were not used as a measure of their behaviors. The wrist counters' major function was to serve as discriminative stimuli ($S^D$'s) for the subjects to engage in the habit reversal exercise. As part of the habit reversal procedure the experimenter gave occasional prompts to engage in the exercise in the experimental setting.

To assess any generalization effects from the experimental setting to the subjects' wards, data were collected on the wards by another observer during half-hour intervals throughout all three conditions. The observer's were as unobtrusive as possible for those observations.

Since the habit reversal exercise was only moderately effective in the generalization setting prompting was initiated. This consisted of informing the staff of the habit reversal procedures and asking them and the observer to prompt the subject to perform his exercise.

Reliability

Reliability measures were collected both on the HIP unit and on the subjects' wards at least once during each condition. For both measures, a second observer recorded
data concurrent with the primary observer. Reliability was calculated by dividing the number of agreements by the number of agreements plus the number of disagreements.

Results

Figures 1 and 2 show the percentage of intervals in which tics occurred and prompts were delivered across two settings, respectively. Occurrence was calculated by dividing the number of intervals in which the tic occurred by the total number of intervals. Figure 3 shows the percentage of intervals in which the habit reversal exercise was performed by the two subjects in both settings. Rate of exercise performance was calculated by dividing the number of intervals in which the exercise was performed by the total number of intervals in which the tic occurred. The data indicate that habit reversal was effective in decreasing the tics in the experimental setting but not any more effective than the information condition in the generalization setting.

Figure 1 shows that the mean rate of occurrence of the tic for Bobby during baseline was 50%, during the information condition it was 88% and during habit reversal condition it decreased to 22%. The mean rate of occurrence for Charlie's behavior during baseline was 24%, during the
Figure 1. Experimental Setting.
Figure 2. Generalization Setting.
information condition it was 28% and during habit reversal it decreased to 5%. There was a decrease of 28% for Bobby and 19% for Charlie as a treatment effect of habit reversal. The mean number of prompts delivered per session for Bobby was 15% and 4% for Charlie.

As can be seen in Figure 2, the mean rate of occurrence for Bobby's tic during baseline was 66%, during the information condition it was 79% and during the habit reversal condition it was 72%. Two additional conditions were instituted for Bobby that consisted of prompting in habit reversal. The mean rate of Bobby's behavior during the first prompt was 54% and during the second prompt it was 45%. From baseline to the final prompt condition there was a decrease of 21%. The mean rate of occurrence for Charlie's behavior at baseline was 76 percent, 37 percent during information and 36 percent during habit reversal. There was a decrease of 40 percent from baseline to habit reversal. However, the habit reversal does not appear to have been more effective than the information condition for either Bobby or Charlie in this setting.

Reliability

Reliability measures were conducted on experimental days 5, 9, 14, 15, 31 and 35. Observer agreement ranged from 86% to 100% with a mean of 96% agreement.
Discussion

The present study, by using a multiple baseline design, shows that habit reversal procedures were effective in eliminating the tic behaviors of two institutionalized subjects in an experimental setting; however, generalization to the ward setting was limited.

As predicted, the information condition resulted in a transient decrease in the behavior followed by an increase to higher levels in the experimental setting. In the generalization setting Bobby's tick returned to baseline during the information condition but Charlie's rate never returned to baseline level. There are several plausible explanations for this. The apparent effectiveness of informing Charlie that he should stop his tic and the ineffectiveness of the same procedure with Bobby could indicate that the "informing" acted as a punisher for Charlie. As Skinner (1966, in Honig) contends, reinforcement of punishment is often defined after the behavioral effects are observed. The difference in the effectiveness of this condition in the two settings might be a result of the staff on Charlie's ward having more reinforcing value for him then the staff present in the experimental setting. Thus, it would be more punishing if the
"generalization" staff found his behavior offensive. These explanations can only be substantiated through further research.

Azrin and Nunn (1973), showed habit reversal procedures to be effective in reducing tic behaviors in a "normal" population. While the habit reversal condition in this study was an effective treatment resulting in a considerable reduction of both subjects' tic behaviors in the experimental setting, in the generalization setting the decrease was not significantly greater than in the information condition for either subject. Charlie's behavior decreased only 1% and Bobby's decreased only 5% more than during the information condition. It appears that the procedures, when applied to this population do not generalize readily to all settings.

There may be two possible explanations of this difference between the two settings. First, habit reversal includes prompting as part of the treatment procedure. Since, in the generalization setting, the staff was not aware of the treatment procedures, they did not do any prompting. It is quite possible that if the staff were involved in the attempt to eliminate these tics, a more substantial decrease in their rate of occurrence would be obtained. If this procedure is to be effective with this
population, it appears more effort must be extended to train the subjects in habit reversal in several different settings. Second, most researchers in the area agree that for a procedure which involves the responsibilities of the subject in controlling his/her own behavior motivation plays a major role (Watson and Tharp, 1972). Since the experimenter chose the target behaviors and not the subjects, it is quite likely that when in a setting where prompting was not present, they were not highly motivated to engage in the habit reversal exercise on their own.

Since prompting was used along with the habit reversal exercise and since the rate of this decreased as prompting was increased, further research should include a component analysis to discover if it might be the prompting which served as an effective behavior change agent rather than the habit reversal exercise.

The use of an institutional setting provided for an excellent environment to use a multiple baseline design on different behaviors, subjects or in varying settings. For instance, to investigate the effectiveness of prompting on the ward a prompting condition was initiated for Bobby in the generalization setting. This condition resulted in a gradual decrease of the tics. Another reminder to the staff resulted in a further decrease in Bobby's tic.

The present results support the hypothesis that a modified habit reversal procedure can be effective in teaching members of an institutionalized population a method for
controlling their own behavior. It appears, however, that in order for this type of treatment to generalize adequately to other settings further contingencies may be necessary.

Implications for further research include an investigation of effective methods for training staff to initiate these procedures in several of the settings in which a subject may be each day. In addition, it may be fruitful to prompt institutionalized subjects to verbalize a desire to change their own behaviors rather than having the experimenter determine what behaviors would be changed as was done in this study. Only further research can clarify this issue.
References


