

RESTITUTION: A METHOD OF ELIMINATING AGGRESSIVE-DISRUPTIVE BEHAVIOR OF RETARDED AND BRAIN DAMAGED PATIENTS*

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Summary—Current methods of penalizing aggressive and disruptive behaviors have elements of retribution that discourage general usage. A procedure was developed that provided disruptive offenders with re-education, removal of the reinforcement for the offense, time-out from general positive reinforcement, and an effort requirement. The offender was required by instructions or physical guidance to overcorrect the general psychological and physical disturbance created by the offense. The procedure was applied to one brain-damaged and two retarded patients, who displayed one or more of the following types of behavior: physical assault, property destruction, tantrums, continuous screaming, and biting, all of which had resisted other treatments such as time-out, punishment and social disapproval. The procedure reduced the disturbed behaviors of all patients to a near-zero level within one or two weeks and maintained this therapeutic effect with minimal staff attention. This method appears to be a rapid and effective treatment procedure for disruptive behavior and emphasizes the individual's responsibility for his actions.

AN URGENT concern regarding behavioral change is for the elimination of physically disruptive acts such as aggression and property destruction. A general procedure for reducing disruptive acts is by punishment as with shock (Lovaas, Schaeffer and Simmons, 1965; Ludwig *et al.*, 1969), time-out (Wolf, Risley and Mees, 1964; Tharp and Wetzel, 1969), physical restraint (Hamilton, Stephens and Allen, 1967) or subtraction of earned reinforcers (Ayilon and Azrin, 1965, 1968; Phillips, 1968). The choice of punishment over alternative procedures is probably because of its demonstrated greater effectiveness (Holz and Azrin, 1963; Lovaas *et al.*, 1965; Azrin and Holz, 1966).

Yet, punishment procedures have not been widely applied in practice. Several suggestions can be made as to why. The punishment may produce aggression by the offender (Ulrich and Azrin, 1962), the punisher may serve as a model for future aggression (Bandura, 1962), the intense discomfort or injury of the offender is unpleasant for the punisher, or, conversely, the authorization to use punishment permits one to do so from anger. Punishment is not educative in that it teaches only what not to do (Thorndike, 1932, p. 277). The punishment procedure also does nothing to remove the original source of reinforcement for the offense, nor does it undo the immediate damage. The present study developed and evaluated a new treatment method that was designed to minimize these negative properties of punishment.

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General rationale

The general rationale of the proposed restitution procedure is to educate the offender to assume individual responsibility for the disruption caused by his misbehavior by requiring him to restore the disturbed situation to a greatly improved state—hence the designation Restitution or Overcorrection. The general method for accomplishing this objective is to (1) identify the specific and general disturbance created by the misbehavior and (2) to require the offender to overcorrect these disturbances whenever he misbehaves. The identification of misbehavior itself is usually relatively simple, i.e. the patient hit someone or broke something. The identification of the disturbance (Step 1) requires one to inquire further as to what feature of the environment is disturbed by that act (See the Environment Effects Rule in Ayllon and Azrin, 1968) and to designate the psychological and physical aspects of the disturbance in general as well as specific terms. This step is necessary for characterizing the corrected situation that the offender will be required to achieve. The second step of restitution by the offender is, of course, the re-education aspect of the procedure in which the desired response is trained and practiced. This method is conceptually antithetical to the suggested technique of negative practice (Dunlap, 1930) in which the patient is required to practice his inappropriate behavior. As yet, a scarcity of data exists regarding confirmation or refutation of that suggestion.

The restitutive acts are designed to have the following characteristics: (a) The restitution should be directly related to the misbehavior lest it become arbitrary and punitive. This characteristic of relevance should also motivate the educator to apply the restitution procedure since the educator would otherwise be forced to correct the general disturbance himself. Further, the offender experiences directly the effort normally required by others to undo the disruption created by the misbehavior. (b) The restitution should be required immediately after the misbehavior, thereby accomplishing two objectives. First, extinction of the offense will be provided since the offender will have little or no time to enjoy (be reinforced by) the product of the aggressive offense (Azrin and Hutchinson, 1967). Secondly, greater inhibition of future misbehaviors should result since immediate negative consequences are known to be more effective than non-immediate consequences (Azrin, 1956; Azrin and Holz, 1966). (c) The restitution should be extended in duration. While engaging in the restitution, the offender cannot engage in other activities that are reinforcing. Consequently, the restriction period constitutes a time-out from reinforcement. This time-out is known to be more effective at longer durations (Ferster and Appel, 1961; Zimmerman and Baydan, 1963; Zimmerman and Ferster, 1963). (d) The offender should be very actively performing the restitution and without pausing. Restitution constitutes work and effort. An increased work or effort requirement is known to be annoying and serves as an inhibitory event (Appelzweig, 1951).

Verbal instruction and graduated guidance training

Positive reinforcement should be minimal during the restitution period, otherwise the restitution could become a period of reinforcement and thereby be sought after. Since attention has been found to be a reinforcer in many contexts (Baehrach, Erwin and Moore, 1965; Hall, Lund and Jackson, 1968; Lovaas and Simmons, 1969), the educator should minimize praise and approval during restitution training.

If direct positive reinforcement must be minimized during the restitution period, some alternative procedure must be used for assuring the restitutive performance. Verbal instructions, if sufficient, should be one such alternative. Another satisfactory alternative is physical guidance in which the educator manually guides the desired movements using as

much bodily pressure as necessary but reducing such pressure immediately as the offender begins to perform the movement voluntarily. If the desired movement slows down or stops, just enough pressure should be immediately reapplied to restore the movement to the desired rate. The slight annoyance caused by having one's limbs moved should serve as a motivator to initiate voluntary actions. The two procedures of verbal instruction and graduated guidance in combination should constitute a conditioned avoidance situation and lead to the instructions alone being effective, since the instructions would become a signal that the graduated guidance could be avoided by voluntarily initiating the required response at that time (Solomon, Kamin and Wynne, 1953; Sidman, 1955; Azrin, Holz and Hake, 1962; Ulrich, Holz and Azrin, 1964).

Several general types of restitution training procedures were developed to deal with correspondingly general classes of disruptive behaviors.

Household orderliness training for the disturbance of objects.

One general class of misbehavior is property disturbance for which a "Household Orderliness Training" procedure was designed. The rationale underlying this Household Orderliness Training is that the offender has disrupted the general appearance of the household, and, therefore, should not only correct the specific disturbance he created in the household but should also improve its overall physical appearance. For example, a patient who throws a chair or turns over a table or bed should not only restore that object to its correct position but should straighten all other chairs, tables or beds on the ward as well as related objects.

Social reassurance (apology) training for annoying or frightening others

A second general class of disruptive behaviors are those that annoy or frighten other persons even when no property damage is done. The nature of this disruption is psychological, rather than physical, in that fear and apprehension have arisen. The logic of the Restitution rationale suggests that the offender should eliminate this fear, and suggests doing so by requiring the offender to reassure all fearful individuals that the misbehavior would not be repeated. The procedure developed for correcting this psychological disturbance is designated as "Social Reassurance Training" during which the offender is required to apologize to all persons present. A special problem arises when dealing with largely uncommunicative patients as to how they can be required to verbally apologize. Such patients could be required to use gestures.

Oral hygiene training for self infection

A third general class of disruptive behaviors are those behaviors which cause the offenders to be exposed to potentially harmful microorganisms through unhygienic oral contact such as by biting people or chewing objects. In line with the Restitution rationale, an Oral Hygiene Training Procedure should be developed which would consist of cleansing the mouth with an oral antiseptic.

Medical assistance for physical aggression

A fourth general class of disruptive behaviors are the various forms of aggression that result in injury of a person. Since the disturbance caused by the aggression here is medical, a Medical Assistance procedure should be developed which requires the offender to assist in providing medical treatment for his victim. The offender should assist in cleansing and medicating the wound, and in filling out the necessary reports. For the non-verbal offender who could not speak or write, head gestures in the appropriate direction could still be required to indicate agreement or disagreement with the information in the report.

Quiet training for agitation (bed rest)

A fifth general class of disturbing behaviors are those that create a general commotion (such as shrieking or screaming). The disturbance here is that the sounds and noises distract and disturb those within hearing range. The Restitution rationale suggests that the noisy disturbance should be corrected and compensated for by a period of exceptional quiet. Accordingly, a Quiet Training Procedure should be designed in which the patient goes to a remote bedroom area where the shouting could not be heard and be required to remain quietly on a bed for a period of time before being allowed to return to the original area where the commotion was created.

The present study attempted to eliminate three classes of aggressive-disruptive behaviors: the destruction of property, physical attacks directed at others, and screaming episodes. Each of the five general restitution procedures were used singly and in various combinations as dictated by the specific nature of the disruption.

METHOD

Recording and programming

Restitution Training was conducted by a trainer during the first few days during which he concurrently instructed two or three selected attendants from the patient's ward in the training techniques. When these selected attendants demonstrated competence in conducting training, they were designated as behavioral coordinators and were responsible for training the remaining ward staff. As each attendant performed the Restitution Training to the behavioral coordinator's satisfaction, that attendant was certified as a "trainer". A list of certified trainers was posted in the ward nursing station and updated as each attendant was trained. When several attendants had been certified, Restitution Training was possible on a 24-hr basis. A specific certified attendant was assigned to each shift with different attendants being assigned on different days (see Individual Responsibility Rule and Job Rotation Rule in Ayllon and Azrin, 1968). An alternate trainer was also designated on each shift as a precaution against unanticipated absences of the trainer from the ward. A daily record sheet was provided on which the trainer listed the nature and time of occurrences of a disruptive event and the nature and time of the Restitution Training given. Trainers wore pocket timers (Foxx and Martin, 1971) which were set at the beginning of a training session. The coordinator also set his timer at the beginning of a session, but for 5 min less, to remind him to be present during the final 5 min of training. Each recorded instance was attested to by two attendants, the trainer and the alternate or the trainer and the coordinator, thereby providing a measure of observer reliability. The daily record sheets were routed to the supervising nurse, the ward treatment director and the nursing division director (for a full description of this routing procedure, see Azrin and Foxx, 1971). This routing procedure provided the supervisors daily feedback as to the course of training.

STUDY I

Patient

Ann was a 50 year old profoundly retarded female, IQ of 16 and hospitalized for 46 years. She also had several physical disabilities including epilepsy, impaired hearing, chronic asthma, no muscular control of her left hand and only thumb and index finger control of her right hand. Her verbalizations were limited to the single phrase "I want to eat" randomly repeated during the course of a day. Ann had been a major behavior problem throughout

her long hospitalization, primarily because she damaged furniture by throwing and overturning beds, chairs and tables. This behavior was first recorded at the age of 13 and continuously appeared thereafter in her hospital records. The high frequency and unpredictability of object throwing made it impossible to include Ann in off-ward or educational activities and caused the ward staff to spend considerable time repairing and straightening up furniture. Several reductive techniques had been used in attempting to eliminate furniture throwing including time-out, physical restraint, and requiring Ann to restore overturned furniture to its correct position. None of these reductive techniques had been successful in eliminating the behavior.

Procedure

A behavioral program that required Ann to correct the disturbance by righting the furniture was in force when the authors were asked to intervene. She was also verbally chastized after each offense. These programs remained in effect as control procedures during an 8-day baseline period. An attendant on each shift was given the specific role of continuously observing Ann and recording all disturbances. Daily checks by the trainer confirmed the reliability of the baseline records.

After the baseline recording period, the Restitution program began. When Ann turned over a bed, she was given Household Orderliness training and Social Reassurance Training for a minimum of 30 min. Household Orderliness Training required Ann to turn the overturned bed(s) back to its correct position and remake the bed completely and neatly; she turned beds over with such force that the bedding was usually strewn all over the floor. She then smoothed out, straightened, pushed against the wall, and fluffed the pillows, of all other beds on the ward. When Ann turned over a chair or table, she was immediately required to straighten all tables and chairs on the ward, wipe off all furniture with a damp cloth, and empty all trash cans. When she turned over a table containing food, she was required to clean the entire dining room after sweeping and mopping up the debris. Since she failed to follow the trainer's requests initially, Graduated Guidance of her limbs was given. Also, she did not appear to know how to make beds and arrange furniture. Consequently, the Graduated Guidance procedure was instructional as well as motivating. Social Reassurance Training required Ann to apologize to the individuals whose beds or chairs she had turned over and to all other individuals present on the ward, all of whom were usually apprehensive because of her episodes. Although she was essentially non-verbal, she was able to move her head in the appropriate direction (up and down or sideways) when asked if she was sorry for what she had done and whether she intended to create another such disturbance.

RESULTS

Figure 1 shows that in the 8 days before full Restitution Training, Ann threw about 13 objects per day whereas after 2 weeks of training she averaged only 1 per day. After 11 weeks of training, object throwing was eliminated and remained at a zero level during the remaining month of the study. The records revealed (not shown in the figure) that before training about two to three objects were turned over per episode whereas only one object was thrown per episode after training. During the third and fourth weeks of training, the number of objects thrown increased to between 2 and 3 per day. This increase was attributable to the presence of a new trainer who did not follow the stated Restitution procedure but rather modified it by praising Ann for corrective acts rather than speaking neutrally and

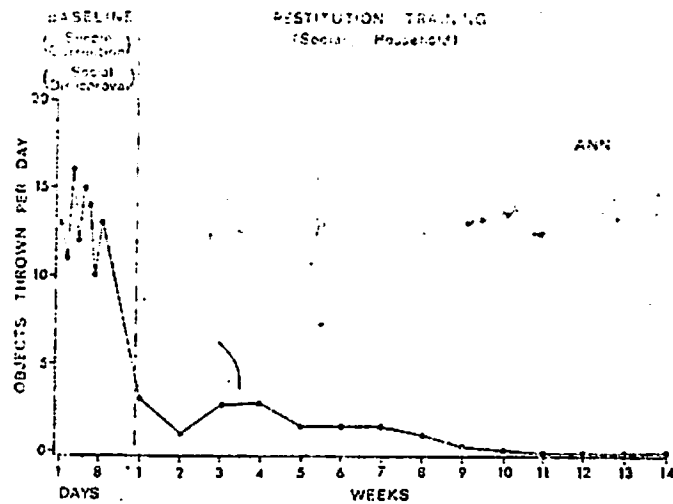


FIG. 1. The effect of the combined Restitution Training procedures of Social Reassurance and Household Orderliness Training on the number of objects thrown by an institutionalized retarded female. Each data point represents one day in the baseline period and one week in the Restitution Training period. During the baseline period, the resident was reprimanded, "social disapproval" and required to correct the position of each disturbed object "simple correction". The arrow indicates a period when training was conducted improperly by one of the trainers.

by cajoling her instead of using the Graduated Guidance Training when she failed to follow a request. After the new trainer adopted the prescribed Restitution procedure, the number of thrown objects decreased immediately (the fifth week), and continued to decline thereafter. During training days 35-49, the records showed that Ann discriminated among the various daily trainers, as she threw objects only on those days when certain attendants were on duty. Consequently, certified staff members were assigned from day 50 to be present whenever a training session was conducted. The frequency of throwing declined thereafter. During days 49-56 object-throwing occurred only in the early morning hours between 5:30 a.m. and 6:30 a.m. when the night shift could not conduct restitution training since they were completely occupied with other duties. To solve this problem a trainer arrived at 5:30 a.m. starting on day 57. The behavior immediately declined during this week and the three objects thrown during that week were thrown before 5:30 a.m. When a trainer began arriving even earlier, furniture throwing in the early morning ceased completely. The only two throwing episodes after the ninth week consisted of her throwing a mop pan and a stack of food trays, both of these objects having never before been disturbed. After Restitution Training for these two disruptions, Ann did not throw any objects during the final month of the program.

Ann often remained passive or kept her limbs rigid during the initial training efforts and therefore required frequent Graduated Guidance training during the first few days. As training progressed Ann became more active, stopped resisting the manual guidance and became quite proficient at making beds. The Graduated Guidance training was rarely needed after the 7th week of training.

STUDY II

Patient

Joan was a 22 year old profoundly retarded female with an IQ of 8. She was one of nine children all mentally defective, as was also her institutionalized mother. Joan was institutionalized at the age of 14 largely as a result of reports by neighbors that Joan had attempted to kill her siblings. Joan had recently been transferred to this facility from another hospital where her records during those eight years contained 134 incidents of aggression including biting, tearing off other individuals' clothing, scratching the eyes of other residents, banging their heads and reaching under the dresses of female employees and residents. In attempts to treat her aggression she had received 67 shock treatments and as much as 1500 mg of Thorazine combined with other medication daily. In the three months since her transfer there were 28 recorded, and many unrecorded, incidents of aggression. These attacks were of two types: either actual bites on the arms, legs and heads of residents and attempted biting toward employees or grabs at the crotch area of female employees. Physical intervention to protect attacked individuals always resulted in Joan's aggressing toward the intervening person. Employees were often successful in avoiding the bites or grabs but were frequently scratched in their attempts to escape or restrain her. The most common procedures for dealing with these attacks were to place her in an isolation room or to place over her upper torso a mesh restraining bag which was tied at the top and bottom thereby restraining her arm movements. These attempts were unsuccessful in reducing the frequency of aggression and the unstated ward policy was to avoid Joan, never to leave other residents unattended in her immediate vicinity, and to exclude her from all normally scheduled social activities.

Procedure

A baseline record was taken for 5 days during which Joan was instructed each morning not to attack anyone. The existing ward program had been to verbally reprimand Joan when attacks occurred and place her in a time-out room for 15 min. This program remained in effect during the baseline recording period. During the baseline period, inspection of the ward reports of residents and employee injuries confirmed the reliability of the baseline records. After the 5-day baseline, the time-out contingency was discontinued but the daily reminder not to attack was kept in effect.

Immediately following a biting episode, Oral Hygiene Training was given for 10 min during which Joan's mouth was cleansed with a toothbrush soaked in an oral antiseptic. When actual tissue damage resulted from a bite, Joan was given Medical Assistance Training during which Joan washed the bitten area, applied an antiseptic solution, bandaged the area, and nodded her head affirmatively as each line of the hospital incident report was read aloud to her. Social Reassurance Training was given after crotch-grabbing and biting episodes since staff and resident apprehension was great following these personal attacks. Since Joan was considered to be nonverbal, she was trained by the Graduated Guidance procedure to nod her head appropriately in answering the trainer's questions regarding her intentions concerning future attacks. Joan was also required to lightly and continuously stroke the trainer's back in assurance that the incident would not be repeated. The combined Restitution Training procedures lasted a minimum of 30 min. If at any time Joan attempted to aggress toward the trainer, the Restitution Training was scheduled to recycle for another 30 min.

RESULTS

Figure 2 shows that Joan was attacking about six times per day during the 5 days of baseline recording. When Restitution Training was introduced, attacks decreased immediately and were at a near-zero level after 2 weeks and remained near zero during the remaining 11 weeks of training.

After the second week of training, attacks occurred only during off-ward activities where training had never before been given, or during genuinely demanding social situations to which Joan was unaccustomed. Joan stopped attacking completely even in those situations

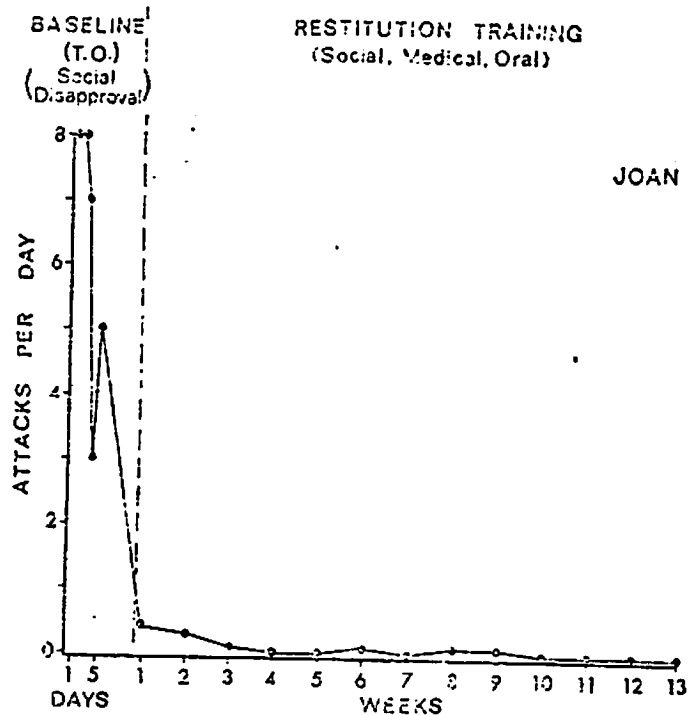


FIG. 2. The effect of the combined Restitution Training procedures of Social Reassurance, Medical Assistance, and Oral Hygiene Training on the number of attacks by an institutionalized retarded female. Each data point represents one day in the baseline period and one week in the Restitution Training period. During the baseline, the resident was reprimanded "social disapproval" and put in a time-out room "T.O." after each attack.

after continued exposure to them. During the baseline recordings, about three-fourths of the attacks were bites or biting attempts and the other fourth were grabs toward the crotch area of female employees. Of the nine recorded attacks during the 13 weeks of training, four attacks were attempted grabs, four were bites on residents' arms and backs and one was an attempted biting of an employee.

At no time during Restitution Training did Joan attempt to attack the trainers. She did resist the Oral Hygiene Training procedure somewhat by clenching her teeth and moving her head away from the toothbrush. Otherwise Joan was extremely compliant during all phases of training and in most instances responded quickly to all the trainers' verbal requests with minimal need for the manual guidance training. As the frequency of attacks decreased, staff and residents alike began interacting with Joan. Many female employees, who had

in the past been attacked and thus had avoided coming too close to Joan, began working with her on an individual basis. The ward activity therapists, also less fearful, began including Joan in the off-ward activities such as movies, arts and crafts class and walks on the hospital grounds. One particular female employee taught Joan to say a few words suggesting that her assigned IQ was an underestimate. As a result of the elimination of aggression and Joan's newly acquired speech, the ward staff planned to transfer her to a ward of higher functioning patients.

STUDY III

Patient

Patricia was a 56 year old female who received extensive brain damage in a car accident four years previously. Upon regaining consciousness, she became violent toward herself and others and was admitted to the state hospital. Associated with her brain damage were temporary losses of bladder control, memory, and the ability to walk and speak. Given intensive physical and speech therapy, Patricia became less combative, regained continence, learned to walk again and to speak but only in short, choppy sentences. Her memory remained severely impaired, since she was unable to recall a name or word after a delay of only a few seconds. Patricia was the major behavioral problem on her ward since she screamed and overturned furniture in the dayroom several times per day. She also screamed for hours in the middle of the night, arousing the other patients who in turn became agitated. Many attempts had been made by the authors and the ward staff to control Patricia's screaming. Direct physical restraint only served to elicit physical aggression. Similarly ineffective were techniques such as time-out, ignoring her screams and rewarding quiet periods, programming numerous activities into her daily routine, and the prescribing of tranquilizing drugs. The longest recorded period of no screams during the past year had been 2 days.

Procedure

During the baseline recording period, Patricia's screaming and throwing were recorded for 7 days by a special observer who was present throughout the day. Comparisons between the ward staff's reports and the observer's recordings confirmed the reliability and validity of the records. Prior to the baseline recordings, Patricia had been verbally reprimanded and told to leave the dayhall when she screamed. This procedure remained in effect during the baseline recordings but was discontinued when the Restitution program began.

At the first indication of a scream, Patricia was given Quiet Training by telling her that she was causing a commotion and must now leave the room and learn to be quiet. She was immediately taken to her bed for 15 min during which she was continuously reminded by gestures to be calm. If she screamed at any time while on her bed or in her room, the period of Quiet Training was begun again.

When Patricia was quiet for the required period of time, she was returned to the ward dayroom and was given Social Reassurance Training during which she apologized repeatedly to all of the staff and patients individually for having screamed. Patricia was then given Household Orderliness Training that included arranging magazines, wiping tables and emptying ashtrays as well as rearranging the item that was thrown. Since furniture throwing always followed screaming, the Household Orderliness Training procedure was given even in those instances where the tantrum was interrupted during the first screams. The Graduated Guidance technique was used to motivate her to perform these activities as rapidly as possible. The Restitution Training procedures of Social Reassurance and Household Orderliness Training lasted a minimum of 30 min. When she attempted to bite someone, she was

given Oral Hygiene Training for 5 min prior to which she was taken to her bed and given Quiet Training for agitation. If actual biting or scratching occurred, Patricia was given Medical Assistance Training during which she assisted in medicating the wound and filling out a written report of the attack. Since Patricia was verbal, she was required to spell out each word in the report.

The ward staff felt that Patricia's problem would be sufficiently under control if she terminated screaming upon being told to do so. This control was, therefore, accepted as the ultimate objective of the Restitution procedure. After the fourth week of training, Patricia was first given a reminder to be quiet. If she stopped screaming immediately after the reminder, no restitution was given.

RESULTS

Figure 3 shows that Patricia averaged 10 screaming episodes per day prior to the institution of Restitution Training. After one week of training, the screaming episodes were

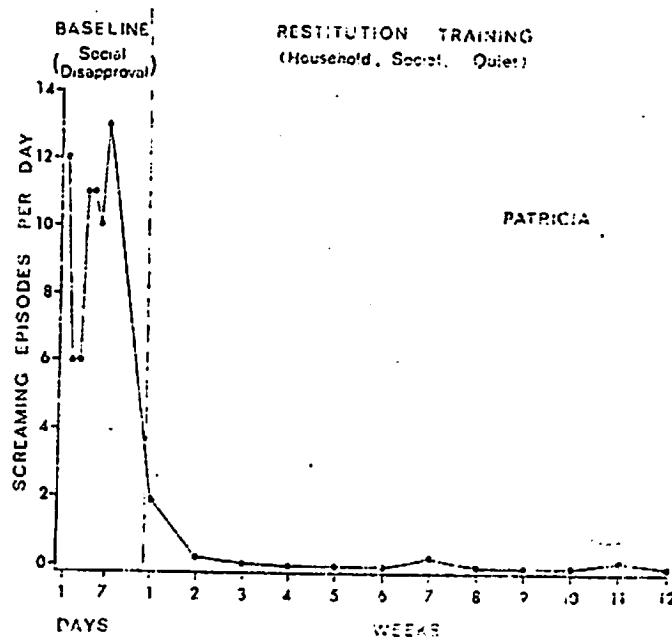


FIG. 3. The effect of the combined Restitution Training procedures of Household Orderliness, Social Reassurance, and Quiet Training on the number of screaming episodes of an institutionalized brain-damaged female. Each data point represents one day during the baseline period and one week during the Restitution Training period. During the baseline period, the resident was reprimanded for each screaming episode.

reduced by over 80 per cent and were near zero after 2 weeks of training. The four screaming episodes during the remaining 10 weeks of training occurred when the entire treatment staff was occupied with other duties.

In the first few days of training, Patricia would often interrupt her Restitution Training by screaming thereby causing the training period to begin anew. On several occasions Patricia's meals were delayed since dining had begun before she had finished her training. She ate her meal upon completing training.

During the initial two days of training, Patricia was quite combative whenever Quiet Training was imposed. The first day of training she attempted on five occasions to bite the Restitution trainer during the phase of the Quiet Training procedure where mild physical restraint was used in teaching her to lie quietly on her bed. The following day she made one successful and one unsuccessful biting attempt. On the second day of training, she scratched the trainer's hand. After receiving Restitution Training for physical aggression no attempted biting or scratching occurred thereafter. Following these brief outbursts of aggression, Patricia became progressively easier to control with each passing day. After she began willingly lying on her bed during the third week of training, Quiet Training was eliminated and she was only required to walk to her room and remain quiet for 1 min. During this same week, Graduated Guidance was no longer required as Patricia promptly followed the trainer's requests.

Several constructive developments emerged during the course of the Restitution Training. Many other patients began to advise her not to scream so that she would avoid having to straighten the dayroom. The other residents and staff also began socially interacting with her more frequently and included her in their discussions, ward activities and walks off the ward. Patricia also began initiating social contacts with others and began spontaneously telling the ward staff that she wasn't going to scream anymore. The ward staff's casual observations during the latter stages of training were that Patricia appeared more relaxed, began taking an interest in her personal appearance, and expressed greater interest in activities around her.

DISCUSSION

The results showed that the Restitution training procedures were effective in eliminating several disruptive-aggressive behaviors. The effects of Restitution Training were immediate and endured over several months. Disruptive behaviors were eliminated for a severely brain damaged individual and for two profoundly retarded individuals with extreme physical disabilities, as much as 45 years of institutional care, deliberate refusal to participate in training, locomotor and manipulative disabilities, and no language.

Several lines of evidence point to the Restitution program as the specific reason for the decrease of disruptive behavior. The passage of time did not cause the decrease since the baseline records showed no such decrease. The sudden attention to the patient was not the reason for the decrease in disruptive behavior since considerable attention was given during the baseline records. Nor was the attention to the symptom responsible as evidenced by the continued aggression by the resident (Joan) who was already being admonished each day during the baseline period not to aggress. Simple correction, repeated feedback, or social disapproval for the aggression were not responsible as seen by the continued disruption during the baseline period even though all three residents were being reprimanded verbally upon each occurrence of the disruption. The decrease of the disruptions was not caused by a general attitude change, either by the resident or the staff as seen by the continued disruptions in the presence of an inexperienced trainer, at specific hours or places when the trainers were absent, and changes in the nature of the disruptions when the old forms became inhibited.

The results permit comparison of the Restitution procedure with other commonly used procedures. The Restitution program decreased aggression below the baseline level that was achieved by social disapproval, by instructions, by confinement in a time-out room, or by only brief correction of the disturbance. Also, positive reinforcement had been available for competing non-aggressive behaviors during the baseline period in the form of scheduled

social activities, but the disruptive nature of the aggression prevented their use. The Restitution procedures were more effective than the procedures used of time-out confinement, social disapproval, instructions, and simple correction. Further, the Restitution procedure was re-educative, making it more acceptable to those who view time-out or shock as solitary confinement or retribution. (Several staff members expressed their preference for the Restitution training programs over ward time-out rooms.)

The Restitution training had been designed to incorporate several factors that would make for greater effectiveness and social acceptability. The results indicated that many of these aims were achieved. The procedure was educative in that the patients learned to make beds and to respond sociably to others. The procedure removed the probable source of reinforcement for the disruption by requiring the disruption to be corrected immediately. The procedure incorporated a time-out period since meals were delayed and access to a favored location was prevented by the need to be in training. The patient, and not the staff, was required to expend considerable effort in correcting the disturbance. The educator could not be arbitrary since the nature of the training was directly related to the nature of the disruption. The training period was not viewed as means of inflicting discomfort but as a means of educating the desired pattern of behavior. As was intended, the trainers were motivated to conduct training as seen by the trainers' voiced satisfaction that training was educative and that the patient was now responsible for correcting his own offenses. The requirement that training be extended in duration was found to be important as seen on those occasions when training was observed to be conducted for less than the 30 min minimum duration. Following these shorter training periods, the frequency of disruptive behavior on subsequent days remained static or increased. The physical effort requirement did appear to be motivating in that the patients often required reminders to complete their training.

Several studies have reported procedures that contain components of the Restitution procedure. Kraft (1970) successfully treated a case of compulsive shoplifting by requiring the patient to send the correct amount of money for a stolen item to the pilfered shop. Azrin and Foxx (1971) required adult retardates receiving toilet training to clean up traces of their accidents, to wash their soiled clothing, to shower themselves, and to obtain fresh clothing themselves. In teaching autistic children to put objects in a box, Lovaas (1968) required the correct response to be made even if the child had not made the response at the desired time. DeCocco (1968) has hypothesized that a restitutive procedure might be effective for reducing classroom misbehavior, as did also Singer (1970) in a discussion of possible procedures for dealing with criminal behavior. The present results confirm the utility of these suggestions and define the conditions under which the procedure will be effective. Precedent for the Restitution rationale need not be sought solely from clinical reports. The natural reaction to a normal person's disruptions is the expectation that the individual will spontaneously correct the situation.

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