Overcorrection: An Effective Procedure That Failed

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ABSTRACT

An overcorrection procedure was used to modify the high rate headstriking behavior of a 10-year-old retarded child. While the treatment was effective in reducing the behavior, the staff ultimately abandoned the procedure because it could not be practically implemented in their applied setting. It is suggested that while technically effective treatments are available to treat such behavioral disorders, greater attention must be paid to staff response cost and implementation factors which may deem even effective treatments impractical in applied situations.

Efforts to reduce the occurrence of self-injurious activity in children and adults using aversive contingencies have been widely described in the clinical literature (Bucher & Lovaas, 1968; Corte, Wolf & Locke, 1971; Lovaas & Simmons, 1969; Risley, 1968; Smolev, 1971; Tate & Baroff, 1967). However, therapeutic utility ultimately depends upon both treatment efficacy and the ease with which the treatment procedures can be practically implemented in applied settings. In the case of some aversive contingencies such as shock, ethical and legal restrictions frequently prohibit their use in many settings, rendering a technically effective procedure impractical since it cannot be implemented.

More recently, "overcorrection" procedures have been advocated for the treatment of a wide variety of self-injurious, self-stimulatory and disruptive behaviors (Azrin, Kaplan & Fox, 1973; Azrin & Wesolowski, 1974; Epstein, Doke, Saqwall, Sorrell & Rimmer, 1974; Fox & Azrin, 1972; Fox & Azrin, 1973; Harris & Romanzcyk, 1976; Kelly & Drabman, in press; Webster & Azrin, 1972). Since overcorrection entails a repetitive, tedious, moderately aversive forced motor sequence which qualitatively resembles, but is quantitatively more exaggerated than the original act, it functions as a punisher, but without raising the ethical/legal concerns accompanying techniques such as shock. The technique has been accorded much praise. However, overcorrection may be a relatively difficult and tedious procedure for staff to routinely perform, raising the question of whether "response cost" to staff might limit the technique's utility in applied settings. If this is the case, research on these social issues is important so that behavior therapists will not recommend the technique in those cases where it is likely to be clinically appropriate, but a failure in applied situations. Additionally, all previous studies of overcorrection have used simple tallies or counts of the target behavior as a measure of treatment effectiveness. Since overcorrection procedures require the subject to perform relatively time-consuming forced motor responses, during which time the target behavior cannot physically occur, simple counts of the target behavior yield spuriously confounded data on treatment effectiveness.

Therefore, we wished to develop a method of measuring the effects of overcorrection that was not confounded by the fact that the procedure itself is time-consuming and prevents response occurrences when it is being applied.

METHOD

Subject

The subject was a 10-year-old girl with a Stanford-Binet IQ of 33 and a Vineland Social Maturity Quotient of 55, who had been striking both sides of her head with her fists for about 3 years. The frequency and intensity of this behavior resulted in mutilation of both ears. In the past, to prevent the response, several procedures had been unsuccessfully implemented, including scolding, reinforcing her for not hitting, and tying the subject's hands. The latest of these was to provide her with a football helmet. However, when the helmet was removed, self-striking would immediately recur. As a result of the self-injurious activity, the subject was terminated from a special education class and enrolled for specialized training at a developmental center. Teachers and staff at the center had some experience with the implementation of behavioral techniques.

Procedure

Initial baseline periods consisted of removing the helmet which the subject wore at all times and observing the frequency of head strikes occurring in 60-second sessions. To ensure the child's safety, only one 60-second assessment was made on each of five consecutive baseline days. Previous reports indicated the head striking would continue for extended periods. Various toys were always within the subject's reach, and the teacher did not interact with the child during these baseline sessions.

Overcorrection consisted of manually raising and lowering the child's arms to and from her head 20 times contingent upon each head strike during treatment sessions. Immediately following each head strike (and preceding overcorrection), a sharp "no" was shouted to cue the punishment sequence. Periods without head striking were reinforced with praise, smiling and touching. The subject's teachers performed overcorrection treatments in the regular classroom. Initially this was done when other children were not present.

To assess treatment effectiveness, two dependent measures were utilized:

(1) Elapsed time needed to accumulate 60 seconds without self-injurious activity. Because overcorrection itself takes time to perform and self-injurious activity cannot physically occur during overcorrection, simple tallies of head strikes during treatment sessions may yield spuriously treatment results. Two stopwatches were always started when the helmet was removed. The first timer was stopped whenever overcorrection was begun and was restarted at the conclusion of the 20 overcorrections. Thus, it was cumulatively measuring each time interval when no head striking occurred and when the strikes were not physically restrained by the

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treatment procedure. The second timer ran continuously until 60 seconds had elapsed without head striking. This dependent measure, then, showed the actual elapsed time necessary to accumulate 60 seconds when self-injurious activity could have occurred but did not.

(2) Number of strikes. The actual number of head strikes which occurred during each session was tallied. During baseline, this was the number of strikes during each 60-second observation period. During the treatment phase, it was the number of strikes until the 60 seconds had accumulated on the second timer.

Sixteen overcorrection treatment sessions followed the baseline. The length of treatment sessions was then systematically increased (to 10 minutes, 20 minutes, 1 hour, and finally 2 hours), and only the number of strikes was recorded. When session duration had been increased to 20 minutes, the subject was permitted to resume usual classroom activities but was closely observed as she did them. The classroom consisted of a teacher, a teaching assistant and 10 children. Head striking during these extended sessions was overcorrected on a variable ratio schedule averaging the overcorrection of every third strike. The variable ratio schedule was introduced in order to begin withdrawing the punishment.

RESULTS

Reliability

Head striking was defined as any contact between one or both fists and the subject’s head. Reliability of recording was determined by having a second observer (an aide uninvolved in the treatment) independently count the number of head strikes and independently record the times on each stopwatch. Reliabilities were assessed during ten (30%) of the sessions. Interrater agreement on both measures was 100 percent. The high reliabilities were probably achieved as a result of the unambiguous and discrete nature of the head-striking behavior.

Effectiveness of Overcorrection

As Figure 1 indicates, removing the subject’s protective helmet during the baseline phase resulted in immediate high rate ($\bar{X} = 27$ per 60-second session) of self-striking activity.

Overcorrection was begun on day 6. Inspection of Figure 1 reveals that while initially more than 20 strikes were recorded during the daily 60 seconds when self-injurious activity could occur, the rate of striking was rapidly reduced. Beginning on day 17, the subject refrained from all head striking during the minute following helmet removal.

Figure 1 also presents elapsed time data for the same treatment sessions (days 6-21). On the first treatment day, it required 760 seconds to accumulate the total of 60 seconds without head striking. The elapsed times decreased progressively until day 17, when it took 60 elapsed seconds to reach 60-seconds criterion without self-injurious behavior (SIB); on this day, no head striking occurred.

When no head striking had occurred for 5 days during the 1-minute assessments, the helmet-off session time was increased to 10 minutes. Once again, no self-injurious activity occurred. Twenty-minute and 1-hour daily observations of supervised activities revealed negligible head-striking activity during these periods. During the 1-hour periods, for example, the initial rates of 8-7 SIB’s were reduced to zero. The teacher continued to provide praise and attention for brief periods without head striking.

When the time period was extended to 2 hours, it became difficult for the teachers to continue close surveillance of the child, given their other responsibilities. During the first 2-hour period, under less close observation, 91 head strikes were recorded. On the second day, 90 SIB’s occurred. At this point, the teachers and staff felt unable to continue the program; and it was discontinued. A 6-month follow up revealed that the subject was still head striking at rates identical to those during the initial baseline when the protective helmet was removed.

DISCUSSION

These results provide support for the treatment effectiveness of overcorrection when applied to high frequency, hard intensity self-injurious activity in a 10-year-old retarded child. Self-striking behaviors, occurring at a rate of almost one blow every 2 seconds at baseline, were rapidly reduced when overcorrection was made contingent on them. In fact, the speed with which head striking was eliminated appears far superior to slower-acting procedures such as time out, extinction and the reinforcement of behaviors incompatible with self-injury (Smolev, 1971; Gardner, 1969). Since the aim of these interventions is to rapidly reduce SIB (and thus prevent further self-damage), overcorrection appears effective in this respect.

However, if a technique cannot be practically implemented in applied settings, its utility is more limited. The application of shock to SIB’s is often restricted for ethical or legal reasons. On the other hand, the limitation of overcorrection in the present study was one of high “response cost” to the implementers. Specifically, the staff reported that they were not able to maintain the continued surveillance which would be necessary to ensure generalization of response suppression. As the SIB response rate was decreased and the time intervals were extended, the teachers resumed more of their other required activities. However, when head strikes did occur, the teachers had to abandon their other pupils to administer punishment. Finally, the staff reported it was physically difficult to perform this technique on a 10-year-old child who could offer substantial muscular resistance to the forced arm raises. This was probably the major reason for the program’s failure. Discontinuance had little to do with the staff’s judgements of the treatment’s effectiveness. The teachers simply did not like to perform the procedure. Although we strongly reinforced their efforts, the response cost of overcorrection outweighed any reinforcers we could practically provide.

Previous applications of overcorrection in specialized environments have required concerted staff effort and considera-
ble expenditures of time which are not practical in many settings. The treatment of self-injurious behavior using overcorrection has also employed very young subjects who could offer little physical resistance to the procedure (Harris & Romanczyk, 1976; Kelly & Drabman, in press). Unfortunately, in many applied settings, staff time is not unlimited and even highly effective techniques may not be implemented if they are not practical. It would be useful for future practitioners to take these response cost aspects into account and inform the mediators of the potential difficulties when designing a program. Once a program has failed, a certain amount of credibility is lost, and staff are less willing to try further suggestions.

This also raises the more general problem of translating effective behavioral techniques or procedures, which may have been experimentally derived with an inordinate amount of attention, effort, time, and enthusiasm, to applied settings with fewer pragmatic resources. Presumably, behavior therapists have the procedural repertoire to handle a wide range of problem behavior if sufficient environmental control can be achieved to implement the techniques. Since more potent punishers were not permitted in this facility, failure was unlikely to be avoided, but our failure demonstrates the need for future research which attempts to increase the practical utility of clinically effective techniques. In particular, research which examines more efficient means of generalizing response suppression of self-injurious behavior across settings in applied facilities seems appropriate. For interventions which require a great deal of staff time, the use of peers as treatment intervention agents (Drabman, 1973) might also prove highly useful.

REFERENCES

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