

*USING A STIMULUS CORRELATED WITH REPRIMANDS TO SUPPRESS
AUTOMATICALLY MAINTAINED EYE POKING*

SCOTT D. MCKENZIE, RICHARD G. SMITH, JASON N. SIMMONS, AND
MICHAEL J. SODERLUND

UNIVERSITY OF NORTH TEXAS

A functional analysis indicated that chronic eye poking exhibited by a woman with profound mental retardation persisted in the absence of social contingencies. We initiated a procedure in which a therapist delivered a punisher (mild reprimand) contingent on eye poking in the presence, but not the absence, of a neutral stimulus (wristbands). Subsequently, eye poking was suppressed when the participant wore the wristbands in novel environments without the reprimand contingency.

DESCRIPTORS: generalization, punishment, reprimands, stimulus control

Although appropriate generalization of treatment outcomes is critical to the success of behavioral interventions, there is a paucity of applied research addressing generalization of the effects of punishment procedures (O'Donnell, Crosbie, Williams, & Saunders, 2000), and critiques often cite reported failures of punishment effects to maintain or generalize (Donnellan, LaVigna, Negri-Shoultz, & Fassbender, 1988). Piazza, Hanley, and Fisher (1996) implemented a treatment package that included punishment in the form of reprimands, noncontingent food access, and response interruption to reduce cigarette-butt pica exhibited by 1 participant and a stimulus control procedure to generalize treatment effects to novel settings. During treatment sessions, the therapist gave a purple card to the participant, instructed the participant not to touch the cigarette butts, to eat the available food, and to engage in a prespecified activity. If pica occurred, the therapist entered the

room, delivered the verbal reprimand “no butts,” and blocked the response if necessary. During stimulus control probe sessions, either a purple or yellow card was present and no programmed consequences were delivered for pica. Pica decreased to zero across settings in the presence of the purple but not the yellow card. The authors interpreted this finding to indicate that the purple card had acquired S^{Δ} properties for pica.

Maglieri, DeLeon, Rodriguez-Catter, and Sevin (2000) used a similar procedure to suppress covert food stealing in a woman with moderate mental retardation and Prader-Willi syndrome. By reprimanding consumption of food items that were in a container marked with a sticker, the participant learned to consume only unmarked foods. As unauthorized consumption decreased in training conditions, probes were conducted in other environments with other types of food. Food stealing and consumption from containers marked with the sticker were eliminated in all environments.

The current study evaluated the effects of mild verbal reprimands on chronic eye poking and also investigated whether a previously neutral stimulus (set of wristbands), worn by the participant during intervention but not baseline conditions, would decrease eye poking in novel environments in which the reprimand contingency was inoperative.

This study was conducted in partial fulfillment of the requirements for the MS degree by the first author. We express our appreciation to the administration and staff of the Denton State School for their support as well as members of the Behavior Analysis Resource Center for their assistance in carrying out this research.

Address correspondence to Richard G. Smith, Department of Behavior Analysis, P.O. Box 310919, University of North Texas, Denton, Texas 76203 (e-mail: Rsmith@pacs.unt.edu).

doi: 10.1901/jaba.2008.41-255

METHOD

Participant and Setting

Diane, a 46-year-old woman who had been diagnosed with profound mental retardation, participated in this study. She resided in a large residential facility. She displayed no expressive language, but responded to simple one- and two-step requests.

Records indicated that Diane had engaged in severe and chronic eye poking throughout her residential placement. Eye poking had produced serious damage to her eyes (impaired vision, dislodgement of one of her eyes from the socket on at least two occasions). Anecdotal reports and informal observations conducted prior to the study indicated that eye poking occurred almost continuously across a range of settings, including Diane's residence, worksite, and canteen (a cafeteria at the residential facility). Several reinforcement-based interventions implemented prior to the study had failed to produce clinically significant reductions in eye poking. Functional analysis results (available from the second author) indicated that eye poking persisted in the absence of social contingencies (mean duration of eye poking across conditions was 1.03 s per minute in attention, 0.13 s per minute in play, 0 in demand, and 6.6 s in alone).

Sessions were conducted in three environments: an observation room at the treatment facility, the canteen, and the living area of Diane's home. The observation room was the site for the functional analysis and was the treatment environment during treatment. The room was 3.04 m by 3.04 m, with a one-way mirror for the purpose of observation, and contained a bench, a chair, and a table. Materials were present as appropriate during the functional analysis. The canteen was a small, one-room cafeteria in which residents and staff purchased food, ate, and socialized. Sessions in the canteen were conducted outside mealtimes (e.g., midmornings, midafternoons). The living area of Diane's home was a large room

containing home furnishings (e.g., chairs, tables, a television). Although staff and other residents were sometimes present during sessions at the canteen and home, staff members were asked not to interact with Diane during sessions. Observers collected data as unobtrusively as possible in both the canteen and home environments (e.g., sitting at other tables in the canteen).

Diane attended sessions two to three times a week for 30 min to 90 min. Two to nine sessions were conducted during each visit. All sessions were scheduled to be 10 min long, but were extended during treatment sessions until the first eye poke was observed if it did not occur during the first 10 min.

Prior to sessions, the experimenter brought Diane to the setting and prepared data-collection equipment. Diane was observed until one instance of eye poking occurred, after which session and data-collection procedures were initiated. This procedure was implemented to insure that, in the absence of treatment, eye poking was likely to occur in the session context.

Data Collection and Interobserver Agreement

Laptop computers were used to collect data on occurrence and duration of eye poking. Onset of eye poking was scored when Diane inserted any part of her finger or thumb into either eye socket for longer than 1 s. Offset was scored when Diane's finger broke contact with her eye socket for 1 s. Data are reported as duration (in seconds) of eye poking per session.

A second independent observer recorded data during 38% of treatment and generalization sessions. In each setting, interobserver agreement was measured on at least 25% of sessions and was calculated by dividing each 10-min session into 10-s intervals, summing the total number of seconds and response occurrences scored by each observer, and dividing the smaller number by the larger (if both observers scored zero, a value of 1 was assigned). The results were summed across intervals, divided by

the total number of intervals (60), and multiplied by 100%. Mean agreement for eye poking was 96% (range, 84% to 100%).

Experimental Conditions

No wristbands. Diane was brought to the setting and, after the first observed occurrence of eye poking, was observed without any interaction for 10 min.

Wristbands (no reprimands). Diane was brought to the setting and after the first observed occurrence of eye poking, the experimenter approached her, placed two red tennis wristbands on her wrists, left the area, and remained out of Diane's field of vision for the remainder of the session.

Wristbands (reprimands). This condition was identical to wristbands (no reprimands) with the exception that after leaving the room, the therapist monitored Diane via a one-way mirror. When eye poking was observed the therapist entered the room and delivered a verbal reprimand (e.g., "Diane, stop poking!"). The therapist was to repeat the reprimand at 3-s intervals until eye poking ceased, but it was never necessary to deliver more than one reprimand. After delivering the reprimand and observing the termination of eye poking, the therapist left the room. Sessions lasted for 10 min; however, if eye poking had not occurred within 10 min (this occurred seven times), sessions were extended until a response occurred. The therapist then delivered a verbal reprimand and left the room, and the session was terminated. For those sessions, data are reported for the first 10 min (i.e., the data show zero seconds of eye poking).

RESULTS AND DISCUSSION

The duration of eye poking is displayed in Figure 1. Two baseline conditions were conducted prior to treatment. A no-wristbands condition was conducted to identify pretreatment response levels. A wristbands (no reprimands) condition was then conducted to

ascertain that the wristbands by themselves would not affect levels of eye poking prior to treatment. The mean duration of eye poking during the no-wristbands condition was 278 s per session (range, 151 s to 404 s). During the wristbands (no reprimands) condition, the mean duration of eye poking was 209 s per session (range, 24 s to 312 s). When the wristbands (reprimands) sessions were initiated, no-wristbands sessions also continued within a multielement design. The mean duration of eye poking during the no-wristbands condition was 133 s per session (range, 2 s to 402 s). During the wristbands (reprimands) condition, the mean duration of eye poking was 2 s per session (range, 0 s to 7 s).

After the reprimands effectively decreased eye poking in the treatment environment, wristbands (no reprimands) and no-wristbands conditions were introduced in the canteen and home. Following an initial no-wristbands baseline in each setting, both types of sessions continued within a multielement design. During the initial no-wristbands baselines, the mean session duration of eye poking was 83 s (range, 30 s to 180 s) and 146 s (range, 11 s to 256 s) in the canteen and home, respectively. During the multielement analysis, the mean duration of eye poking during no-wristbands sessions was 71 s (range, 20 s to 188 s) in the canteen and 114 s (range, 36 s to 243 s) in the home. During the wristbands (no reprimands) conditions, no eye poking was observed in the canteen, and the mean duration in the home was 20 s (range, 0 s to 90 s).

The results indicate that contingent verbal reprimands effectively decreased eye poking. Immediate and nearly complete suppression of eye poking was observed during the wristbands (reprimands) condition. The effects of the wristbands (no reprimands) conditions in the canteen and home environments indicated that the wristbands acquired stimulus control over eye poking. A comparison between the wristbands (no reprimands) sessions conducted prior

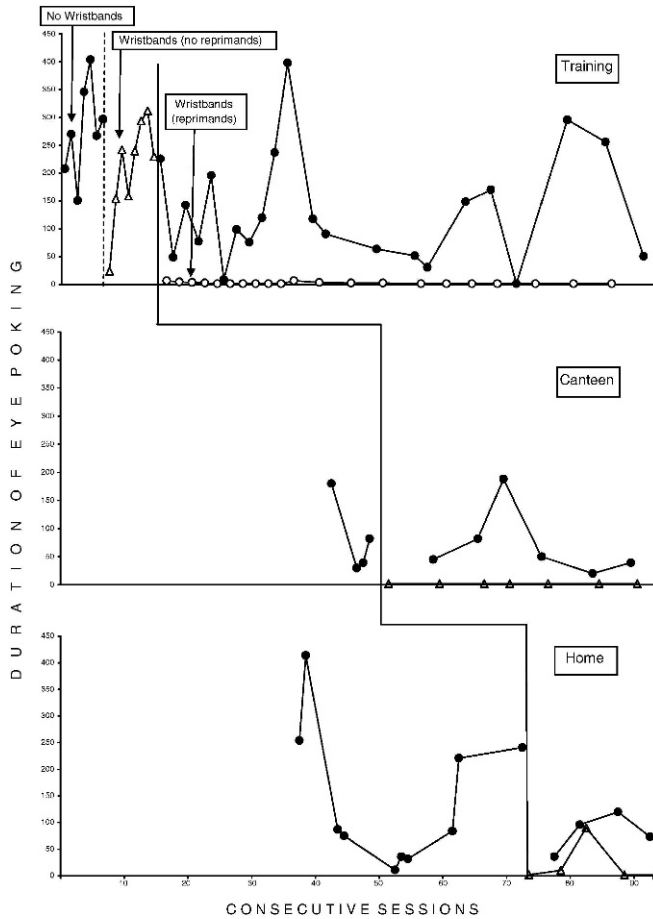


Figure 1. Seconds of eye poking across training (top), canteen (middle), and home (bottom) environments. Filled circles represent no-wristbands sessions, open triangles represent wristbands (no reprimands) sessions, and open circles represent wristbands (reprimands) sessions.

to and after treatment revealed substantial reductions in eye poking after the wristbands were associated with the verbal reprimand contingency, even though no verbal reprimands were ever delivered in the home or canteen environments. Thus, it appears that the wristbands mediated generalization of treatment effects across environments without implementing treatment contingencies in those environments.

Some limitations in the current study should be noted. First, although we attempted to isolate the effects of punishment (reprimands) for experimental reasons, such procedures should be combined with reinforcement-based procedures in clinical application. Second,

because sessions with reprimands continued throughout the study, it is unclear that wristbands would have continued to control eye poking in the absence of intermittent treatment sessions. Finally, the current data do not provide evidence about why reprimands functioned as punishment for Diane's behavior in the current context.

These findings extend the literature on generalization of punishment effects. Ackerman (1972) argued that punishment fails to generalize to settings in which the punishing agent is not present. However, results of this study as well as those of Piazza et al. (1996) are inconsistent with this claim; stimuli associated

with punishment were sufficient to decrease problem behavior when the punishing agent was absent. Also, whereas Piazza et al. conducted treatment and generalization sessions in the same setting, generalization in the current study occurred in settings in which treatment had never occurred. Finally, the outcomes show that wristbands—highly portable stimuli worn by the participant—were sufficiently salient to acquire functional control over self-injury.

REFERENCES

- Ackerman, J. M. (1972). *Operant conditioning techniques for the classroom teacher*. Glenview, IL: Scott, Foresman.
- Donnellan, A. M., LaVigna, G. W., Negri-Shoultz, N., & Fassbender, L. L. (1988). *Progress without punishment: Effective approaches for learners with behavior problems*. New York: Teachers College Press.
- Maglieri, K. A., DeLeon, I. G., Rodriguez-Catter, V., & Sevin, B. M. (2000). Treatment of covert food stealing in an individual with Prader-Willi syndrome. *Journal of Applied Behavior Analysis*, 33, 615–618.
- O'Donnell, J., Crosbie, J., Williams, D. C., & Saunders, K. J. (2000). Stimulus control and generalization of point-loss punishment with humans. *Journal of the Experimental Analysis of Behavior*, 73, 267–274.
- Piazza, C. C., Hanley, G. P., & Fisher, W. W. (1996). Functional analysis and treatment of cigarette pica. *Journal of Applied Behavior Analysis*, 29, 437–450.

Received March 31, 2005

Final acceptance December 7, 2007

Action Editor, Iser DeLeon