

*TREATMENT OF MULTIPLY CONTROLLED
PROBLEM BEHAVIOR*

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The aggressive behavior of a young boy with developmental delays occurred most frequently following a request to pick up his toys. The request ended a period of play and social interaction. This suggested the presence of multiple establishing operations. The initial treatment consisted of praise, a break, and access to the toys contingent on compliance. Results showed that aggression decreased only when we added social interaction to the break. Findings are discussed regarding treating multiply controlled problem behavior without extinction.

DESCRIPTORS: functional analysis, multiply controlled problem behavior, quality of reinforcement

Identifying behavioral function may be difficult when problem behavior occurs in situations in which multiple discriminative stimuli or establishing operations are present. For example, in the present study, the participant's aggression occurred mainly when his mother's request ended interactive play with his mother and his toys (i.e., a favorable activity) and initiated picking up the toys (i.e., an unfavorable activity). When such requests occasion problem behavior, it is difficult to identify whether the child is responding to prolong the favorable activity (i.e., positive reinforcement) or to delay or avoid the unfavorable event (i.e., negative reinforcement). This study illustrates some potential complexities involved in assessing and treating problem behavior that occurs in the context of potentially multiple controlling stimuli. It also shows how problem behavior that is difficult to ignore or place on extinction may be treated by increasing the relative

rate and quality of reinforcement associated with an appropriate alternative response.

METHOD

Participant and Setting

Don, a 6-year-old boy with mild developmental delays, was admitted to an inpatient hospital unit specializing in the treatment of severe behavior problems. Don's aggressive behavior resulted in many physical injuries to his mother and could not be ignored. His mother typically responded to his aggression by physically restraining Don. All sessions were conducted in a room (4.5 m by 6.0 m). A therapist and Don were in the room, and observers recorded data from behind a one-way mirror. Sessions lasted 10 min, and five to six sessions were conducted daily.

Dependent Measures and Data Collection

Aggression consisted of hitting, kicking, biting, and throwing objects at others. *Compliance* was defined as Don initiating the response within 5 s and completing the crite-

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rion (i.e., number of toys picked up) within 120 s of a request. Observers used a computerized data-collection procedure to record each target behavior and to calculate inter-observer agreement. Occurrence agreement (i.e., two observers recording the onset of a target behavior within 2 s of each other) was assessed during 28% of the sessions and averaged 91% and 88% for aggression and compliance, respectively.

Experimental Design

We evaluated the effects of escape and escape plus interaction in a withdrawal design for each treatment. The fourth (Sessions 21 to 24) and fifth (Sessions 30 to 32) escape phases served as baseline for the escape-plus-interaction evaluation.

Procedures

Functional analysis. A descriptive analysis (Mace & Lalli, 1991) showed that aggression occurred most frequently when Don's mother ended a period of toy play and requested that Don pick up his toys. Don's mother responded to aggression by terminating the demand, providing access to the toys, and resuming social interaction. The experimental analysis was based on the procedures described by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994) but differed in the following ways. The presumed reinforcers for each condition were presented contingent upon aggression on variable-ratio (VR) schedules (VR 2 in attention and materials, VR 5 in escape). In the escape condition, the therapist asked Don to pick up his toys after 5 min of interactive play. Contingent on aggression, Don received a 30-s break during which he had access to the toys. The escape condition served as the baseline for the treatment evaluation.

Baseline and treatment. During baseline and the two treatment conditions (escape and escape plus interaction), the contingen-

cies for aggression remained the same. Aggression resulted in a 30-s break from the task on a VR 5 schedule. Don had access to the toys during all breaks, whether presented contingent on aggression or compliance during baseline or treatment. Similarly, during all baseline and treatment conditions, compliance resulted in praise on a fixed-ratio (FR) 1 schedule. Compliance also resulted in a 30-s break on a VR 5 schedule during baseline.

The first treatment condition (escape) was identical to baseline except that breaks were presented contingent on compliance on an FR schedule (either an FR 1 or an FR 2) rather than on a VR 5 schedule. The second treatment (escape plus interaction) was identical to escape, except that (a) the therapist said, "Don, when you pick up your toys then we can play," and (b) compliance resulted in a 30-s break on an FR schedule (varying from an FR 1 to an FR 10) during which Don had access to toys and social interaction with the therapist. This interaction consisted of the therapist's modeling appropriate toy play with verbal descriptions of the movements and providing physical contact (e.g., pats on the back or head, hugs, high five). Social interaction was included because of the results of a preference assessment (Green, Reid, Canipe, & Gardner, 1991) and because the experimental analysis showed that aggression was sensitive to attention as a reinforcer.

RESULTS AND DISCUSSION

As shown in Figure 1, during the experimental analysis, aggression averaged 0.8 per minute (range, 0 to 1.7) in the attention condition, 0.7 per minute (range, 0 to 3.0) in the materials condition, and 0.4 per minute (range, 0 to 1.3) in the escape condition, but rarely occurred in the control condition ($M = 0.03$ per minute). Although the descriptive analysis suggested that aggression

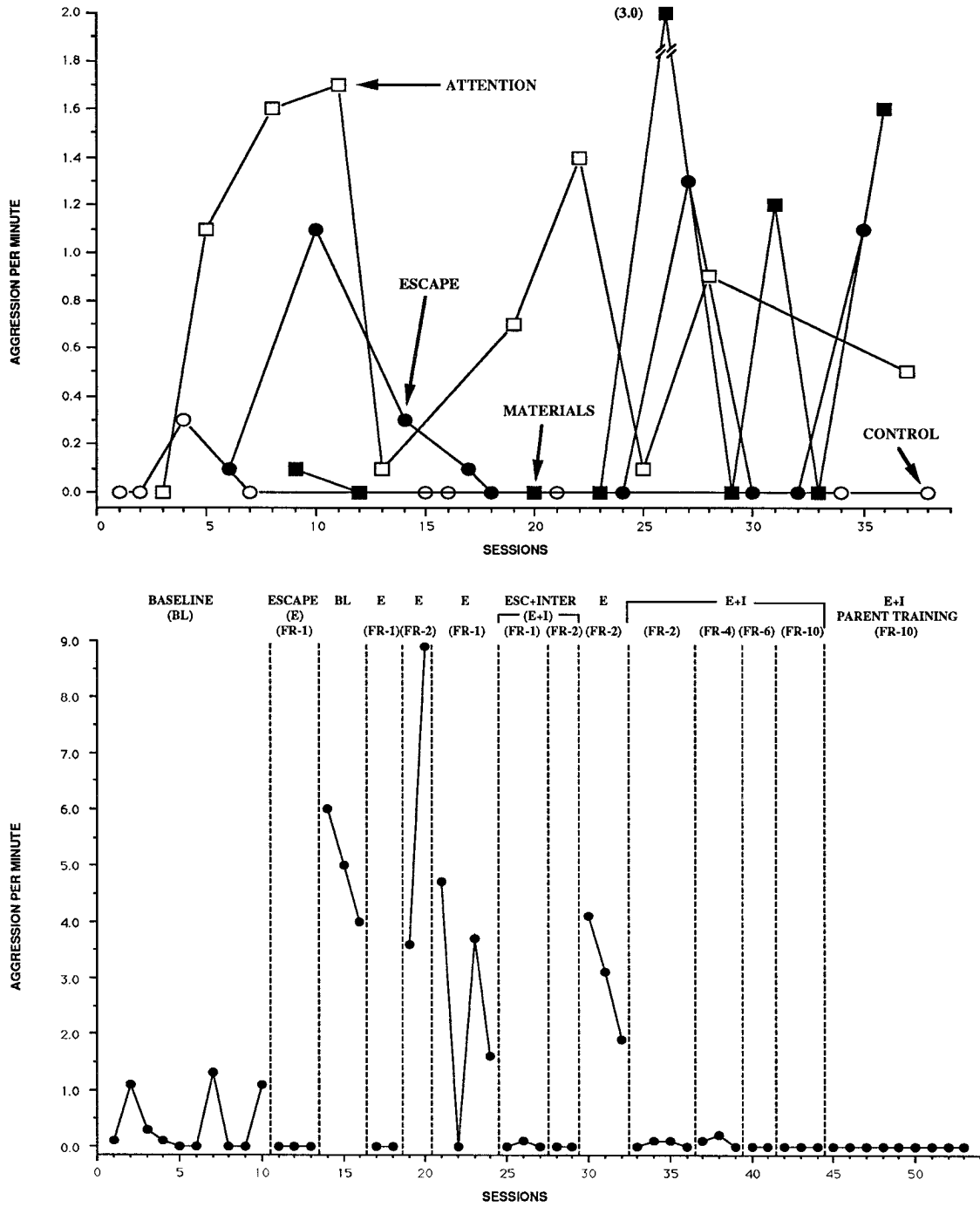


Figure 1. Rate of aggression during the experimental analysis (upper panel) and across baseline and treatment conditions (lower panel).

was occasioned by a request, the results of the experimental analysis suggested that aggression was maintained by contingent access to attention and, perhaps to a lesser extent, by contingent access to toys and escape (i.e., aggression was multiply controlled).

Figure 1 also shows the results of the treatment evaluation. Aggression averaged 0.4 per minute and 5.0 per minute and compliance was at zero (not graphically presented) during the initial and return-to-baseline conditions. (Note that the initial baseline data are those from the functional analysis escape condition but are depicted on a different scale.) Aggression did not occur during the first two escape FR 1 phases, and compliance was 100%. Aggression increased on average to 6.3 per minute in the escape FR 2 condition and averaged 2.5 per minute in a return to the FR 1 condition. Compliance decreased to zero during these two phases.

Aggression decreased and compliance increased when social interaction was added to the break. Aggression averaged 0.03 and zero per minute and compliance averaged 100% in the escape-plus-interaction FR 1 and FR 2 conditions, respectively. A return to the escape FR 2 condition resulted in an average of 3.0 aggressions per minute and zero compliance. The reintroduction of social interaction during the break resulted in low to near-zero rates of aggression and 100% compliance throughout the gradual increases in the FR schedules. These results were maintained during parent training with an FR 10 schedule.

Two aspects of this study are noteworthy. First, it illustrates some potential complexities that may be involved in the treatment of multiply controlled problem behavior. The descriptive analysis identified the context in which aggression most often occurred but did not delineate whether contingent access to attention, materials, or escape was involved in maintenance. The experimental

analysis clearly showed that aggression was sensitive to attention as a reinforcer, but the results for materials and escape were less conclusive. The treatment evaluation results showed that both the descriptive and the experimental analyses provided important information. Consistent with the descriptive analysis, the baseline and escape conditions (FR 2) demonstrated that aggression could be maintained by escape with access to toys. However, reinforcement of compliance with breaks and access to toys on a relatively dense (FR 2) schedule did not produce consistent increases in compliance or decreases in aggression. Consistent with the experimental analysis, persistent increases in compliance and decreases in aggression were achieved only when social interaction (i.e., attention) was added during the breaks.

A second noteworthy aspect of this study is that aggression decreased without the use of extinction by manipulating the rate and quality of reinforcement produced by compliance. Increasing the rate of reinforcement for compliance to a level five times the rate for aggression resulted in a temporary reduction in aggression. Adding social interaction during the break (i.e., changing the quality of reinforcement for compliance) produced persistent increases in compliance and concomitant reductions in aggression, although another form of attention (praise) was ineffective. Furthermore, compliance remained high and aggression low even when the density of reinforcement was greater for aggression than for compliance (e.g., VR 5 for aggression, FR 10 for compliance). These results provide an alternative approach to treatment when problem behavior cannot be ignored or placed on extinction. However, these are preliminary findings and should be interpreted cautiously because the study included only 1 participant, and we changed experimental conditions before rates of responding stabilized during some phases.

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