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ABOLISHING AND ESTABLISHING OPERATION ANALYSES OF SOCIAL ATTENTION AS POSITIVE REINFORCEMENT FOR PROBLEM BEHAVIOR

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Three participants whose problem behavior was maintained by contingent attention were exposed to 45-min presessions in which attention was withheld, provided on a fixed-time (FT) 15-s schedule, or provided on an FT 120-s schedule. Following each presession, participants were then tested in a 15-min session similar to the social attention condition of an analogue functional analysis. The results showed establishing operation conditions increased problem behavior during tests and that abolishing operation conditions decreased problem behavior during tests.

Key words: abolishing operation, aggression, autism, establishing operation, motivating operation, self-injury

Motivational variables have emerged as an important area of thematic research in understanding and treating problem behavior over the past two decades (Iwata, Smith, & Michael, 2000; Mace et al., 2009). Following the nomenclature of Laraway, Snycerski, Michael, and Poling (2003), the term *motivating operation* (MO) is a general term used to label environmental events that alter the value of reinforcers and punishers. Laraway et al. also distinguished between operations that increase or decrease the reinforcing effects of stimuli, referring to processes that increase reinforcer effectiveness as *establishing operations* (EOs) and those that decrease reinforcer effectiveness as *abolishing operations* (AOs). This conceptualization has permitted the development of interventions designed to mitigate the value of reinforcers for existing problem behavior.

MO manipulations have been shown to affect the value of both positive and negative reinforcers for problem behavior, with manipulations of attention the most common. The findings of these MO manipulation studies have begun to yield a clear pattern of treatment utility. For example, O'Reilly et al. (2006) found higher levels of attention-maintained problem behavior when a child was deprived of attention (EO) than when he was provided attention (AO). Similarly, McComas, Thompson, and Johnson (2003) manipulated attention levels and found decreases and increases in problem behavior corresponding with the attention (AO) and ignore (EO) conditions, respectively. The current study was designed to replicate and extend this literature by (a) extending the duration of the presession MO period in an effort to maximize satiation and deprivation effects of positive reinforcement in the form of attention and (b) conducting a parametric analysis of two levels of AOs. We assessed the effects of these presession manipulations on the occurrence of problem behavior during subsequent tests using positive reinforcement contingencies.

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METHOD

Participants and Settings

Participants had been referred to the Vanderbilt Kennedy Center Behavior Analysis Clinic and had been previously diagnosed with a developmental disability. ME was a 6-year-old Caucasian boy who had been diagnosed with bipolar disorder, attention deficit hyperactivity disorder, obsessive compulsive disorder, anxiety disorder, and severe developmental delay. TC was a 6-year-old African-American boy who had been diagnosed with autism and moderate developmental delay. AH was a 6-year-old Caucasian boy who had been diagnosed with a severe developmental delay and seizure disorder. Their problem behaviors had previously been demonstrated via analogue functional analyses to serve a social attention function (data available from the fourth author). MO analyses were conducted in rooms ranging in size from 3 m by 3 m to 6 m by 6 m (with various chairs and tables present).

Response Measurement and Interobserver Agreement

ME's target behaviors included kicking, throwing or breaking objects, screaming, verbal threatening, inappropriate urinating, self-injurious biting, hitting, hair pulling, and head banging. TC's problem behaviors included hitting, kicking, pulling the hair of others, throwing objects at others, screaming, crying, falling on the floor, and inappropriate (sexual) touching. AH's problem behaviors included hitting, kicking or spitting at others, crying, screaming, throwing or breaking objects, and eloping. Sessions were videotaped, and observers measured problem behavior using a paper-and-pencil 10-s partial-interval recording system (Kennedy, 2005). Data were collected during all tests and during two (ME), four (TC), or three (AH) presessions.

A second independent data collector was present during 33% of sessions in order to determine interobserver agreement. Data from these sessions were portioned into 10-s intervals and compared on an interval-by-interval basis. Intervals were scored in agreement if both observers agreed on the occurrence or nonoccurrence of problem behavior. Interobserver agreement was calculated by dividing the sum of the number of agreements by the number of agreements plus disagreements and converting this proportion to a percentage. Across individual sessions for participants, mean agreement was 80% (range, 52% to 100%) during the presessions and 96% (range, 80% to 100%) for the tests.

Procedure

Each experimental manipulation contained two components: (a) a 45-min presession in which a relevant MO was varied in accordance with a multielement design (i.e., the independent variable) followed by (b) a 15-min test of attention as a positive reinforcer for problem behavior (i.e., the dependent variable). One experimental manipulation was conducted per day, 3 to 5 days per week.

During the 45-min presession, one of three MO conditions was in effect, either the EO, low-AO, or high-AO condition. An experimenter was present but did not interact with the participant, and no materials were present during the EO presession period. AO presessions were similar except the therapist delivered 5-s of attention on a fixed-time (FT) 120-s schedule in the low-AO presession and on an FT 15-s schedule in the high-AO presession. During both AO presessions, the therapist delayed attention delivery by 3 to 5 s if its scheduled delivery coincided with the occurrence of problem behavior. The purpose of these comparisons was to determine the effect of a 45-min period of attention deprivation (EO) and two parametric levels of attention satiation (low and high AO) on the value of attention as a reinforcer in subsequent contingency tests. The value of attention as a reinforcer was assessed immediately following each 45-min presession during a 15-min test, which will be

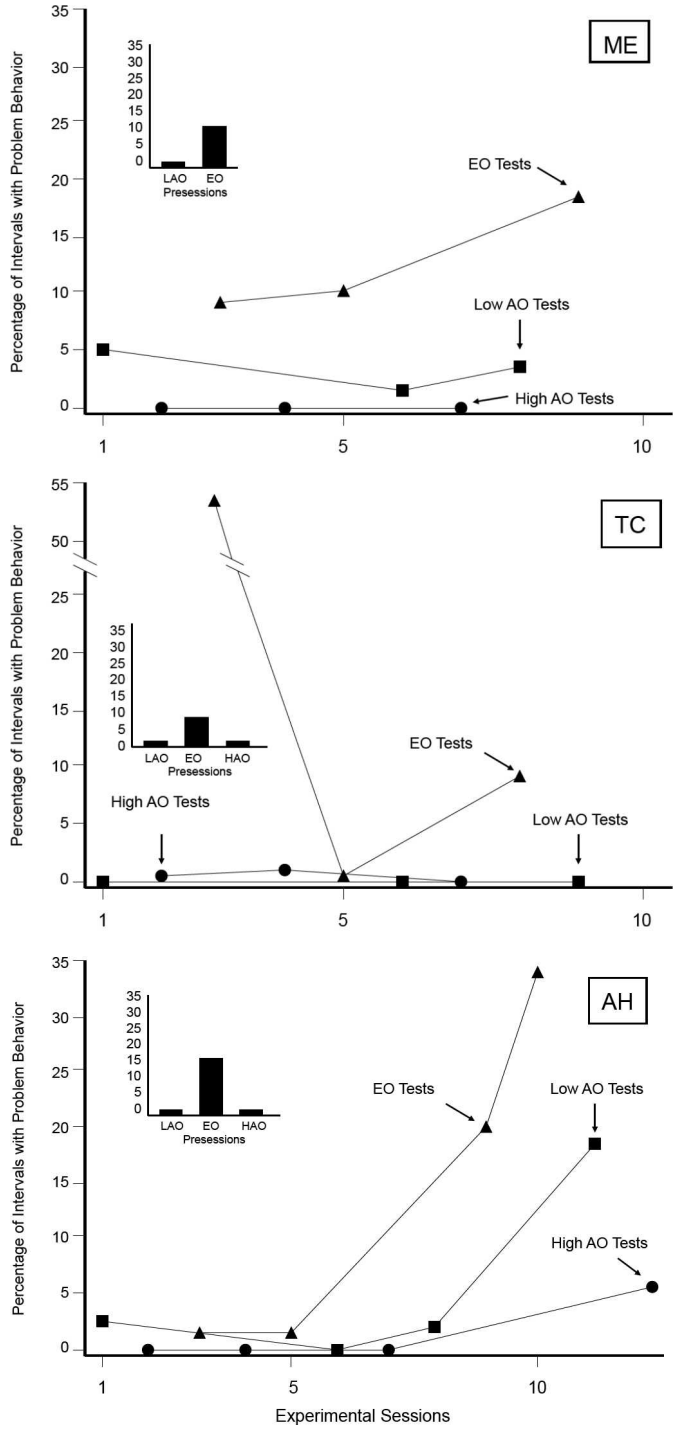

Figure 1. The primary panels depict the results of the contingent-attention 15-min tests for ME (top), TC (middle), and AH (bottom), following the 45-min EO, high-AO, and low-AO presessions. The inset graph shows levels of problem behavior (mean percentage of intervals) during a sample of two (ME), four (TC), or three (AH) of the 45-min presessions.

referred to as EO, low-AO, and high-AO tests, in which the therapist delivered 5 s of social comments following each instance of problem behavior. No other interactions occurred during the 15-min tests.

RESULTS AND DISCUSSION

Figure 1 shows the percentage of intervals of problem behavior for the 45-min presessions (embedded panels) and the 15-min tests (larger panels) for ME, TC, and AH. Levels of problem behavior were highest in the EO tests for ME, TC, and AH (*M*s = 13%, 20%, and 14%, respectively), relative to the high-AO (*M*s = 0%, 1%, and 6%, respectively) and the low-AO (*M*s = 4%, 0%, and 2%, respectively) tests. That is, both AO presessions resulted in lower levels of attention-maintained problem behavior during the 15-min tests relative to the EO presessions. Levels of problem behavior also are displayed along the *y* axis of the embedded graph during the 45-min presessions. Levels of problem behavior were higher for all 3 participants in the EO presessions (*M* = 11%; range, 8% to 16%), although no high-AO presession data were available for ME.

As in previous research, motivational variables were demonstrated to influence the occurrence of problem behaviors maintained by positive reinforcement in the form of adult attention. When EO presessions were conducted, problem behaviors were higher during the reinforcer tests than after the two distinct satiation (AO) presessions. It is interesting to note that these effects persisted for the entire 15-min reinforcer tests. Future research may evaluate the longevity of satiation effects by arranging tests with longer durations. For instance, perhaps problem behavior would have remained suppressed for longer periods following both types of AO presessions.

Another contribution of this study was the assessment of problem behavior levels during the presessions. Although limited samples of data were available, each participant showed a pattern of problem behavior that was higher in the EO presessions than in the AO presessions. It may have been that the deprivation state established over 45 min was sufficient to evoke problem behavior (i.e., the behavior-evocative effect of the EO) even when no direct reinforcement contingency was in place, particularly because a discriminative stimulus for attention was present in the environment (i.e., an adult). It might be possible to use extended presession conditions to assess possible reinforcers for problem behavior without establishing a direct response–reinforcer contingency.

This finding may have practical implications for the design of functional behavioral assessments. By alternately arranging deprivation (EO) and satiation (AO) conditions for a particular behavioral function (e.g., positive reinforcement in the form of attention), clinicians may be able to conduct an ABAB analysis of the motivational context for responding. Such an arrangement may reduce an individual's exposure to reinforcement contingencies for problem behavior during assessments (e.g., Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994) and suggest the parameters necessary for an effective antecedent-based intervention. In addition, the manipulation of MOs prior to assessment may be sufficient to induce problem behaviors in conditions in which discriminative stimuli are present but reinforcement contingencies are not established (e.g., Carr & Durand, 1985).

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