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AN EVALUATION OF THE TYPES OF ATTENTION THAT MAINTAIN PROBLEM BEHAVIOR

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Although previous research indicates that certain types of attention (i.e., statements related to behavior, tickles) may be differentially reinforcing, only one or two forms of attention are typically provided contingent on problem behavior during the attention condition in experimental functional analyses. In the present investigation, various forms of attention were provided contingent on problem behavior to identify the influence of each form of attention. Results indicated that the attention forms affected problem behavior differently; these outcomes are discussed in terms of their implications for assessment and treatment.

DESCRIPTORS: attention, destructive behavior, functional analysis

Results of numerous studies support the utility of conducting a functional analysis of problem behavior to identify the environmental variables that maintain responding prior to treatment (e.g., Carr & Durand, 1985; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994). Most functional analyses test for the influence of social reinforcement on problem behavior. Iwata et al. described the types of attention provided contingent on occurrences of problem behavior as verbal reprimands (e.g., ''Don't do that, you might hurt yourself'') and physical attention (e.g., a pat on the back). However, various forms of attention may be differentially reinforcing and responsible for behavior maintenance (Fisher, Ninness, Piazza, & Owen-DeSchryver, 1996; Piazza et al., 1999). For instance, Fisher et al. evaluated the content of verbal attention with a child who engaged in attention-maintained problem behavior. A comparison of verbal statements related and unrelated to behavior (e.g., ''I don't like it when you kick me'' and ''Today is a sunny day,'' respectively) indicated higher rates of problem behavior occurred when statements were related to problem behavior.

Various other forms of attention that are not typically assessed during functional analyses may be responsible for behavioral maintenance in the natural environment (e.g., eye contact, tickles). For example, a teacher may stop delivering classroom instructions contingent on disruptive behavior and provide an extended period of eye contact to the child engaging in disruptive behavior. Given the variety of types of attention that may be provided in the natural environment across a number of different contexts (e.g., eye contact, tickles, unrelated comments), future research is warranted to identify additional forms of attention that may

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influence the occurrence of problem behavior. In the present investigation, 2 participants engaged in problem behavior maintained by social attention. The influence of six different forms of attention was evaluated by providing each form of attention contingent on problem behavior.

GENERAL METHOD

Participants, Setting, and Data Collection

Two children who had been referred for the assessment and treatment of problem behavior participated in the study. Mandy was a 5-year-old girl who had been diagnosed with attention deficit hyperactivity disorder (ADHD). Johnny was a 9-year-old boy who had been diagnosed with pervasive developmental disorder not otherwise specified. Both participants' problem behavior included aggression, disruption, and inappropriate vocalizations.

Sessions were conducted in a private room in the participant's home or in therapy rooms at a university-based summer program for children with ADHD. All sessions were 5 min in duration. Data were collected on the frequency of problem behavior by trained observers using laptop computers. Mandy's problem behavior was defined as aggression (hitting the therapist or poking the therapist with a pencil), disruption (ripping or throwing materials), and inappropriate vocalizations (e.g., saying "no"). Johnny's problem behavior was defined as aggression (hitting, kicking, pinching, or hair pulling), disruption (ripping or throwing materials), and inappropriate vocalizations (screaming, cursing, saying "no"). Two trained observers simultaneously and independently collected data for 30% of Mandy's sessions and 32% of Johnny's sessions. Exact agreement coefficients were calculated, and average mean agreement for problem behavior during all assessment sessions was 94% (range, 83% to 100%) for Mandy and 96% (range, 83% to 100%) for Johnny.

Functional Analysis

Functional analyses were conducted based on procedures described by Iwata et al. (1982/1994). Conditions included attention, demand, and toy play, and were alternated in a multielement design. An alone condition was also included for Johnny because his parents reported occasionally hearing inappropriate vocalizations when he was alone in his room.

Attention Evaluation

During all conditions, toys were present in the session room, and the therapist read a magazine. During the reprimands condition, the therapist provided 20 s of verbal reprimands directly related to problem behavior in a neutral and monotone voice (e.g., "I don't like it when you hit me"). The therapist did not provide any physical contact and maintained a neutral facial expression during this condition. The unrelated comments condition was similar to the reprimands condition except that statements unrelated to behavior were provided for 20 s contingent on occurrences of problem behavior (e.g., "today is Monday"). During the physical attention condition, the therapist implemented a hands-down procedure (i.e., the participant's hands were held by his or her side) for 20 s contingent on problem behavior. No verbal statements, eye contact, or facial expressions were provided. In the tickles condition, the therapist provided statements unrelated to problem behavior (e.g., "I'm tickling you") in a neutral and monotone voice while tickling the participant for 20 s contingent on problem behavior. During the eye contact condition, 20 s of eye contact was provided contingent on problem behavior. The therapist maintained a neutral facial expression, and no verbal statements were provided. In the praise condition (Mandy only), statements related to appropriate behavior were provided for 20 s contingent on problem behavior (e.g., "I love it when you play with your toys"). The therapist's vocal intonation changed (e.g., neutral and high-pitched voice), and the therapist smiled

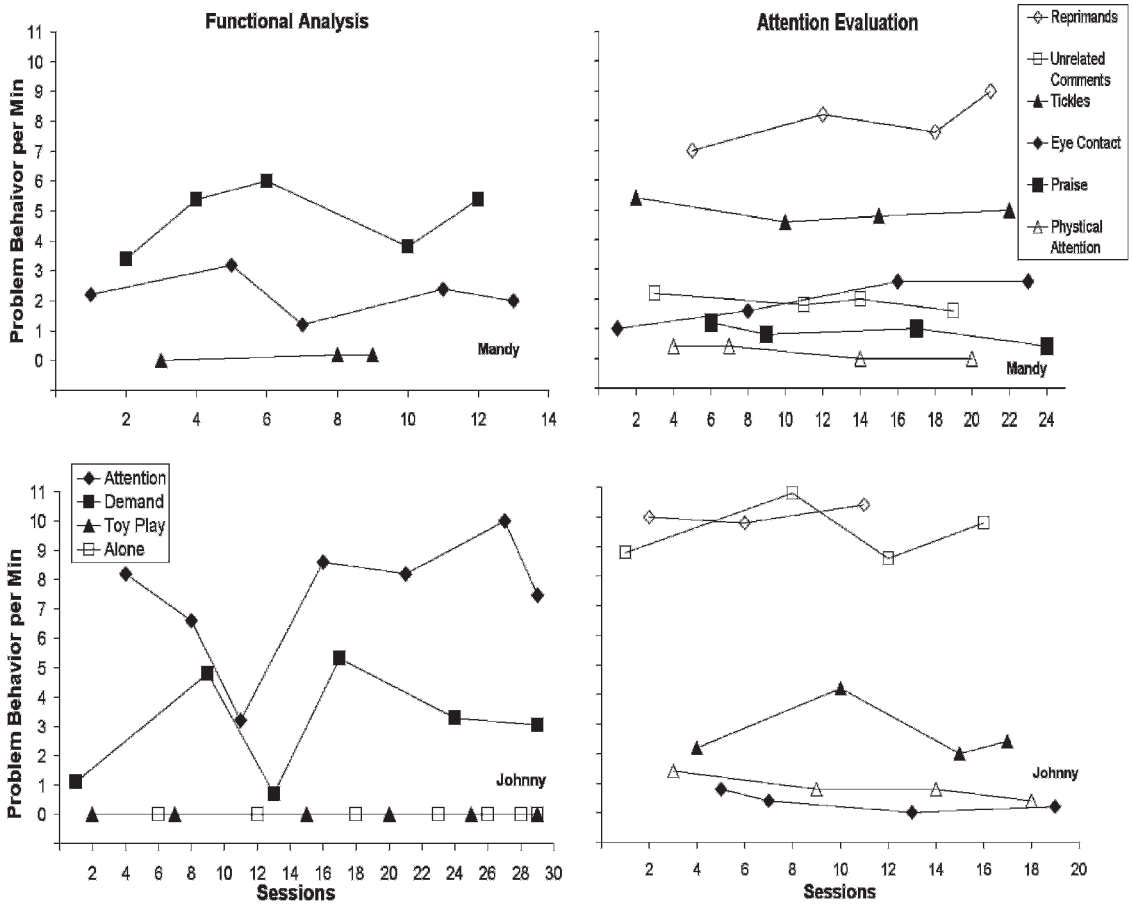

Figure 1. Problem behavior per minute across conditions of the multielement functional analyses (left) and attention evaluations (right) for Mandy (top) and Johnny (bottom).

while praise was delivered. These particular types of attention were included in this evaluation because the therapist observed the children's parents providing each of these forms of attention contingent on problem behavior in the natural environment.

RESULTS AND DISCUSSION

Results of Mandy's functional analysis and attention evaluation are displayed in Figure 1. High rates of problem behavior occurred during the demand (M = 4.8 responses per minute) and attention (M = 2.2) conditions of the functional analysis, indicating that problem behavior was maintained by escape from demands and social attention. Results of the attention evaluation indicated that the type of attention had a substantial influence on rates of responding. High rates of problem behavior occurred during the reprimands (M = 8 responses per minute) and tickles (M = 5) conditions. By contrast, the physical attention condition produced the lowest rates of problem behavior (M = 0.2).

Results of Johnny's functional analysis and attention evaluation are also shown in Figure 1. Elevated rates of problem behavior were observed during the attention (M = 7.5 responses per minute) and demand (M = 3) conditions of the functional analysis, indicating that problem behavior was maintained by social

attention and escape from demands. Results of his attention evaluation showed that vocal attention produced the highest rates of problem behavior, regardless of whether vocal statements were related to problem behavior. Specifically, the reprimands and unrelated comments conditions resulted in high rates of problem behavior (*M*s = 10.1 and 9.5, respectively). Low levels of problem behavior occurred during the physical attention ($M = 0.9$) and eye contact ($M = 0.4$) conditions. Based on results of the attention evaluation, treatment involved providing the most reinforcing forms of attention contingent on appropriate behavior. For example, when Johnny exhibited appropriate behavior (e.g., mand), the therapist provided verbal statements related and unrelated to behavior.

These results add to the literature on the reinforcing value of various forms of attention in at least two ways. First, a method for assessing the influence of different forms of attention on problem behavior was described. Results of this assessment could be used to identify specific forms of attention to provide as consequences for problem behavior and for socially acceptable alternative behaviors. Alternatively, this form of assessment may be useful for identifying functional forms of attention when a typical functional analysis yields undifferentiated results. Second, multiple forms of physical attention were evaluated (i.e., a hands-down procedure and tickles), and results indicated that various forms of physical attention served different functions. In fact, it appears that the hands-down procedure may have functioned as a punisher. These results are consistent with other studies that have shown the punishing effects of hands-down procedures with other topographies of problem behavior (Fisher et al., 1994). Future research should evaluate the function of these as well as other forms of attention (e.g., pats on the back, hugs) with children who engage in attention-maintained problem behavior.

One limitation of the study involves the absence of a control condition during the attention evaluation. To provide the necessary background for isolating the absolute reinforcing, neutral, or punishing effects of the various forms of attention, a condition in which no forms of attention are provided should be included in future evaluations of forms of attention. Another limitation of the present investigation was that a treatment analysis evaluating the impact of differential access to forms of attention was not conducted with these children.

After determining that a child's problem behavior was maintained by attention, Piazza et al. (1999) conducted an assessment to identify the reinforcing value of two types of attention (tickles and reprimands) on in-seat behavior. Results showed that the participant allocated the most responding to the seat that produced access to tickles. The importance of providing access to the more preferred form of attention was then demonstrated during a comparative treatment analysis. During both treatments, problem behavior continued to result in verbal reprimands (i.e., extinction was not used). When praise was provided contingent on the alternative response of handing a picture to a therapist, the child continued to engage in high rates of problem behavior. By contrast, when tickles were provided contingent on the alternative response, the child emitted the alternative response to the exclusion of problem behavior. Thus, these data show that different types of attention may be differentially reinforcing, and certain types of attention may substitute for, or at least compete better with, the types of attention that customarily maintain problem behavior. However, only a few types of attention were evaluated in the Piazza et al. study, and the influence of the different types of attention on problem behavior was not evaluated. The current study showed that the contingent delivery of various types of attention have different effects on problem behavior.

Following similarly designed analyses of the effects of different forms of attention, future research should examine the influence of providing the most reinforcing form of attention contingent on appropriate behavior while providing an alternative (less reinforcing) form of attention contingent on problem behavior. This treatment may be as effective as differential-reinforcement-based interventions that involve extinction, and may be more preferred by caregivers because a preexisting parental response to problem behavior is included in the treatment recommendations.

Future research should also be directed towards determining the extent to which attention evaluations like the one described in the current study confer advantages during the assessment and intervention process. The types of parent interviews and direct observations that adequately identify functional types of attention should be carefully described, and the extent to which identifying specific functional forms of attention clarifies undifferentiated functional analysis results should also be determined. Finally, advantages of treatments based on the results of attention evaluations relative to differential reinforcement interventions based on generic classes of reinforcement should also be determined.

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