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TARGETING SOCIAL SKILLS DEFICITS IN AN ADOLESCENT WITH PERVASIVE DEVELOPMENTAL DISORDER

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Social skills deficits are a defining feature of individuals diagnosed with autism and other pervasive developmental disorders (PDD), which can impair functioning and put the individual at higher risk for developing problem behavior (e.g., self-injury, aggression). In the current study, an adolescent with PDD displayed inappropriate social behavior (inappropriate comments, social withdrawal, and touching others without their permission) during social interactions. An intervention using instructions, differential reinforcement, and corrective feedback successfully reduced inappropriate social behaviors.

DESCRIPTORS: differential reinforcement, pervasive developmental disorder, social skills training

Social skills deficits are common among individuals with mental retardation and are a defining feature of individuals with autism (Reeve, Reeve, Townsend, & Poulson, 2007) and other pervasive developmental disorders (PDD). These deficits most greatly impair functioning in community settings in which effective social interaction is critical to establishing mutually reinforcing peer relationships and avoiding ineffective and aversive interactions that may lead to social withdrawal and isolation. Later in life, social skills deficits can interfere with successful performance in vocational settings that require interaction with coworkers or customers (Howlin & Goode, 1998). These deficits also may put the individual at higher risk for developing problem behaviors (e.g., self-injury and aggression; Duncan, Matson, Bamburg, Cherry, & Buckley, 1999).

There is a body of research that has demonstrated that interventions targeting social skills deficits in individuals with autism and PDD can be effective (McConnell, 2002). There is also some evidence to indicate that improving social skills can produce collateral decreases in (Oke & Schreibman, 1990) and improved parent ratings of (Lopata, Thomeer, Volker, Nilda, & Lee, 2008) problem behavior. Interventions described in recent studies generally have focused on language acquisition, verbal interactions, and social scripts (Krantz & McClannahan, 1998; Taylor & Harris, 1995). Studies that target nonverbal social skills such as eye contact, appropriate affect (i.e., facial expression), and physical orientation toward others have been studied less in recent years (Matson et al., 1988; Taras, Matson, & Leary, 1988). Given that both verbal and nonverbal social skills deficits are common in this population, research that addresses both domains of social behavior is needed. The current investigation attempts to extend research on the treatment of social skills deficits by targeting both vocal and nonverbal social behavior (inappropriate comments and social withdrawal) displayed by an individual diagnosed with PDD.

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METHOD

Participant and Setting

Stephen was a 13-year-old boy who had been diagnosed with PDD (not otherwise specified), attention deficit hyperactivity disorder, and mild mental retardation. He had been admitted to an inpatient unit for the treatment of self-injury, aggression, and disruption. An experimental functional analysis conducted prior to the analysis described in the current study revealed that his problem behavior was attention maintained, and a treatment that incorporated functional communication (FCT), extinction, and competing stimuli was demonstrated to be effective in reducing problem behavior. Procedures and results of the functional analysis and treatment evaluation for Stephen's problem behavior are described in detail elsewhere (Hagopian, Kuhn, Long, & Rush, 2005). Treatment of inappropriate social behavior is the focus of the current study.

Data Collection and Interobserver Agreement

Trained observers recorded the frequency of *inappropriate comments*, defined as interrupting others while they were talking or suddenly switching the topic (e.g., while discussing favorite colors, Stephen would ask, "Do you like horses?"); *inappropriate touching*, defined as touching others anywhere on his or her body without permission; and *appropriate comments*, defined as saying "please," "thank you," and "you're welcome," stating he would like to switch topics prior to interrupting the current topic, or any comment made on the current topic that was not simply an answer to the therapist's questions. Data for frequency measures were converted to a rate (responses per hour) by dividing the total number of responses in the session by the session length in hours. Partial-interval data within 2-min intervals were collected on *social withdrawal*, defined as turning away from others or covering his face with his hands or his shirt during a conversation. The number of intervals in which social withdrawal occurred was divided by the number of session intervals, and this ratio was converted to a percentage. Two independent observers recorded data on all behaviors simultaneously but independently during 75% of the sessions. Total agreement coefficients for frequency data were calculated by dividing the smaller frequency count for the entire session by the larger count, and this ratio was converted to a percentage. Agreement coefficients for partial-interval data were calculated by partitioning each session into 2-min intervals then dividing the number of exact agreements (both observers recording the exact same number of responses) for the occurrence of the behavior by the total number of intervals, and this ratio was converted to a percentage. The mean total agreement was 91% for inappropriate comments, 92% for inappropriate touching, and 85% for appropriate comments; the mean occurrence agreement was 98% for social withdrawal.

Design

A combined ABAB and multiple baseline design across behaviors was used to demonstrate functional control of the treatment over targeted social behaviors. Following baseline (A), a differential-reinforcement-of-low-rate-behavior (DRL) schedule with corrective feedback (B) was implemented for inappropriate comments first. The DRL schedule with corrective feedback then was withdrawn (A) and then reimplemented (B) for inappropriate comments in accordance with an ABAB design. Social withdrawal then was targeted using the DRL schedule with corrective feedback in accordance with a multiple baseline design. The DRL schedule with corrective feedback was not implemented for inappropriate touching and appropriate comments because these behaviors improved over time in the absence of treatment.

Procedure

The therapist was seated at a table with Stephen during all sessions, which ranged in

length between 90 and 120 min. The therapist interacted with Stephen continuously if he did not make appropriate requests (as opposed to responding to appropriate requests, in accordance with the FCT intervention) to ensure that he had an opportunity to emit the targeted social behaviors for the entire session (i.e., the therapist conducted the sessions as if he had already requested attention). The therapist responded to Stephen's appropriate request if he made one, and ignored problem behaviors (i.e., aggression, disruption) in accordance with the extinction component of treatment.

During baseline, the therapist interacted with Stephen as described above, but did not comment on targeted inappropriate social behaviors. During treatment, the therapist reviewed the procedures described below at the start of each session using language appropriate to Stephen's developmental level. Treatment involved a DRL schedule with corrective feedback. The therapist delivered two small candy bars if Stephen completed the session with seven or fewer inappropriate comments, based on an 85% reduction of inappropriate comments from baseline. (Preference for the candy bars had been identified using a paired-stimulus preference assessment; Fisher et al., 1992.) The therapist delivered corrective feedback following the occurrence of the inappropriate social behavior targeted for treatment. Feedback consisted of telling Stephen that he had emitted an inappropriate social behavior and the total number of targeted behaviors he had engaged in during that session. For example, if Stephen interrupted the therapist, the therapist said, "Stephen, you spoke while I was talking. That's one inappropriate behavior."

RESULTS AND DISCUSSION

The results of the intervention are shown in Figure 1. During baseline, inappropriate comments occurred at a mean of 19 responses per hour. Inappropriate comments were reduced to a mean of 2 responses per hour with the introduction of treatment. Baseline levels were recovered when treatment was withdrawn (M = 33 per hour), and treatment effects were replicated when the intervention was reimplemented (M = 2 per hour). Social withdrawal initially decreased to zero when inappropriate comments were targeted, but eventually returned to higher levels (M = 18% of intervals). Social withdrawal decreased immediately with the introduction of treatment for that response (M = 3% of intervals). Inappropriate touching immediately decreased after inappropriate comments were targeted, and appropriate comments increased gradually over the course of treatment.

This study contributes to the existing research on the use of reinforcement for improving social behavior of individuals with mental retardation and PDD (see McConnell, 2002, for a review). Although the relation between social skills deficits and problem behavior is well established, the treatment literatures on each of these topics have been independent. In the current study, successful treatment of attention-maintained problem behavior (described by Hagopian et al., 2005) revealed more subtle social skills deficits (inappropriate comments and social withdrawal) that were then targeted with social skills training. With a program in place to address problem behavior as well the social skills deficits, this young man was able to both recruit attention and interact with others in an appropriate manner, increasing the probability that his future attempts to interact would be reinforced by others. As with other high-functioning individuals with autism spectrum disorders, addressing these social skills deficits has the potential to increase the likelihood of the successful development of peer relationships and appropriate interactions in vocational settings.

This study is limited by the fact that it describes only a single case; however, it does illustrate how social skills deficits that are

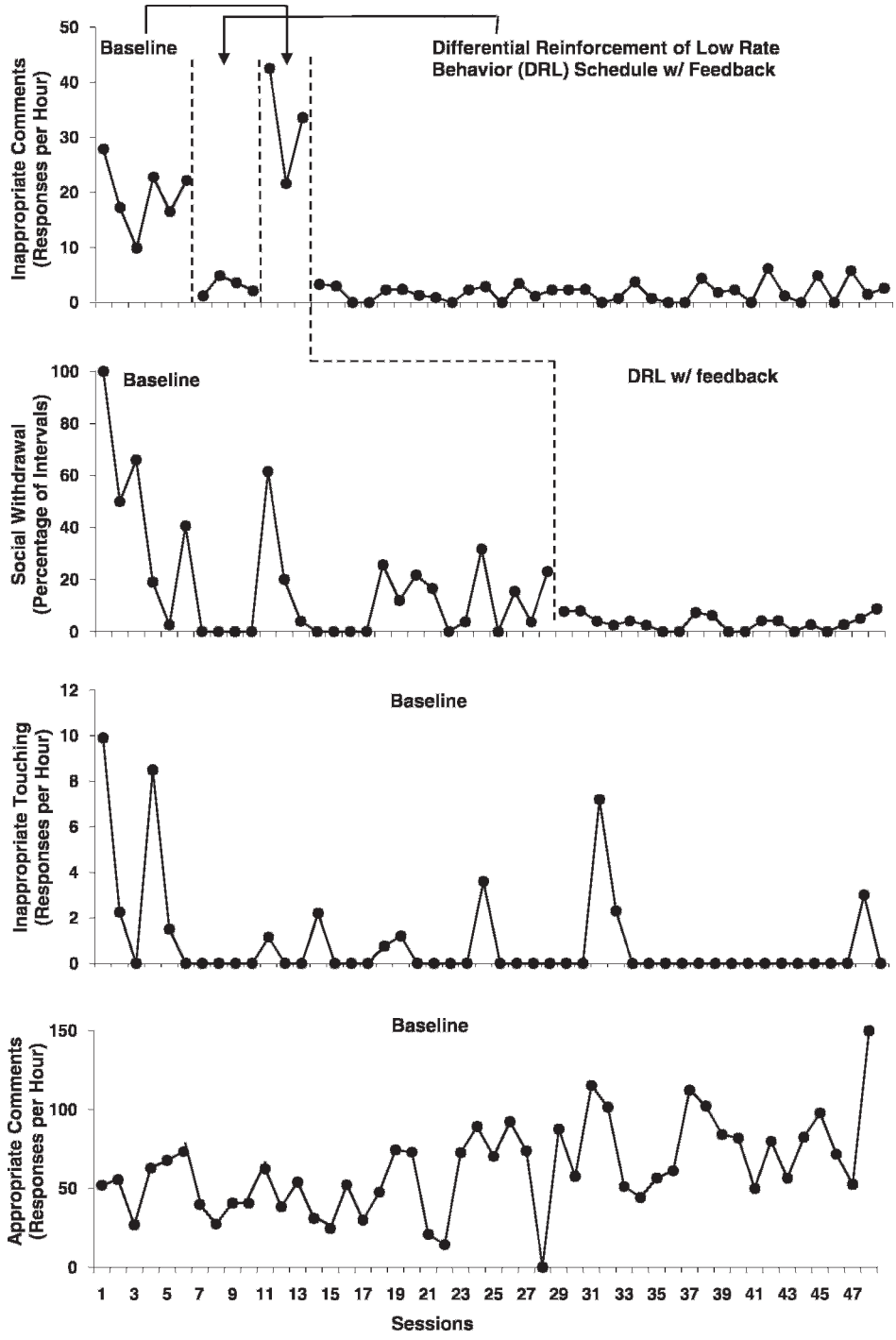

Figure 1. Inappropriate comments, inappropriate touching, and appropriate comments per hour; and percentage of intervals of social withdrawal during baseline and treatment.

characteristic of PDD can be treated successfully. Another limitation is that the analysis does not permit the determination of the relative contribution of each component: verbal instructions, reinforcement, and corrective feedback. Although the use of instructions and reinforcement to occasion and reinforce desired changes in social behavior might be common to most social skills interventions, the use of corrective feedback may not be indicated in all cases. That is, there is the potential that corrective feedback following an inappropriate social behavior could reinforce that behavior inadvertently. In the current case, however, this was not a major concern because the responses targeted (inappropriate comments and social withdrawal) persisted during baseline (noncontingent attention and extinction), suggesting that these behaviors were not maintained by attention.

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