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TEACHING ABDUCTION-PREVENTION SKILLS TO CHILDREN WITH AUTISM

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Three children with autism were taught abduction-prevention skills using behavioral skills training with in situ feedback. All children acquired the skills, which were maintained at a 1-month follow-up assessment. In addition, 1 of the children demonstrated the skills during a stimulus generalization probe in a community setting.

Key words: abduction prevention, autism, behavioral skills training, safety

Abduction by strangers is a rare but important childhood safety concern, with over 58,000 abductions perpetrated by nonfamily members in the United States in 1999 (Finkelhor, Hammer, & Sedlak, 2002). School-aged children are the group at greatest risk for nonfamily abduction, which is more likely than abduction by family members to result in death of the child (Dalley, 2004). Parents of children with autism view their children as at risk for physical harm and report physical safety as one of their greatest concerns (Davern, 1999; Ivey, 2004). Children with autism may be particularly susceptible to stranger persuasion because of the social deficits inherent in the disorder. For example, they may not discern strangers from known adults, or they may be oversensitive to certain features of abduction lures such as highly preferred items.

Behavioral skills training (BST) is a multicomponent intervention that consists of instructions, modeling, rehearsal, and feedback (Miltenberger, 2008). BST has been used successfully to teach children to avoid consuming poisons (Dancho, Thompson, & Rhoades, 2008), to behave appropriately after discovering a firearm (Himle, Miltenberger, Flessner, & Gatheridge, 2004), and to resist complying with a stranger's abduction lures (Johnson et al., 2005). BST has sometimes resulted in limited stimulus generalization (e.g., Lumley, Miltenberger, Long, Rapp, & Roberts, 1998); however, research suggests that the inclusion of in situ feedback during BST can remedy this problem. For example, Johnson et al. (2006) demonstrated that typically developing children (6 and 7 years old) who received BST and in situ feedback resisted abduction lures more successfully at a 3-month follow-up assessment than did children who received only BST. Similarly, Gast, Collins, Wolery, and Jones (1993) demonstrated that children with developmental disabilities were unable to display previously acquired abduction safety skills in nontraining environments until training was conducted in those settings. The purpose of the present study was to extend this literature by evaluating the use of BST and in situ feedback to teach abduction-prevention skills to children with autism.

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METHOD

Participants and Setting

Three boys who had been diagnosed with autism served as participants. All of them received intensive behavioral intervention services at the same center-based program (approximately 27 hr per week) and were preparing to transition to a general education classroom within the year. Sammy (8 years old), Michael (7 years old), and Charles (6 years old) each had extensive imitative, mand, tact, intraverbal, and instruction-following repertoires. At the time of the study, Sammy, Michael, and Charles had met 96%, 93%, and 91%, respectively, of the verbal and social milestones in the criterion-referenced Verbal Behavior Milestones Assessment and Placement Program (Sundberg, 2008). Despite these relatively substantial repertoires, their parents reported deficits in safety and community skills and requested instruction in those areas.

The center-based program was housed in a private day-care center. The facilities included several classrooms, a gymnasium, a kitchen, bathrooms, an outdoor playground, and a front lawn. Structured BST training sessions occurred upstairs in a classroom, and abduction probes were conducted throughout the building (e.g., indoor gymnasium, downstairs bathroom) and outdoor areas (e.g., the lawn in front of the center). Specific locations were used only once except for the front lawn, which was used for multiple abduction probes. Michael's natural environment probe was conducted in his neighborhood.

Dependent Variables and Data Collection

Target behaviors. We taught participants the following abduction-prevention responses: (a) saying ''no'' when presented with an abduction lure by a stranger, (b) immediately leaving and running to a safe area (e.g., inside the day-care building), and (c) immediately reporting the event to a familiar adult. Performance during each probe was recorded as follows: 0 = agreed to leave with the abductor; 1 = did not agree to leave but failed to say ''no''; 2 = said ''no'' but did not leave or report the incident; 3 = said ''no'' and left the area but did not report the incident; and 4 = said ''no,'' left the area, and immediately reported the incident. One or two observers who were in unobtrusive positions (e.g., behind a nearby vehicle) collected data on the child's responses using the numerical scoring system. Observers unobtrusively followed participants to determine whether the abduction attempt was reported to an adult. A report was scored if the observer heard the participant describe the incident or heard an adult praising the participant for the report.

Abduction probes. Multiple probes were conducted before and after training to assess the effects of BST and in situ feedback. During a probe, an unknown adult (a confederate) approached the child when he was left alone at a predetermined time and place. The confederate then attempted to ''abduct'' the child using one of four lure types (described below) that were randomly distributed across phases. Seven to 10 confederates were used with each participant during the study. One confederate was used twice for Charles and Sammy, and two confederates were used twice for Michael. Most of the confederates were women who were recruited from other treatment programs in the agency. If the child agreed to leave with the confederate, he or she terminated the abduction (e.g., ''I'm sorry, I forgot that I need to do something else right now.''). If the child left the area and reported the incident to a familiar adult, that adult thanked the child for his report.

Interobserver agreement. The first author (the center's senior therapist) and another trained observer scored participant performance during 50%, 47%, and 31% of probes for Sammy, Michael, and Charles, respectively. For each probe, the two scores were compared, and an exact match on the scores constituted an agreement. Point-by-point interobserver agree-

ment was 100%, 75%, and 100%, for Sammy, Michael, and Charles, respectively. Michael's low score is a result of observers reporting different scores in six of the eight probes assessed. In these instances, the scores differed by one point.

Procedure

Experimental design. A nonconcurrent multiple baseline design across participants was used to evaluate the effects of BST and in situ feedback.

Baseline. Two to seven abduction probes were conducted with participants during baseline. No feedback was provided to participants for their performance in this condition other than what was described above.

BST. Abduction-prevention skills were taught individually using verbal instructions, video modeling, live modeling, rehearsal with familiar adults and strangers (i.e., employees from other programs in the agency), and praise and corrective feedback for rehearsal performance. Children were taught to respond to four common types of lures: simple (e.g., ''Come with me''), incentive (e.g., ''Come see the Xbox in my car''), authority (e.g., ''Your mom asked me to come get you''), and assistance request (e.g., ''Come help me find a band-aid for my cut''). Each BST session involved a brief discussion or review of all four potential lures. After the child could state the appropriate safety skills (i.e., say ''no,'' run, tell), video samples of naturalistic models of each lure were shown, followed by live enactments of each lure by the experimenter and a stranger. The videos depicted novel adults and typically developing children along with a familiar adult (the first author) serving as the teacher to whom the abduction was reported. Next, the child rehearsed the safety skills with the stranger and the experimenter, during which praise and corrective feedback were provided for his performance. The skills were practiced in response to one lure type in each session until completely accurate performance (a score of 4) occurred without prompts once per lure type. Each participant met the mastery criterion during abduction-prevention training, with Sammy, Michael, and Charles requiring eight, six, and five training sessions, respectively. BST sessions generally lasted 5 to 10 min and were conducted over a 3- to 9-week period.

Posttraining, follow-up, and generalization. After a participant completed the BST portion of the study, multiple abduction probes were conducted as described previously. If nonoptimal performance (i.e., a score of less than 4) occurred in a probe, the observer who had been hiding to collect data entered the situation and provided instructions and corrective feedback until the child was able to complete the entire safety sequence. After a participant met the performance criterion (i.e., a score of 4 for each lure type), two to three follow-up probes were conducted 3 to 7 weeks later. One additional abduction probe was conducted with Michael on his neighborhood street approximately 3 weeks after the previous follow-up probe.

RESULTS AND DISCUSSION

Figure 1 depicts each participant's performance during abduction probes across all of the study's conditions. During baseline, no participant received a score greater than 2 (i.e., did not leave the area or report the incident to an adult) on the 4-point scale, and Michael consistently received scores of 0 (i.e., agreed to leave with the abductor). After training, Sammy received scores of 4 during probes of every type of lure, and his performance was maintained during a follow-up assessment that included three different lures. Michael's posttraining performance was considerably variable, ranging from scores of 0 (Session 8) to 4 (Sessions 6, 9, 13, and 14). In situ feedback was provided immediately following six different probe sessions in which he scored less than 4. Michael's performance eventually improved and was maintained at a follow-up assessment that included two lures. Furthermore, he received a score of 4 during a generalization

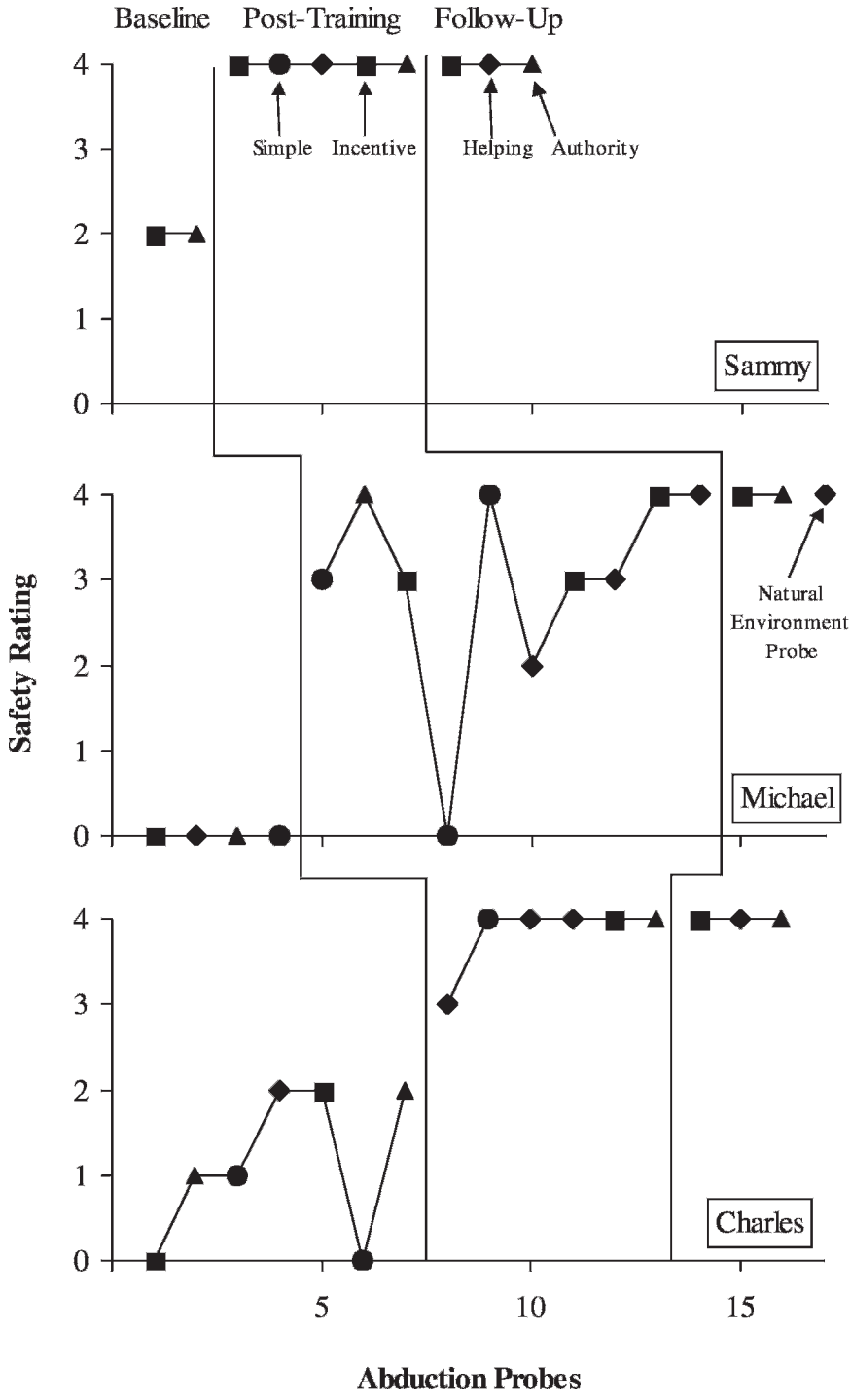

Figure 1. Safety ratings during abduction probes across baseline, posttraining, and follow-up conditions for Sammy (top), Michael (middle), and Charles (bottom).

probe that was conducted in a community setting (i.e., on a street in his neighborhood). Charles performed well after training and experienced in situ feedback only after the first posttraining probe, during which he scored a 3. His performance was maintained during a follow-up assessment that included three different lures.

The present findings are consistent with previous research that has shown that BST is effective in teaching abduction-prevention skills to children (Miltenberger & Olsen, 1996) and that in situ feedback is useful in enhancing skill maintenance (Gast et al., 1993; Johnson et al., 2006). Nevertheless, the results should be interpreted in light of at least four limitations. First, the majority of the confederates were female; however, 95% of perpetrators of nonfamily abductions are male (Finkelhor et al., 2002). This discrepancy might potentially constitute an external validity threat and should be addressed in future investigations on this topic. Second, as with most studies of BST, the intervention consisted of multiple components, many of which might have been responsible for the observed improvements in safety behavior. Additional research might be able to partially dismantle the existing intervention package to determine whether a more efficient option is viable. Third, participants' reports of abduction attempts were occasionally inferred from an adult praising the report rather than being directly observed. Finally, stimulus generalization was assessed for only 1 of 3 participants.

The present study is part of a growing body of research on the development of safety interventions for children with autism and other developmental disabilities. Investigators have taught children with developmental disabilities how to avoid stranger abduction (Gast et al., 1993), escape a fire (Bigelow, Huynen, & Lutzker, 1993), and seek assistance when lost (Taylor, Hughes, Richard, Hoch, & Coello, 2004). Perhaps these studies, along with the current investigation, represent a trend toward the development of a broad and effective technology for teaching children with developmental disabilities to display safety skills.

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