

Case Report

Effects of Picture Exchange Communication System on Communication and Behavioral Anomalies in Autism

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ABSTRACT

Communication skills deficits and stereotyped behaviors are frequently found among people with pervasive developmental disabilities like autism. These communication and behavioral oddities of autism are often considered to be difficult to treat and are challenging. Picture exchange communication system (PECS) is a six-phase picture system based on applied behavior analysis and is specially designed to overcome these communication difficulties in children with autism by encouraging the child to be the communication initiator. The present paper throws light on the process of using PECS along with other traditional behavioral approaches in managing communication deficits and behavioral stereotypies in a seven-year-old male child diagnosed as having childhood autism. The identified target behaviors of repeated head turning, flapping his hands, poor communication skills were assessed using various rating scales including visual analogue scale as per clinician observation and parental reports and managed using PECS as an adjunct to traditional behavioral techniques of contingency management, differential reinforcement, task direction and reprimand. Outcome was assessed using same tools after thirty-two sessions of interventions spread over three months. Significant improvements of around 60% were observed in the target behaviors.

Key words: *Autism, behavioural management, PECS, stereotyped behaviour*

INTRODUCTION

Autism is a pervasive developmental disorder characterized by qualitative impairments in social skills, verbal and non verbal communication; and restricted repetitive stereotyped behaviors.^[1] Picture exchange communication system (PECS),^[2] a form of

augmentative and alternative communication (AAC), is a relatively newer intervention specially designed for children with autism based on the principles of applied behavior analysis (ABA) and uses pictures instead of words to help children communicate. PECS leads to improvement in communication of children with autism who have difficulty in approaching another person and in PECS the child is made the incharge of the communication and since he is not expected to speak the initial approach becomes less intimidating. The operant mechanisms in these stereotypies are independent of the environment and therefore, these behaviors persist even in the absence of social consequences^[3] since the maintaining reinforcer (self stimulatory sensory and perceptual consequences)^[4] is the direct result of the behavior. LaGrow and Repp^[5] classified

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the techniques of reducing stereotyped behaviors under four categories: (a) manipulation of setting conditions, drugs or antecedent events, (b) positive procedures; (c) manipulation of sensory stimulation, and (d) aversive procedures. Differential reinforcement of alternative behavior (DRA) in which alternative adaptive responses are differentially reinforced in order to reduce maladaptive responding^[6] is the most widely used evidence-based behavioral technique for managing stereotypical behaviors of autism.^[7,8] However, all these techniques including DRA and PECS have limited validity when used individually. The present case study provides insights into the process of combining PECS with these various traditional techniques toward effective management of communication and behavioral problems of autism.

CASE REPORT

P, a seven-year-old male child, was brought by his parents with chief complaints of repetitive meaningless body movements, hand flapping, poor language/communication development, not managing his activities of daily living, not having peer group/family interactions. Based on the history, clinical interview and assessments, he was diagnosed as having childhood autism.

The baseline assessments were done using various rating scales including childhood autism rating scale (CARS), vineland social maturity scale (VSMS) and visual analogue scale (VAS) as per clinician observation and parental reports. On VSMS, he obtained a score of 59. On CARS, his score was 35 indicating mild autism. It was revealed that he was partially dependent for all his basic activities of daily living, had marked language and communication deficits. He could understand one command instructions. The target behaviors identified during this stage included repeatedly moving his head, flapping his hands along with training in self help and communication skills.

Intervention process was carried out in thirty-two sessions over a period of three months using PECS along with traditional behavioral techniques such as DRA, reprimand and task direction. The intervention program was so planned that it targeted the specific areas of improvement in his communication, self help skills and decrease behavioral problems.

PECS was carried over the six phases: In Phase 1 called "physical exchange phase," the therapist worked as a communication partner and based on reinforcer sampling, made a picture of the reinforcer which was placed under a clear container, so the child could see it, but not get it. When the child looked interested in the item, the therapist gave the child the picture card. Then

the child was prompted to hand the picture card back to the therapist who after receiving the card, verbalized the request aloud ("You want biscuit! You can have it!"). At this point, the requested item was given to the child. In Phase 2 (expanding spontaneity phase), therapist moved slightly away from the child so that the child had to move toward the therapist to place the picture card in his hand. During Phase 3 (discrimination training) the child was given more than one picture card and he had to choose a desired object, and then gave that card to the therapist. Initially, he had a hard time distinguishing between the two pictures; however, eventually he could do that without any difficulty. In the next phase of "sentence structure", the child was given a card with the phrase "I want ____" on it. This card now had to be used with the picture card showing what was desired. This was done so that the child would learn communication using complete sentences. Even though the child could not yet read, he gradually learnt to recognize the words as sight words on the cards. In Phase 5 the child was directly asked "What do you want?" and the child had to hand a picture card to enable the child know how to communicate his desires. After the five phases, PECS was generalized to more than one therapist, and he was also taught how to communicate his experiences outside the therapy room.

Contingency management

Since on analysis it was found that most of his stereotyped behaviors were relatively independent of social consequences, techniques such as DRA, reprimand and task direction were also used. Using DRA, he was reinforced contingent upon the performance of a desirable behavior mentioned in his activity schedule. When a pre set number of alternative behaviors were met, he was given an activity reward. In the initial phase, a fixed reinforcement schedule was followed which was later changed to variable interval schedule. The edible reinforcer was given intermittently, and replaced with verbal praise. Throughout the sessions, all stereotyped responses received an immediate verbal reprimand and task direction. It involved calling his name and directing his attention back to the task at hand.

RESULTS AND DISCUSSION

By the end of thirty-two therapy sessions, the child had shown approximately 60% improvement in the targeted behaviors as found on the VAS (both parent and clinician rated). His behaviors of repeatedly moving his head, flapping his hands reduced to almost negligible along with an increase in his independence levels in carrying out self help activities and significant enhancement in his communication. Gains were maintained at the three-month follow-up. This case study demonstrates the utility of PECS as an important adjunct to traditional

behavioral techniques such as DRA, reprimand and task direction in managing behavioral problems in a child with autism. These findings are consistent with the findings of previous studies^[9,10] whereby it has been reported that after training in PECS, problem behaviors often subside as the benefits of communication become more tangible. Also, combination of these approaches further accelerated the management of behavioural problems along with an enhancement in communication and self help skills. The case study carries significant implications for non-pharmacological management of autism- instead of directly focusing on the stereotyped behavior, the need is to reinforce adaptive behavior by using behavioral techniques such as contingency management, differential reinforcement, activity scheduling, reprimand and task direction. Since, the present work is based on single case study, there is a need to carry out research on a larger sample. Further, a longer follow-up should be maintained to evaluate the efficacy of the treatment program.

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