



An extended functional analysis protocol assesses the role of stereotypy in aggression in two young children with autism spectrum disorder

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ABSTRACT

Two children with autism who engaged in aggression and stereotypy were assessed using common analogue functional analysis procedures. Aggression was maintained by access to specific preferred items. Data on the rates of stereotypy and appropriate play were collected during an extended functional analysis tangible condition. These data reveal that once the child was given access to the items shown to be maintaining challenging behavior that these items were then used to engage in stereotypy. These results suggest a relationship between stereotypy and socially mediated challenging behavior. Potential modifications to standard functional analysis procedures designed to identify this relationship and the implications of this relationship for intervention design are discussed.

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The assessment and treatment of challenging behavior for individuals with autism spectrum disorders (ASD) has been identified as a critical agenda for future research (Matson & LoVullo, 2008; Matson & Nebel-Schwalm, 2007). Individuals with ASD may exhibit challenging behavior, such as self-injury, aggression, and disruption, more than other individuals with developmental disabilities (McClintock, Hall, & Oliver, 2003). Additionally, a defining characteristic of ASD is the engagement in restricted and repetitive behaviors, often referred to as stereotypy (American Psychiatric Association, 2000). Hence, in treating challenging behavior of individuals with ASD, it may be useful to understand the role that stereotypy plays in the assessment of challenging behavior.

An extensive body of research now exists to support the effectiveness of a function-based approach to the assessment and treatment of challenging behaviors (Sigafoos, Arthur, & O'Reilly, 2003). The aim of functional assessment is the identification of variables that occasion and maintain challenging behaviors. Function-based assessment procedures typically take the form of either indirect (e.g., rating scales, interviews; e.g., O'Neill et al., 1997) or direct methods such as naturalistic observations (e.g., descriptive analysis) and/or experimental analogue functional analyses (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994). The results of functional assessments typically indicate one or more variables that maintain challenging behavior such as access to attention, access to preferred activities or tangible items, escape from non-preferred activities (e.g., instructional demands, social interactions), and automatic reinforcement (e.g., the behavior itself has reinforcing properties). The identification via functional assessment of variables that occasion and maintain

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challenging behavior allows for the design of treatments that focus directly on altering those variables to produce positive therapeutic outcomes.

Recent descriptive functional assessments have identified a potential relationship between stereotypy and challenging behavior specifically in children with autism. Reese, Richman, Zarcone, and Zarcone (2003) and Reese, Richman, Belmont, and Morse (2005) conducted indirect assessments with care providers of children with ASD. They modified a Functional Assessment Interview (O'Neill et al., 1997) to address the potential relationship between stereotypy and challenging behavior. In addition to the standard tangible, attention, escape, and automatic functions, they modified the escape and tangible conditions to identify two additional functions: (1) escape from demands while engaged in stereotypy and (2) access to stereotypy involving tangible items. They found that challenging behaviors exhibited by the children with ASD were more likely to be maintained by the two modified functions related to stereotypy than by standard functions (Reese et al., 2003). Also, children with ASD exhibited challenging behavior associated with these modified functions more than children with other developmental disabilities (Reese et al., 2005). These indirect assessments imply that children with autism may be engaging in challenging behaviors that are specifically related to the stereotyped behaviors associated with their diagnosis.

Clearly, challenging behavior exhibited by children with ASD is an extremely complex phenomenon that can involve interactions between stereotyped patterns of responding and other topographies (e.g., aggression, self-injury). Given the results obtained by Reese and colleagues, examining challenging behaviors in the ASD population with other assessment instruments such as analogue functional analyses seems warranted. The analogue functional analysis methodology, involving the systematic exposure of the person to predefined social conditions, would seem to be an ideal tool for such investigations. Analogue functional analysis allows for direct observation of challenging behavior under predefined social conditions and allows for repeated exposure to such conditions within the context of an experimental design (Vollmer & Smith, 1996). While two studies have recently reported analogue functional analysis results with groups of children with ASD neither of these studies attempted to refine the analogue functional analysis conditions in an attempt to study the interaction effect between stereotypy and other topographies of challenging behavior (Love, Carr, & LeBlanc, 2009; O'Reilly et al., 2010).

One next step in this line of research should entail an attempt to tease out the relationship between stereotypy and other topographies of challenging behavior within analogue functional analysis conditions. Such research may shed light on how stereotyped behavior patterns of responding could mediate or exacerbate other topographies of challenging behavior. In the current study we examined aggressive and stereotyped responding in two children with ASD using analogue functional analysis protocols. Further, we attempted to show how aggression and stereotypy were inextricably linked using an extended analogue functional analysis protocol.

1. Method

1.1. Participants, settings, and materials

Two 7-year-old boys diagnosed with ASD participated in this assessment. Martin scored 55 on the Childhood Autism Rating Scale (CARS; Schopler, Reichler, & Renner, 1988), which placed him in the "severely autistic" range. His age equivalency on the Vineland Adaptive Behavior Scales (Vineland; Sparrow, Balla, & Cicchetti, 1984) was 13 months. Martin attended a private school for children with autism and his sessions were conducted in a classroom in the school. His teacher reported that Martin often engaged in aggression (i.e., grabbing and biting) when a particular toy (i.e., plastic stacking rings) was visible but unavailable.

Joe scored 51 on the CARS, which placed him in the severely autistic range. His age equivalency on the Vineland was 15 months. Joe attended a suburban public school. His sessions were conducted in an empty room attached to the classroom, regularly used for individual instruction. His teacher reported that Joe often engaged in grabbing and screaming when a particular toy glove was visible but unavailable.

Each room was equipped with tables and chairs, toys to play with during the play and attention conditions of the assessment, work materials for use during demand conditions of the assessment (e.g., puzzles), and the toy stacking rings (Martin) or the toy glove (Joe) during the tangible condition of the assessment.

1.2. Response definitions and measurement

Ten-second partial interval recording was used to measure challenging behavior, stereotypical play, and appropriate play. For Martin, challenging behavior consisted of aggression. This behavior was defined as grabbing and shaking the arm of the therapist and/or biting the therapist. Stereotypical play was defined as repeatedly spinning or rocking the stacking rings. Appropriate play was defined as use of the toy as intended (i.e., sorting and stacking the rings). For Joe, challenging behavior also consisted of aggression. This was defined as grabbing the therapist or an item and pulling forcefully. When Joe grabbed, he also engaged in screaming (loud vocalizations above the typical conversational level). Stereotypical play was defined as nonfunctional repetitive play with the toy glove (e.g., tossing the glove from one hand to the other). Appropriate play was defined as functional/symbolic play or pretend play (e.g., putting the glove on and saying, "I'm Spiderman!"). Appropriate play behaviors were identified and defined by observing two same-aged children without disabilities play with the stacking rings and glove prior to the study.

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