



Feasibility of a play-based intervention set for toddlers with autism

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ABSTRACT

The Meta-play Method is a play-based, naturalistic set of interventions designed to decrease the symptoms associated with autism in toddlers. The purpose of the present study was to explore the feasibility of using this intervention set with a small group of toddlers and their parents. We selected seven toddlers diagnosed with autism and tested these children for autism severity and severity of repetitive behaviors. Parents were trained on the basic concepts of DBTA and the Meta-play activities. Researchers reviewed the integrity of interventions at once- or twice-monthly home visits for a six-month period, and recorded progress as rated by the parent. Activities were adapted at each visit to the interests and progress of the participating toddler. At the end of six months, autism symptoms and repetitive behavior decreased and parents reported high levels of social validity. Additional aspects of data collection and outcome measures, and suitability of interventions and procedures are discussed. While some outcomes were encouraging, a number of changes are recommended for future research.

1. Feasibility of a play-based intervention set for toddlers with autism

Autism Spectrum Disorder (ASD) is a disorder of social-relatedness with an onset during early childhood, prior to age 3. This disorder is primarily characterized by the emergence of impairments in one's ability to relate and interact socially with others, but also by communication challenges and the presence of restricted or stereotyped behaviors. There is wide variation in the clinical presentations of children with ASD, and no single factor that has been identified as causal for autism. The origins of ASD remain a source of controversy despite extensive research efforts (Frith, 2012; Happe, Ronald, & Plomin, 2006). It is currently estimated that 1 in 68 children is identified as having an ASD (CDC, 2014), and in addition to the emotional toll on the families of a person with an ASD, the increasing rates of prevalence have been estimated to cost the United States 35 billion dollars per year (Ganz, 2006). Given the increasingly prevalent and costly nature of this problem as well as its early emergence, identifying effective treatments models focused on feasible interventions in young children is important.

To this end, Schreibman et al. (2015) described a number of attributes characteristic of effective intervention sets, and termed these 'naturalistic developmental behavioral interventions' (NDBIs). The distinctive features of an NDBI include 1) intervention targets that are based on an across-domain (cognitive, social, language, play), developmental systems approach that is focused on pivotal skills, 2) delivery of interventions in a natural, emotionally meaningful, and socially interactive context, and 3) instructional strategies that incorporate behavioral strategies that build and expand on established routines. Some common features of NDBIs include interventions that are based on the principles of applied behavior analysis (such as modeling, prompt and prompt-fading, and reinforcement), clearly described and manual-based instruction, child-initiated teaching and balanced turns, assessment of fidelity of implementation, ongoing measurement of progress, and adult imitation of the child's interests and behaviors. We will describe the

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evolution of the Meta-play Method, an intervention set for toddlers with its theoretical roots in the Dynamic Behavior Theory of Autism (DBTA) (Woodard & Van Reet, 2011), and discuss how this intervention is consistent with many of the features of an NDBI. The origins of the Meta-play Method include a brief review an early case example where the initial transition from DBTA theory to a set of actual interventions was demonstrated. The purpose of the present study was to build upon this case review information to investigate the feasibility of the Meta-play Method with a small group of children.

Woodard and Van Reet (2011) proposed a theory that suggested an alternate origin of autism. This alternate theoretical perspective, later referred to as ‘Dynamic Behavior Theory of Autism’ (DBTA) (Woodard, 2012a), suggested that the symptoms of autism resulted from the cascading effects of impaired, early meta-representational and imagination-based cognitive development. While early behavioral manifestations of meta-representational thinking are typically demonstrated in the second and third years of life, how this more sophisticated form of thinking comes into being is not clearly understood. Woodard and Van Reet (2011) built upon and extended Hobson’s (2004) concept of identification that suggested that the mechanism for meta-representational thinking derives from the infant’s experience of another person becoming established and internalized, and then expanding. In a typically automatic and effortless manner, the perception of a whole, other person is internalized by the child and becomes the framework for meta-representational thinking abilities. Alternatively, Woodard and Van Reet suggested that the emergence of autism may be derived from early inanimate (non-human) object and part-object identification, in which thinking becomes ‘object-ified’: to varying degrees there is a disinterest in other people, a preference for consistency and rigidity characteristic of physical objects, and core impairment in duality of thinking. This core impairment can vary in severity, and is suggested to result directly from the internalization of a non-human object.

The emergence of meta-representational thinking and associated behaviors are evident during a key period in young children’s development that has been identified by a number of developmental theorists. This key period is marked by a dramatic shift in cognition that typically takes place around a child’s first birthday, and has been dubbed the “9-month revolution” by developmental scientists (e.g., Tomasello, 1999). This essential evolution in thinking skills has been identified in various ways by numerous researchers, including Stern’s (1985) “intersubjective perspective,” Leslie (1987) “meta-representation,” and Zelazo (2001) “recursive consciousness,” but marks the emergence of duality of thought or the ability to “think about” something. This more sophisticated form of thinking supports and makes possible a range of important early behaviors, including pointing, showing, joint attention, deferred imitation, embarrassment and coy behavior, and functional play (Woodard & Van Reet, 2011). Further, it is suggested to lay the imagination-based, cognitive groundwork for the emergence of abilities that typically follow, such as language and symbolic or pretend play. This ability to internally represent and think about dual ideas and images (to symbolize or “meta-represent”) has been noted by other authors to be “crucial” to autism during early development (Bernabei, Cerquiglioni, Cortesi, & D’Ardia, 2007). DBTA suggests that the internalization of a non-human object impairs meta-representational thinking early in life, resulting in the absence of related skills and abilities. These impaired or absent early skills are consistent with indicators of autism. Further, DBTA suggests that this core impairment is the common factor underlying later autism symptoms, such as the ability to empathize and think about other’s thinking (or “Theory of Mind”), and even much later references to the self as an objective entity.

Initial research of this concept (Woodard, Chung, & Korn, 2014) was conducted to determine if play interventions could be generated based on the concepts of DBTA. In this study a male toddler diagnosed with autism was selected from an early intervention program. His initial scores on the Autism Diagnostic Observation Scale - 2 (ADOS-2) (Lord et al., 2012) indicated a high level of autism-related symptoms. In the first two months of the study, play interventions were created based on the DBTA hypothesis that whole, person-based internalization was essential to the development of meta-representational thinking. Based on this idea, the activities were designed to 1) re-focus interest and attention toward people and away from non-human objects, 2) increase focus on wholes versus parts, 3) foster meta-representational or imagination-based thinking, and 4) increase a preference and desire for inconsistency, novelty, unpredictability, and change. The parents were trained on the theory and the resulting activity set as it was developed. This was followed by four months of once- or twice-monthly fidelity checks/home visits, which also resulted in revision of existing activities and adding to the play activity set. At the end of the total 6-month period, the toddler was re-tested for autism severity, and the comparison/severity score had fallen. While no causal relationships between the intervention set and the child’s improvement could be made, this outcome was encouraging. The approach was later named the ‘Meta-play Method’ and shared a number of promising NDBI attributes that were included, refined and maximized in the present study. For example, the activities were based on a developmental systems approach that focused on a pivotal area (meta-representational thinking), which supported abilities across cognitive, social, language and play domains.

Further, activities were incorporated into the natural and socially interactive home environment, and applied behavior analytic strategies and practices included reinforcement, prompting, manual-based instruction, assessment of fidelity of implementation, and ongoing measurement of progress. However, unlike NDBIs, the Meta-play Method would not typically focus on modeling because from a theoretical standpoint, the child has impaired meta-representational thinking so he or she would have little conceptualization of the other person being a ‘model’ for him or her. However, as the child develops identification with other people and begins to be better able to “think about,” modeling of desired behaviors would become a more reasonable expectation. Adults were also instructed to follow the initiation of the child and imitate the child’s behaviors on a regular basis. This begins to lay the foundation for the idea that this other person is ‘like me,’ which is a possible step on the path of identification with that other person and away from objects.

The purpose of the present study was to implement the Meta-play intervention set with a small group of children to build upon case study information to evaluate core aspects of feasibility. Consistent with selected characteristics of a feasibility study outlined by Orsmond and Cohn (2015), we evaluated whether or not parents could complete the data collection procedures and the appropriateness of outcome measures. The measures, for example, should be suitable to the population and sensitive to any potential effects. To address further aspects of feasibility, we evaluated the appropriateness of the interventions in terms of ease of integration

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