Title: Patterns of Cognition, Adaptive Behavior and Communication Abilities in Toddlers with Developmental Delays

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Introduction: Young children with developmental delays (DD) can demonstrate a wide range of difficulties in different domains. Characterizing and assessing these difficulties is important for informing intervention strategies (Ben-Sasson & Gill, 2014; Plesa Skwerer et al., 2016); it is well documented that early intervention has positive effects for developmental outcomes in these children (American Speech-Language-Hearing Association, 2008; Buschmann et al., 2015; Ciccone et al., 2012). Health professionals rely on a variety of assessment tools to measure the developmental abilities of children with DD, including direct observation, parent interview and questionnaires. However, measuring these abilities in very young children, and in children with limited spoken language skills can be challenging (Bradley-Johnson, 2001). The majority of the extant literature on profiles of abilities in young children with DD focuses on children with autism spectrum disorder, and has less thoroughly investigated developmental profiles of children with severe expressive language impairments. The current study examines how toddlers with a significant developmental delay and less than 10 spoken words perform across developmental domains, (i.e. cognitive, language and adaptive functioning) and across assessment methods, (i.e. parent report and clinician-administered).

Method: We assessed a sample of 129 children, mean age = 29.77 months, SD = 5.04 months, with a general developmental delay and severe spoken language impairment, operationally defined as an Expressive Language age equivalent score on the Mullen Scales of Early Learning (MSEL; Mullen, 1995) of less than 12 months and functional use of no more than 10 spoken words. A trained clinician administered a developmental assessment battery to children and their parents that included the MSEL, the Vineland Adaptive Behavior Scales (Vineland-ABS and Vineland-II; Sparrow et al., 1984; Sparrow et al., 2005), the MacArthur-Bates Communicative Development Inventory (MCDI; Fenson, 2007) and the Sequenced Inventory of Communication Development (SICD; Hedrick et al., 1984). An ipsative profile analysis was conducted using difference scores converted to z-scores to evaluate individual patterns of strengths and weaknesses across developmental domains. Scatterplots and Pearson’s r correlations were conducted to investigate the relations between performance on cognitive, language and adaptive functioning measures. Finally, paired samples t-tests were conducted to evaluate the relations between clinician-administered (MSEL) and parent report (Vineland ABS/II) measures across four developmental domains: gross and fine motor, and receptive and expressive language.

Results: Ipsative profile analysis revealed 10 children with significantly stronger receptive than expressive language skills, 4 children with greater visual reception than expressive language skills, 10 with greater fine motor skills and 9 with significant differences between gross motor and expressive language abilities. Of those 9 individuals, 8 had stronger gross motor than expressive language skills, while one demonstrated stronger expressive language than gross motor ability. Children’s overall developmental levels, measured by the MSEL Early Learning Composite (ELC), and overall adaptive functioning skills, measured by the VABS Adaptive Behavior Composite (ABC) were positively and linearly related. Performances on cognitive, language and adaptive functioning measures were largely positively correlated across most domains between and within assessments. Interestingly, while the expressive language domain of the MCDI was significantly correlated with the expressive language domains on the MSEL and the SICD, it was not significantly correlated with the communication domain on the VABS, or any other areas of adaptive functioning. There were no significant differences between parent reported and clinician assessed abilities within any of the four developmental domains that were analyzed.

Discussion: This study indicates that parent reported and clinician administered measures of cognition, language and adaptive functioning are highly related, as are young children’s performances across developmental domains. This study also reveals that children with similarly limited spoken language can exhibit a variety of developmental strengths and weaknesses. These profiles of abilities may influence children’s individual responses to intervention. Future research should compare how differences in developmental strengths and weaknesses relate to intervention efficacy. Practitioners should be sensitive to the unique and individual needs of young children who may initially appear homogenous according to their expressive language abilities.
References/Citations: