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An Observation of the Differences in the Attentive State of 12-18 Months Old Infants with Typical Development and with Regulation Disorder of Sensory Processing during Mother-Infant Interaction.

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Abstract

This study focuses on the attention capacities of infants at the ages of 12-18 month and on the parental behaviors which support infant attention during mother-child interaction. The study examines the differences between infants with sensory processing disorder and infants with typical development in these variables.

Sensory processing is the process of receiving and identifying sensory information, integrating and organizing information, and producing adaptive behavioral response according to the interpretation given to the stimulus. It is a dynamic and incessant process that enables efficient functioning. A sensory processing impairment means difficulty in absorbing the specific stimulus, in its processing, and in producing an adaptive response. Researchers agree that sensory processing and self-regulating play a key role in the development of cognitive and social skills. Self-regulation affects toddler's behavior via 4 pivotal developmental domains: Affect, Arousal, Attention and Action. Children who shows deficits in one or more of those domains are usually diagnosed with Sensory Processing Disorder (SPD) (DC 0-5, 2016)

Many of the behaviors that define SPD are co-morbid to behaviors that define children with Attention Deficit Hiperactivity Disorder (ADHD), evidence shows that there is correlation between SPD and patterns of inattention and hyperactivity. Attention skills are core skills for adaptive self-regulation.

Infants show different levels of attention in different situations. During interaction with their care-giver and their environment, it is possible to observe 4 distinctive attention levels: Focused attention, Stable attention, Random attention and inattention. In this current study we used these levels of attention and parental behaviors in order to understand better the relationship between these variables.

Study goal:

1. To examine whether there are differences in the attention abilities of toddlers between the ages of 12-18 months and whether these differences can be observed during free play interaction of the toddlers with their mothers, for this purpose a

comparison between infants with typical development and infants with SPD was maid.

2. Examining the relationship between parental mediation behaviors and attention abilities within these two populations.

Method:

The study involved 66 infants and their mothers, 37 of them with typical development and 29 with primary signs of sensory processing disorder, aged 12-18 months. Infants in the study group received an abnormal score in at least two of the following tools:

1. Infant / Toddler Symptoms Checklist
2. TSFI-Test of Sensory Function in Infants
3. Infant / Toddler Sensory Profile

Infants in the control group were those who received a standard score in the three tools. In the present study, measures of three main areas were tested: assessment of mother's emotional behavior and of infant responsiveness to her (by an observational tool developed for this study) and evaluation of the quality of mother-infant interaction (done by coding 10 minutes of free playing interaction, analyzed according to the OMI method).

Results:

Findings indicate significant differences in attention abilities of toddlers in both groups. Attention abilities of typical development Toddlers' are higher than that of toddlers with SPD, so that infants with typical development showed higher focused attention frequency and lowe frequency of inattention. Additional finding of this study showed correlation between gender and a higher frequency of inattention. It was found that boys with SPD had a higher frequency of inattention than did girls with the same impairment. It was also found that mothers of toddlers with SPD provided less instructional mediation in measures of affect and expansion, and their average length of communication chains was significantly shorter than that of toddlers with typical development. In general, it seems that mothers of toddlers in typical development show more teaching behaviors during their play with their child and miss fewer opportunities for teaching than mothers of toddlers with SPD. In both groups, the

child's focused attention frequency improved due to maternal behavior of Affect and reward- sense of ability No correlation was found between the length of the communication chains and the infant's attentiveness.

Conclusions:

The results of this study showed that differences in the attention abilities of toddlers can be seen early from the age of 12 months, and that children with SPD have lower attention abilities than their peers in typical development. This finding is significant because early detection of developmental abnormalities and early intervention can be critical for further development. In addition, sensory integration and self-regulation may have an important role in the development of attention and subsequent cognitive and motor development of toddlers. The way in which sensory processing and self-regulation in toddlers affect the normal development of the attention system from the second year of life should be further examined to understand the role of the nervous system in the development of brain structures and cognitive and mental abilities in early childhood. The differences in the child's attention abilities could be diagnosed through observation of play interaction with mothers, the benefits of using observational and ecological tools should be further examined when evaluating younger ages.