

# Developmental and Cognitive Differences in the Complexity of Children's Play Progression Through PCIT Treatment

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## ABSTRACT

- ❖ The purpose of this study is to examine whether participation in PCIT influences the complexity of children's play by improving the quality of their mothers' parenting.
- ❖ The participants consisted of 52 biological mothers and their clinic-referred children: 23 children are low cognitive level and 29 are in the average range, based on their PPVT-III standard scores and/or K-BIT composite scores.
- ❖ Mother-child interactions were coded using the Children's Play coding system (CP). The CP is based on the hypothesized sequence of development of play (Belsky & Most, 1981) and an empirically-supported play scale (Damast, Tamis-LeMonda, & Bornstein, 1996).
- ❖ Results showed that when mothers had more education, the amount of time the child spent in higher stages of imaginative play increased from pre- to post-treatment compared to children of mothers who had less than a high school degree.

## INTRODUCTION

- ❖ The sequence of play development coincides with Piaget's theory of cognitive development (Valentino, Cicchetti, Toth, & Rogosch, 2006).
- ❖ Pretend play is a hallmark of pre-operational thinking, emerging at approximately 24 months, increasing until the age of 4 years, and declining as children progress towards concrete operations (Fein, 1981).
- ❖ Previous research at this clinic found differences in the style of children's play according to their age and cognitive ability (Dao-Tran et al., 2009).
- ❖ Highly educated mothers have been found to not only spend more time interacting with children than less educated mothers across types of activities, but also to alter the composition of that time to suit children's developmental needs more than their less educated counterparts (Kalil, Ryan, & Corey, 2009).
- ❖ Research also has found that maternal involvement and positive parenting style are related to play development, social and cognitive development (Fiese, 1990).
- ❖ Parent-Child Interaction Therapy is a treatment for reducing children's disruptive behaviors by improving the quality of the parent-child relationship and increasing parents' skills.
- ❖ The purpose of this study is to examine whether children's cognitive abilities or their mothers' possible cognitive abilities have the greater effect on changes in children's play from pre- to post-treatment in PCIT.

## METHOD

### Sample Description

- ❖ Participants were 52 biological mother-child dyads referred to PCIT because of the child's externalizing behavior problems.

## METHOD (CONT.)

- 57.7% boys, 42.3% girls
  - Children ranged from 2.4 to 7 years; averaging 4.7 years
  - Approximately 60% of children were Caucasian, 16% African American, 18% Latino/a, 6% other
  - Two-thirds of mothers were single (66.7%); 75% had a high school education or less
- ❖ Children were included in the study if their standard scores on the PPVT-III or K-BIT composite were less < 75 = Low (N = 23), or > 99 = Average range (N = 29).
- Procedure**
  - ❖ The Peabody Picture Vocabulary Test-Third Edition (PPVT-III) and/or the Kaufman Brief Intelligence Tests (K-BIT) were administered to the child by a trained professional as part of a clinical intake process.
  - ❖ Past research has found that the K-BIT composite score to be significantly correlated with the WISC full-scale IQ (Kaufman & Kaufman, 1990), a general measure of cognitive functioning.
  - ❖ The PPVT-III is a measure of receptive vocabulary in standard English and a screening test of verbal ability. The standard score is an alternate measure of cognitive functioning with respect to intelligence and has been significantly correlated with the WISC full-scale IQ and K-BIT (Dunn & Dunn, 1997).
  - ❖ During the pre-treatment assessment, the dyads were observed for 5 minutes in Child Directed Interaction (CDI), where the child takes the lead and the parent is directed to follow along with them. The child is normally given 3 different toy sets and is allowed to play with whatever he/she wants. These 5-minute child-initiated interactions were coded using the Children's Play coding system.

### Observational Measure

- ❖ The Children's Play coding system is based on a well-accepted theory of the development of play (Belsky & Most, 1981) and an empirically-supported play scale (Damast, Tamis-LeMonda, & Bornstein, 1996). In this system, the coder tallies the frequency of the child's initiated types of play every 10 seconds for five minutes using the sequence of play development as no play, exploration, object-oriented, and imaginative play.
- ❖ The types of play were defined as follows:
  - No Play- Behaviors such as children protesting against parent's request, watching parent's play, and/or their controlling behaviors.
  - Exploration- The child explores a toy through simple or functional manipulation.
  - Object-oriented Play- The child brings together two or more objects in an uncreative way that constitutes an activity or game.
  - Imaginative Play (stages):
    - Enactive naming- Children appear that they are engaged in a pretense activity, but coders lack confirming evidence.
    - Self/other-directed pretense- Pretend play directed toward self or other.
    - Sequence pretense- Often links together two or more pretense actions in an appropriate way.
    - Substitution- Same as sequence pretense but with object substitution or role playing.

## RESULTS

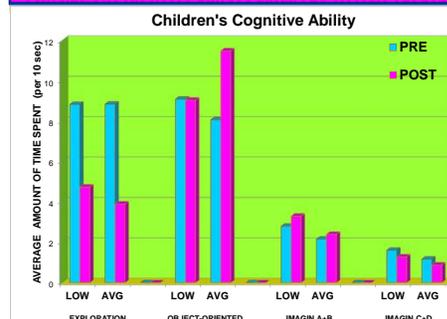
TABLE 1: DEMOGRAPHIC DIFFERENCES

Characteristic	COGNITIVE LEVEL		
	LOW N = 23	AVERAGE N = 29	
Sex of child (% male)	56.5	58.6	ns
Age of child (in years)	4.41 (.95)	4.94 (1.2)	ns
Ethnicity of child (%)			**
Caucasian	39.1	78.6	
African Am.	34.8	0.0	
Latino/a	17.4	17.9	
Other	8.7	3.6	
Age of mother (in years)	28.2 (5.7)	28.3 (6.1)	ns
Mother's education (% high school)	78.3	72.4	ns
Mother's marital status (% single)	72.7	62.1	ns
Child Risks (%)			
Neglect History	56.5	41.4	ns
Sexual Abuse History	4.3	17.2	ns
Physical Abuse History	43.5	41.4	ns
Interparental Violence History	60.9	32.1	*
Prenatal Drug Exposure	40.9	39.3	ns
Previous Foster Care	60.9	51.7	ns

\* $\chi^2(1, N = 51) = 4.21, p = .04$ ; \*\* $\chi^2(3, N = 51) = 13.54, p = .004$

- ❖ Children in the two groups did not differ significantly in age or sex. The children in the low cognitive group were significantly less likely to be Caucasian and more likely to have experienced domestic violence. There were no other significant demographic differences between the two groups.

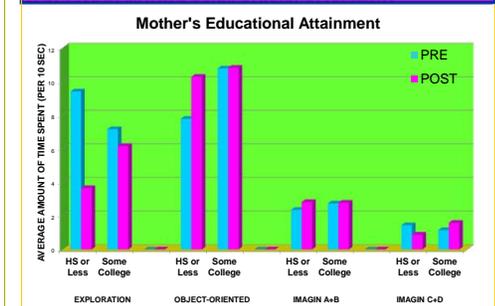
GRAPH 1: AVERAGE AMOUNT OF TIME SPENT IN EACH PLAY TYPE BY CHILDREN'S COGNITIVE ABILITY FROM PRE TO POST TREATMENT



- ❖ Results showed that there is a decrease in exploration from pre to post treatment for both groups of children. Children with average cognitive abilities showed an increase in object-oriented play compared to their low cognitive counterparts. Both cognitive groups showed a decline in the higher stages of imaginative play and an increase in the less complex imaginative play (Play type x Tx x Cognitive Level:  $F(1, 44) = 3.21, p = .08$ ).

## RESULTS (CONT.)

GRAPH 2: CHILDREN'S AVERAGE AMOUNT OF TIME SPENT IN EACH PLAY TYPE BY MOTHER'S EDUCATIONAL ATTAINMENT



- ❖ Results showed that when mothers had more education, the amount of time the child spent in the higher stages of imaginative play increased from pre- to post-treatment; whereas children whose mothers had a high school degree or lower showed a decrease in the higher stages of imaginative play from pre- to post-treatment (Play type x Tx x Mother Education:  $F(1, 44) = 7.62, p = .008$ ).

## DISCUSSION

- ❖ The purpose of this study was to investigate the variations in the influence of PCIT on the complexity of children's play when children varied in cognitive ability and in the cognitive support their mothers provided. PCIT is a treatment designed to reduce children's disruptive behaviors by improving the quality of the parent-child relationship and parents' skills.
- ❖ Results showed decreased exploration for children in the low and average cognitive ability groups, suggesting a move away from the least complex type of play. Only children in the average ability group showed an increase in object-oriented play, though this difference was a non-significant trend.
- ❖ Results indicated that compared to children whose mothers had a high school degree or lower, children with mothers who had more education increased the amount of time spent in the higher stages of imaginative play from pre- to post-treatment (Graph 2) suggesting that, as in Kalil and colleague's study (2009), mother's level of education helped support greater complexity of children's play. In fact, it was mothers' level of education more than children's cognitive ability that predicted changes in children's play profiles from pre- to post-treatment.
- ❖ These findings are a first step towards gaining a better understanding of cognitive changes that occur as a result of improving children's mental health.

## LIMITATIONS

- ❖ The number of each group in the low and average cognitive categories was small. Future studies should attempt to recruit more participants, especially those in 2-4 years age group, in order to examine age differences in the complexity of play from pre- to post-treatment.



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