

Pretend Play of Children with Cerebral Palsy

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ABSTRACT. *Background and Purpose:* Evaluate self-initiated pretend play of children with cerebral palsy. *Method:* Twenty preschool children participated in the study. Pretend play ability was measured by using the child-initiated pretend play assessment culturally adapted to Brazil. *Results:* There were significant negative correlations between the children's motor severity level and their elaborateness of play with conventional-imaginative and symbolic play materials and a number of object substitutions in symbolic play. This indicated that children with greater motor limitations had diminished play ability. In this sample, 35% of the children showed typical play styles, identified by good scores in elaborate pretend play actions, number of object substitutions, and ability to self-initiate play, whereas 65% showed delay in their play. *Implications:* The type of pretend play deficits that might be expected in children with cerebral palsy were described. Furthermore, suggested directions for therapeutic intervention to enhance pretend play performance in cerebral palsy children were proposed.

KEYWORDS. Assessment, cerebral palsy, intervention, pretend play

INTRODUCTION

Cerebral palsy (CP) describes a group of permanent disorders in the development of movement and posture, causing activity limitations, which are attributed to non-progressive disturbances that have occurred in the developing foetal or infant brain (Rosenbaum, Paneth, Leviton, Goldstein, & Bax, 2007). Children with CP have abnormal motor behavior, characterized by various abnormal patterns of movement

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and posture related to defective coordination of movements and/or regulation of muscle tone (Bax, Goldstein, Rosenbaum, Leviton, & Paneth, 2005). These often result in a child having limited experiences in the exploration of both objects and the environment, thus having an impact on play. The ability to play is a primary occupational role during early childhood and through play, children interact with toys, peers, and adults in different situations, enhancing competencies in motor, cognitive, and social-emotional skills (Cruz & Pfeifer, 2006). Symbolic play is a cognitive play skill characterized by three key cognitive attributes: using an object as something else, attributing properties to objects, and referring to absent objects or actions (Stagnitti, 2007). Symbolic play development is associated with social participation and interaction with peers, learning, problem solving, language, and literacy (Stagnitti, 2009).

The motor limitations of children with CP can cause disruptions in the development of a child's engagement with their environment and make it difficult for children to spontaneously explore their environment and pursue social relationships. Motor limitations may decrease opportunities for self-initiated spontaneous play, which is vital for the growth and development of children (Missiuna & Pollock, 1991) and is particularly important for cognitive skill development (Nicolopoulou, Sá, Ilgaz, & Brockmeyer, 2010).

In a systematic review of literature from the last 30 years on the play of children with CP, Cruz and Pfeifer (2006) found 29 studies. Only one paper described symbolic play in children with CP. In this study, Pires, Garcia, and Gomes (2004) observed simple gesture schemes and the sequential schemes of symbolic play actions to verify the level of symbolic representation in 10 children between 3 and 5 years of age. The authors used the Evaluation of Symbolic Maturation (Befi-Lopes, Takiuchi, & Araujo, 2000) that involved observing a child for 15 min of free play, with a standard set of toys. During this assessment, the child was asked to imitate one simple gestural scheme modeled by the therapist and then the therapist modeled a gestural sequential scheme about an everyday event of the child, while telling the child what he/she was doing. The therapist then instructed the child to re-enact the sequence. Pires et al. (2004) found that children with CP had a delay in their symbolic play development.

Piaget (1987) described symbolic play as a significant milestone of cognitive development, as it demonstrates how children can imagine objects and events that are not present. It is considered essential for the solution of abstract problems and language development. Vygotsky (1966) argued that cognitive ability develops through symbolic play. Children's symbolic play can promote cognitive development and social competence such as self-regulation and perspective taking (Nicolopoulou et al., 2010).

Assessments of play used by occupational therapists include the Play History, Assessment of Play Behavior, Test of Playfulness, Knox Revised Preschool Play Scale, Transdisciplinary Play-Based Assessment, and the Child-Initiated Pretend play assessment (ChIPPA) (Pfeifer & Cruz, 2008). As this study was concerned with self-initiated pretend play ability, the ChIPPA was chosen, as it directly assesses this play ability.

The ChIPPA is a norm-referenced standardized assessment of the quality of a child's ability to self-initiate pretend play and was designed to be used with

children between 3 and 7 years of age (Stagnitti, 2007). The ChIPPA evaluates both conventional-imaginative play and symbolic play. For each of these play sessions, three items are scored that include the ability of the child to organize play actions logically and in sequence (called elaborate play), the child's ability to use an object and pretend it is something else (called object substitution), and the child's ability to come up with different ideas to play without imitating the examiner's modeled actions (Stagnitti, 2007). It takes 30 min to administer for 4- to 7-year-olds and 18 min for 3-year-olds.

It was developed to assess any child 3–7 years 11 months of age where there was a concern about their play development. There are specific administration instructions for children with a physical disability.

Self-initiated pretend play is associated with better language skills, greater ability to negotiate with peers, increased ability to understand concepts, use of symbols in play, and self-organization of play time (Stagnitti, 2009). There is very little information on the self-initiated pretend play abilities of children with CP. This study examined the spontaneous pretend play abilities of 3- to 6-year-old children diagnosed with CP.

METHODOLOGY

This study was an applied nonexperimental study. The aims of the study were (a) to describe the spontaneous pretend play of CP children, (b) to investigate the relationship between level of motor severity and play ability, and (c) to examine inter- and intra-rater reliability of data collected.

Participants

Twenty children with CP between 3 and 6 years 11 months of age participated in the study. There were 9 girls and 11 boys. All children ranged from levels I to V in level of severity as measured by the Gross Motor Function Classification System (GM-FCS) (Palisano et al., 1997). Their families were from middle or low socioeconomic status, and the children received therapeutic care in a publically funded rehabilitation institution. None of the children had their vision corrected by glasses. To be included in the sample, the children were required to have head and trunk balance (with or without supported sitting) in order to have their upper limbs free to manipulate objects and toys. All children could, in some way, touch, hold, or push toys. If needed, the ChIPPA guideline allows the examiner to assist the child in manipulating the toys in the case of motor difficulties. Verbal and nonverbal children were included in the sample. Children who did not understand simple instructions, identified by verbal and nonverbal nonresponse to social interaction, were excluded from this sample.

Instruments

The Brazilian translated and adapted version of the ChIPPA, which followed a six-stage translation process that included translations, back translations, approval of author, and pretest (Pfeifer, Queiroz, Santos, & Stagnitti, in press), was used to assess each child's spontaneous ability to initiate pretend play.

Table 1. The ChIPPA Items (Abbreviations and Descriptions)

Item Abbreviation	ChIPPA Item Description
PEPA conventional-imaginative	Elaborateness of pretend play using conventional-imaginative play materials.
PEPA symbolic play	Elaborateness of pretend play using unstructured play materials.
PEPA combined	Total score of the elaborateness of pretend play using both conventional-imaginative and unstructured play materials.
NOS conventional-imaginative	Number of object substitutions using conventional-imaginative play materials.
NOS symbolic	Number of object substitutions using unstructured play materials.
NOS combined	Total number of object substitutions achieved throughout the play assessment, using both sets of play materials.
NIA conventional-imaginative	Number of imitated actions using conventional-imaginative play materials.
NIA symbolic	Number of imitated actions using unstructured play materials.
NIA combined	Total number of imitated actions throughout the play assessment.

For the conventional-imaginative session of the ChIPPA, the toys resemble a farm set and for the symbolic play session, a set of unstructured objects comprise the play materials. For the ChIPPA administration, the examiner and child sit on the floor in front of a “cubby house” (that is made from a sheet thrown over two adult chairs to simulate a “play house”). The administration of the assessment is presented in a way that the child is not aware that he/she is being assessed. The examiner presents the child with the first set of play materials and invites the child to play. Each session of the ChIPPA is of 9 min (for the 3-year-olds) or 15 min (for the 4- to 7-year-olds). After each session, the examiner informs the child that there are other play materials and it is time to change over to the new set.

For each session (conventional-imaginative play and symbolic play), the child is encouraged to play with the toys for 3 min (for 3-year-olds) or 5 min (for 4- to 7-year-olds), then for the next 3–5 min, the examiner models five play actions according to the administration instructions in the ChIPPA manual. For the final 3–5 min, the child is encouraged to continue playing without encouraging any play ideas or giving the child any directions on how or what to play.

There are nine raw scores that are calculated from the ChIPPA (see Table 1). For each play session of the ChIPPA, the child is scored on the elaborateness of their play (called percentage of elaborate play actions—PEPA), the number of object substitutions (NOS), and the number of times a child imitates actions (NIA) of the examiner during the middle 3- or 5-min segment of each session. There is also a clinical observations form that includes identification of the pattern of play scores across the two sessions. These patterns form play styles. Four play styles have been identified as “Typical play styles,” and six play styles have been identified as “Deficit play styles” (Stagnitti, 2007).

Procedure

Data Collection

This study had ethical approval through the Ethics Committee of the Hospital das Clínicas—Ribeirão Preto Medical School (HC-FMRP). The children for the study

were recruited through the Centre of Rehabilitation of the Hospital das Clínicas. When the children presented at the clinic with their parents, the parents were invited to include their children in the study. For those parents who consented to having their child participate in the study, a consent form was signed and an appointment was organized for the child to return for the assessment. There was no disadvantage to families if they did not consent.

For the ChIPPA, children were filmed individually. All the assessments took place in Brazil at the Laboratório de Ensino e Pesquisa em Terapia Ocupacional, Infância e Adolescência—LEPTOI, which is near the Centre of Rehabilitation of the Hospital das Clínicas. As the ChIPPA is administered with the child and therapist sitting on the floor, some of the children in the study were supported using a seating support apparatus. Children were assessed according to the ChIPPA guidelines. The ChIPPAs were scored from the child's DVD recording of their play assessment.

Three occupational therapy research students administered the ChIPPA with the children and scored the ChIPPA from the DVD. These assessors were trained by reading the manual of the ChIPPA, watching the ChIPPA instructional DVD, and refining their understanding of the administration and scoring of the ChIPPA with the research group, which included one researcher who had more than 20 years of experience in pediatric occupational therapy.

Data Analysis

For inter-rater reliability, each child's ChIPPA DVD was scored independently by two assessors. As this was the first study to examine the spontaneous ability of children with CP to initiate pretend play, the scores from each play session of the ChIPPA were examined for analysis of children's play with conventional-imaginative play and symbolic play and the combined scores were not used in analysis. The child's scores of PEPA, NOS, and NIA in conventional-imaginative and symbolic play sessions (see Table 1) were compared to the ChIPPA normative scores (Stagnitti, 2007) and were categorized across four levels of performance. These were (a) good performance (above the range), (b) performance expected for age (within the range), (c) delay for age, and (d) significant delay (needing intervention).

Play styles of the children were identified on the clinical observations form and were based on the description in the ChIPPA manual (Stagnitti, 2007). Statistical analyses, using SPSS version 17.0, were carried out using Spearman correlation to examine the relationship between age and PEPA, NOS, and NIA scores in conventional-imaginative and symbolic play sessions. To examine gender differences in play scores, a Mann Whitney test was used. Spearman correlation was also used to examine the relationship between motor level severity (GMFCS level) and PEPA, NOS, and NIA scores in conventional-imaginative and symbolic play sessions.

Intra- and Inter-Rater Reliability

Two examiners scored each DVD at two different points in time in order to calculate intra- and inter-rater reliability agreement. The Intraclass Correlation Coefficients

Table 2. ChIPPA raw scores for the sample compared with ChIPPA norms

Age in Months	Gender	GMFCS	PEPA		NOS		NIA	
			Conv	Symb	Conv	Symb	Conv	Symb
37	Boy	I	56**	0***	0**	3*	2**	0**
40	Girl	II	72**	0***	0**	1**	0**	0**
40	Girl	V	11****	5****	0**	1**	3**	3****
41	Girl	V	0****	0****	0**	0**	0**	0**
43	Boy	V	26***	18***	0**	1**	1**	2**
47	Girl	I	88**	33**	0**	9*	0**	2**
50	Boy	I	29****	37**	0**	2****	5****	0**
57	Boy	V	0****	0****	0**	0****	0**	0**
57	Girl	I	56**	43**	1*	6***	2****	7****
60	Girl	IV	0****	8****	0**	3****	0**	0**
61	Boy	I	73**	65**	2*	26*	2****	1**
61	Boy	I	64**	52**	0**	0****	1**	1**
66	Boy	V	0****	0****	0**	0****	0**	0**
66	Boy	I	87*	68**	0**	12**	0**	0**
67	Boy	II	33****	53**	2*	0****	1**	0**
67	Girl	II	78**	89*	0**	2****	1**	2****
70	Boy	V	0****	0****	0**	0****	0**	0**
70	Girl	II	55**	39**	2*	2****	0**	1**
72	Boy	V	0****	2****	0**	0****	0**	0**
72	Girl	III	21****	45**	4*	5**	1****	0**

Notes: GMFCS, Gross Motor Function Classification System; Conv, conventional-imaginative; Symb, symbolic.

*Good performance above the range for age.

**Performance in the range for age.

***Delay for age.

****Significantly delayed for age—needing intervention.

(ICC type 2,1) with confidence intervals (CI) of 95% were used in analyses (Weir, 2005). Internal consistency was measured by Cronbach's alpha coefficient.

RESULTS

The children's raw scores for PEPA, NOS, and NIA in both play sessions (conventional-imaginative and symbolic play) of the ChIPPA were coded to indicate the comparison to the ChIPPA normative data and are presented in Table 2.

Elaborate Play Actions

In the conventional-imaginative play session, 9 children scored within or above the range, 1 child's scores indicated a play delay for age, and 10 children scored in the range showing significant delay compared with normative data.

For the symbolic play session, 10 children scored within or above the range, 1 child's scores indicated a play delay for age, and 9 children scored in the range showing significant delay compared with the normative scores.

Using Object Substitution During the Play

Most children scored a zero for object substitutions in the conventional-imaginative play session as children played with the toys in a conventional way, not in a

Table 3. Matrix of Correlations for GMFCS and ChIPPA Scores

	GMFCS	PEPA Conv	PEPA Symb	NOS Conv	NOS Symb	NIA Conv
PEPA conv	-.833**					
PEPA symb	-.580**	.631**				
NOS conv	-.247	.159	.496*			
NOS symb	-.662**	.628**	.504*	.331		
NIA conv	-.399	.252	.371	.261	.292	
NIA sym	-.218	.437	.401	.130	.317	.412

Notes: GMFCS, Gross Motor Function Classification System; Conv, conventional-imaginative; Symb, symbolic; PEPA conv, elaborate play scores for the conventional-imaginative play session; PEPA symb, elaborate play scores for the symbolic play session; NOS conv, object substitution score for the conventional-imaginative play session; NOS symb, object substitution score for the symbolic play session; NIA conv, number of imitated actions for the conventional-imaginative play session; NIA symb, number of imitated actions for the symbolic play session.

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

symbolic way. There were 5 children in this sample who scored higher than 0, indicating ability for creativity and higher levels of object substitution. During the symbolic play session, 9 children scored within or above the range, 1 child scored in the range showing a play delay for age, and 10 children scored in the range showing significant delay compared with normative scores.

Imitating the Assessor Actions

Sixteen children scored within the range expected for the NIA during the conventional-imaginative session, and 4 children scored outside the range of typically developing children indicating more reliance on the examiner's modeled actions for play ideas. For the symbolic play session, 17 children scored within the range expected for the NIA and 3 children scored outside the range.

The Spontaneous Pretend Play of Children with CP

Seven children (35% of the sample) showed typical play styles (see Table 2) identified by good scores in elaborate pretend play actions (PEPA) in both play sessions, ability to substitute objects and a low NIA. In typical play style, two styles were noted which were the "narrative play style" and the "experimental physicist play style."

However, 13 children (65% of the sample) showed play styles with deficits in pretend play. Five deficit play styles were found which were "Symbolic Play Deficit" style, "Imitator" play style, "High Fantasy" play style, the "Functional" player, and the "Disorganized" play style.

Factors Associated with Pretend Play Ability

Table 3 presents the correlation matrix for ChIPPA scores and GMFCS levels. There were no significant differences between boys and girls for all play items. Similarly, there were no significant relationships between age and play items.

Spearman's coefficients revealed that there were significant negative correlations between level of motor severity (GMFCS) and elaborate actions during the conventional-imaginative and symbolic play sessions and the NOS during the symbolic play session (Table 3). There were significant correlations between elaborate

play for the conventional-imaginative session and the NOS during the symbolic play session. There were significant correlations between elaborate play scores for the symbolic play session and the NOS during the conventional-imaginative and symbolic play sessions. There were no significant correlations between the NIA and all items analyzed.

Intra and Inter-Examiner Reliability

For intra-rater reliability, the ICC (type 2,1) was .73, (95% CI: .46–.87). The internal consistency showed a Cronbach alpha of .73. For inter-rater reliability, the ICC (type 2,1) was .64, with a 95% CI of .35 to .84. The internal consistency showed a Cronbach alpha of .64.

DISCUSSION

The ChIPPA scores reflect a child's ability to elaborate in play, use symbols, and self-initiate play ideas. Each of these abilities may be challenging for children with CP.

The severity of motor limitation was related to elaborate play actions in both play sessions. During the conventional-imaginative and symbolic play sessions, all children who performed well were at GMFCS levels I–III, whereas most children who performed poorly were at GMFCS level V. Seven children presented with good elaborate play actions in both play sessions, and these children were less severely involved in motor impairment. These results concur with Pires et al. (2004) who found that children with CP with minor motor challenges perform better in symbolic play development.

It should be noted, however, that 12 children (60%) performed well in at least one of the play sessions, and this finding indicates that not all children with CP have a limited repertoire for play. In fact, these children displayed skills in elaborating their play, initiating play ideas, and developing stories using the toys in play scenes. Elaborate play reflects children's capacity to expand, organize, and add complexity in their play, including following sequences and expanding on the topic and narration of the play (Cartwright, 2004).

Thirteen children (65%) presented with at least one play session with PEPA scores showing significant delay indicating that these children likely would benefit from interventions to improve their play performance. Children with low scores cannot sustain play, present with difficulties in playing with others, and are less flexible and adaptable than peers (Stagnitti, 2007). Low elaborate play scores are related to social disconnection (Uren & Stagnitti, 2009). Children with CP may encounter secondary social, emotional, and psychological disabilities because their play experience is restricted by a physical disability (Missiuna & Pollock, 1991). They spend more time in solitary play and on-looker behaviors (Hestness & Carroll, 2000), which can limit their social skill development due to a greater dependency on others, a lowered self-competence, and a decreased motivation (Howard, 1996).

Object substitution scores (NOS) represent the number of times the child pretends that a toy or an object is something else (Stagnitti, 2007). Object substitution scores during the conventional-imaginative session were within the range expected,

with 5 children (25%) showing increased ability in this area. The lack of variability in scores in the NOS during the conventional-imaginative session is due to the majority of children using the conventional materials in a conventional manner rather than a symbolic manner (Stagnitti & Unsworth, 2004). However, 5 children (25%) used one or more object substitutions during the conventional-imaginative play session, which shows evidence of representational thought, and these children were at GMFCS levels I and II.

In the symbolic play session, the NOS ranged from 0 to 26, with 6 children (30%) performing in the expected range and 3 children (15%) performing above the range. All these 9 children (45%) had a GMFCS level of I. The use of symbols in play is a cognitive skill that provides evidence of representational thought, which can be observed when children substitute objects in play, give characteristics to objects and actions, and refer to absent objects (Stagnitti, 2007). The use of an object in the place of another is related to language (Westby, 2000).

More than 50% of children presented with the NOS score in the symbolic play session below the normative value. Children with low scores on this item may be at risk for language delay and, particularly, narrative language delay; they may be a literal thinker and not as creative as peers and/or unable to use symbols in play (Stagnitti, 2007). Low object substitution scores are also related to social disruption with peers (Uren & Stagnitti, 2009).

The NIA that children performed in both play sessions was low, except for 6 children (30%) who imitated more than what would be expected for their age. There were no correlations between NIA and motor severity level.

The high NIA indicates that these children rely on others to show them how to play, have difficulty initiating play ideas, and may be less inclined to be able to entertain him/herself and/or is more inclined to allow peers take the lead in play (Stagnitti, 2007). However, many children in the current study scored a zero for imitated actions. If scores are individually considered, without reference to the pattern of scores, it could be interpreted that the children in this study could initiate their own play, without needing to imitate play actions. However, when the pattern of scores is examined, it becomes clear that some children who did not imitate the examiner's actions (NIA) could not initiate play spontaneously in elaborate play or substitute objects. This pattern indicates a general deficit in playing.

The ChIPPA play styles are based on the pattern of scores across both play sessions. These play styles provide a deeper interpretation of play skills and can guide intervention goals and planning. Three children showed the typical play style of the "Narrative Play Style" and were at GMFCS level I. The narrative play style is identified by PEPA, NOS, and NIA scores being within the expected range for age. This style of play indicates that these children can logically and sequentially organize a play narrative, use objects flexibly in play scenarios, and be able to self-initiate a narrative in their play (Stagnitti, 2007).

Four children (20%) presented another typical play style called the "Experimental Physicist" play style that is indicative of a mathematical style of play. In this play style, children present with good scores in elaborate play (PEPA), but they do not show evidence of object substitution in either play session. Children who display this style of play are interested in the properties of the unstructured objects in the symbolic play session and do finely tuned experiments with balancing objects,

cause and effect experiments, and display logical sequential thinking in problem solving with the objects. They do not use the objects symbolically as something else, and their play in the conventional-imaginative play session shows a basic narrative (story) with the conventional toys. They do not imitate the examiner.

Thirteen children (65%) were identified as having a deficit play style. Several deficit play styles were identified across this group of children with some children showing more than one deficit play style. Children who presented with the Symbolic Play Deficit style showed great difficulty playing with unstructured materials and imposing meaning on them in play during the symbolic play session. They presented with better scores in the conventional-imaginative play session. The symbolic play materials are developmentally more challenging to play compared with the conventional toys (Stagnitti & Unsworth, 2004).

The “Imitator Play Style” is identified by high scores (more than expected) in imitated actions, indicating that these children have difficulty in initiating their own play ideas, and so they need to imitate the examiner’s modeled actions (Stagnitti, 2007). These children score poorly in elaborate play and object substitution. Some of the children scored more poorly in the conventional-imaginative play compared with the symbolic play session indicating they were likely to have the “High Fantasy” play style. The High Fantasy play style indicates the child is better at symbolic play than conventional-imaginative play.

Seven children (35%) showed very little ability to play in both sessions. These children were identified with the play style of “Disorganized Player.” This play style has a pattern of low scores in elaborate play and object substitutions as well as low scores in imitated action. Often, these children do not understand that the modeling by the examiner is an indication of how to play with the play materials. All these participants were at GMFCS level IV or V. In this play style, the low scores in imitated actions (NIA) indicate that these children do not imitate the modeled action of the therapist, not because they are able to initiate their own play ideas but because they could not play at all. These findings confirm that children with disability are more likely to experience difficulties in pretend play (Westby, 2000) and raises questions about the possibility of motor limitations and their affect on children’s cognition.

The nonsignificant correlation between pretend play and age could be a result of the small sample size. Alternatively, this result could indicate that play ability was not related to chronological age but strongly influenced by motor level, as 65% of the sample showed play deficits.

The significant correlations between the elaborate actions during the conventional-imaginative session and the symbolic session show that children who could play with conventional-imaginative toys could play with symbolic materials, too. The significant correlation between elaborate play and object substitution shows that the cognitive play skills of logical sequencing of play actions and using symbols in play are related.

The NIA was not correlated with any of the items in either session. This differs from Stagnitti (2007) who found significant negative correlations between NIA and elaborate play actions, indicating that children with a high level of elaborate play do not display high imitation behaviors of the examiner. As children with CP have more limited ability for playful exploration, it may be related to an inability to

initiate play actions (Santos & Pfeifer, 2009). Hence, children in this sample who could elaborate their play and substitute objects may still imitate the examiner more often compared with a sample of typically developing children.

Studies by Moore and Russ (2008) have shown that interventions targeting the development of pretend play abilities had a strong impact on cognitive performance and processes involving emotional behaviors. In view of this, the importance of therapeutic interventions focused on the development of pretend play with children with CP should be considered. Through pretend play, children develop their problem solving skills, flexibility of thought, narrative competence, organization of thought, adaptation, understanding of social interaction, and language development (Stagnitti, 2009; Uren & Stagnitti, 2009; Westby, 2000).

The sample in this study was small, with the distribution in motor function levels being mainly GMFCS levels I or V. A larger sample is needed to examine the correlation between motor severity level, age, and pretend play performance. The children were not evaluated for their hand function. In future studies the inclusion of a hand function assessment would help to verify the relationship between global motor functioning and play ability of children.

The children were not formally assessed with an intelligence test and so comparison between intelligence and pretend play could not be made. The research on the relationship between pretend play and intelligence is varied (Clune, Paoletta, & Foley, 1979; Morrissey & Brown, 2009). Future studies could examine the relationships between aspects of cognition, mobility, and hand function with pretend play ability for children with CP.

Implications for Practice and Conclusions

An ecologically meaningful evaluation of play, focused on the child's own initiation of play, provided a functional evaluation of the child's ability in pretend play. The use of the Brazilian version of the ChIPPA was feasible in evaluating play behavior of children with CP. The findings identify the range of play ability within a sample of children with CP and so allow for a targeted individual intervention for each child. For example, encouraging children with poor elaborate play to imitate play actions is a way to encourage a child's ability to initiate their own play; children with High Fantasy style may benefit from intervention focused on play with conventional toys to increase children's understanding of how to use toys in play; and functional players appear to know how to use the toys but they do not use object substitution or elaborate play in logical play action sequences so lack complexity in their play. Children with a Symbolic Play deficit style may require interventions in the use of unstructured play materials to expand their use of object substitution and symbols in play. In summary, the pretend play abilities identified by the ChIPPA for children with CP provide clinically useful information on the child's play ability and also indicate the areas of play ability that the child is performing well in as well as any areas that require strengthening.

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