

# Effect of Occupational Therapy–Led Playgroups in Early Intervention on Child Playfulness and Caregiver Responsiveness: A Repeated-Measures Design

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## MeSH TERMS

- caregivers
- community health services
- early intervention (education)
- occupational therapy
- play and playthings

**OBJECTIVE.** This study's objective was to investigate the effects of a community playgroup on the playfulness of children with special needs ages 15 mo to 3 yr and the responsiveness of their caregivers.

**METHOD.** Using a pretest–posttest, repeated-measures design, we evaluated 8 child–caregiver dyads participating in an 8-wk occupational therapist–led community playgroup recruited from a purposive sample enrolled in early intervention. Video recordings from four time points over 4 mo were used to determine playfulness (Test of Playfulness) of the child and the responsiveness of the caregiver.

**RESULTS.** Blinded raters assessed playfulness and responsiveness outcomes. A repeated-measures analysis of variance demonstrated that participation in the playgroup significantly increased child playfulness ( $\eta_p^2 = .89, p < .01$ ). Analysis did not detect a change in caregiver responsiveness.

**CONCLUSION.** The results of this study have implications for the use of playgroups in comprehensive occupational therapy practice in early intervention.

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The World Health Organization (2001) has recognized participation as a key indicator of health and well-being. Children participate in the world around them through *play*, a spontaneous or organized activity that provides enjoyment, entertainment, amusement, or diversion (American Occupational Therapy Association [AOTA], 2014). Play contributes to a child's growth, development, socialization, communication, and creativity (Bergen, 2002; Daniels, 1995; Sutton-Smith, 1997). Engaging in play facilitates social participation, with peer play being central to childhood. Most significantly, play opportunities improve the health and well-being of a person throughout his or her lifetime (Bertrand, Williams, & Ford-Jones, 2008).

Play is context dependent and takes on many forms unique to the individual. *Playfulness* has been described as the approach a person demonstrates during play interactions that can be applied to a variety of environments and that is culturally relevant (Bazyk, Stalnaker, Llerena, Ekelman, & Bazyk, 2003; Daunhauer, Coster, Tickle-Degnen, & Cermak, 2007). The occupations and activities of play are complemented by the child's playfulness (Bundy et al., 2008). Caregivers are their child's first playmate, and this early partnership supports the child's play, playfulness, participation, and well-being (Daunhauer et al., 2007; Okimoto, Bundy, & Hanzlik, 2000). Children with special needs may not be offered the same opportunities to play as their peers because play for such children may not be a priority in the family's daily life (Brodin, 1999; Burke, 1996). Caregivers and children may have individual characteristics that interfere with their ability to participate and play with others in a community

setting. Effective interventions used by occupational therapy practitioners working with young children with special needs and their families in early intervention include coaching families to respond to their children and modeling play embedded in daily routines to maximize participation (Case-Smith, 2013).

## Playfulness and Playgroup Intervention

Playfulness is one aspect of play that has been linked to creativity, adaptability, coping skills, and competence (Barnett, 1990; Hess & Bundy, 2003). The evidence demonstrates that children with special needs appear to have decreased play and playfulness compared with typically developing peers (Buchanan, 2009; Rigby & Gaik, 2007). The flexibility and imagination demonstrated by children who are playful contributes to their ability to participate in play opportunities. According to the *Occupational Therapy Practice Framework: Domain and Process* (3rd ed.; AOTA, 2014), play participation encompasses engaging in play, maintaining a balance of play with other occupations, and managing play objects. Playfulness can be demonstrated throughout the day in all occupations of caregivers and children (Bazyk et al., 2003), leading to participation in a variety of contexts.

A community playgroup offers additional opportunities to play for all children, including children with special needs. Playgroups have a valuable role in early childhood education, and evidence indicates they contribute to a positive transition to preschool (Missal & Hojnoski, 2008; Ramsden, 1997). In Australia, playgroups are a critical part of prevention and intervention for families with young children with special needs (Jackson, 2011). In the United States, the largest and most empirically supported type of intervention for peer play involves preschool and school-age children with autism, with benefits reported in social interaction, communication, and play (Bass & Mulick, 2007). Children who regularly participate in playgroups demonstrate healthy parental relationships,

improved cognitive or behavioral development, more peer-oriented play, increased self-confidence and well-being, and more opportunities for play (Chen, Hanline, & Friedman, 1989; Farrell, Tayler, & Tennent, 2002; French, 2005; Mize & Pettit, 2010). Because playgroups are a typical way for caregivers and their children to play in the community, this approach supports the family in their natural routine.

To provide scientifically based interventions as outlined in Part C of the Individuals With Disabilities Education Improvement Act of 2004 (Pub. L. 108–446), occupational therapy practitioners must determine the effectiveness of community-based services for children and their families. The purpose of the study described in this article was to determine the effect of a community playgroup on the playfulness of children with special needs ages 15 mo to 3 yr and the responsiveness of their caregivers. The principal investigator (Sarah E. Fabrizi), an occupational therapist providing the intervention, was one member of a transdisciplinary early intervention team that initiated, developed, organized, and led the community playgroup to improve family participation through promotion of positive caregiving and child playfulness. The researchers used both traditional developmental and occupation-based theory of play and the Person–Environment–Occupation Model (Law et al., 1996) to examine two research questions:

1. Is an occupational therapist–led community playgroup effective in increasing the playfulness of children ages 15 mo to 3 yr enrolled in early intervention?
2. Is the occupational therapist–led community playgroup effective in modifying the sensitivity and responsiveness of caregivers?

## Method

### Research Design

A one-group, repeated-measures pretest–posttest research design was used to investigate the effectiveness of the occupational therapist–led community playgroup (Figure 1).

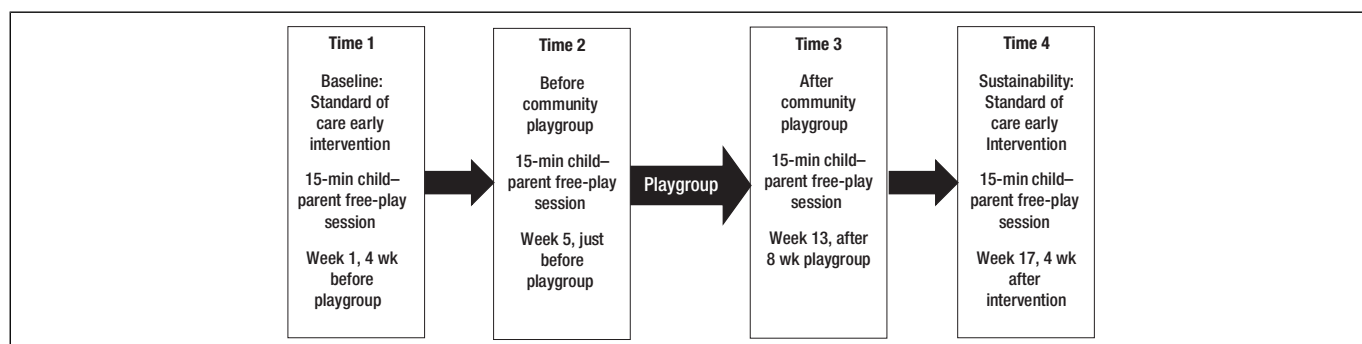


Figure 1. Study design and timeline for data collection.

Approval was obtained from the institutional review boards at the Florida Department of Health and Nova Southeastern University. Caregivers provided informed consent before participation in the study.

### *Participant Selection*

Families who were receiving early intervention services within a particular geographic area were recruited through providers. To be included, each child participant had to be between age 15 mo and 3 yr and have at least one caregiver agree to attend all eight intervention sessions. Child-caregiver dyads were selected on a first-come, first-served basis. Of the 12 caregivers who made contact to participate, 8 were enrolled. The other 4 caregivers reported a move away from town ( $n = 2$ ), illness ( $n = 1$ ), or lack of transport ( $n = 1$ ) as the reason for not choosing to participate. All participants enrolled in the study were included in the final data analysis.

### *Instrumentation*

*Test of Playfulness.* The Test of Playfulness (ToP) Version 4.2 is a standardized observational assessment developed to objectively measure the four elements of playfulness—(1) intrinsic motivation, (2) internal control, (3) freedom to suspend reality, and (4) framing—in people age 6 mo and older (Skard & Bundy, 2008). The ToP comprises 30 items rated on a 4-point scale (0–3) that reflects the extent, intensity, or skill of a child in free play. The ToP has been found to yield valid and reliable results in children who are typically developing (Bundy, Nelson, Metzger, & Bingaman, 2001) and in children with special needs (Okimoto et al., 2000; Reid, 2004). Internal consistency for the ToP has a Cronbach's  $\alpha$  reported near 1.00 and interrater reliability reported at 95% ( $N = 300$ ), with goodness of fit according to the Rasch model.

*Qualitative Ratings for Caregiver Sensitivity and Responsiveness.* The National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network (1999) developed observational caregiving scales with a subscale to measure caregiver sensitivity and responsiveness. The caregiving scales were adapted for use in research with children ages 15–30 mo who demonstrated potential autistic spectrum disorder (Baker, Messinger, Lyons, & Grantz, 2010). The subscale quantifies the caregiver's sensitivity and responsiveness on a 7-point scale ranging from 1 = *very low* to 7 = *very high*. The scales have been used to evaluate positive caregiving for children ages 1–4 yr, with reported reliability (intraclass correlation coefficients [ICCs]) ranging from .68 to .99 in several published studies (Halle, Anderson, Blasberg, Chrisler, & Simkin, 2011). An adaptation of

the caregiving scales used in research has been published by the NICHD (2005) as a measure of quality of care.

### *Procedures*

*Standard of Care Early Intervention.* All children who participated in the community playgroup study were enrolled in early intervention services. In standard of care early intervention, each family has a primary service provider who works with the family in the natural environment using a transdisciplinary team-based approach (King et al., 2009). The delivery of services and supports is developed by the team, which includes the family, and outlined in the individualized family service plan (IFSP). The number of services and supports for each family that participated in this study was recorded but not controlled for.

*Community Playgroup Intervention.* The children and their caregivers participated in an occupational therapist-led playgroup, held at a local community center, for 1 hr, once a week, for 8 wk. Research on playgroups focused mainly on children with autism has supported the use of a structured play session (Lantz, Nelson, & Loftin, 2004; Wolfberg, 2003; Yang, Wolfberg, Wu, & Hwu, 2003; Zercher, Hunt, Schuler, & Webster, 2001). Table 1 presents the semistructured, 8-wk intervention plan of the current study. Incorporating aspects of both the Integrated Play Group Model (Lantz et al., 2004) and Australian early intervention supported playgroups (Jackson, 2011), the intervention used a Vygotskian approach to social interaction in which the caregiver assists or scaffolds play that the child may not be able to perform alone (Jackson, 2011; Wolfberg, 2003). A sensorimotor exploration period was included consistent with a study of a preschool free-play group that included gross motor and exploration play as a means to increase initiation and responses in children with delayed play skills (Tanta, Deitz, White, & Billingsley, 2005). Toys used in playgroup sessions, as described in the literature, were objects that supported sharing and had high social and imaginative potential (Tanta et al., 2005; Wolfberg, 2003).

Addressing the play needs of young children is within the domain of occupational therapy (AOTA, 2014). The researchers used both historical and occupational therapy-specific play theories to establish a range of developmentally appropriate play opportunities for the children and their caregivers, including exploratory and sensorimotor play, manipulative and constructive play with objects, social play with the caregiver, parallel and emerging cooperative play with peers, and promotion of pretend play and imagination. Suggestions from infant space theory were incorporated to include use of natural

**Table 1. Community Playgroup Intervention**

Activity	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Hello Song to promote social exchanges	Greeting and "Hello Song": OT facilitates caregiver/child saying each child's name, and group waves hello to each child.							
Warmup	Caregivers assist children in imitating motor movements. Gross motor and physical activities promote playful behaviors and interactions between caregiver and child.							
Play skills with OT modeling and caregiver performing with child	Baby sit-up	Upside down	Lap rollover	Elevator	Forward roll	Headstand	Log roll	Ball bounce
Sitting song with OT playful in approach	"Itsy Bitsy Spider"	"Wheels on the Bus"	"Open Shut Them"	"Tony Chestnut"	"Twinkle, Twinkle, Little Star"	"Five Little Monkeys"	"Skinamarinky Dinky Dink"	"Row, Row, Row Your Boat"
Standing dance to song	"Head and Shoulders, Knees and Toes"	"If You're Happy and You Know It"	"Teddy Bear"	"I'm a Little Teapot"	"Hokey Pokey"	"Down by the Station"	"Pop Goes the Weasel"	"Ring Around the Rosey"
Sensorimotor exploration	Children use ball pit, varied balls, tunnel, scarves, rings, cones, and bean bags. OT sets up environment and coaches caregivers, models play with objects, and scaffolds social and play interactions. OT adapts activity to encourage child initiation of exploration.							
Manipulative construction	Children use large blocks, large Legos, and musical instruments.							
Pretend play	Food items and cart	Dress up	Baby and trucks	Birthday party	Animals	Puppets	Cooking and baking	Outdoor
Goodbye to promote social exchanges	Bubbles and "Goodbye Song": OT facilitates caregiver/child saying each child's name, and group waves goodbye to each child.							

*Note.* OT = occupational therapist.

contexts and appropriate play challenges as the caregiver and child moved from the home environment to participation in their community (Pierce, Munier, & Myers, 2009). Because of the significant impact the physical and social environment has on playfulness, we used the Person–Environment–Occupation Model to translate theory to intervention in the development of the community playgroup.

The components of person (caregiver, child, occupational therapist), environment (physical and social), and occupation (play) were explored to identify approach, type, and strategies for intervention to support play participation. The intervention approach used in the community playgroup included promotion of play participation through opportunity in a community setting, establishment of positive caregiving and child playfulness, and modifications to the physical and social environment for positive interactions and success in play. The occupational therapist provided caregiver education through modeling of playful behavior and coaching in positive caregiving and developmental play skills during play interactions. Group intervention with semistructured activities provided occasions for participants to develop performance skills and patterns for participation in play.

### Data Collection

Video recordings of 15 min of free play between caregiver and child were used to score the ToP assessment of child playfulness and the NICHD Early Child Care Research Network (1999) subscale of caregiver sensitivity and

responsiveness at each of the four time points: T1 (baseline), T2 (precommunity playgroup), T3 (postcommunity playgroup), and T4 (sustainability). Each dyad was video recorded in a familiar play setting in the natural environment determined by the caregiver. All video recordings were collected and saved using a nonidentifying code.

The principal investigator and two graduate student raters trained to maximize reliability scored each video recording for the ToP. The student raters were blind to the purpose of the study, and all raters were blind to the time point of the video recordings. Interrater reliability for this study was determined using average ICCs calculated using IBM SPSS Statistics (Version 21; IBM Corporation, Armonk, NY). The consistency measure for ToP items for each child dataset had average to excellent interrater reliability and ICC Cronbach's  $\alpha$ s between .750 and .939.

Three nonexpert and one expert rater scored each video for the caregiver qualitative rating scales. All raters were blind to time point, and two raters were also blind to study purpose. In previous studies, nonexperts provided reliable rating of sensitive structuring, and concordance with expert ratings was moderately high (Baker, Messinger, Ekas, Lindahl, & Brewster, 2010). ICCs ranged from .779 to .939, with average to excellent agreement.

### Data Analysis

To determine the effectiveness of the community playgroup, a one-way, within-subjects, repeated-measures analysis of variance (rANOVA) was performed using IBM

SPSS Statistics (Version 21) for both dependent variables: (1) child playfulness using ToP scores and (2) caregiver sensitivity and responsiveness using NICHD adapted scale codes. All data were checked for and met assumptions prior to analysis using parametrics. Four pairwise comparisons were made:

1. Time 1 to Time 4 (overall changes from first to last meeting)
2. Time 1 to Time 2 (standard of care early intervention)
3. Time 2 to Time 3 (community playgroup intervention)
4. Time 3 to Time 4 (sustainability).

With four post hoc analyses, Holm's sequential Bonferroni procedure controlled for family-wise error rates, or the probability of making false discoveries. Significance was set at  $p < .008$ . Polynomial contrast calculations were used to identify significant differences when there was overall significance.

## Results

### Participant Characteristics

Seven mothers and 1 father participated in the playgroup. Child participants were 5 boys and 3 girls. The ages of the children ranged from 18 mo to 32 mo, with a mean age of 26 mo. The children had an established diagnosis of developmental delay ( $n = 3$ ), autism ( $n = 3$ ), or Down syndrome ( $n = 2$ ). Seven of the 8 child participants had siblings living at home. Families reported household income levels ( $n = 3$ , \$20,000–\$49,999;  $n = 3$ , \$50,000–\$59,999;  $n = 2$ , \$60,000–\$79,000). Seven families were White, and one was Hispanic. Other studies (Harkness & Bundy, 2001; Okimoto et al., 2000) used 19–25 members per group to provide statistical power when measuring playfulness. Our repeated-measures design, however, provided greater statistical power despite the smaller number of participants. A priori power analysis using G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that a sample size of 7 was needed to obtain statistical power at the recommended .80 level with significance set at  $p = .05$  on the basis of previously reported effect sizes for playfulness (Bundy et al., 2008).

Each family completed an activity log for the standard of care period, during which they received early intervention services as outlined on their IFSP. The mean number of services the families received from early intervention providers per month was 5.38. The children participated in a reported range of 0–4 (mean [ $M$ ] = 1.9) play activities outside the home, other than therapy, per month. The most frequently mentioned community play

activities, in order, were the beach, the park, outdoor play, indoor play, and walks.

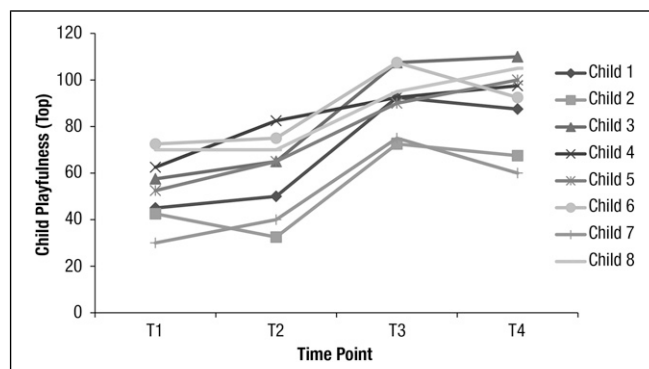
### Child Playfulness

The rANOVA determined that the mean ToP playfulness scores of the children differed significantly between time points,  $F(3, 21) = 59.10$ ,  $p < .01$ . These results demonstrate a significant change in playfulness from Time 1 to Time 4, with a large effect size,  $\eta_p^2 = .89$ . Bonferroni correction was used and pairwise comparisons further explored where the differences in playfulness occurred. Figure 2 plots the individual playfulness scores at each time point over the 4-mo study.

Post hoc testing of ToP scores revealed that standard of care early intervention elicited a slight increase in the playfulness of the child ( $M = 54.01$  at Time 1 vs. 60.00 at Time 2) that was not statistically significant ( $p = .618$ ). However, playgroup playfulness increased significantly ( $M = 60.00$  at Time 2 vs. 90.94 at Time 3;  $p = .000$ ). Finally, during the sustainability period from Time 3 to Time 4, playfulness decreased slightly ( $M = 90.94$  at Time 3 vs. 90.00 at Time 4) but not significantly.

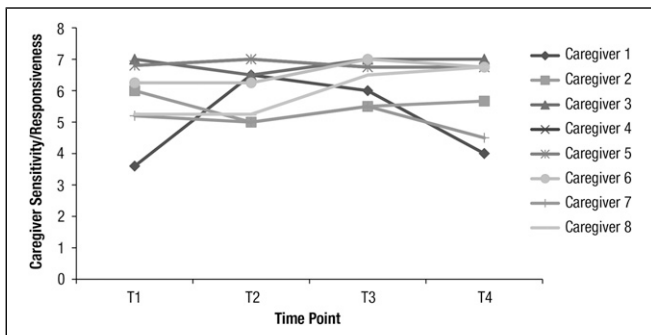
### Caregiver Responsiveness

A one-way rANOVA was used to determine whether the sensitivity and responsiveness of the caregivers were modified during the study period. No significant difference was found in caregiver sensitivity and responsiveness scores between time points. The analysis did not detect any association with or difference in the sensitivity and responsiveness of the caregiver as a result of the intervention,  $F(3, 21) = 0.912$ ,  $p = .449$ . Figure 3 plots the caregiver ratings.



**Figure 2. Individual scores for child playfulness across testing periods.**

Note. ToP = Test of Playfulness.



**Figure 3. Individual scores for caregiver sensitivity and responsiveness across testing periods.**

## Discussion

### *Child Playfulness*

The results of this study show that all children who participated in the community playgroup intervention benefited regardless of age, gender, ethnicity, or diagnosis. The playgroup in this study had children with a variety of established diagnoses, implying that all children in early intervention should be offered the opportunity to participate in a community playgroup. Such involvement allows the family additional opportunities to participate in the community and in play. When the caregiver and child become familiar with play environments in the community, the child has another secure base from which to explore and perhaps continue with playful interactions.

Children in this study were more playful in their interactions after playgroup participation. Observed changes indicated by increased ToP scores included gains in active participation, persistence, and pretending. Participants waved hello and goodbye and shared high fives and laughs. According to the literature, improvements in the area of play influence all areas of development (Bergen, 2002; Daniels, 1995; Sutton-Smith, 1997). Increases in playfulness have been linked to improved adaptability and coping, setting the child up for a lifetime of participation, health, and well-being.

Strong positive impacts were seen in the children, with smaller observed changes in their caregivers. The caregivers in this study sought out other play opportunities in the community after engagement in the playgroup. These results are in agreement with concepts illustrated in the model of occupational spin-off, whereby the affirmation of other group members in a social environment promotes participation (Rebeiro & Cook, 1999). Caregivers and their children reported attending birthday parties, outings to parks, and horseback riding. Our intervention showed shorter-term effects over 4 mo, in agreement with Raine, Mellinger, Liu, Venables, and Mednick (2003), who re-

ported long-term beneficial effects of an enrichment play program.

### *Caregiver Responsiveness*

Caregivers who are sensitive and responsive are likely to seek out opportunities for their child to participate in play. They are able to structure the physical and social environment knowing their child as a unique individual. A strong association has been found between sensitive, responsive parenting and a child's later developmental and social competence (Pearce & Pezzot-Pearce, 1994). Seven of the 8 caregivers who participated in the current study were rated as moderate to high in sensitivity and responsiveness at the initial meeting. To participate, each caregiver had to self-select and commit to attending the community playgroup for eight sessions over 2 mo. It is possible that the caregivers who chose to participate in the playgroup were sensitive and responsive to begin with and therefore less likely to show a change as a result of the intervention.

The community playgroup can be an appropriate context in early intervention to model sensitive and responsive caregiving in a variety of settings in the community, consistent with several studies demonstrating that a skilled provider modeling and coaching in different areas of development enhances opportunities for participation (Case-Smith, 2013; Fey, Warren, Fairchild, Sokol, & Yoder, 2006). All caregivers in this study encouraged each other, for example, by providing ideas, sharing support, and suggesting additional play participation opportunities. Many of the caregivers remained in contact with each other after the conclusion of the study. Having playgroups located in the community where the families live and children play gives caregivers more options for play participation. It is possible that playgroups can help families transition from play at home to more social play in the community.

### *Limitations*

This study is limited in generalizability because of the small sample size and ethnic homogeneity. The researchers were unable to control for potentially confounding factors such as the functioning or skills of the individual children and caregivers who participated. Children who were not enrolled in early intervention and families without transportation did not participate in the study. Future playgroups should advertise to the general public and at-risk populations and search out alternative transport options to enable families to participate. The principal investigator in this study was an occupational therapist with previous experience with playgroups, which influenced the

dynamic nature of this particular playgroup. Each playgroup organizer will have his or her own individual differences that will influence interactions.

### Future Research

The results of this study are based on a small sample size of eight dyads participating in the community playgroup. Additional research should be conducted in different geographic areas and with larger samples. Research that investigates the effectiveness of early intervention programs using community playgroups as part of their service delivery can help determine long-term child outcomes after transition out of early intervention and identify differences from early intervention programs that do not offer community playgroups.

## Implications for Occupational Therapy Practice

The results of this study have the following implications for occupational therapy practice:

- Children enrolled in early intervention can benefit from participation in a community playgroup.
- Play, playfulness, and play participation are important outcomes to target when collaborating with families in early intervention.
- Interventions that include play in a group setting in the community are effective in increasing outcomes such as the playfulness of the child and may help families transition from play at home to play in the community.
- The playgroup is an occupational therapy intervention in which the practitioner can effectively implement strategies such as modeling playful behaviors, adapting the environment for developmental and social play, and coaching the caregiver.
- The physical and social play environment can be used to support and encourage playful behaviors through use of high-quality, age-appropriate, and engaging play objects and can provide additional opportunities for children to engage with peers.

## Conclusion

This research attempted to fill a gap in the literature on playgroups in early intervention and provided information on playgroup effectiveness. The results support the effectiveness of the occupational therapist-led community playgroup in increasing the playfulness of the children participating. Community playgroups can improve the playfulness of the child, encourage play participation,

and increase the participation of the family in the community. ▲

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