



A Pilot Study to Evaluate the Effectiveness of Parent mediated Group Intervention Program for Developmental Language Disorders

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Purpose: This paper attempts to explore the significance of parent-mediated group intervention for children with developmental language disorder. The implementation of group intervention programs with the active involvement of parents creates opportunities for peer interaction in realistic settings and parents becoming more invested in the intervention process through direct observation and active participation.

Methods: Eight parent child dyads participated in the group intervention. The participants were native Malayalam speakers in the age range of 3-4 years. 25 sessions were provided with intervention focused on language as well as emergent literacy skills. Vignettes are provided to demonstrate the program's structure. Pre and post receptive expressive language scores and emergent literacy scores were assessed using Assessment of Language Disorders and Get Ready to Read.

Results: The results indicated that parent mediated group intervention was effective for children with developmental language disorder. All children, with the exception of one, achieved age-appropriate language scores and improvement in emergent literacy skills. Despite the fact that all of the children's emergent literacy scores improved after intervention, none of the children's scores exceeded the average, implying that much more focused and rigorous attention is required for training of emergent literacy skills.

Conclusions: This paper calls attention to the practicality of parent mediated group intervention for children with developmental language disorders through which more children can be served in a cost and time efficient way. It emphasizes the importance of involving parents in sessions to improve speech and language skills as well as emergent literacy.

Keywords: Group intervention program, Parent mediated, Developmental language disorder, Emergent literacy



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INTRODUCTION

Developmental language disorder (DLD) is the most common communication disorder in pre-school-aged children, affecting roughly 7% of the population [1]. For children with language delays, group intervention is emerging as a service delivery model [2]. Benefits of group sessions may include providing opportunities for peer interaction in realistic settings thus increasing their social communication skills and learning through observation [3]. It also allows for more children to be served in less time and at a lower cost, which is especially important in low-income countries. However, thera-

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pists have been reluctant to lead group sessions due to challenges such as lack of confidence, organization of therapy materials, preparation time, and lack of experience facilitating groups. While individual therapy may produce better results, group intervention may promote faster target generalization [4]. The current study presents a very novel concept of language and emergent literacy skills being imparted to developmental language disorder cases through a group intervention mediated by parents, which could be very useful, especially in many low and middle-income (LAMI) countries with limited resources.

According to the DSM 5, children who have difficulty with expressive and/or receptive language despite a normal pattern of sensory perceptual and cognitive development were labelled as having a 'Language disorder' [5]. Though the DSM-5 uses the broad term "Language Disorder," we use the term "Developmental Language Disorder" in this paper (in accordance with CATALISE Consortium 2017) to make it clear that the symptom profile discussed here occurs during the developmental ages [6].

Parents are a valuable resource for assisting children in improving their language and literacy skills. Parent-mediated interventions involve professionals teaching parents treatment strategies that they can employ with their ward in the home and other settings. Some of these interventions have demonstrated the ability to improve the child's communication and social interactions [7]. Lederer (2001) had reported a group intervention for 10 parent-child dyads for 10 weeks. Increase in vocabulary was observed and the parents were satisfied in terms of increase in children's vocabulary and social development, their own language facilitation skills and anxiety levels, parent-peer support opportunities, and preference for this model [8]. Group therapy was mostly used to work on improving social skills, especially for children with autism spectrum disorders [9-11].

In Parent Child Interaction Therapy (PCIT), the speech-and-language therapist works collaboratively with parents, altering interaction styles to make interaction more appropriate to their child's level of communicative needs. It has been developed to train parents to alter their interaction styles to make interaction more appropriate to their child's level of communicative needs and could provide a more language rich environment. Allen and Marshall (2010), investigated the effectiveness of PCIT and the results indicated that all the children in the treated group made language gains during spontaneous interactions with their parents [12].

Another parent-mediated intervention program is Heidelberg Parent-based Language Intervention (HPLI), where parents of children with SELD (Specific expressive Language Delay) are introduced to child oriented, interaction promoting and language modelling techniques. Pre and posttest comparison had shown that the program was effective in terms of developmental gains in vocabulary and grammatical abilities over and above the maturational changes seen in the waiting group [13]. Involving parents to the group may add-on to the benefits where parents observe and actively participate in the activities done in the session, can clarify their doubts and concerns with the professionals, and become more invested in the intervention process, and can carryover the sessions to home where they can stimulate the child in a more natural environment. Parents and professionals can both play a role in improving children's expressive language development. Gibbard, Coglán and MacDonald (2004) compared two groups of children on a variety of receptive and expressive language measures. One group received parent based intervention (PBI) and the other group received the standard individual general care. After 6 months, the results showed that children who got PBI achieved significantly more language gains than the other group [14].

Parent-training in different contexts such as parent-child book-reading; parent-child conversations; and parent-child writing has the capacity to improve children's language and literacy, with the effects being specific to the targeted skill [15]. A systematic review on parent mediated reading interventions in children upto 4 years old found that interventions aimed at increasing the amount of time for shared reading practices with their children yield positive results on language and emergent literacy skills [16]. Emergent literacy has been defined as "the reading and writing behaviors of young children before they become readers and writers in the conventional sense" [17]. It includes print awareness, phonological awareness, letter knowledge, vocabulary and narrative skill. Maternal reading beliefs influence children's emergent literacy outcomes. So parent training programs should address and shape the maternal reading beliefs too [18]. Reading interventions helps improve early receptive and expressive language development along with other emergent literacy skills [19]. Parent mediated intervention on emergent literacy through shared reading was effective in increasing emergent literacy in low-income ethnic children. These interventions can not only improve children's language development, but help them become earlier readers and have more successful school careers [20]. Justice et al.

(2005) used shared book reading sessions to assess the feasibility of a parent-mediated phonological awareness intervention for children with specific language impairment. Positive changes observed were influenced by the age and level of language impairment [21]. All of the parent mediated intervention studies mentioned above on shared reading and emergent literacy skills were done mostly as one-to-one sessions.

Social interactionist theory emphasizes the importance of social interaction between the child and knowledgeable adults in language development. Bruner (1983) believed that when children start to learn new concepts, they need help from adults and as they become more independent in their thinking and acquire new skills and knowledge, the support can be lowered. Bruner believed scaffolding as one way in which caregivers facilitate language learning and dialogue [22]. As children learn language, caregivers are said to adjust the level of linguistic and nonlinguistic support they provide. But when a child is diagnosed with the disorder, the parents will be in grief and may lack confidence. Parents can provide necessary and appropriate support for their child with support from a speech language pathologist. It has been proved that the parents of children with normal language use more responses, expansions and self-directed speech than parents of toddlers with language delay [23]. These results signify the need to coach parents on how to provide language stimulation to their ward, to allow children time to respond and complete activities independently and to help parents interpret children's cues and follow the child's attention and interest and provide specific feedback.

Parent mediated interventions were used for children in autism spectrum disorders too. The results of a pilot study of a parent-mediated intervention for autism spectrum disorder delivered in a community program indicated significant improvement in child communication skills. A strong trend for parent intervention adherence for the intervention group from baseline to 12 weeks was also observed [24]. Weiss et al. (2013) investigated the direct and indirect outcomes of a social skills group intervention involving parents for children with high functioning autism spectrum disorder, and the results showed a significant increase in overall child social skills based on parent and child reports. These findings support the delivery of parent-mediated interventions to children with ASD in community settings [10]. The majority of group intervention programs concentrate on social skills, particularly in children with autism spectrum disorders. All these studies show the important role of parents in the intervention process of their ward.

There is a paucity of research on the effectiveness of group intervention for children with developmental language disorders, with a focus on language and emergent literacy skills, particularly in the Indian population. Because India is a low-resource, densely populated country, finding novel ways to reach the needy within a given time frame has become the need of the hour. So the present study aims to understand the effectiveness of a parent mediated group intervention program focusing on language and emergent literacy skills for children with developmental language disorder. The results may help to motivate the speech language pathologists to overcome the barriers in implementing group intervention involving parents. Owing to the lack of speech language pathologists' accessibility to the population at large, such group intervention practices will help in reaching services to more children. The results of the study will also provide insight into the efficacy of group intervention strategies for children with language disorder, the importance of including parents in the sessions and the need for incorporating activities on emergent literacy skills along with traditional speech and language intervention strategies. Hence the study was conducted with a small sample size to evaluate the effectiveness of a parent mediated group intervention program to improve the language and emergent literacy skills of children with language disorder.

METHODS

Eight children provisionally diagnosed with language disorder by experienced speech language pathologists who were referred to the Child Language Disorder (CLD) unit for intervention from the department of speech diagnostics were randomly recruited for the group intervention based on their language age to maintain the homogeneity of the group. To analyze the data, a within group pre-post comparison was done. All children and parents were native Malayalam language speakers. The language age of the children were in the age range of 3-4 years. Except for the mothers of children 5, 7, and 8, all of the parents had a postsecondary education. The mothers of children 5 and 7 had completed 12th grade, while the mother of child 8 had completed 10th grade. Except for child 8, all families are middle-class, according to institutional payment categorization based on education, occupation, and monthly income. Five of them came from nuclear families, while three came from joint families.

The study was conducted with the approval of the institutional research review committee. Because the study methods

Table 1. ICF CY framework: the mental functions, its code and test materials

Mental function	Code	Test material	Reference
Reception of language	b1670	ALD (Assessment of Language Development)	Lakkanna, Venkatesh & Bhat (2008) [27].
Expression of language	b1671	ALD (Assessment of Language Development)	Lakkanna, Venkatesh & Bhat (2008) [27].
Deviant phonological characteristics	b2304	Malayalam diagnostic articulation test revised	Neenu, Vipina, Vrinda & Sreedevi (2012) [28].
Learning to read (early literacy skills) (print knowledge & phonological awareness)	d140	GRTR (Get Ready to Read) screening tool	Whitehurst & Lonigan (2002) [29].

reflected standard clinical practice within the service, as per the guidelines National clinical trials were not sought. Written informed consent was obtained from the parents of all participants. The ICF-CY framework is used to analyse the children with DLD. It offers a holistic framework for understanding the relationships between different mental processes and their effect on activities and involvement [25]. As this approach assesses functioning within a context, it aids clinicians and researchers in planning and monitoring the growth pattern more effectively by understanding the functional capacities, strengths, limitations and provides a plan for current and future development [26]. When we view the children with DLD within the ICF-CY framework, the mental functions considered in this paper, its code and the test materials used to assess the various mental functions are given in Table 1.

ALD scores and GRTR scores were obtained before enrolling the children into the groups. In the present study, parent mediated intervention involves teaching specific procedures such as modelling extension and expansion, to the parents for optimizing the opportunities to stimulate the child's language and emergent literacy skills in their daily routines and also promote naturalistic opportunities for generalization across contexts. The specific role of parents during each activity in the group session is described in detail in the group vignettes section.

The group intervention directly focused on enhancing the child's language skills and emergent literacy skills by providing intensive stimulation on both language and emergent literacy skills. Stimulation on emergent literacy skills were done with a focus on prevention of later learning challenges through parent education and support. Active parent participation was encouraged with an effort on parental empowerment. The clinician coaches the parents on strategies that might be helpful in eliciting language. Parents could learn specific strategies to facilitate their child's language skills thereby better home-training can be given for their children. The frequency of the sessions was weekly once for a duration of 90 minutes. After 25 sessions, the children were re-evalu-

ated using ALD and GRTR. The scores of each child were evaluated and the data was statistically analyzed.

Group vignettes

The group meetings were conducted in one of the speech therapy rooms in the department of speech therapeutics. The room was well illuminated with minimal distractions. The duration of one session was 90 minutes. The group consisted of eight children and their mothers, the clinician and the co-clinician. The whole sessions were divided into seven segments: Warm up time, Sing a song, let's tell a story, Play and enjoy, Get ready to read, Fun with sounds and Creative corner. These segments are carried out in the session in the same order for all the sessions. All the activities selected were to stimulate language and emergent literacy skills. A lesson plan was made for a month (4 sessions). After four sessions, the lesson plan was renewed with changes in activities; but the segments remained the same and this was continued till the termination of this group intervention. A visual symbol of the schedule was created and was put up in the room. Active parent participation was encouraged. Parents were given an orientation regarding each segment and how to actively take part in the activities and promote participation of their child in the sessions. The group was conducted by a licensed clinician and a co-clinician. The clinician was a Rehabilitation Council of India (RCI) registered Speech Language Pathologist with a Master's degree in Speech Language Pathology with more than eight years of clinical experience and the co-therapist was a student clinician doing fourth year Bachelors' in Audiology and Speech Language Pathology undergoing internship as part of the course curriculum. The role of the co-clinician was to support the clinician in conducting the activities during the group intervention. The clinician and the co-clinician would model the appropriate and suitable responses for the children to imitate. The materials used were toys, flash cards, models, cut-outs, colors (crayons or acrylic paints), etc. The goals focused were to increase the vocabulary of the child, reception

and expression of Wh-questions, reception and expression of action words, reception and expression of prepositions and following commands, to increase the Mean Length of utterance, to improve the narrative abilities, to improve the print awareness, to improve phonological awareness. All language stimulation techniques, including self-talk, parallel-talk, expansion, extension, rebuilding, and recasting, were used in a very naturalistic manner as and when needed. This would help the parents to understand how to stimulate their children at home utilizing the natural home environment. The clinician would also be a model for the parents on how to be responsive to their child's communicative attempt. Responsive caregiving leads to secure attachments between the child and the adult laying the foundation for positive social adjustment and optimal cognitive and language development [30]. In the beginning of the intervention, children required a verbal prompt from the clinician and the mother to produce verbal utterances. The children were instantly verbally reinforced on the production of desired verbal utterances.

The session will begin with the warm up time. Warm up time begins upon the entrance of the child. After removing their shoes, children pushed open the door, came inside and sat on the floor in a 'C' shape and the clinician and the co-therapist sat in the middle facing the children. Such a position will help in direct view between the children and the clinician. After settling down, the children were encouraged to say hello among themselves and ask everyday questions like 'How did you come?', 'With whom did you come?' 'What did u have for breakfast?', 'Who bought their dress?' etc. The clinician used the models of different vehicles and the flashcards of various food items to encourage the children to produce verbal utterances. After that we had the attendance time. Children were encouraged to help the clinician by getting the attendance book and pen from the table. Clinician would ask loudly "Who will help aunty to get the book?" The child who first raised the hand would get the chance to get the book from the table and that particular child was reinforced verbally. Then the children's names were called out and they were to stand up, raise their hand and say present. After the attendance, the clinician might give another child a chance to return the book. The clinician might ask the child to keep the book in the cupboard/ under the chair to enhance their reception of prepositions.

The second segment was 'Sing-a-Song'. In this segment, the clinician would introduce a Malayalam and an English rhyme. The clinician would acquaint the rhymes with the children using props and described it in the form of story initially. In be-

tween the description, the clinician would ask questions to the children related to the rhyme to ensure the understanding of language concepts. Later, the clinician and the parents would sing the rhyme together along with actions. The parents were required to help their children do the actions through physical prompt. Rhymes would help in increasing vocabulary, oral language, phonological awareness and listening skills. Third segment was 'Let's tell a Story'. During this segment, the clinician enacted the stories using cut outs, models and props. The clinician used exaggerated intonations and facial expressions while narrating the story to children. In between the story, the clinician would ask questions to the children connected to the story and waited for the children to respond. If the child could not come up with the answer, the clinician would model the response for the child. Story narration was known to be one of the best methods for teaching language concepts to children. Later role play was conducted with children taking up the roles of different characters in the story. This would help in encouraging children's imagination, confidence and a platform to use the learned vocabulary through story.

Story time was followed by the fourth segment 'Play and enjoy'. During play time, different games were introduced. The skills focused were socialization, following instructions, turn taking along with vocabulary building. This was one of the most enjoyed sessions by the children. The fifth segment was 'Get ready to read'. Shared reading was carried out. Same story books were given to all children. The books selected included simple stories which the preschool children could appreciate with less print and more colorful pictures. Strategies used during shared book reading were dialogic reading, print referencing, acting out the story, using open-ended and predictive questions, relating story to familiar activities or objects through which vocabulary knowledge, oral language, print awareness and phonemic awareness could be strengthened. The specific question strategies parent's incorporated while reading the book were completion, recall, open-ended, wh-questions and distancing questions, represented by the acronym CROWD [31]. Parents were encouraged to take membership at the children's library at the institute or to buy weekly children's magazines available in the market for home training practices.

The sixth segment was 'Fun with sounds'. The major skill worked was emergent literacy and the goals focused were phonological awareness and rhyme generation. Here each parent was told to identify a set of rhyming words which were familiar to children. Then, each syllable of the words were tapped out

by the clinician saying it aloud and the children were to repeat the syllables by tapping on the floor. Then the children were asked to identify the last sound they heard in each set. The parents would provide both physical and verbal prompts to help children do the activity. The last segment was 'Creative Corner'. The skill focused were fine motor skills. The activity may vary each day. The activities selected may include playing with play dough, fingerprinting, hand printing, vegetable printing, tearing paper, crushing paper, activities with paper clips, cloth clips, cutting and pasting, coloring with buds, threading beads. Children love doing these activities and are often considered as a reinforcement segment.

RESULTS

The aim of the present study was to understand the success of a parent mediated group intervention program focusing on language and emergent literacy skills for children with language disorder. There were eight children in the group. The mean age of the children in the group was 47.13 months (SD: 4.94). The total number of sessions attended by each child was given in Table 2.

After group intervention, all children were found to have improved in their language and emergent literacy skills. Pre and post intervention scores for receptive language (RL), expressive language (EL) and emergent literacy skills on GRTR are also given in Table 2. All children had attained age adequate receptive and expressive language skills except child 8. There was improvement in both receptive and expressive language skills for the child 8, but had not attained age adequate scores. The child was 4 years 8 months at the time of post evaluation. The post intervention expressive language score was 29. Ac-

cording to ALD, a child should have a score of 32 or more to have age adequate language skills for a child with 4 years 8 months. During the pre-intervention evaluation, all children performed average on the GRTR, with the exception of children 5, 6, and 8, whose scores were below average, poor, and very poor, respectively. On the post-intervention assessment, all participants' GRTR scores had improved. But none of the children's scores exceeded the average. The children with low scores (Child 6 and 8) improved their performance to the next level, but have not achieved the average performance. Considering the low scores for both language and emergent literacy skills, it was recommended that child 8 continue with language intervention services.

All children except Child 8 were discharged from the CLD Unit and was recommended to continue language stimulation at home and a follow-up evaluation after 6 months. Parents of child 1 and child 5 have reported speech intelligibility issues. On evaluation using Malayalam Diagnostic Articulation test, both children were found to have articulation issues and were referred to Speech Sound Disorder (SSD) Unit. Figure 1 (*Pre and post receptive language (RL), Expressive language (EL) and GRTR scores of each child in the group*) depicts the pre and post intervention scores for receptive language, expressive language and GRTR scores.

DISCUSSION

The family is the most important factor in determining the lifelong outcomes for children [32]. It is believed that parents are the first and the best therapists of a child. Parent- infant interaction is established as a key factor in language develop-

Table 2. The total number of sessions attended, pre and post ALD scores (receptive language & expressive language) and GRTR scores of each child in the group

Subjects	No. of sessions	Pre-RL	Post-RL	Pre-EL	Post-EL	Pre GRTR	Post GRTR
Child 1	24	24	31	24	31	7	13
Child 2	25	24	36	20	30	9	12
Child 3	25	33	36	20	36	14	18
Child 4	25	25	35	22	30	8	12
Child 5	10	30	47	25	38	9	15
Child 6	16	34	41	31	39	6	11
Child 7	16	39	42	31	36	17	19
Child 8	23	28	37	19	29	1	7

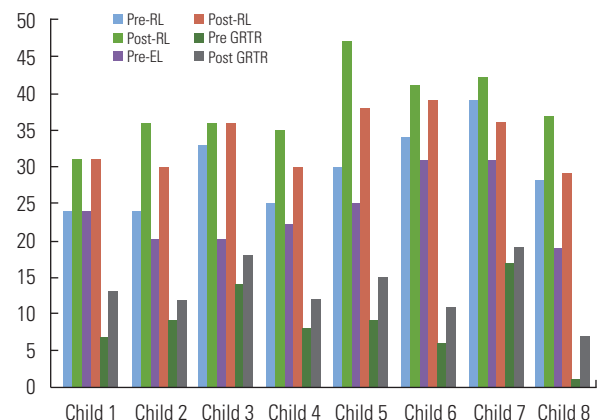


Figure 1. Pre and post receptive language (RL), Expressive language (EL) and GRTR scores of each child in the group.

ment [33]. Parents had a significant role in providing language stimulation for their children, changing their interactive style with their children and being more responsive to their communicative attempt.

The effect on vocabulary. The children in the current study had not only gained vocabulary, but had also improved in all aspects of language and had attained age-appropriate receptive and expressive language skills. The result is consistent with the previous studies which had also reported vocabulary growth following parent mediated group intervention [8,34-36]. Only one child lacked age-appropriate expressive language skills but possessed age-appropriate receptive language skills. These preliminary findings demonstrated that parent mediated group intervention for children with language disorders was effective. According to Hedge and Davis (2010), it is better to group children with similar age as they share certain comprehension and attention levels [37]. The participants in this study also formed a homogeneous group with pure developmental language disorder and similar language ages. This could be one of the reasons for the success of this group intervention. Group intervention allowed for more natural social interaction, and all communicative attempts were reinforced throughout the session. According to social interactionist theory, the child is ready to learn with some help from an adult. Here the clinician provided appropriate language stimulation for the children through various activities. These activities proved to be models for parents on how to stimulate language and emergent literacy skills in their children, emphasizing the role of parents in their children's language development. Caregivers are said to adjust the level of linguistic and non-linguistic support they provide as children learn to speak. Similar to Bruner's scaffolding, parents were also instructed to fade their prompts as their children learned new language concepts. According to Bruner (1983), when children first begin learning new concepts, they require adult assistance; however, as they gain more independence in their thinking and acquire new skills and knowledge, the assistance can be gradually phased out [22]. Parent mediated intervention is deemed to be ecologically valid and family-centred as language is acquired in everyday interactions between children and their caregivers [38].

The effect on emergent literacy skills. Early literacy skills were also taken for intervention along with oral language skills as studies had proved that children with language disorder are at risk of developing specific learning disorder at their school years [39,40]. Lower GRTR scores in children with language disorders prior to intervention could be attributed to insuffi-

cient receptive, expressive, and emergent literacy skills. Following the intervention, the scores improved. The higher post-intervention scores could be attributed to improved language and emergent literacy skills gained through shared book reading and phonological awareness activities in the intervention schedule. Similar results were obtained by Thomas, Colin and Leybaert (2020) where children from low socioeconomic status and language-minority backgrounds evolved significantly better in post intervention for language and emergent literacy skills compared to the control group through interactive reading [41]. Justice et al. (2005) had also reported improved phonological awareness through a parent mediated shared reading sessions among children with specific language impairment [21]. Child 3 and Child 7 in the current study had higher GRTR scores than the other children in the group. According to the results of the analysis, they both had higher receptive language scores. Furthermore, children 3 and 7 were in lower kindergarten, and others were in the small play group which were run along daycare centers. The better performance of children 3 and 7 as compared to the others in the group on GRTR could be because of the reading experiences, reading instructions, and alphabet knowledge from kindergarten schooling.

Parents' beliefs [21,42] and home literacy practices [43,44] play a key role in children's literacy development. Training parents to practice shared reading is very important as studies have shown that mothers of children with specific language impairment engage in fewer literacy practices compared to mothers of children with typical language development [45-48]. Observation revealed that the children made mistakes in phonological awareness questions. Anju et al. (2017) found similar results, with children performing worse in phonological processing tasks than in oral language and print knowledge tasks [49]. The most difficult phonological awareness task was found to be rhyme generation. Rhyme awareness is strongly associated with speech discrimination abilities than vocabulary and letter knowledge [50]. The children in the present study were dual language learners and would have been introduced to English language only at school. Since they all were in the early years of schooling, rhyme generation in English would have been a little difficult. Testing dual language learners' emergent literacy skills in both languages would also provide a better understanding of their pattern of emergent literacy skill development.

This adds to the growing body of evidence that caregivers' interactive styles can be optimized to provide a language-stimulating environment and accelerate the language development of late-talking toddlers [36]. Speech-language pathol-

ogists may equip parents with specific strategies that may promote spoken language skills. Involving parents in therapy sessions will thus help to improve parent-child interaction and may assist parents in providing a language rich environment outside of therapy settings throughout the day [51]. This emphasizes the importance of parental involvement and training. These findings suggest the valuable role of parents in the intervention process.

CONCLUSION

This paper calls attention to the practicality of parent-mediated group intervention for children with developmental language disorders in LAMI countries like India, where there is a huge gap between service receivers and service providers. This approach receives the benefits of both including parents in the intervention process and providing intervention in groups. Group intervention helps to serve a large population with the available human resources, while parent mediated training helps in the quick acquisition of language skills and speedy transfer of those skills to the natural communicative environment as the strategies practiced at the clinics are used by the parents in the home environment. Thus more children with developmental language disorders can be served in a cost and time efficient way. The group vignette provided will help the speech language pathologists to understand the structure of the program.

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