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Challenges of Child Functional Improvement in Family-Oriented Early Intervention: Parental and Professional Perspective

Original scientific paper

Ana Poposka

Heimerer College, Prishtina, Kosovo

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Abstract

Early intervention involves a process of supporting children at risk or with confirmed developmental disorders, as well as their families. Specific goal of this case study is examining the impact of family-oriented early intervention on the level of functionality in a case of a child with developmental language disorder. A family of two and their child aged 2 years and 8 months with a confirmed developmental language disorder, was supported by the model of Family Oriented Early Intervention. According to the obtained data on the achieved milestones, significant progress was confirmed in daily functioning, and in areas of psychomotor development of child S. N. which was covered by the early intervention approach. Early Intervention improved child and family quality of daily living in natural surroundings of the boy S.N., but also confirmed improvement of reaching its developmental milestones.

Keywords: *Family Oriented Early Intervention, Functional Goals, Primary Care Giver*

Early intervention (EI) involves a process of informing, counseling, educating, and supporting children at risk or with confirmed developmental disorders, as well as their families, a stated by National Disability Insurance Agency, (NDIS 2021). This type of intervention focuses on the child's relationship with their environment and the way the child learns, meaning that a confirmed diagnosis is not a prerequisite for its implementation (Meier et al, 2007).

In a narrower sense, early intervention offers advantages in improving developmental outcomes and enhancing the quality of life for individuals and communities. Although EI is applied according to various models and approaches, research on the specific effects of early intervention is still limited. More detailed comparative analysis is needed to explore the

Correspondence to: Ana Poposka, Heimerer College, Prishtina, Kosovo
Email: ana.popovska@kolegji-heimerer.eu, ORCID: https://orcid.org/0009-0000-2486-766X

advantages of early intervention in relation to other types of supportive treatment in the first years of life.

Researchers have observed that early identification of impairment, in alignment with appropriate programs, is the best way to help children develop their full potential. According to Mahoney & Wiggers (2007), to be most effective, early intervention programs need to consider the child's age at the time of intervention, as well as the level of parental involvement, the intensity, and the structure of the program.

There are various types of programs based on different national strategies for early intervention. Those considered successful are highly structured and clearly specify actions and goals. These programs carefully monitor the behaviour of children and families and often examine the interactions of service providers, session plans, and regular activities (Brooks-Gunn et al, 2000).

The need of raising awareness and sharing research data in the field of Early intervention is more than necessary in these modern circumstances when Early Intervention is in its pioneer phase in this region.

Family-Oriented Approach

Successful early intervention programs must be tailored to the needs of families, embedded within the local community, and capable of effectively integrating multiple disciplines. These programs need to be adept at planning and coordinating support and services from various agencies. Positive developmental outcomes largely depend on the early identification of disorders and prompt referral to appropriate early intervention programs. Current best practices highlight the importance of family involvement in early intervention programs. In opinion of Dunst (2020), early intervention involves parents and primary caregivers who use their experiences and abilities to support children's development and acquisition of skills, enabling meaningful participation in daily activities within their environment.

Considering Bailey et al. (2006), several desirable outcomes for early intervention programs exist: families should be able to recognize and understand their child's strengths, abilities, and needs; families should be aware of and advocate for their rights and those of their child; and families should have access to both formal and informal support systems, which include expert assistance in strengthening the social network for families of children with developmental challenges. Additionally, families should have access to desired services and community-based activities.

The family-centred early intervention concept includes three key elements: focusing on the child's abilities, promoting family choice and control over selected resources, and fostering collaboration between professionals and parents. Although research indicates that implementing this model is neither simple nor easy, ongoing practice demonstrates that families in this model benefit from a wide range of opportunities to work with their child, which supports both the child and the entire family. Families often experience satisfaction with this approach and readily embrace it (Espe-Sherwindt, 2008).

In early intervention, parents are partners with professionals in providing early support to the child. According to Ivshac Pavlisha, (2010), analysing the context of interdisciplinarity and transdisciplinary in the early intervention system, it is necessary to identify and encourage the active participation of all persons involved in early child development.

Benefits of Family Oriented Early Intervention Processes

Assessing the effectiveness of individual early intervention programs is challenging and often unreliable. This is partly due to the long-term nature of early intervention. Since many programs aim to act early in a child's life to prevent social problems later, evaluations should follow program users into their later years. However, conducting longitudinal studies can be complex and expensive. Graham Allen's initial report on early intervention examined 72 early intervention programs that adhered to established standards and evidence from Europe and North America to assess their effectiveness (Allen, 2011).

Early intervention has the biggest impact on health and wellbeing. A significant portion of early intervention research focuses on critical stages of neurological development from conception to the second year. During this period, the brain develops rapidly, forming more than a million new neural connections every second. Early

parent-child interactions are crucial for this development and can impact future mental and emotional health as well as overall well-being (Shonkoff et al, 2012).

The main argument for society benefits of early intervention is that social problems can be addressed more effectively if dealt with at an early stage of a child's life. Later interventions are often significantly less effective in addressing social issues such as unemployment, crime, and various forms of abuse (Powell, 2024). A central problem for all developed countries, including our own, is that interventions often occur too late, when health, social, and behavioural issues are deeply entrenched in the lives of children and youth. Delayed intervention increases the costs of addressing these problems and reduces the likelihood of achieving successful outcomes. Often, delayed intervention results in only costly palliative measures that fail to address the root issues (United Nations agency for children [UNICEF], 2006).

In addition to social reasons for intervention, policymakers and advocates of early intervention programs frequently cite economic benefits, such as reduced public spending on health and social issues and increased economic productivity. For example, Organisation for Public Health in England states that "evidence shows that prevention and early intervention represent a good investment of money." Properly selected interventions, when implemented in sufficient amounts, help maintain health, prevent disorders, control the number of public services provided, and support economic growth (Government of England [GOV.UK], 2016).

Current situation of family-oriented services in the Republic of North Macedonia in terms of early interventions can be found in a report published by United Nations agency for children (United Nations agency for children [UNICEF] 2023). According to that data, Services in the field of early intervention in childhood are mostly services provided within institutions, the number of institutions that have the capacity to provide services in the natural environment is rare, and there are practically no institutions that are exclusively focused on early intervention services in the home environment.

Institutions that are engaged to provide early intervention services for children, in the age category from 0 to 6 years old, are mostly from the health sector, and a smaller number of them are from the non-governmental sector (UNICEF, North Macedonia, 2023). Services that are aimed for the child are dominant, services related to rehabilitation, and the smallest number are types of services that fall into the category of services aimed at the family.

Services received by users within the framework of early childhood intervention needs in North Macedonia are mostly located in larger cities. According to information, there is a typical modern EI centre in Skopje, which was financed and opened by UNICEF. According to this survey, families generally do not use any EI services, except for individual rehabilitation services.

Their children attend treatment in centres, according to recommendations, with speech therapists, special rehabilitators and/or physiotherapists. Parents emphasised the lack of following services that they would like to use: support during daily activities; domestic support; family counselling; continuous treatment; replacement of parents in the care of their child. On the level of Institutional family oriented early intervention support, a survey done in 2022 in Public Health Institute for rehabilitation of Hearing, Speech and Voice in Skopje, emphasised the question of readiness of parents to take the role of active participants in the early support of their child's development. Real challenge was the parent cooperation in the context of using best available circumstances for the children, e.g. home setting. Out of 41 families who were offered family oriented early intervention support, only 14 families confirmed active cooperation with the primary care giver, and the reason of this number, is the attitude of parents (they confirmed of being available for cooperation, but in practice, usually it did not appear so). The number of parents that gave feedback of implementing instruction and organising the every day situations for stimulation purposes was (Poposka et al, 2022).

Materials and Methods

Goal of the Study

Specific goal is to examine the impact of family-oriented early intervention on the level of functionality in a case of a child with developmental language disorder. Generally,

this study aims to raise awareness of the importance for family involvement in Early Intervention implementation.

Subject of the Study

The subject is functional improvement follow up during the process of family oriented early intervention.

Study Sample

In this case study, a family of two and their child aged 2 years and 8 months with a confirmed developmental language disorder, who was involved in institutional service support at the Centre for Rehabilitation of Verbal Communication Pathology in Skopje, was supported by the model of Family Oriented Early Intervention. The selection criterion was absence of accompanying problems, or some disease with confirmed organic aetiology. At the same time, it was important that the child did not have any significant breaks from receiving services, meaning the service support was delivered continuously.

Research Techniques and Instruments

With previously obtained consent, Developmental scale for language understanding -Raynell, (1995), and Communicative Development Inventories-Koralje (2012) - were used. Documentation analysis as well as parents' interview were done. Also, assessment reports from the support team, individual family support plan and individual rehabilitation treatment plan.

Results

S. N. is a boy of 2 years and 8 months. He was brought for an initial verbal communication by his mother initiative. Parents main concern was that their child does not speak like his peers.

Anamnesis Data

The child was born from the first, twin pregnancy, 3 weeks before the due date, APGAR 7/8 and body weight 2250 grams. During the first year, according to his mother, S. N. was a crying baby, often with a changing rhythm of sleep and wakefulness, agitated, nervous and with a constant demand to be in his mother's arms to calm down. From pre-language abilities - the period up to the first year of S. N. cooing from the fourth month, and babbling (ba-baa, ma-maa, tee-tee) appeared at the seventh month, but syllables were used less frequently. According to the mother's statement, the child grew up in social isolation. First words appeared after he was 1.5 years old, but the vocabulary did not increase with the expected dynamics. Language comprehension was reduced to the prohibition NO, followed by gesture, while requests to show where something was ("Where's the cat?") were absent. Proto-imperative and proto-declarative gestures were absent at the time expected for the age, the boy did not point his finger either in the function of need or in the function of exchanging information. At the same time, mother-subject contact was absent, indicating the absence of triadic communication. The boy lives in a family environment, with both parents and a twin brother.

Functional Assessment

S.N. moves stably and independently on flat ground. He needs support when moving up the stairs, so it is necessary to stimulate independent climbing up the stairs by alternately using the left and right leg. His most common motivation for motor activity is imitating his brother's play, and he likes to run, jump and throw toys. When called by name, he responds selectively and often chooses to continue playing with objects rather than respond to the call. He does not come into contact with unknown people, nor does he react violently with indignation. In relation to his mother, he shows an insecure relationship, most often with stormy emotional episodes in case of fear of separation. He is independent when using a milk bottle, as well as solid food (bread, snacks). He is still not fully independent in taking a full meal, as well as using a spoon while eating a cooked meal.

In a spontaneous situation, he is interested in objects, but poorly in people. He likes to play with toys, but this activity lacks creativity and a longer flow of play. Compared to his brother, he often throws toys, and still does not know how to share and participate in joint activities. Does not engage in play with peers.

Verbal communication is not his first choice and he uses it only when there is an extreme need. He mostly communicates with one word, a noun, and even less often uses words that indicate an action. In communication, he rarely uses 2-word sentences, which are learned sentences whose purpose he knows. Understands verbal commands that are unambiguous and

situational. Although he understands orders, he often chooses not to carry out requests, and shows this by ignoring or expressing strong displeasure. His mother constantly supports him, not judging whether he can complete the activity on his own or not. Parents say they treat him with concern and overprotection and often tolerate inappropriate behaviour.

His mother addresses him cordially and always goes out to meet him. During the initial review, as well as during the realized support, several procedures, standardized and informal, were carried out in order to assess the level of development abilities.

Table 1.
Assessment and Evaluation Procedures Schedule

CHRONOLOGICAL AGE	PROCEDURE
2;8	Language Comprehension Scale, Raynell, 1995
2;8	Developmental scale for communication, words and gestures, Koralje, 2007
2;8	Developmental test Chuturich, 1995
2;8	Psychomotor abilities assessment
2;8	Audiometry
2;8	Interview with parents
2;8	A sample of spontaneous interaction with a speech therapist
3;4	Language Comprehension Scale, Raynell, 1995
3;4	Development scale for communication, words and gestures, Koralje, 2007
3;4	A sample of spontaneous interaction with a speech therapist
3;4	Interview with parents

Table 2.
Initial Assessment Achievements

Assessment type	Developmental age
Scale for Language Comprehension, Raynell, 1995 Developmental Achievement	20 months
Development scale for communication, words and gestures, Koralje, 2007	18 months
Developmental test Chuturic, 1995	21 months
Developmental age of motor skills	26 months
Cognitive abilities	24 months

Functional Goals Set up

After standardized procedures were performed during the initial assessment and discussion with parents, recommendations were made regarding further support of the child's development.

An early intervention plan was agreed with the parents in terms of support in the natural environment as well as service support within the institution. It is accepted that parents bring their child to regular speech and language therapy twice a week. The parents readily accepted that a meeting with a speech therapist takes place once a month, in a natural environment, outside the institution. The purpose of the visits was family support during daily activities, family counselling, as well as providing guidelines for improving the child's functional abilities. During the first visit to the child's home, along with a conversation with the parents, functional goals were set, which were defined jointly with the primary care giver, according to the principle of priority set up, for the child and parents.

Table 3.
Routines and Strategies (1)

PRIORITIES	FUNCTIONAL GOALS
I want my child to collect toys	After afternoon play, S. N. will collect small balls in the storage box by playing the game "throw the basket" with his father and brother
My son will verbally answer simple questions that we ask him	When asked by his mother, showing two products (for example: water or juice) and naming them, 'What do you want?' S.N. answers in about two words, naming the desired drink and the desired activity.
My son will be involved in group play with peers	During the time spent in the park, S. N. will participate in throwing the ball, with his brother and children from the neighborhood.
My son will eat independently	S. N. will sit at the table during family lunch and eat a slice of bread cut into pieces by himself.
To spend a weekend on our own (family priority)	Parents will leave S.N. and his brother at home with his grandparents, during the weekend, so they might have time for them, at least once every three months.

According to the previously determined functional goals, together with the parents, the determined strategies are as follows:

Table 4.
Routines and Strategies (2)

Routines through categories and activities	Strategies
Time for a meal	- prompting during the performance of the activity – either verbal, gestural, or with the help of a model, physical or pictorial "What do we need now?" - the child and mother take a plate, and similar things from the environment that are necessary for the activity of meal preparation. The mother took, showed and offered the prepared piece of bread. The child can choose one piece from the offer, take it and put it in the mouth independently.
Social games with peers	The mother takes, shows and names the food she has chosen as S.N. requested. The child can choose from the offer, and thus use the word or action naming concept.
Playing with balls (collecting them)	During a game with children in the park: "Come on, show him your ball!" Can you throw it to him?", expecting him to try to throw the ball, then wait for him to get it back, before throwing it to another child in the group. A mother stimulates her son with words of encouragement! -measured leadership – lowering down the assistance that is given to the child, and assistance is canceled as soon as possible. During the game, the parent chooses several balls and offers one to the child. "Let's play basketball now." Throws a ball in the storage box, and asks the child to do the same. The next attempt to collect the balls by throwing, will be supported only by verbal command, and the child will perform an action.

Evaluative Assessment

During the period of eight months when the work plan was implemented, the child had no longer interruptions in visiting therapists, while all planned home visits to the family were successfully implemented.

Table 5.
Standard Evaluative Assessment

Assessment type	Result
Scale for Language Comprehension, Raynell, 3rd ed., 1995	24 months
Development scale for communication, words and gestures, Koralje, 2007	25 months
Developmental test Chuturic, 1995	24 months
Developmental age of motor skills	32 months

Eight months later, during the home visit, the parents were interviewed, and a functional assessment was performed. From the parents interview and follow up, while their child was included in this comprehensive program, it was observed that:

S.N. as by primary care provider advice, he has been attending kindergarten for three months. In the first month, there were "harder" days for adjustment. Afterwards, he did not resist going to the kindergarten, and he spent there 4 hours daily, during the period of social activities with his peers. In addition, parents regularly took their child to playrooms, attend birthday parties, so that the was in a group of his peers.

His spontaneous motor activities already had the initiative, both for choosing a game and for including his brother or a peer in his "movements". For the mother, this meant that the functional goal of inclusion in the game has begun to be fulfilled. When his name was called, he always responded with a look, but if busy playing, he continued to play with objects. When in contact with unknown people, he reacted by hiding behind his parents. He showed warmer contact with his mother, shorter separations were possible while he had some priority interest in the game, but he still looked for her from time to time, just to gain security.

According to his mother, the feeding has become easier since he started kindergarten. There he has breakfast with his peers and has learned the rules of how to eat at the table. He is still selective in the type of food, but if offered his favourite taste he is able to eat everything that is served to him.

In a spontaneous situation, during the play activities at home, he is interested in objects, but still does not insist on playing with others. Compared to the behavior before, he allows his brother to be in the joint game with him, but the game is mainly about taking toys away from each other. The mother states that for her it is also a success.

S.N. already has the habit of communicating primarily verbally. He answers questions mostly with one word, a noun, less often a verb. In spontaneous communication, when he wants to satisfy his needs, he regularly uses a sentence of 2 words, most often these are sentences made up of words that he learned well during work with the speech therapist. This is also counted achievement of the functional goal. S. N. understands simple verbal orders that are situational and outside of concrete circumstances. The mother complains he still decides not to fulfill her request, unlike the father, who is always obeyed to. The reason for this, according to the mother, is the father's authority, which is stricter, in contrast to her, who is sometimes more lenient.

His parents claimed they have changed a lot towards his behavior. They implemented ignoring, redirecting or rewarding the behavior. Following the accepted advice of the speech therapist, spontaneous situations at home were used purposefully. At the end of the interview, the parents emphasised that they are satisfied with the child's progress and functioning in everyday life, that their day was "easier", because the child had more words in regular use, and that they expect the results of the service support to be visible. During the follow up interview, the parents left the impression that they have gotten significantly closer to their child, that they know him better and understand his behaviour better compared to before.

Functional Assessment

During the observed interaction with speech therapist S. N. enters into communication easily, partly because he recognized her from home visits. He has structure, knows to respond to every request for activity, and always follows the same path of response. First, he would establish eye contact, he would continue with his activity for a short time, but when he would see the therapist's smile again, he would join the requested activity without any problem. Understood simple commands, correctly selected an object that performed the specified action (for example, "Which boy is carrying the ball?"), and always looked back for the reward with a smile, facing the speech therapist. He preferred responding to new situations with one word, but his vocabulary was richer. If an answer is sought regarding something he had already learned in speech therapy sessions, he would be more confident in himself, and knew how to "surprise" even with a sentence of three words. Demonstrated adequate social interaction with parents and therapist. He refused the parents' requests more often, while the therapist complies with almost every request. S.N. accepted physical contact (hug, or "high five") as a reward for a successfully completed task.

Discussion

According to the obtained data on the achieved milestones, significant progress was confirmed in all areas of psychomotor development of child S. N. which was covered by the early intervention approach. These findings are consistent with meta-analytic study by Jeong et al. (2021) that reported multiple examples of improvement in developmental segments in a family-oriented early intervention setting. Family-centred early interventions for children during the first 3 years of life are effective in improving early developmental outcomes and parenting outcomes in low-, middle-, and high-income countries, according to the mentioned research. Increased implementation of effective and high-quality parenting interventions is needed globally and specifically to support parents and enable young children to reach their full developmental potential.

According to Britto et al. (2017), in their research published in the well-known Journal Lancet, it was also indicated that the overall support of family and institutional services offers significant developmental progress in every area of early childhood development, regardless of different categories of vulnerable groups they belong to. This research review concludes that for interventions to be successful and sustainable, they need to be implemented as a multisectoral whole. The recommendations emphasize the importance of implementation at developmentally appropriate times throughout the life cycle, to target multiple risks, and to build on existing service delivery platforms. Meanwhile interventions will continue to improve as science develops. Evidence now strongly suggests that parents, carers and families must be supported in providing care and protection for young children to achieve their developmental potential (Li et al, 2021).

Another meta-analysis conducted in 2019 concluded that one of the most important advantages of early intervention is the neurobehavioral aspect of development, which as a consequence directly stimulates all psychomotor aspects of development in children from 0 to 6 years old. According to the results of a total of 75 studies with 122 comparisons and reported outcomes for 72 275 children, it was concluded that improvements in neurobehavioral development and children's potential require early interventions focused on behavior, care and learning that support the development of cognitive, language, motor and social-emotional skills. That study directly points the benefits of child functioning as focus of daily treatments. The necessity of the inclusion of the child with the intention of fulfilling functional goals exists in the majority of research dealing with this topic. Early intervention warrants strategies that maximize the involvement of children and families in home and community activities (Prado et al, 2019).

The implementation of strategies is of critical importance for the success of the development systems model for early intervention that will fully incorporate the basic principle of inclusion. (Guralnick, 2001).

A comparative analysis of the attitudes, views and statements of the parents of the children before and after the eight-month treatment, shows that it is eligible to

state that parents who are actively involved in the early intervention process show a greater ability to monitor and register their child's behaviour and developmental progress. As Folkman in 2008 researched, the more parents manage to overcome stress, by getting closer to the child, the better they help the child with positive emotions and motivation for success (Folkman, 2008, as stated in Gruber, 2019).

And as stated by Globa Irwin, Siddiqi, and Hertzman in 2007, early child development is a strong acceleration of the individual, which cannot produce results without a healthy and actively involved family in that process (Globa Irwin, Siddiqi, Hertzman, 2007).

Conclusion

Based on the research conducted in the case of family oriented early intervention, specifically it may be concluded that:

Family oriented Early Intervention confirmed improvement of reaching developmental milestones in the case of the boy S.N. Also, Family oriented Early Intervention improved child and family quality of daily living in natural surroundings of the boy S.N. Functional goals set up fostered parents' involvement in achieving and measuring functional improvement of the boy S.N.

General conclusion is that Family oriented Early Intervention contributes to better overall social inclusion of children with developmental disorders. Even more, family Oriented Early Intervention creates proactive families as efficient partners in child development.

This research enriches the existing literature by providing concrete evidence on the effectiveness of family-oriented early intervention in supporting developmental milestones and enhancing the quality of life for children with developmental disorders. By focusing on the real-life case of the boy S.N., the study highlights the importance of engaging families as integral participants in their child's progress, especially through setting and achieving functional goals. This level of family involvement has been shown to foster meaningful developmental gains within the child's natural surroundings, aligning with best practices that emphasize contextually relevant support.

These findings offer valuable insights for practitioners and policymakers by demonstrating the positive outcomes of a family-centred approach, which not only promotes social inclusion but also empowers families to be proactive partners in their child's development. Experts are encouraged to use these results to inform intervention strategies, emphasizing the role of families in therapeutic settings to drive sustainable progress. This research suggests that involving families in structured, goal-oriented interventions can maximize developmental outcomes and improve overall family well-being, making it a highly recommended approach for professionals in the field.

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