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The effects of parents implementing language interventions on children with delayed language development

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Abstract

Background: The first and most enduring teachers for their children are their parents. Parental support for their children's intellectual, social, and language growth is critical for their development. Therefore, the current study was conducted to evaluate the effect of parents implementing language interventions on children with delayed language development.

Methods: This narrative review has been undertaken by searching databases like PubMed, Google Scholar, and EMBASE. The articles published from 2000 to 2022, published in English language were included in this narrative review. All the studies that examined the effect of parental language intervention on children with delayed speech development were reviewed.

Results: The findings of studies addressing long-term impacts of parent-implemented interventions are inconsistent, revealing both long-term effects of interventions on children's language scores and abilities in some situations and a lack of long-term effects in others. Several studies have also highlighted the failure of parent-led interventions to address challenges associated with delayed-language development among children. The significance of interaction in cognitive development more generally, since parents who interact with their children at a level that challenges them while simultaneously offering support and numerous learning opportunities report excellent outcomes.

Conclusion: Interventions focusing on social communication are recommended for younger children facing challenges in language development. This highlights the need to use interventions related to the child's age and developmental stage. The premise behind the cascading model of parent-led intervention relies on the parent's effective implementation of training, coaching, and support received from the clinician's accuracy, consistency, and frequency, resulting in improvements in the child's development outcomes. Warranting more studies to explore the utility of parent-led interventions to help children with delayed-language development issues

Keywords: language; language intervention; delayed language; delayed speech; delayed language development.

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1. Introduction

The first and most enduring teachers for their children are their parents. Parental support for their children's intellectual, social, and language growth is critical for their development (Kaiser & Hancock, 2003). Children's developmental trajectories and future outcomes are predominantly shaped during the first 1,000 days of life. During this time, it is crucial to give kids nurturing experiences including attentive caregiving and sufficient learning opportunities. One of these fundamental nurturing experiences is the teaching of language by parents and other caregivers (Golinkoff et al., 2019). Parents typically speak in a unique speech register, commonly referred to as infant- or child-directed speech with their babies and young children. Such input includes unique prosodic (i.e., pitch, length of sounds, intensity), structural (i.e., quantitative characteristics of speech, lexical and grammatical complexity), and functional features that make it ideal for toddlers learning a language. Child-directed parental responses have often been high-pitched and modulated, short in length, and formed with a simple lexicon.

Up until the age of three, there is a significant interindividual variation in language development, with some children achieving language milestones earlier than others. Most children demonstrate a significant gain in vocabulary between their second and third years of life, first in word understanding and subsequently in word output (Anderson et al., 2021). The yield of word combinations and the progressive transition from incomplete to whole sentences are both facilitated by this lexical expansion, which also drives grammatical growth. But some children exhibit a language delay, which may be temporary between the ages of 2 and 3 or chronic after that (Bishop et al., 2016). In this case, targeted efforts are mandated to help such children achieve age-specific language landmarks.

The language development process among children is supported by several qualitative and quantitative characteristics of parental speech input, and these characteristics are especially significant for late talkers. This underscores the instrumental role of parents in helping children achieve the required-language development skills among children. Children with delayed language can benefit from parent-implemented therapies designed to improve their linguistic environment, specifically parental speech input (Suttora et al., 2021). Variability in a child's language acquisition is related to variations in the structural and functional characteristics of parental language capacities (Anderson et al., 2021). Many studies on parental input emphasize the importance of input quantity in predicting children's rate of vocabulary growth and vocabulary competencies when it comes to structural aspects. Input quality, which is mostly determined by word kinds and input complexity, indicated through the mean length of utterance index, also explains variation in children's lexical results (Zuccarini et al., 2020).

For young children with developmental difficulties, additional language therapies with parent

coaching have an impact on strengthening the language development phase of their children. It is also believed that functional aspects of parental input influence how children acquire their language skills (Buschmann et al., 2015). One of these characteristics is the parent's capacity to react contingently to a child's alertness, focus, and communication initiatives; research indicates that variations in the mother's contingent response predict the development of the child's vocabulary (Tamis-LeMonda et al., 2001, 2014). Therefore, parent-led interventions are imperative to help children with difficulties in acquiring language skills.

Weaknesses in expressive or receptive skills may contribute to the wide variation in developmental language capacities and outcomes. Language development skills are affected by biological and environmental factors, mandating a multi-layered approach to address the issue of delayed-language development in children. Typically, language development is associated with many biological risk factors, environmental risk factors, and cognitive and motor skills. Biologically, preterm birth has been widely acknowledged as a risk factor (i.e., gestational age of 37 weeks at delivery) however, there exist limited and conflicting findings for low-risk preterm infants (i.e., those without brain damage or serious perinatal difficulties, who are often less immature and hospitalized for a shorter time as compared to high-risk preterm children. This justifies more research to fully understand the influence of biological factors on language development among children. The current study was conducted to evaluate the effect of parents implementing language interventions on children with delayed language development.

2. Methods

This narrative review has been undertaken by searching databases like PubMed, Google Scholar, and EMBASE. The articles published from 2000 to 2022, published in English language were included in this narrative review. All the studies that examined the effect of parental language intervention on children with delayed speech development were reviewed. Key words used for the search of articles includes, “Language Intervention”, “Delayed Language”, “Delayed Speech”, “Delayed Language Development”. The titles and abstract then reviewed based on the objectives of the study. Articles that met the inclusion criteria were retrieved and included in this narrative review.

3. Results and discussions

Environmental factors identified by several studies in the general population indicate that among environmental factors, a poor parental education level, socioeconomic situation, and parental occupation are significant predictors of poor language outcomes. For instance, full-time employment and low social

class among dads influenced children's language delays at 36 months of age, indicating that both parents' social standing affects the likelihood of language delays. This highlights multiple factors, such as the environmental factors playing a role in delayed-language development among children.

The term "late talkers" describes children who, in the absence of sensory, cognitive, or socioemotional issues, have language delays in numerous areas, including slower language learning progress and a small expressive vocabulary (below the 10th percentile in comparison to normative statistics) (Hawa & Spanoudis, 2014). With prevalence rates ranging from 9 to 21% (Reilly et al., 2007; Korpilahti et al., 2016; Sansavini et al., 2021) and representing a major fraction of 2-3-year-old children, it is pertinent from a clinical perspective to describe the idiosyncrasies of their language milieu to identify which aspects of parental input could be augmented and/or corrected. Most late talkers who catch up with their classmates' language acquisition by preschool age by the age of three are known as "late bloomers"; however, roughly one-third of them, or 5%–7% of all preschoolers, develop a developmental language problem, typically identified at around the age of four (Zuccarini et al., 2020).

Some late talkers also have a limited receptive vocabulary, which raises the possibility of developing a developmental language impairment as a result. Late talkers frequently exhibit poor phonological correctness, a limited phonological inventory, and straightforward syllabic structures. A lower degree of responsiveness and communicative initiative are also present, as well as delays in verbal skills up to the age of 4 compared to their classmates who are not late talkers (Zuccarini et al., 2020). The cognitive and motor abilities of late talkers vary as well. There is a positive correlation between lexical comprehension and cognitive capabilities, as evidenced by the less advanced symbolic play abilities discovered in 24-month-old late talkers with an expressive language delay and in 29-month-old ones who continued to talk late into their third year. Additionally, compared to late talkers with only an expressive delay and normally developing toddlers, late talkers with both receptive and expressive delays showed significantly worse nonverbal cognitive scores.

Parent-implemented interventions' effectiveness in improving the language outcomes of late talkers is consistent and well-documented. According to Roberts and Kaiser's meta-analysis of 18 trials, children who participated in parent-implemented interventions outperformed controls on almost all observable and parent-reported measures of language development, with larger impact sizes for measures of expressive linguistic and verbal ability (Kaiser & Hancock, 2003). According to a review of studies focusing on children with language delays, children who participated in parent-implemented programs demonstrated better language outcomes than kids in the control circumstances. Additionally, in a meta-analysis of 25 RCT studies, parent-implemented language treatments, whether they concentrate on

caregiver-child play routines or book-sharing activities, significantly impact children's expressive vocabulary on average.

Parent-led interventions have proved to play a positive role in addressing delayed-language development among children by helping parents instill skills that can help them facilitate learning among their children. The abilities that parent educators aim to transfer in parents are in the context of children's growth and families' objectives. Each parent's behavior is justified in light of the learning opportunities it provides for the child. For instance, when children's cognition and attention are already focused on a particular event, expanding their language offers them the opportunity to learn sophisticated language; expansions capitalize on children's fleeting willingness to absorb new information (Kruythoff-Broekman et al., 2019). Particularly for children who have difficulty concentrating and learning about new concepts including language, compared to other children their age.

The parent-directed language intervention is effective in supporting children's growth in the expressive lexicon—with a significant increase in children's language diversity (word types) and rate (word tokens)—indirectly, i.e., via the enhancement of functional features of parental speech. Children's language during parent-child interaction has been shown to increase in terms of the number of words produced whereas, parents demonstrated growth in their responses to their child's verbal attempts particularly, by expanding them, adding extra verbal material able to provide the child with new attributes concerning the expressed original meaning. Further highlighting the importance of parent-led interventions for helping children with delayed-language development achieve better language with the help of parent-led intervention (Durham et al., 2007).

Children's vocabulary size and rate of language development vary greatly during the early stages of language learning (Farkas & Beron, 2004). Diverse sources of these variances are represented by various theories of language acquisition and schools of thought. An interactionist approach to language learning emphasizes the value of children's early settings and social interactions during the learning process (Durham et al., 2007).

Even though there is plenty of evidence linking parental communication with children to their vocabulary development, different studies tend to focus on varying input measures and it is frequently challenging to ascertain the impacts of input measures taken all at once (Rowe, 2012). Some studies suggest that the sheer volume of speech matters, while other research reveals that certain speech types (such as the use of complex terminology) and diversity of input are crucial. Furthermore, the age of participating children and other significant background factors (such as socioeconomic status) demonstrate different results. Studies show that the level of parental involvement influences the rate of

language attainment between 14 and 26 months in a study of middle-class households (Rowe, 2012). Parents' interaction with children impacts their language development, parents with children experiencing delayed-language development need clinicians to coach them to help stimulate their children's language and communication skills (Kruythoff-Broekman et al., 2019).

A study indicated that the parent-implemented Target Word program was beneficial in improving parents' communicative connection with their children and in reducing those actions meant to put pressure on their children. As a result, children displayed significant improvement in expressive vocabulary and syntax. It is also believed that functional aspects of parental input influence how children acquire their language skills (Tsybina & Eriks-Brophy, 2010). One of these traits is the ability of parents to react contingently to their children's attentive concentration and communicative initiatives translating into better language development skills among children. Literature research has shown that variations in maternal contingent response influence children's language development. Parents taking part in the intervention had a much higher level of talking over reading when compared to parents in the control condition, in addition to the considerable gains in the use of total responses and expansions (Buschmann et al., 2015).

Given the temporal relationship between children's initiatives and parental reactions, children form better connections between labels and referents prevailing in the context (Hargrave & Sénéchal, 2000). An increase in responses following children's vocal attempts is critical for language learning (Durham et al., 2007). A meta-analysis revealed that dialogic reading programs are effective in fostering children's expressive vocabulary, with preschoolers benefiting more from parent-led interventions compared with kindergarteners (Mol et al., 2008). Studies comparing children getting dialogic reading vs. ordinary reading interventions, as well as children dealing with bilingual preschoolers experiencing delayed-language development, book reading interventions were useful for children with restricted expressive vocabularies (Tsybina & Eriks-Brophy, 2010).

The findings of studies addressing the long-term impacts of parent-implemented interventions are inconsistent, revealing both long-term effects of interventions on children's language scores and abilities in some situations and a lack of long-term effects in others (Buschmann et al., 2015; Kruythoff-Broekman et al., 2019). According to studies involving late talkers and children with typical language development, parental use of interventions improved children's language development scores. Parents taking part in the intervention demonstrated a significant rise in the talking over reading measure compared to parents in the control condition, in addition to the considerable gains in the utilization of total responses and expansions (Durham et al., 2007).

The efficacy of parent-led interventions in helping children with delayed-language development is well-documented and underscores the role of parents in supporting such children. However, it is pertinent to note that parent-led interventions require parents to fully understand the challenges their children are facing to be able to successfully capitalize on the given intervention aimed at supporting late-talkers (Suttora et al., 2021). Additionally, the promising findings warrant more efforts toward utilizing parent-led interventions to help children with delayed-language development. Parents of children exhibiting delayed development have an additional responsibility to help their children through increased responsiveness and consistency in assessing their children's behaviors and cues to completely realize the needs of their children and help them achieve their development milestones (Hargrave & Sénéchal, 2000).

Given the considerable evidence supporting the positive role of parent-led interventions in helping children with delayed development, it is imperative to direct more efforts towards interventions building parents' capacity to improve development outcomes and decrease problem behaviors among children. Family accommodation is at the core of an enabling environment for children with developmental challenges. The actions that parents engage in or avoid cascade to ameliorate a child's distress or fear around a situation concerning difficulty with verbal expressions (Shalev et al., 2019). Parents who have modified their behaviors or incorporated intervention-led behaviors have been shown to significantly improve children's development challenges and provide a supportive environment. This indicates that behavioral interventions are helpful for parents supporting their children facing delayed-language development (Tsybina & Eriks-Brophy, 2010).

Parents have a unique opportunity to offer support to their children as they already spend much time with their children, making targeted interventions economical and easy to be embedded routinely in many contexts (Shalev et al., 2019). Moreover, besides the frequency of communication, the quality of parental communication also significantly influences the language development process in children (Buschmann et al., 2015). For instance, the diversity of parent vocabulary, often calculated as some root words or type of words, is a major predictor of child vocabulary growth between 14-36 months (Pan et al., 2005). Studies indicate a strong association between parental use of decontextualized vocabulary and sophisticated words and children's vocabulary skills. Highlighting the importance of parent-led interventions in facilitating the language development of children and building a sophisticated vocabulary (Kruythoff-Broekman et al., 2019).

Interventions focusing on social communication are recommended for younger children facing challenges in language development. This highlights the need to use interventions related to the child's age and developmental stage. According to a study, by exposing children to various styles of conversation

at different stages of development, parents can help children strengthen their vocabulary. Previous findings also point to the significance of interaction in cognitive development more generally, since parents who interact with their children at a level that challenges them while simultaneously offering support and numerous learning opportunities report excellent outcomes. According to a study, by exposing children to various styles of conversation at different stages of development, parents can support their vocabulary growth. Previous findings also point to the significance of interaction in cognitive development more generally, since parents who interact with their children at a level that challenges them while simultaneously offering support and numerous learning opportunities report excellent outcomes.

However, there are conflicting results on the utility of parent-led interventions targeting late-talking children (Cook et al., 2017). Several studies have also highlighted the failure of parent-led interventions to address the challenges associated with delayed-language development among children (Cook et al., 2017). The premise behind the cascading model of parent-led intervention relies on the parent's effective implementation of training, coaching, and support received from the clinician's accuracy, consistency, and frequency, resulting in improvements in the child's development outcomes (Smith et al., 2011). Warranting more studies to explore the utility of parent-led interventions to help children with delayed-language development issues.

4. Declarations

4.1 Conflict of Interest Statement

The authors have no conflict of interests to declare.

4.2 Funding Disclosure

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