Factors associated with expressive and receptive language in early childhood: a study in Ubon Ratchathani province, Thailand

Factores asociados con el lenguaje expresivo y receptivo en la primera infancia: un estudio en la provincia de Ubon Ratchathani, Tailandia

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Abstract

Introduction: Early childhood is a vital stage for growth and learning, with expressive and receptive language development being essential milestones.
Objective: This study aimed to examine the relationships between associated factors and language development in early childhood.
Methodology: A cross-sectional analytical study was conducted with 155 caregivers of children aged 3–5 years from schools and child development centers under Ubon Ratchathani Municipality. Participants were selected via multistage random sampling. Data were collected using three questionnaires and analyzed using descriptive statistics, standard deviations, and Pearson's correlation.
Results: Most children had no underlying diseases, while 17.4% had chronic conditions. Caregivers showed high levels of parenting behavior (mean ± SD = 67.86 ± 7.24) and language skill training (mean ± SD = 67.05 ± 8.85). Children had high levels of expressive and receptive language development (mean = 54.56, SD = 10.82). Significant correlations were found between language development and parenting behavior ($r = 0.48$, $p < 0.001$) and language training behavior ($r = 0.42$, $p < 0.001$).
Conclusions: Positive caregiving practices and consistent language stimulation significantly support linguistic development. Encouraging caregiver involvement and regular developmental monitoring using the DSPM can enhance early language acquisition and guide future interventions.

Keywords

Early childhood development, expressive language, receptive language, child motor skills, parenting behavior, play, language skill training.

Resumen

Introducción: La primera infancia es una etapa crucial para el crecimiento y el aprendizaje, siendo el desarrollo del lenguaje expresivo y receptivo un hito fundamental.
Objetivo: Este estudio tuvo como objetivo examinar las relaciones entre los factores asociados y el desarrollo del lenguaje en la primera infancia.
Metodología: Se realizó un estudio analítico de corte transversal con 155 cuidadores de niños de 3 a 5 años matriculados en escuelas y centros de desarrollo infantil bajo la jurisdicción del Municipio de Ubon Ratchathani. Los participantes fueron seleccionados mediante muestreo aleatorio por etapas. Los datos se recopilaron mediante tres cuestionarios y se analizaron con estadísticas descriptivas, desviaciones estándar y análisis de correlación de Pearson.
Resultados: La mayoría de los niños no presentaba enfermedades subyacentes, mientras que el 17.4 % tenía afecciones crónicas. Los cuidadores mostraron altos niveles de comportamiento parental (media ± DE = 67.86 ± 7.24) y de entrenamiento en habilidades lingüísticas (media ± DE = 67.05 ± 8.85). Los niños presentaron niveles altos de desarrollo del lenguaje expresivo y receptivo (media = 54.56, DE = 10.82). Se encontraron correlaciones significativas entre el desarrollo del lenguaje y el comportamiento parental ($r = 0.48$, $p < 0.001$) y el entrenamiento lingüístico ($r = 0.42$, $p < 0.001$).
Conclusiones: Las prácticas de crianza positivas y la estimulación lingüística constante apoyan significativamente el desarrollo del lenguaje. Fomentar la participación activa de los cuidadores y el seguimiento regular del desarrollo mediante el Manual de Vigilancia y Promoción del Desarrollo (DSPM) puede mejorar la adquisición temprana del lenguaje y orientar futuras intervenciones.

Palabras clave

Desarrollo de la primera infancia; lenguaje expresivo; lenguaje receptivo; motricidad infantil; comportamiento parental; juego; entrenamiento en habilidades lingüísticas.

Introduction

Early childhood represents a critical period for growth, development, and learning. Children aged 3 to 5 years experience rapid and comprehensive developmental progress across all domains. It is essential to promote development across five key areas: gross motor skills, fine motor skills and cognition, receptive language, expressive language, and personal-social skills (Valero et al., 2022). Balanced development in these domains contributes to children's physical health, cognitive intelligence (IQ), and emotional intelligence (EQ), serving as key indicators of quality of life and long-term well-being (Pichachan, 2023), abstract thinking, and language skills, which are critical for academic success. (Hasugian et al., 2023). Recent evidence further demonstrates that language and motor skills are strongly interconnected. Gross and fine motor activities, such as grasping, running, or building, provide children with opportunities for exploration and social interaction, which directly stimulate expressive and receptive language development. Play and movement therefore serve not only as foundations for physical competence but also as catalysts for vocabulary growth, sentence formation, and communication skills (Samawi et al., 2025; Wahyuni et al., 2024).

According to national early childhood development data collected between 2018 and 2021 by the National Institute for Child Development, Department of Health (2021), the proportion of children with age-appropriate development was 80.38%, 75%, 73.4%, and 72%, respectively, while those suspected of developmental delays were 19.62%, 25%, 26.6%, and 28.3%. Moreover, from 2019 to 2021, a continuous decline in overall developmental levels was observed, with post-intervention developmental rates of 97.50%, 88%, and 84.50%, respectively. According to the National Statistical Office (2022) reported, Thailand has approximately four million children aged 0–5 years. Among these, around 30% are at risk of developmental delays, particularly in the domain of language use (National Statistical Office of Thailand, 2023). This reflects a downward trend in age-appropriate development and an upward trend in suspected delays compared to global standards set by the World Health Organization (WHO), where the expected range is 80–85%. Importantly, children at risk for language delays are often the same children who exhibit deficits in gross or fine motor development, underscoring the bidirectional relationship between these domains. These developmental challenges may stem from modifiable factors related to parents, caregivers, and the child's environment (Pichachan, 2023). Delayed development may lead to various inappropriate behaviors. Conversely, children who achieve age-appropriate development are better prepared for future learning challenges, complex problem-solving, and adaptive functioning (Black et al., 2017). This integrative perspective suggests that interventions targeting motor skills, such as structured play, movement-based learning, and fine motor training, can also enhance linguistic outcomes. Early identification of developmental delays through appropriate assessment tools allows for timely intervention and prevention of long-term adverse consequences. Language development in early childhood encompasses both expressive and receptive language abilities and is influenced by numerous factors. Child-related factors include age, sex, and the presence of chronic illnesses. According to the sixth national study on factors affecting early childhood development conducted in 2017 by the Academic Support and Research Group, Department of Health, children with birth weights above 2,500 grams are 1.38 times more likely to have age-appropriate development than those with lower birth weights. Additionally, full-term births confer a higher likelihood of normal development compared to preterm and post-term births by 1.17 and 1.82 times, respectively. Oral health problems also play a role, with children free of oral health issues being 1.53 times more likely to develop appropriately than those with such problems (Pattanapongthorn et al.,2018).

Environmental and parenting factors are also crucial (Wahyuni et al., 2024; Samawi et al., 2025). Parental involvement in storytelling, play, and quality reading significantly contributes to development. When these activities incorporate physical play and motor stimulation, the benefits for language are magnified, as children learn new words and concepts through embodied experiences. Recent efforts to extend models of relational health to the field of child development highlight the role that parent, child, and contextual factors play in supporting the development and maintenance of healthy parent-child relationships. (Frosch et al., 2019). Previously, Denver II (Frankenburg et al., 1990) was commonly used to assess early childhood development in Thailand. However, the Developmental Surveillance and Promotion Manual (DSPM) was later introduced as part of the Royal Development Project in honor of Her Royal Highness Princess Maha Chakri Sirindhorn's 60th birthday celebration in 2015. The DSPM has since been widely from adopted to screening and promotion instrument for children aged birth to six years across

five domains: gross motor (GM), fine motor (FM), receptive language (RL), expressive language (EL), and personal-social (PS). Development is assessed at key ages (9, 18, 30, 42, and 60 months) in all levels of healthcare services and has been expanded into schools and early childhood development centers nationwide (Sirithongthaworn, 2018). This holistic monitoring system itself reflects the scientific consensus that motor and language development are inseparable components of child development.

Literature reviews have identified multiple factors associated with early childhood development. Child-related factors such as gestational age, diminishes as children grow older, while the impact of sociodemographic factors, like parental education, becomes more pronounced. (Kappelt et al., 2023 Rithiron, 2021) Parenting factors, including warm parent-child relationships, acceptance of the child's abilities, minimal disciplinary conflicts, and stable parental mental and physical health, have also been shown to support development (Silaprasamee et al., 2019). The DSPM assessment system itself has been associated with developmental outcomes (Pichachan, 2023). In addition, national policies emphasize the need for integrated, high-quality, age-appropriate development for every child, requiring coordinated efforts across government and non-government sectors, as well as multidisciplinary collaboration, to ensure adequate resources for early childhood development (Ministry of Public Health, 2021). Ubon Ratchathani Province, located in northeastern Thailand, has approximately 35,412 children aged 3–5 years (Child Development Center, 2024). Based on developmental surveillance in Ubon Ratchathani Province, 22.70% of children were identified as having suspected developmental delays. Particularly, 41.70% of children were cared for by grandparents, only 41.67% of parents engaged in reading stories to their children, and the majority of caregivers (89.66%) frequently used mobile phones (Child Development Center, 2024). Although developmental promotion strategies have been developed, such as localized models for enhancing child development in Ubon Ratchathani (Jandabut et al., 2018), nearly three-quarters of preschool children in the province still exhibit age-inappropriate language development. Given the interdependence of language and motor skills, the lack of structured play and movement opportunities may partially explain these delays. Addressing this issue requires a comprehensive understanding of the contributing factors within the local context to inform nursing practice and guide developmental care for children with delayed language development, enabling them to achieve age-appropriate milestones. Therefore, the present study aimed to investigate the factors influencing language development in preschool children in Ubon Ratchathani Province. Preliminary developmental screenings conducted in municipal schools and child development centers in Ubon Ratchathani Municipality on 743 children revealed that 73.21% had age-appropriate development, while 26.78% had developmental delays. Notably, only 55% of children achieved age-appropriate expressive language development, falling short of the national standard, which requires that 85% of children meet developmental benchmarks across all five domains. These findings highlight the concerning prevalence of developmental delays, particularly in language development, in the province.

Therefore, this study aims to examine the factors associated with expressive language development in early childhood in Ubon Ratchathani Province. The study focuses on the relationships between child-related factors (such as chronic illnesses), environmental factors (such as parenting behaviors), and developmental assessments. The findings are intended to serve as foundational data for monitoring, promoting, and planning effective interventions for early childhood development in the province, ensuring that children achieve optimal development and grow into healthy, competent adults.

Method

Study Design

This study employed a cross-sectional correlational design. Participants were selected through a multistage sampling procedure to ensure representation from both urban and rural areas within Ubon Ratchathani Province. In the first stage, districts were stratified into urban and rural strata, and one district from each stratum was randomly selected. In the second stage, within the selected districts, a list of childcare centers was obtained, and eligible institutions were identified. Under the Ubon Ratchathani Municipality, seven kindergartens and child development centers met the eligibility criteria. Using simple random sampling, two kindergartens and two child development centers were selected.

Within each selected institution, caregivers of preschool children were chosen using simple random sampling. Those meeting the inclusion criteria were invited to participate through proportional allocation based on the size of each center. The inclusion criteria were as follows: (1) caregivers or guardians of preschool children aged 3–5 years, aged 20 years or older, residing in Ubon Ratchathani Province; (2) having primary responsibility for continuous childcare for at least six months; (3) proficiency in reading, writing, comprehending, and communicating in Thai; and (4) willingness to participate in the study. Exclusion criteria included: (1) relocation outside Ubon Ratchathani Province during data collection, and (2) illness on the day of data collection or withdrawal from the study. To minimize selection bias, the inclusion and exclusion criteria were strictly applied, and recruitment was conducted across multiple sites. The study protocol was approved by the Ubon Ratchathani Rajabhat University Human Ethics Committee (Approval No. HE671013).

Participantes

The study population consisted of caregivers or parents of preschool children enrolled in kindergartens and child development centers under the Ubon Ratchathani Municipality, comprising a total of 743 individuals. A simple random sampling technique was employed to select the study sample. The sample size was determined using G*Power software based on the correlation: bivariate normal model, with an effect size of 0.26 (based on the study by Nichanee Phannngam, 2017, on factors influencing child development stimulation in Nakhon Ratchasima Province), an error probability of 0.05, and a power of 0.95. With a 95% confidence level and an acceptable margin of error of 0.05, the required sample size was calculated to be 155 participants.

Procedure

Following ethical approval from the Human Research Ethics Committee of Ubon Ratchathani Rajabhat University (Approval No. HE671013), permission was obtained from school directors and child development center heads to conduct the study. The research objectives were explained to administrators, and written informed consent was obtained from all participating caregivers and parents prior to data collection. Participants were requested to complete the questionnaires. Upon collection, the researcher reviewed all returned questionnaires for completeness, and only fully completed questionnaires were included in the final analysis.

Measures

The research instruments comprised four sections:

1. General Information Questionnaire: This section collected demographic information of the children, including sex, age, and presence of chronic illnesses.

2. Parenting Behavior Questionnaire: This 15-item instrument, adapted from the Parenting Behavior Questionnaire developed by the National Research Council of Thailand (2019), utilized a 5-point Likert scale, with total scores ranging from 15 to 75.

3. Language Development Skill Training Behavior Questionnaire: This instrument was developed by the researcher based on a literature review and the Developmental Surveillance and Promotion Manual (Ministry of Public Health, 2021). It consisted of 15 items: 7 items on receptive language skill training behaviors and 8 items on expressive language training behaviors, assessed using a 5-point Likert scale with total scores ranging from 15 to 75.

4. Language Development Assessment Questionnaire: Adapted from the Developmental Surveillance and Promotion Manual (Ministry of Public Health, 2021), this section assessed receptive and expressive language development in children aged 3–5 years. It comprised 16 items: 8 items each for receptive language and expressive language, assessed using a 4-point Likert scale, with total scores ranging from 8 to 32 for each subdomain.

The instruments were validated for content validity by experts, and their reliability was confirmed with Cronbach's alpha coefficients of 0.97, 0.97, and 0.95, respectively.

Data analysis

Data were analyzed using a statistical software package, with a significance level set at 0.05. Descriptive statistics, including frequency distributions, percentages, means, and standard deviations, were used to

summarize the general characteristics of the sample (sex, age, and chronic illnesses), as well as parenting behaviors and language development skill training behaviors. For inferential analysis, the associations between child-related factors (chronic illnesses) and language development were examined using the Chi-square test. Pearson's product-moment correlation coefficient was employed to assess the relationships between parenting behaviors, language development skill training behaviors, and both expressive and receptive language development outcomes.

Results

General Characteristics of Participants: Among the 155 children, 51.0% were male and 49.0% were female. Children aged 3–4 years comprised 29.0% of the sample, while those aged 4–5 years accounted for 71.0%. Most children (82.6%) had no chronic illnesses, while 17.4% had at least one chronic condition (Table 1).

Table 1. General Characteristics of the Participants (n = 155)

Variables	Frequency (n)	Percentage (%)
Caregiver Characteristics		
Sex		
- Male	35	22.6
- Female	120	77.4
Age (years)		
20-30	51	32.8
31-40	60	38.8
41-50	16	6.4
51-60	17	10.7
61 or above	11	6.9
Mean age ± SD = 37.53 ± 11.99		
Education Level		
- Below Bachelor's Degree	117	75.5
- Bachelor's Degree	37	23.9
- Above Bachelor's Degree	1	0.6
Child Characteristics		
- Sex		
- Male	79	51.0
- Female	76	49.0
Age (years)		
-3–4	45	29.0
- 4–5	110	71.0
Mean age ± SD = .1.71± 0.45		
Chronic Illness		
- None	128	82.6
- Present	27	17.4

Table *2.* presents the mean scores of Parenting Behavior and Language Development Skill Training. The caregivers demonstrated high levels of parenting behavior (mean ± SD = 67.86 ± 7.24) and language development skill training behavior (mean ± SD = 67.05 ± 8.85).

Table 2. Parenting Behavior and Language Development Skill Training (n = 155)

Variables	Mean ($\bar{X}$)	S.D.	Min	Max	Interpretation
Parenting Behavior	67.86	7.24	24	75	High
Language Development Skill Training Behavior	67.05	8.85	16	75	High

Table 3 presents the mean scores of Expressive and Receptive Language Development. The children demonstrated high levels of both receptive and expressive language development. The mean score for receptive language was 27.48 (SD = 5.57), for expressive language was 27.08 (SD = 5.40), and for overall language development was 54.56 (SD = 10.82).

Table 3. Receptive, Expressive, and Overall Language Development (n = 155)

Variables	$\bar{X}$	S.D.	Min	Max	Interpretation
Receptive Language Development	27.48	5.57	8	32	High
Expressive Language Development	27.08	5.40	8	32	High
Overall Language Development	54.56	10.82	16	64	High

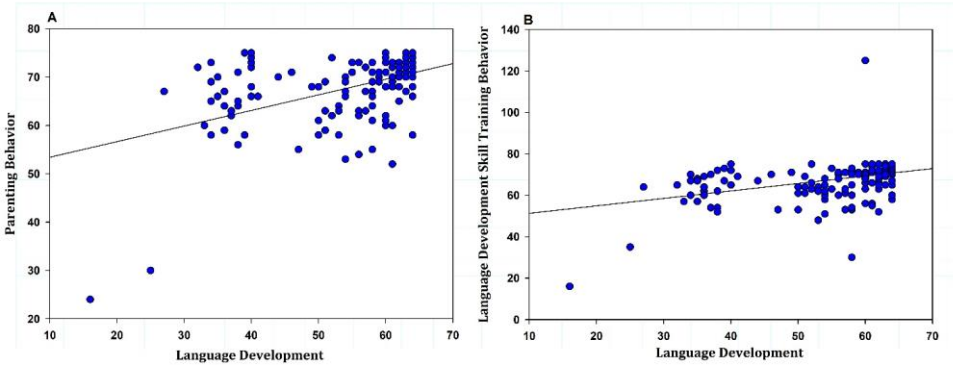
Table *4.* presents Factors Associated with Language Development. The analysis revealed that neither the presence of chronic illness nor the child's health condition was significantly associated with language development (p = 0.679). However, both parenting behavior (r = 0.48, p < 0.001) and language development skill training behavior (r = 0.42, p < 0.001) demonstrated moderate positive correlations with children's receptive and expressive language development.

Table 4. Correlation Between Study Variables and Language Development (n = 155)

Variables	*r*	p-value
Chronic Illness	0.77[a]	0.679[a]
Parenting Behavior	0.48	0.001*
Language Development Skill Training Behavior	0.42	0.001*

* Note: [a] = Chi-square test for categorical independent variables and Fisher's Exact Test; p < 0.05

Figure 1. Scatterplot illustrating the correlation between language development and parenting behavior (A), and between language development and language skill training behavior (B).



Discussion

This study aimed to examine the associations between child-related factors, parenting behaviors, language development skill training behaviors, and expressive and receptive language development among early childhood children in Ubon Ratchathani Province.

The findings revealed that parenting behaviors demonstrated a moderate positive correlation with both expressive and receptive language development in early childhood. This finding aligns with Jean Piaget's developmental theory, which emphasizes that language development occurs naturally with cognitive maturation rather than being governed by a specific organ responsible for language. Piaget argued that children acquire language as their cognitive abilities develop to an appropriate level, influenced by both internal neurological mechanisms and external environmental stimulation. In this context, parenting behaviors serve as critical environmental factors that directly influence language development. Piaget also highlighted that children's early sensorimotor exploration, such as grasping, walking, and object manipulation, not only supports cognitive growth but also forms the foundation for later symbolic representation and language acquisition.

The present study's results are consistent with previous research (Pichachan, 2023), which identified caregiving environment, storytelling, learning activities, play, family language history, and caregivers' health education reading habits as influential factors for early childhood language development. Furthermore, the findings correspond with the Sixth National Study on Factors Affecting Early Childhood Development in Thailand (2017), conducted by the Academic Support and Research Group, Department of Health, which demonstrated that children whose parents engaged in quality storytelling were 1.35 times more likely to achieve age-appropriate development than those whose parents did not. Similarly, active parental play increased the likelihood by 1.04 times, while quality use of electronic media and limited television viewing (not exceeding two hours daily) contributed to higher developmental outcomes by 1.24 and 1.11 times, respectively (Pattanapongthorn et al.,2018). These outcomes reinforce the role of play as a holistic developmental mechanism: during active play, children practice gross and fine motor skills while simultaneously developing expressive and receptive language. Additionally, previous

studies emphasize that parenting plays a central role in shaping children's developmental outcomes. Parents and caregivers who actively engage in their children's daily lives provide emotional security, behavioral modeling, cognitive stimulation, and the development of values and life experiences. In contrast, children from families that rarely engage in play are approximately 1.4 times more likely to experience developmental delays compared to children from more engaged households (Kueaiat et al., 2018). Particularly, play-based interactions provide multisensory experiences that integrate movement with communication; for instance, following instructions in a movement game develops listening comprehension while refining coordination.

The present study also found that language development skill training behaviors demonstrated a moderate positive association with expressive and receptive language development. Skill training activities, including vocabulary instruction, reading practice, and structured speaking exercises, were shown to enhance children's ability to apply language in daily life. These findings support the notion that structured language skill training enhances not only children's communication abilities but also their capacity to comprehend increasingly complex linguistic contexts. When these training activities are combined with motor actions, such as using gestures to reinforce new vocabulary or practicing storytelling through role-play and movement, they provide a richer developmental stimulus across domains.

This result aligns with Lev Vygotsky's sociocultural theory, which posits that language acquisition is primarily driven by social interaction. Language skill training conducted within meaningful, everyday contexts provides opportunities for children to internalize linguistic structures and apply them effectively (McLeod, 2020). Vygotsky also emphasized the role of play as the "zone of proximal development," where children expand both motor and linguistic abilities under guided participation. The findings are also consistent with Pathomborntat (2019), who reported that parents who actively monitor and assess their children's development using tools such as the Developmental Surveillance and Promotion Manual (DSPM) are better equipped to recognize potential developmental delays and intervene appropriately. The DSPM provides caregivers with accessible tools to systematically assess language development, raising awareness and enhancing developmental surveillance.

Interestingly, the study found no significant association between chronic illness and language development in early childhood. This suggests that, within this study population, the presence of chronic health conditions did not impair language development, potentially due to caregivers' consistent use of structured language stimulation strategies based on the DSPM. It is possible that active, play-based interventions, which inherently involve both physical and verbal engagement, buffered against risks of delayed development even in children with chronic illnesses. This finding contrasts with previous studies by which reported Genetic conditions contribute to developmental language disorders (DLD), with approximately *27%* to *52%* heritability reported in studies (Nudel et al., *2024).* In cases where Children with genetic predispositions may also face compounded challenges if they require ongoing medical care, limiting their exposure to language-rich environments, Genetic testing can reveal underlying causes of language delays, allowing for tailored interventions (Plug et al., *2021).*

These findings have important implications for practice and future research across multiple stakeholder groups in Ubon Ratchathani Province and similar contexts. Nurses should encourage caregivers to actively engage in structured language skill training through evidence-based activities integrated into daily routines. Practical strategies should combine movement and language, such as singing songs with gestures, storytelling with role-play, and reading sessions linked to physical activities. Routine use of the Developmental Surveillance and Promotion Manual (DSPM) is recommended to support and systematically assess developmental milestones. Caregivers should receive training on proper administration and interpretation of DSPM results to optimize early language acquisition monitoring. Kindergartens and childcare centers should implement structured early childhood language development programs that integrate both expressive and receptive language components. Teachers should focus on the early identification of language delays, and the development of parent–school partnership programs using the DSPM is essential to ensure continuity of language learning experiences between home and educational settings. The integration of the DSPM into routine pediatric health check-ups is also recommended, enabling nurses to recognize early warning signs of language delays and provide timely referrals. Nurses can coordinate with multidisciplinary teams, including speech-language pathologists, educators, and healthcare providers, to deliver comprehensive developmental support.

The establishment of culturally appropriate assessment protocols that consider local dialects and caregiving practices specific to Ubon Ratchathani Province in Northeastern Thailand will enhance the accuracy and contextual relevance of developmental evaluations.

Future research should investigate integrated collaborative models involving teachers, parents, caregivers, and healthcare providers to promote holistic early childhood development and enrich children's learning experiences, with a particular focus on language development and health promotion. Additionally, the potential of technology-enhanced intervention approaches suitable for rural and resource-limited settings should be explored. Ultimately, the evidence highlights that supporting children's language development cannot be separated from nurturing their motor skills, as both domains progress synergistically through play, interaction, and stimulation.

Conclusions

This study highlights the significant role of parenting behaviors and language development skill training in promoting expressive and receptive language development among early childhood children in Ubon Ratchathani Province. The findings demonstrate that positive caregiving practices and consistent language stimulation contribute meaningfully to children's linguistic abilities, while chronic illnesses were not found to be associated with language development outcomes in this population. These results underscore the importance of equipping caregivers with knowledge, skills, and practical tools, such as the Developmental Surveillance and Promotion Manual (DSPM), to support early language acquisition. Early identification, continuous monitoring, and timely intervention remain essential strategies to ensure optimal language development, laying the foundation for children's future cognitive, social, and emotional growth.

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Conflict of interest

The authors declare that they have no conflict of interest.

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