

# Parental Involvement And Early Speech-Language Intervention as Determinants Of Vocabulary Development of Children with Down Syndrome In Ibadan, Oyo State

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## Abstract

*Down syndrome is a genetic disorder caused by the presence of an extra copy of chromosome 21. It is associated with delays in physical, cognitive, and speech development. Parental involvement plays a crucial role in enhancing vocabulary development in children with Down syndrome through consistent communication, turn-taking, and meaningful interactions. Additionally, the timing between diagnosis and the commencement of intervention is a key factor in language acquisition for children with special needs. This study examined the influence of parental involvement and early intervention on the vocabulary development of children with Down syndrome in Ibadan, Oyo State. A purposive sampling method was used to select 30 parents of children with Down syndrome. Data were collected using a self-structured questionnaire ( $\alpha = 0.70$ ), and Pearson's Product Moment Correlation (PPMC) and Multiple Regression Analysis were employed for analysis. Findings revealed a significant relationship between parental involvement ( $r = 0.827, p < .05$ ) and early speech-language intervention ( $r = 0.954, p < .05$ ) with vocabulary development in children with Down syndrome. Furthermore, both parental involvement and early intervention significantly contributed to vocabulary development ( $r = 0.966, p < .05$ ). The study concludes that parental involvement and early intervention are critical in fostering vocabulary development in children with Down syndrome. Therefore, it is recommended that parents actively participate in their child's language development from an early stage and seek early intervention as soon as a diagnosis is made.*

**Keywords:** Parental Involvement, Early Intervention, Vocabulary Development, Down Syndrome

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## **Introduction**

Language acquisition begins at birth, with vocabulary development serving as a crucial milestone. The process starts with a newborn's first cry and evolves through verbal and nonverbal interactions. Early language acquisition is shaped by social learning environments, particularly parent-child interactions, as emphasized by Levickis, Wake, Bretherton, and Reilly (2023). Vocabulary growth follows a clear trajectory, from babbling to first words around the age of one, highlighting the role of imitation, attentive listening, and instruction in language development. The quality of language-learning environments, including responsive interactions in toddler childcare settings, plays a role in vocabulary development, though the effect is small (Hansen and Broekhuizen, 2020).

Down syndrome, a genetic disorder caused by an extra copy of chromosome 21, is associated with developmental delays in language, cognition, and motor skills (National Down Syndrome Society, 2014). These challenges can hinder vocabulary acquisition due to cognitive delays, motor difficulties, and potential hearing impairments. However, early intervention, specialized education, and parental and community support can significantly enhance language development. Understanding the impact of Down syndrome on vocabulary growth is essential for implementing effective communication interventions.

Vocabulary development is continuous and does not stop once a child begins to talk. Children learn many new words as they start reading and interacting with their environment. Vocabulary development

enhances key language skills, including listening, speaking, reading, and writing. The broader a child's vocabulary, the stronger these skills become. A well-developed vocabulary also improves communication, self-expression, and the ability to convey information effectively. Research suggests that a child's vocabulary size at a young age predicts future reading ability, influencing academic success and lifelong learning.

Individuals with Down syndrome face challenges in speech, vocabulary, and phonation due to chromosomal differences and brain function. Speech production is often impaired, particularly in expressive language (Fawcett and Peralego, 2009). Many children with Down syndrome are late in saying their first words, and their vocabulary develops more slowly than that of typically developing children. While they use similar two-word phrases, they struggle with mastering grammatical rules (Buckley, 2006). They also experience difficulties with speech intelligibility, articulation, and fluency. Some may withdraw from activities or use social skills to avoid communication challenges, which can persist into adulthood. Support from family members is crucial in helping them adjust to their environment and develop vocabulary skills. Engaging in conversations strengthens both receptive (hearing and understanding) and expressive (speaking and using language) abilities. Research indicates that rich language experiences provided by parents and family members enhance reading and comprehension skills in early and later years (Price and Kalil, 2018).

Parental involvement plays a vital role in addressing vocabulary delays and fostering language development in children with

Down syndrome (Heidlage, Cunningham, Kaiser, Trivette, Barton, Frey, and Roberts, 2020). Mothers, in particular, contribute significantly to vocabulary growth by using a greater variety of words (Rowe, Coker, and Pan, 2004), with the diversity of their vocabulary input closely linked to child language development (Huttenlocher, Waterfall, Vasilyeva, Vevea, and Hedges, 2010). While research suggests that both parents use a similar range of vocabulary, fathers are more likely to introduce rare words, whereas mothers tend to use more commonly known terms (Leech, Salo, Rowe, and Cabrera, 2013). However, Tamis-LeMonda, Baumwell, and Cristofaro (2012) found no significant differences in word diversity between mothers and fathers. Speech and language therapy is a key component of early intervention. The earlier parents engage in their child's overall development, the more effective interventions become, as they gain access to various programs such as physical therapy, speech and language therapy, and occupational therapy. Early speech-language interventions connect parents with speech therapists who can help children develop pre-speech and pre-language skills (National Down Syndrome Society, 2014). The Individuals with Disabilities Education Act (IDEA) mandates that states provide early intervention services for eligible children to enhance development and support families in meeting their needs. Speech-language therapists assist children with conversation skills, reading comprehension, and vocabulary development. However, parental involvement is equally essential. Repetition and imitation play a significant role in expanding a child's vocabulary.

Throughout past century, Down syndrome researchers have not come to a consensus on how parental involvement and early speech-language intervention can determine the vocabulary development of children with Down syndrome. This paper will specifically investigate how parental involvement and early speech-language interventions can help with the vocabulary development of children with Down syndrome. This can result in making things better for parents of children with Down syndrome in terms of getting their children's help and helping their children's vocabulary development.

This study examines parental involvement and early speech-language intervention on the vocabulary development of children with Down syndrome in Ibadan, Oyo State. Parents serve as primary language models, shaping their children's linguistic abilities through verbal interactions. While some research finds no significant differences in vocabulary input between mothers and fathers, others suggest fathers introduce rarer words while mothers use more commonly known ones. Early speech-language intervention further enhances vocabulary acquisition, improving both expressive and receptive skills. By analysing these factors, this study aims to identify effective strategies to support language development and improve communication skills in children with Down syndrome.

### Research questions

1. What is the relationship between the independent variables (parental involvement and early speech-language intervention) and the dependent variable (vocabulary development) children with Down syndrome?

2. What is the joint contribution of the independent variables (parental involvement and early speech-language intervention) to the dependent variable (vocabulary development) of children with Down syndrome?
3. What are the relative contributions of the independent variables (parental involvement and early speech-language intervention) to the dependent variable (vocabulary development) of children with Down syndrome?

## **Methodology**

### **Research Design**

This study adopted a descriptive survey research design of correlational type. It is aimed at investigating the relationship among the independent variables and the dependent variable in the study.

### **Population**

The population of this study comprised of parents of children with Down syndrome in Ibadan, Oyo state, Nigeria.

### **Sample and Sampling technique**

The sample for this study comprised 30 parents of children with Down syndrome in Ibadan, Oyo State, selected through a purposive sampling technique from two special homes and one special school. The selected homes were Adeyanju Taiwo Center for Children with Special Needs and Therapy Resource International, while the chosen school was the Child's Clinic under the Department of Special Education, University of Ibadan. These institutions were selected because they cater to children with Down syndrome,

making it easier to access their parents for the study.

### **Research instrument**

The study employed a self-designed instrument titled Parental Involvement and Early Speech-Language Intervention as Determinants of Vocabulary Development Questionnaire. This instrument consists of three sub-themes:

#### **Vocabulary Development Scale**

This self-designed instrument was developed to gather responses on the vocabulary development of children with Down syndrome. It consists of 10 items structured on a five-point modified Likert scale: Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2, and Strongly Disagree = 1. The scale was validated with the assistance of a psychometric expert and a specialist in speech and language therapy. A pilot test was conducted with parents of children with Down syndrome who were not part of the main study. Statistical analysis using Cronbach's Alpha yielded a reliability coefficient of 0.80, indicating that the scale is reliable.

#### **Early Speech-language Intervention Scale**

The scale, developed by researchers, measures early speech-language intervention and consists of five items. The questions were open-ended and were pilot tested on parents of children with Down syndrome who part of the main study were not. The scale was subjected to reliability analysis using Cronbach's Alpha, yielding a coefficient of 0.82, indicating its reliability.

### Parental Involvement Scale

This researcher-developed instrument was designed to measure parental involvement among respondents. It consists of 10 statements structured on a five-point Likert scale: Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2, and Strongly Disagree = 1. The scale was validated by a psychometric expert and pilot-tested on parents of children with Down syndrome who were not part of the main study. Reliability analysis using Cronbach's Alpha yielded a coefficient of 0.83, confirming the scale's reliability.

### Procedure for Data Collection

The researcher personally visited the selected homes and school with an introduction letter from the Department of Special Education, University of Ibadan, outlining the purpose of the study to the management. A pre-visit was conducted to meet the parents of children with Down syndrome. Following this, the researcher provided a detailed explanation of the study to the management of the selected institutions. Dates and times for data collection were then scheduled. In each centre and school, the researcher personally administered the questionnaire

directly to the respondents. Once completed, the questionnaires were collected and prepared for analysis.

### Method of Data Analysis

The data collected were analysed using Pearson's Product Moment Correlation (PPMC) and Multiple Regression Analysis (MRA). PPMC was employed to assess the relationships among the study variables, while MRA was used to determine the composite and relative contributions of the independent variables to the dependent variable.

### Results

The research questions were formulated and tested. The questions raised in the study were discussed below: The results of the findings were presented based on the research questions raised in the study.

**Research question one:** What is the relationship between the independent variables (parental involvement and early speech-language intervention) and the dependent variable (Vocabulary development) among children with Down syndrome?

**Table 1: Inter-correlation Matrix of independent and dependent variables**

Variables	Mean	Standard Deviation	1 Vocabulary development	2 Parental Involvement	3 Early speech - language intervention
Vocabulary Development	6.07	0.94	1		
Parental Involvement	12.50	2.03	0.827**	1	
Early speech - language intervention	7.70	1.75	0.954**	0.764**	1

\*\* Correlation is significant at the 0.05 level (2-tailed).

Table 1 indicates the inter-correlational matrix of the variables of the study; parental involvement, early speech-language intervention and vocabulary involvement of children with Down syndrome in Ibadan metropolis, Oyo State, Nigeria. The findings showed that there was a significant relationship between the independent variables (parental involvement and early speech-language intervention) and dependent variable (vocabulary development) of children with Down syndrome. That is, parental Involvement ( $r=0.827$ ,  $p<.05$ ), Early speech-language

intervention ( $r=0.954$ ,  $p<.05$ ). It implies that there was significant relationship between the independent variables (Parental Involvement and Early speech-language intervention) and the dependent variable (Vocabulary Development) of children with Down syndrome.

**Research question two:** What is the joint contribution of the independent variable independent variables (parental involvement and early speech-language intervention) and the dependent variable (Vocabulary development) of children with Down syndrome?

**Table 2: Summary of Regression Analysis of the combined prediction of parental involvement and early speech-language intervention on the dependent variable (Vocabulary development) among children with Down syndrome**

R	R Square	Adjusted R Square	Standard Error of the Estimate			
0.966	0.934	0.929	0.252			
Summary Regression Anova						
	Sum of Squares	Df	Mean Square	F	P	Remark
Regression	24.149	2	12.074	185.891	0.000	p<0.05 Sig.
Residual	1.718	27	0.64			
Total	25.867	29				

Table 2 revealed a significant composite contribution of the independent variables (Parental Involvement and Early speech-language intervention) on the dependent variable (vocabulary development). The table also shows a coefficient of multiple correlations (R) of 0.966 and a multiple R square of 0.934. This means that 92.9% (Adj.  $R^2=0.929$ ) of the variance in the vocabulary development is accounted for by the independent variables, when taken together. The significance of the composite contribution was tested at  $p<0.05$  using the F-ratio at the degree of freedom (df- 2/27). The table also showed that the analysis of variance for the regression yielded

a F-ratio of 185.891. The above is significant at 0.05 level. This implies that there is significant in the joint contribution of the independent variable independent variables (parental involvement and early speech-language intervention) and the dependent variable (Vocabulary development) of children with Down syndrome.

**Research Question 3:** What is the relative contribution of the independent variables (parental involvement and early speech-language intervention) to the dependent variable (vocabulary development) of children with Down syndrome?

Table 3: Relative contribution of the independent variables to the dependent variable (Test of significance of the regression coefficients)

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Remarks
Model	B	Standard Error	Beta			
Constant	1.469	0.293	-	5.016	.000	
Parental Involvement	0.110	0.036	0.236	3.070	.005	P<0.05(Sig)
Early Speech-Language Intervention	0.0402	0.042	0.774	10.062	.000	P<0.05(Sig)

Table 3 reveals there is a significant contribution of the independent variables to the dependent variable, expressed as beta weights. There is correlation coefficient of parental involvement and early speech-language intervention and dependent variable (vocabulary development) among children with Down syndrome. Using the standardized regression coefficient to determine the relative contributions of the independent variables, early speech-language intervention ( $\beta = 0.774$ ,  $t = 10.062$ ,  $p = < 0.05$ ) indicates most potent contributor, followed by parental involvement ( $\beta = 0.236$ ,  $t = 3.070$ ,  $p = < 0.05$ ). It implies that there is a significant relative contribution of the independent variables (parental involvement and early speech-language intervention) and dependent variable (vocabulary development) of children with Down syndrome. This then implies that parental involvement and early speech-language intervention are potent determinants to the vocabulary development of children with Down syndrome.

### Discussion of findings

This study explored parental involvement and early speech-language interventions as determinants of vocabulary development in children with Down syndrome in Ibadan, Oyo State. Findings revealed a significant relationship between these factors, emphasizing their crucial role in language acquisition. Geral and Frida (2018) supported this, highlighting the importance of parental involvement and early interventions in enhancing vocabulary and overall developmental progress.

Parents who actively engage with their children foster better communication skills, providing opportunities for speech therapy and home practice. Geral et al. (2018) concluded that interactive parental involvement significantly influences vocabulary growth and socio-emotional well-being. Similarly, LeJeune, Lemons, Hokstad, Aldama, and Næss (2021) found that children with greater parental involvement showed stronger vocabulary and motor speech development. Encouraging turn-taking and self-expression further enhances communication skills.

The study confirmed the joint contribution of parental involvement and early interventions to vocabulary development. Syeda and Sidra (2013) emphasized that supportive parental attitudes, rather than pressuring children to speak, motivate better communication. Instead of pushing their children, parents should seek assistance to facilitate effective interactions.

Early interventions are essential for developing oral language and reading comprehension, key to academic success (Fricke, Bowyer-Crane, Haley, Hulme and Snowling, 2012). Parental engagement in speech therapy enhances progress, as active reinforcement at home complements clinical interventions. Timely recognition of speech-language needs leads to significant improvements in expressive communication.

These findings align with Duncan, Schmitt, and Vandell (2019), who linked responsive caregiver interactions to vocabulary and cognitive skills. Anderson, Graham, Prime, Jenkins, and Madigan (2021) further emphasized that naturalistic parental linguistic input enhances vocabulary diversity and syntactic complexity. Overall, increased parent-child conversations and turn-taking play a vital role in developing the vocabulary skills of children with Down syndrome.

### **Conclusion**

This study highlights the crucial role of parental involvement, socioeconomic status, and early speech-language interventions in the vocabulary development of children with Down syndrome in Ibadan Metropolis, Oyo State, Nigeria. While early interventions and active parental participation significantly enhance language acquisition, financial constraints and limited parental education can

hinder access to these essential services, delaying progress. Parents serve as primary language facilitators, and with the right knowledge and support, they can enrich their child's language environment. Advocacy programs, support groups, and educational seminars can help bridge awareness gaps and equip parents with effective strategies. Given the unique contributions of both mothers and fathers to vocabulary growth, improving parental involvement, expanding access to speech-language therapy, and addressing socioeconomic barriers are essential for fostering better language outcomes. Collaborative efforts among policymakers, educators, and healthcare professionals are necessary to create inclusive programs that empower parents and ensure that every child receives the support needed for optimal language development.

### **Recommendations**

To enhance vocabulary development in children with Down syndrome, parents should actively engage in meaningful communication, reinforce language skills at home, and adopt positive interaction strategies to improve expressive communication. They should also establish and participate in advocacy groups to raise awareness, promote inclusivity, and support one another in addressing the emotional, educational, and financial challenges of raising a child with Down syndrome. Recognizing the importance of early intervention, parents should seek guidance from speech-language pathologists, while the government should ensure the availability of qualified therapists in schools to facilitate early diagnosis and intervention. Also, NGOs and professional bodies should

advocate for children with Down syndrome by organizing seminars, workshops, and training programs that educate parents on their role in language development and emphasize the benefits of early speech-language intervention.

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