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AN EVALUATION OF PARENT-IMPLEMENTED INTERVENTION MEASURES FOR SPEECH AND LANGUAGE DELAY AMONG 3-5 YEARS OLD IN NAIROBI CITY COUNTY, KENYA

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Abstract:
The study aimed to evaluate home factors for intervention of speech and language delay among children aged 3-5 years in Kawangware, Nairobi City County, Kenya. The study was guided by the theory of human development presented in Bronfenbrenner's Bio Ecological Model. A descriptive research design was adopted in the study. The focus of the study was on 30 children between ages 3-5 who are speech and language delayed and their parents from Riruta Holy Ghost Mission Special School and Dagoretti Muslim primary school. The study employed a purposive sampling technique. A pilot study was carried out at Kawangware Primary School to determine the reliability and validity of research instruments. The information was collected by interviewing parents. The data collected was analyzed using both quantitative and qualitative methodologies. The analysis revealed varying levels of parental awareness regarding speech and language delay. While some parents recognized signs such as articulation problems and difficulty following directions, others demonstrated uncertainty or limited understanding. A significant proportion of parents (71.4%) had heard of speech therapy, indicating a moderate level of awareness. However, awareness of local services offering speech and language therapy was relatively low, with only 42.9% of parents being aware of such services. Multivariate analysis of the study revealed significant associations between parental knowledge, intervention measures, and speech development outcomes among children with speech and language delay in Kawangware, Nairobi City County. It was concluded that parent-implemented speech and language intervention measures play a

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crucial role in improving communication skills among children with speech and language delays. Therefore, it is recommended that future intervention efforts in the study area prioritize parental training and support to enhance the effectiveness of speech and language interventions. Additionally, collaboration between professionals and parents should be encouraged to ensure comprehensive and holistic support for children with speech and language delays in Kawangware, Nairobi City County. Administrators should collaborate with healthcare providers and community organizations to provide outreach programs and educational workshops for parents.

Keywords: 3-5 years old children, home factors, parent-implemented intervention, speech and language delay

1. Introduction

Speech and Language Delay (SLD) refers to the condition when a preschool child's language and speech development happens notably more slowly than that of other kids their age and sex (Lin & Wang, 2013; Wang, Aero, and Ystrom, 2018). SLD in children can develop from a range of factors, including visual impairment, congenital cleft palate, central nervous system abnormalities, and intellectual disability (Lin and Wang, 2013). However, SLD may also occur without noticeable etiology (Law *et al.*, 2000). Under these circumstances, the delay is labeled as Developmental SLD (DSLD; alternatively referred to as 'specific' speech and language impairment). The most important characteristic of DSLD is that it is "language-specific". That is, people with DSLD have no obvious auditory, intellectual, emotional, or cognitive developmental delays. According to Rose & Weisner (2008) and Rescorla *et al.* (2000), while most other children of the same age utter more words at 24 months than many late-talkers do, by the time they turn three, about half of them will have caught up to their typically developing peers. Early diagnosis and clinical interventions can help children who are five years old or younger maintain a relatively consistent speech competence throughout their school years, according to certain research (Long, 2012).

Guidelines and procedures stress the participation of parents and guardians in early intervention (EI) for little learners with impairments (IDEA, 2004; Odom and Wolery, 2003). Research has shown that EI programs in the United States and elsewhere offer a family-centered philosophy while supporting families and their children with a range of relevant health services (Adams *et al.*, 2013). Several researchers as well as specialists in early childhood development, continuously affirmed that parents and caregivers of young ones with impairments can play an important role in making changes that support the growth and development of the child. It has been demonstrated to be particularly true for speech and language development, largely due to communication's interactive quality (Koegel, 2000). The role of educating parents regarding providing family-centered intervention services is bestowed on SLPs. To ensure that parents carry out their responsibilities as primary decision-makers, they must obtain sufficient training

(Moodley *et al.*, 2000). Research on parents' expectations, awareness, and experience of speech-language therapy help for their autistic children in Australia (Auert *et al.*, 2012) has found parents have little knowledge to practice therapy on speech and language.

Research conducted in Turkey on the views and awareness of caregivers for children with disorders in speech and language and delays found that many parents were unaware and had limited knowledge of speech and language therapy (Ayse *et al.*, 2019). South Africa is the only country in Africa with well-structured speech-language intervention services and training colleges for SLPs. Studies in South Africa indicate that some parents and health professionals have an awareness of speech and language therapy (Watherson *et al.*, 2017). In Egypt, research on the impact of parents on the acquisition of language in children with communication difficulties found that most parents who participated in the study had received awareness about intervention but were not able to use effective intervention methods to help in the development of speech and language of their children because they thought that speech therapists are the only specialists who should offer speech therapy and that parents' role is minimal (Safwat *et al.*, 2014).

In Kenya, just like in other East African countries, Speech and language therapy is a relatively new field that is affected by scarcity of trained and certified SLPs, lack of resources and localized materials and tools, and linguistic aspects. Due to the dearth of rehabilitative healthcare practitioners in developing nations, certain illnesses may not receive adequate support, even though others may (WHO & World Bank, 2011). The number of people with disabilities who are in the population and the rehabilitation services that are offered differ significantly. Even with the understanding that access to communication is a recognized basic right, it persists (McLeod, 2018; UN, 1948). Some parents are not aware of the causes, symptoms, and treatment of communication disorders (Lorna, 2000). A study in Kenya on the assessment of the participation of caregivers in speech and language impairment intervention programs revealed that few parents possessed awareness of speech and language therapy, and they were not effectively involved in speech and language therapy (Obure, 2018).

The development of comprehensible language and speech is a useful indicator of the general growth and development of a child and intelligence. Speech and language development and other abilities develop first during the five early years of life as the brain wires and rewires itself to create pathways and store information. In Kenya, the awareness of speech and language therapy as an intervention for speech and language delay is not clear. Kawangware is a slum area, and most of the population residing there live in poverty, with no employment, low literacy levels, and limited access to basic amenities. Due to the financial status of the residents, accessing speech and language services might not be possible, and low literacy levels could mean not being aware of speech and language delays, disorders, and therapy. There is a need to research populations who might not be aware of speech and language delays, disorders, and therapy. Risk factors for speech and language delay need to be researched to prevent

them before we treat them. Speech and language disorders have adverse effects on the academic and holistic well-being of an individual.

1.1 The Purpose of the Study

To determine parental knowledge of speech and language therapy available for children with speech and language delay in Kawangware, Nairobi City County.

1.2 Theoretical Framework

This research was guided by Bronfenbrenner's Bio Ecological Model of human development. The model states that child development takes place not only through biological processes but also through the interaction between the child and the environment (Bronfenbrenner & Morris, 2006). The model includes 1. Process, 2. Person 3. Context, and 4. Time (PPCT). The process includes the one-on-one and immediate elements of interaction between the child and the people around them, such as primary caregivers. Individual qualities are divided into three categories: force, resource, and demand characteristics (Bronfenbrenner & Morris, 1998). Within the bioecological systems theory, children's environments and situations include home, school, peer groups, and any setting in which children spend a lot of time in a particular activity (microsystem) (Tudge et a., 2009). The absence of a defined structure and unpredictability in the physical environment can impede a child's developmental processes. Previous studies have associated a difficult home environment in the three early years of life with growth and development problems, including delayed language development and compromised cognitive skills development (Evans *et al.* 2010, Vernon-Feargans *et al.* 2010).

Bronfenbrenner's theory supports using parents for early intervention and acknowledges the significance of the home setting in intervening in developmental delays. Knowing how the home factors can aid in the intervention of speech and language delays fits in Bronfenbrenner's theory as it recognizes that the family is the paramount component in the life of a child and also an effective social class that a child is associated with (Dunst, 2000). Previous research that exists and that has used this theory has concentrated only on one part of the theory, for instance, the person. To understand the significance of proximity effects, it is crucial to consider multiple factors simultaneously. Thus, this research examined and evaluated home factors for appropriate intervention of speech and language delay.

1.3 Conceptual Framework

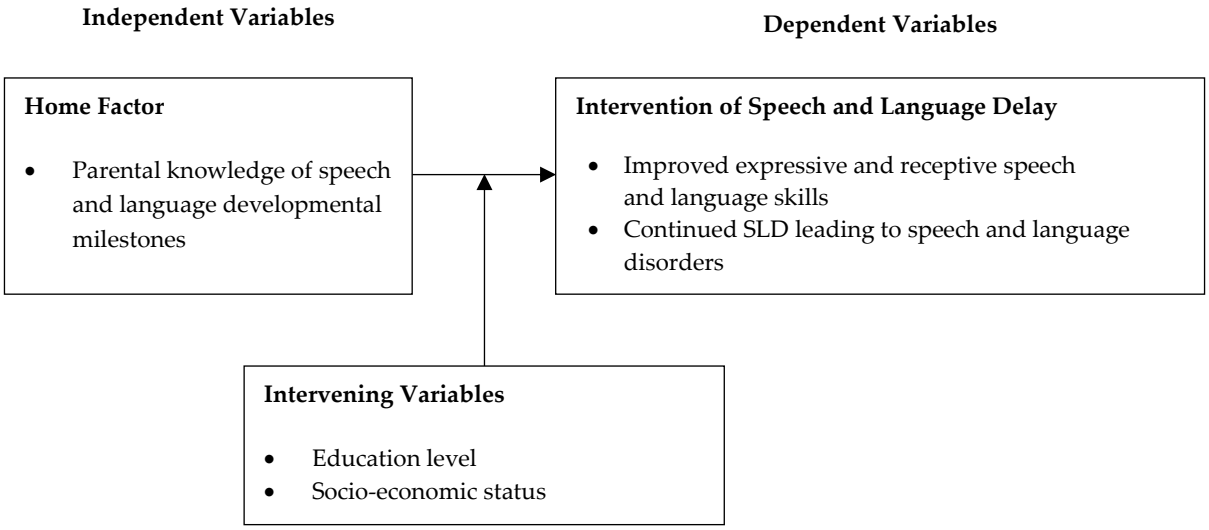

Figure 1.1: Conceptual Framework

2. Literature Review

Parent-implemented speech and language interventions are referred to as language intervention programs, which include parent education on certain language support techniques and parent tutoring to provide treatment in daily life and home environments (Roberts & Kaiser, 2011). Besides, language interventions employed by parents are referred to by several names, including; Parent-led language intervention training (Romski, 2010; Tannock *et al.*, 1992), caregiver-led intervention, and parent-based language intervention (Buschmann *et al.*, 2009). Besides, differences in how parents deliver speech and verbal interventions have been cited in numerous articles. For example, in several investigations into the efficiency of programs for parental language intervention, parents provided the primary treatment (Roberts & Kaiser, 2011; McConachie & Diggle, 2007). Further research indicates that when the therapist and the parent simultaneously deliver intervention, it leads to improved outcomes (Warren *et al.*, 2008; Yoder & Warren, 2002).

In Parent-led Language Intervention Programs, the context of the intervention takes place in the natural environment of a child (home, nursery school, etc.) and in the course of everyday life (bath time, meal time, and playtime). Parents and caregivers receive training on how to identify children's early communicative objectives. Additionally, parents and carers receive instruction on the usage of particular languages and practices for language intervention that has been shown to enhance children's language development. SLPs or early interventionists also train and mentor parents through the treatment program. A program may vary in one or more of these aspects. Hanne Parent Programs (Girolametto & Weitzman, 2006; Manolson, 1992) is a parent-implemented speech and language intervention technique that often offers small-group

therapy without the children present to parents and care in a community-based setting. Another parent-provided language intervention, MT (Kaiser, 1993), teaches and provides one-on-one parent coaching at home or in community clinics. Other groups use a model for small groups of parent-only and service providers (Buschmann *et al.*, 2008; Gibbar *et al.*, 2004) or together with parents and children (Lederer, 2001). Literature has shown the success of intervention measures that are parent-implemented. There exists a gap as these studies are concentrated in Western countries. There is a need to find out if there exists any parent-implemented therapy measures in Kenya and other third world countries and what parents are doing in regards to mitigation of speech and language delays.

3. Research Methodology

3.1 Study

The study focused on speech and language-delayed children between 3-5 years in 2 selected schools in Kawangware, Nairobi City County, which were Riruta HGM Special School and Dagoretti Muslim Primary School. The researcher's choice of schools was majorly influenced by the availability of various categories of young preschool children between the ages of 3-5. Riruta HGM Special School is a special needs school, while Dagoretti Muslim Primary School is a normal public school with mainstreamed learners.

3.2 Research Design

A descriptive research design was used for the investigation. It describes a population, situation, or phenomenon as it is without any form of manipulation (McCombes, 2019). This design was considered fit for the study as it allowed the researcher to report the findings of the research as they were without any external interference.

3.3 Target Population

The target population was a set of actual or hypothetical individuals, occasions, or items to whom a researcher wanted to apply findings from their study (Burg & Gall 1992; Mugenda, 2003). Learners between 3-5 years in the 2 schools were screened for speech delay. From the total number of speech and language delays 30 (parents to the learners) were used in the study together. The sample that was chosen for data collection came from this target group.

3.4 Sampling Technique and Sample

According to Mugenda (2003), the foundation of sampling theory was the idea that data gathered from a sample should be very accurate as it represents the diversity of the population. Parents and children aged three to five who had speech and language difficulties were chosen using the Purposive sampling approach. The two (2) schools were chosen using a purposive sampling technique. The sample size in this study comprised 30 children between 3-5 years with speech and language delay and their parents. The total sample comprised of 36 respondents (Table 1).

Table 1: Sample Size

Categories of Sample Size	Target Population	Sampled Size
Parents	30	30
Children between 3-5 years with speech and language delay	30	30
Total	**60**	**60**

Source: Researchers, 2024.

3.5 Research Instruments

According to Kothari (2004), research instruments were tools for measurement used by researchers to collect data. Guided interview guides and screening tools for children with speech and language delays were used as the key data collection tools.

3.6 Pilot Study

A pilot study was done at Kawangware Primary School. Kawangware Primary School was deemed fit for piloting as it had the same characteristics as Riruta HGM Special School and Kids Care Community School, where the research was to take place. The researcher screened 3–5-year-olds, after which she piloted the instruments on a small sample of 12 respondents, 10 parents of speech and language-delayed children between ages 3-5 years.

3.7 Validity and Reliability

To ensure validity in this study, expert judgment was employed to determine the face validity of the research instruments which were questionnaires and interview guides. Two Kenyatta University supervisors verified the content validity of the instruments. The pilot study was done to check the content validity by examining if the items were systematically organized. A test-retest approach was employed to ascertain the reliability of the interview guide. Initially, the interview guide was administered to respondents who were not part of the main research sample. Their responses were documented and analyzed. After three weeks, the same interview guide was administered to the same respondents, and their responses were again documented. An analysis was then conducted to compare the responses from the first and second interviews. Spearman's rank-order correlation was used to calculate the correlation coefficient between the two sets of responses to assess the consistency of the interview guide.

3.8 Data Collection Techniques

First, the researcher coordinated with the school administration, which facilitated contact with parents from the selected schools. An in-depth interview schedule was used exclusively to gain insights into parents' awareness, knowledge, and practices regarding speech and language delays. These interviews allowed for a flexible, open-ended approach, exploring parents' perceptions, cultural beliefs, and experiences related to speech and language delays in children. Preschool Language Scale (PLS-5), was used to evaluate children's receptive and expressive language skills. The screenings took place in a child-friendly environment within the school to ensure that the children felt

comfortable and cooperative. The results of the screenings were used to confirm the eligibility of children for the study and to establish a baseline of language development levels. This screening provided empirical data on children's speech and language abilities, complementing the insights gained from parent interviews and adding depth to the study's evaluation of home factors affecting language development in children aged 3-5 years.

3.9 Data

The collected data were examined using both qualitative and quantitative analytic approaches since the research included both quantitative and qualitative methodologies. Thematic analysis was used to examine the qualitative data that was collected through document analysis and interviews. Data from audio recordings were all coded, and all the coded themes were generated to come up with the most repeated themes, which were in written forms. The generated themes were reviewed several times to get accurate and useful themes that were representative of the data. The final lists of themes were named, defined, and reported. The researcher used distribution statistics to find the overall frequency of data, the central tendency to find the average of each response, and the variability of each response and summarized in percentages, tables, and charts using SPSS and Excel computer-based analysis.

4. Findings and Discussions

4.1 Demographic Information

The demographic characteristics of the participants were analyzed and discussed in terms of age, gender, grade, and highest level of education (Table 2).

Table 2: Demographic Information of the Children (3 - 5 years) Under Study

Variable		**Frequency**	**Percent (%)**
Distribution of children by age	2 years	1	3.6
	3 years	8	28.6
	4 years	7	25.0
	5 years	12	42.9
	Total	**28**	**100.0**
Distribution of children by gender	Male	17	60.7
	Female	11	39.3
	Total	**28**	**100.0**

Findings in Table 2 show that the highest percentage, 42.9%, were 5 years old, followed by 28.6% who were 3 years old and 25% who were 4 years old. This finding aligns with research by Bradley and Corwyn (2002), which highlights significant differences in cognitive and language development among children from varying socioeconomic backgrounds, particularly as they grow older. In terms of gender distribution, the study found that a higher percentage of male children (60.7%) were represented compared to

female children (39.3%). This finding echoes Bishop's (2012) observations that speech and language delays are more commonly reported in male children. The gender disparity is further substantiated by research from Yolanda *et al.* (2016), which indicates that awareness and intervention strategies often address this imbalance, particularly in developed countries.

Table 3: Demographic Information of the Parents

Variable		**Frequency**	**Percent (%)**
Distribution of parents by gender	Male	9	32.1
	Female	19	67.9
	Total	**28**	**100.0**
Distribution of parents by age bracket	Below 35yrs	3	10.7
	35-40yrs	8	28.6
	41-45yrs	7	25.0
	46-50yrs	7	25.0
	>50yrs	3	10.7
	Total	**28**	**100.0**
Distribution by the highest level of education	Informal Education	6	21.4
	Primary Education	8	28.6
	Certificate/Diploma	10	35.7
	First Degree and above	4	14.3
	Total	**28**	**100.0**
Distribution by current employment status	Salaried	4	14.3
	Self-employed	7	25.0
	Housewife	6	21.4
	Retired	7	25.0
	Student	4	14.3
	Total	**28**	**100.0**
Having other children apart from the screened	Yes	20	71.4
	No	8	28.6
	Total	**28**	**100.0**

As shown in Table 3, a significantly higher percentage of female parents (67.9%) compared to male parents (32.1%). This finding corroborates with those of Millard, Nicholas, and Cook (2008), who highlighted the crucial role of parental involvement in children's development, especially in the context of speech and language disorders. The dominance of female participants may suggest that mothers are often the primary caregivers, which is consistent with traditional gender roles in many cultures, where women typically assume responsibility for child-rearing. The age distribution of parents shows a fairly even spread, with the highest concentration in the 35-40 years bracket (28.6%). The majority of parents (35.7%) have completed a certificate or diploma education, with 14.3% attaining a first degree and above. The diverse employment status of parents shows a considerable number of self-employed individuals (25.0%) and retirees (25.0%). This demographic aspect may have significant implications for the availability of time and resources for speech and language intervention. The study found

that a significant proportion of parents (71.4%) have other children apart from the screened child.

Table 4: Status of Children's Speech and Language Skills

Speech and Language Skills	N	Mean	Std.	Rank
States both names correctly	28	1.43	.504	8
Tells how old she/he is	28	1.25	.441	15
Able to count blocks to five	28	1.61	.497	3
Able to show six colored items	28	1.39	.497	12
Able to use correct prepositions	28	1.57	.504	6
Recognizes body parts including head, hands, legs, eyes, knees, back, kneck, shoulders, etc	28	1.46	.508	10
Understands and knows the functions of all senses	28	1.25	.441	16
Correctly identified pictures of animals and where they live	28	1.57	.504	7
Correctly answered that they put on warm clothes when it is cold	28	1.39	.497	13
Good listening comprehension skills	28	1.50	.509	4
Good auditory memory for sentences	28	1.46	.508	11
Good use of intelligible sentences with verbs	28	1.61	.497	17
Have no grammatical mistakes encountered	28	1.25	.441	2
Effectively following directions	28	1.43	.504	9
Demonstrates spontaneous speech	28	2.79	.995	1
Good fluency	28	1.54	.508	5
Had no articulation errors	28	1.00	.000	18
Has good hearing abilities	28	1.36	.488	14
Valid N (listwise)	28			

Findings in Table 4 show that articulation has the lowest mean score of 1.00 with a standard deviation of 0.000. This indicates that, on average, children in the study sample exhibited articulation errors. Spontaneous speech had the highest mean score of 2.79, with a standard deviation of 0.995. This indicates that children in the sample demonstrated relatively higher proficiency in spontaneous speech compared to other skills assessed. The findings reveal disparities in the speech and language skills of children in the Kawangware area. Children from disadvantaged backgrounds may have limited access to resources and opportunities for language enrichment, leading to differences in language proficiency compared to their peers from higher SES backgrounds (Duncan & Magnuson, 2003). Moreover, environmental factors such as exposure to stressors and environmental pollutants may further exacerbate these disparities (Hackman & Farah, 2009). The strong performance in spontaneous speech highlights the potential resilience and adaptability of children in linguistic contexts.

4.2 Parent-implemented Speech and Language Intervention Measures

The key purpose of this study was to establish parent-implemented speech and language intervention measures for speech and language delay in Kawangware, Nairobi City County. To achieve this objective, one-sample t-tests were conducted to provide a more

comprehensive understanding of mean, standard deviation, t-statistics, and p-values for independent parent-implemented interventions.

Table 5: One-Sample T-Test for Parent-implemented Speech and Language Intervention Measures

Parent-implemented interventions	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Daily Reading and Conversation	28	2.68	1.090	.206	12.998	27	.000
Interactive Play	28	2.71	.976	.184	14.717	27	.000
Visual Aids and Picture Cards	28	3.18	.772	.146	21.776	27	.000
Modeling and Reinforcement	28	3.04	.838	.158	19.167	27	.000
Structured Language Practice	28	2.79	.957	.181	15.407	27	.000

Data analysis as presented in Table 5 revealed both positive and negative aspects of the strategies employed. Notably, some interventions demonstrated remarkably positive impacts, while others exhibited concerning limitations (Romski, 2010). Daily reading and conversation emerged as a moderately effective strategy, with a mean score of 2.68 and a standard deviation of 1.090 (Romski, 2010). While this intervention showed some efficacy, its variability indicates that it may not be consistently effective for all children. Interactive play, on the other hand, displayed an exceptionally high mean score of 2.71, indicating strong effectiveness, supported by a low standard deviation of 0.976, suggesting consistency across participants (Romski, 2010). Further findings indicate that Visual aids and picture cards exhibited the most significant positive impact, with a mean score of 3.18 and a remarkably low standard deviation of 0.772, indicating both high effectiveness and consistency (Roberts & Kaiser, 2011). However, despite these positive findings, it is essential to acknowledge the limitations of certain interventions. For instance, while modeling and reinforcement showed a considerable mean score of 3.04, its standard deviation of 0.838 suggests variability in its effectiveness, raising concerns about its reliability (Roberts & Kaiser, 2011). Similarly, structured language practice, while moderately effective with a mean score of 2.79, exhibited a relatively high standard deviation of 0.957, indicating inconsistency in its outcomes. These findings highlight the importance of considering both the positive and negative aspects of parent-implemented intervention measures to develop comprehensive strategies for addressing speech and language delay among children (Romski, 2010; Roberts & Kaiser, 2011).

4.2.1 Qualitative Analysis

To enhance our understanding of the strategies employed by parents, interviews were conducted to gather insights on their experiences with speech and language intervention measures.

Theme 1: Special Training in Speech and Language Delay

> *"Yes, I attended a workshop on speech and language development organized by the local community center. It helped me understand how I can support my child's communication skills at home."* (Parent 1 - received special training).

> *"No, I haven't received any special training, but I've been reading books and articles online to learn how to help my child. It's been challenging, but I'm doing my best."* (Parent 2 - without special training).

The responses varied significantly regarding whether parents had received special training in speech and language delay. Approximately 42.9% of the parents reported having undergone specialized training, while the remaining 57.1% had not. This divergence in experiences highlights the heterogeneous nature of parental backgrounds and resources available within the community. It suggests that while some parents may have access to formal training opportunities, others may rely on alternative means to support their children's speech and language development.

Theme 2: Training Source

> *"I learned a lot from the workshop I attended at the community centre. They had experts who shared practical tips and strategies for improving speech and language skills in children. It was a great learning experience."* (Parent 3 - trained in a workshop).

> *"My child's speech therapist has been instrumental in providing me with guidance and strategies to use at home. She's been very supportive throughout the process."* (Parent 4 - individual professional).

For parents who reported receiving special training, the sources varied widely. Some mentioned attending workshops or seminars organized by local community centres or educational institutions. Others cited individual professionals, such as speech therapists or educators, as the providers of their training. This diversity in training sources underscores the importance of collaborative efforts among various stakeholders, including healthcare professionals, educators, and community organizations, to disseminate knowledge and skills related to speech and language intervention effectively.

Theme 3: Strategies for Improving Communication Skills

> *"We make it a point to read books together every night before bedtime. It's not only a bonding activity but also helps improve my child's vocabulary and language skills."* (Parent 5 - engaging in daily activities)

Parents described a range of strategies they employed to enhance their child's communication skills. These strategies encompassed both formal and informal approaches, reflecting the resourcefulness and adaptability of parents in addressing their children's needs. Examples of strategies included engaging in daily activities that promote language development, such as reading books, singing songs, or engaging in interactive play. Additionally, some parents mentioned specific exercises or games designed to target speech and language goals, demonstrating a proactive approach to supporting their child's communication development.

Theme 4: Learning Sources for Intervention Strategies

> *"The speech therapist provided me with a list of activities and resources to use at home. It's been invaluable in guiding our intervention efforts and tracking my child's progress."* **(**Parent 7 - professional guidance)

> *"I've been reading books and watching online videos to learn more about speech and language development. It's been a journey of self-education, but I feel more empowered to help my child now."* (Parent 8 - self-directed learning)

Parents provided insights into where they acquired the intervention strategies used with their children. Responses indicated a diverse array of learning sources, including professional guidance from speech therapists or educators, self-directed learning through online resources or books, and participation in workshops or training sessions. This multiplicity of learning sources reflects the dynamic nature of parental education and highlights the importance of accessible and diverse avenues for acquiring knowledge and skills related to speech and language intervention.

Theme 5: Materials and Equipment

> *"We have picture cards and a speech therapy app on our tablet that we use during our practice sessions. It's been really helpful in keeping my child engaged and motivated."* (Parent 9, female)

> *"We use everyday items like pots and pans to create sound games that encourage my child to vocalize. It's amazing how you can turn simple household items into learning tools."* (Parent 10, female).

Regarding materials and equipment used to facilitate intervention strategies, responses varied depending on the resources available to parents. Some mentioned having specific tools such as picture cards, educational toys, or speech therapy apps, while others relied on more traditional resources like books or everyday household items. The presence of materials and equipment indicates a proactive approach to creating a

conducive learning environment for speech and language development within the home setting. It also underscores the role of accessible resources in supporting parental efforts to implement effective intervention strategies.

Theme 6: Additional Information for Improving Communication

> *"I've found that giving my child choices and encouraging him to communicate his preferences has helped improve his language skills. It's all about finding opportunities for him to practice."* (Parent 11, female).

> *"I think there should be more awareness about speech and language delay in our community. By sharing our experiences and knowledge, we can support each other and ensure that all children receive the help they need."* (Parent 12, female).

Parents were further asked to show how they would rate the success of the strategies that they had been using. Figure 4.2 shows data on the parents' rating of the success of the strategies being used.

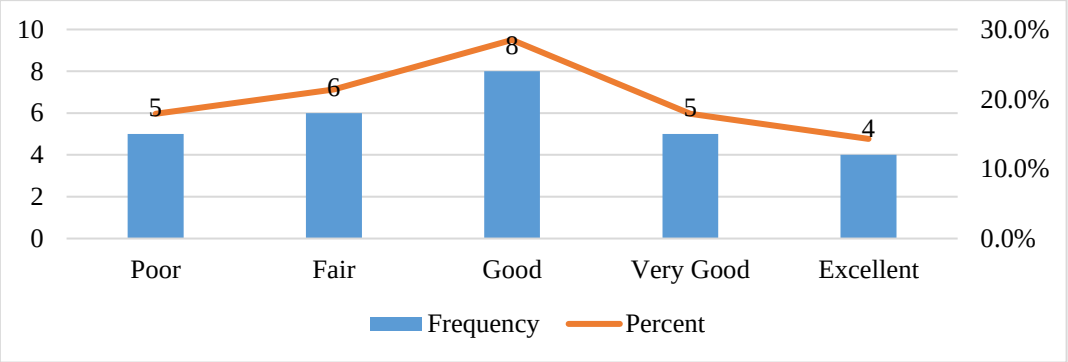

Figure 2: Parents' Rating of the Success of the Strategies Being Used

The data presented in Figure 2 illustrates parents' ratings of the success of the intervention strategies being used. The majority of parents reported positive outcomes, with 42.9% rating the strategies as good or very good, and 14.3% rating them as excellent. However, a notable proportion of parents (17.9%) rated the strategies as fair or poor, indicating room for improvement.

Table 6: Parents' Feeling about the Importance of Good Communication Skills for Children

Importance of good communication skills	**Frequency**	**Percent**
Not Important	4	14.3%
Less Important	4	14.3%
Average	8	28.6%
Important	8	28.5%
Very Important	4	14.3%
Total	**28**	**100.0%**

From Table 6, it is evident that parents hold varying opinions regarding the significance of good communication skills for children. The majority of parents, comprising 57.1% of the sample, perceive communication skills as either "Important" (28.5%) or "Very Important" (14.3%). This indicates a prevailing recognition among parents of the crucial role that effective communication plays in children's development and overall well-being. Furthermore, a minority of parents, constituting 28.6% of the sample, rated communication skills as either "Not Important" or "Less Important." Communication skills are fundamental to various aspects of children's lives, including academic achievement, social interaction, and emotional well-being. Studies have consistently demonstrated the positive impact of strong communication skills on academic success, social relationships, and self-esteem (Ginsborg, 2006; Burchinal *et al.*, 2016). By recognizing the importance of communication skills, parents are more likely to actively support and facilitate their child's communication development through various means, including language-rich interactions, reading activities, and exposure to diverse language environments.

In discussing the implications of the above qualitative findings from the parents, it's essential to consider the existing literature on parent-implemented therapies for speech and language interventions. Studies have shown that such interventions can significantly impact children's language development, particularly when delivered in naturalistic settings and tailored to individual needs (Roberts & Kaiser, 2011; McConachie & Diggle, 2007). Given the context of Kawangware, Nairobi City County, where access to formal training and resources may vary among parents, it's crucial to adopt a holistic approach to intervention. Collaborative efforts involving healthcare professionals, educators, and community organizations can help disseminate knowledge and skills effectively within the community. Additionally, targeted interventions that consider the socioeconomic context and cultural diversity of families can enhance the effectiveness of parent-implemented therapies.

4.2.2 Multivariate Analysis

Table 7 presents the results of the multivariate analysis conducted to examine the relationship between parental knowledge, intervention, and speech development in the context of speech and language delay intervention measures implemented by parents in Kawangware, Nairobi City County. The analysis included an examination of the intercept, parental knowledge (Knowledge), and parent-implemented intervention (PI1) as predictors of speech development outcomes.

Table 7: Parent's Knowledge, Intervention, and Speech Development

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.989	484.443[b]	4.000	22.000	.000	.989
	Wilks' Lambda	.011	484.443[b]	4.000	22.000	.000	.989
	Hotelling's Trace	88.081	484.443[b]	4.000	22.000	.000	.989
	Roy's Largest Root	88.081	484.443[b]	4.000	22.000	.000	.989
Knowledge1	Pillai's Trace	.568	7.239[b]	4.000	22.000	.001	.568
	Wilks' Lambda	.432	7.239[b]	4.000	22.000	.001	.568
	Hotelling's Trace	1.316	7.239[b]	4.000	22.000	.001	.568
	Roy's Largest Root	1.316	7.239[b]	4.000	22.000	.001	.568
PI1	Pillai's Trace	.442	4.357[b]	4.000	22.000	.010	.442
	Wilks' Lambda	.558	4.357[b]	4.000	22.000	.010	.442
	Hotelling's Trace	.792	4.357[b]	4.000	22.000	.010	.442
	Roy's Largest Root	.792	4.357[b]	4.000	22.000	.010	.442
a. Design: Intercept + Knowledge1 + PI1							
b. Exact statistic							

From Table 7, the Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root statistics indicate the overall effect of the predictors on the dependent variables (speech development outcomes). The high values across these statistics suggest a significant overall effect of the predictors on speech development. The Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root statistics associated with parental knowledge (Knowledge1) indicate a significant effect on speech development outcomes. Specifically, the high values suggest that parental knowledge plays a substantial role in influencing speech development in children with speech and language delays. Similarly, the statistics associated with parent-implemented intervention (PI1) indicate a significant effect on speech development outcomes. This finding suggests that the intervention measures implemented by parents have a notable impact on improving speech development among children with speech and language delays in the study area.

Table 8 presents the results of tests for the corrected model, intercept, parental knowledge (Knowledge), and parent-implemented intervention (PI1) on different speech development measures, including spontaneous speech, fluency, voice quality, hearing, and correctly stating both names.

Table 8: Tests of Between-Subjects Effects

Source	Dependent Variable	Type I Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Spontaneous speech	.017[a]	2	.009	.008	.992	.001
	Fluency	1.977[b]	2	.988	4.954	.015	.284
	Voice quality	.000[c]	2	.000	.	.	.
	Hearing	2.505[d]	2	1.253	7.981	.002	.390
	States both names correctly	1.665[e]	2	.832	4.008	.031	.243
Intercept	Spontaneous speech	217.286	1	217.286	203.475	.000	.891
	Fluency	66.036	1	66.036	330.993	.000	.930
	Voice quality	28.000	1	28.000	.	.	1.000
	Hearing	51.571	1	51.571	328.602	.000	.929
	States both names correctly	57.143	1	57.143	275.125	.000	.917
Knowledge1	Spontaneous speech	.014	1	.014	.013	.909	.001
	Fluency	.514	1	.514	2.578	.121	.093
	Voice quality	.000	1	.000	.	.	.
	Hearing	1.729	1	1.729	11.014	.003	.306
	States both names correctly	1.157	1	1.157	5.571	.026	.182
PI1	Spontaneous speech	.003	1	.003	.003	.957	.000
	Fluency	1.462	1	1.462	7.330	.012	.227
	Voice quality	.000	1	.000	.	.	.
	Hearing	.776	1	.776	4.947	.035	.165
	States both names correctly	.508	1	.508	2.444	.131	.089
Error	Spontaneous speech	26.697	25	1.068			
	Fluency	4.988	25	.200			
	Voice quality	.000	25	.000			
	Hearing	3.924	25	.157			
	States both names correctly	5.192	25	.208			

The corrected model in Table 8 examines the overall effect of the predictors (intercept, parental knowledge, and parent-implemented intervention) on speech development outcomes. The low F-values and high p-values suggest that the corrected model does not significantly explain the variance in most speech development outcomes, except for fluency. The intercept represents the baseline level of speech development outcomes when no other factors are considered. The high F-values and low p-values indicate that the intercept significantly predicts all speech development outcomes, suggesting its importance as a predictor variable. For most speech development outcomes, parental knowledge (Knowledge1) does not significantly predict variance, as evidenced by the low F-values and high p-values. However, it shows a significant effect on hearing and correctly stating both names, indicating its role in these specific speech development measures. Similar to parental knowledge, parent-implemented intervention (PI1) does not significantly predict most speech development outcomes. However, it shows a significant effect on fluency and hearing, suggesting its impact on these aspects of speech development among children with speech and language delays.

Table 9 presents the parameter estimates for the dependent variables (spontaneous speech, fluency, voice quality, hearing, and correctly stating both names) based on the intercept, parental knowledge (Knowledge1), and parent-implemented intervention (PI1). T

Table 9: Parameter Estimates

Dependent Variable	Parameter	B	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Spontaneous speech	Intercept	2.833	4.226	.000	1.452	4.213	.417
	Knowledge1	-.058	-.127	.900	-1.004	.887	.001
	PI1	.011	.054	.957	-.388	.410	.000
Fluency	Intercept	.776	2.678	.013	.179	1.373	.223
	Knowledge1	.119	.598	.555	-.290	.527	.014
	PI1	.227	2.707	.012	.054	.399	.227
Voice quality	Intercept	1.000	.	.	1.000	1.000	1.000
	Knowledge1	.000	.	.	.000	.000	1.000
	PI1	.000	.	.	.000	.000	1.000
Hearing	Intercept	.377	1.469	.154	-.152	.907	.079
	Knowledge1	.418	2.373	.026	.055	.780	.184
	PI1	.165	2.224	.035	.012	.318	.165
States both names correctly	Intercept	.630	2.130	.043	.021	1.238	.154
	Knowledge1	.343	1.694	.103	-.074	.760	.103
	PI1	.134	1.563	.131	-.042	.310	.089

The parameter estimates for spontaneous speech indicate that neither parental knowledge nor parent-implemented intervention significantly predicts variance in spontaneous speech outcomes. Parental knowledge shows a significant positive effect on fluency, as evidenced by the positive parameter estimate and significant t-statistic. Similarly, parent-implemented intervention also has a significant positive effect on fluency. Both parental knowledge and parent-implemented intervention do not significantly predict voice quality outcomes, as indicated by non-significant parameter estimates and t-statistics.

Table 10 provides information on the sum-of-squares and cross-products, covariance, and correlation matrices for the residual effects of different speech development measures. The table includes values for spontaneous speech, fluency, voice quality, hearing, and correctly stating both names.

Table 10: Residual SSCP Matrix

		Spontaneous speech	Fluency	Voice quality	Hearing	Comprehension skills
Sum-of-Squares and Cross-Products	Spontaneous speech	26.697	3.232	.000	-5.750	-.340
	Fluency	3.232	4.988	.000	.634	-1.062
	Voice quality	.000	.000	.000	.000	.000
	Hearing	-5.750	.634	.000	3.924	-1.328
	States both names correctly	-.340	-1.062	.000	-1.328	5.192
Covariance	Spontaneous speech	1.068	.129	.000	-.230	-.014
	Fluency	.129	.200	.000	.025	-.042
	Voice quality	.000	.000	.000	.000	.000
	Hearing	-.230	.025	.000	.157	-.053
	States both names correctly	-.014	-.042	.000	-.053	.208
Correlation	Spontaneous speech	1.000	.280	.	-.562	-.029
	Fluency	.280	1.000	.	.143	-.209
	Voice quality	.	.	.	.	.
	Hearing	-.562	.143	.	1.000	-.294
	States both names correctly	-.029	-.209	.	-.294	1.000
Based on Type I Sum of Squares						

The sum-of-squares and cross-products represent the variability and relationships between different speech development measures. Positive values indicate positive relationships, while negative values indicate negative relationships. The covariance matrix shows the degree of association between different speech development measures. Positive values indicate a positive association, while negative values indicate a negative association. The correlation matrix represents the strength and direction of the relationship between different speech development measures. Values close to 1 indicate a strong positive correlation, while values close to -1 indicate a strong negative correlation. The results of the multivariate analysis align with existing literature on parent-implemented speech and language interventions. Studies such as those by Roberts & Kaiser (2011) and Buschmann *et al.* (2009) have highlighted the importance of parental involvement in language intervention programs. The significant effect of parental knowledge and intervention measures on speech development outcomes underscores the effectiveness of parent-led interventions in improving children's communication skills. Parent-implemented language intervention programs, as discussed in the literature, emphasize the importance of training parents to implement language support techniques in natural environments (Romski, 2010; Girolametto & Weitzman, 2006). The findings of this study corroborate these principles, suggesting that interventions delivered within the home environment by parents can positively influence speech development outcomes among children with speech and language delay. Furthermore, the multivariate analysis highlights the need for tailored interventions that consider both parental knowledge and intervention practices. Studies by Warren *et al.* (2008) and Yoder & Warren (2002) have emphasized the effectiveness of combined interventions delivered by both therapists and parents.

5. Conclusions

The study highlights the need for increased efforts to raise parental awareness of speech and language delay and available intervention services in Kawangware, Nairobi City County. It can be concluded that parent-implemented speech and language intervention measures play a crucial role in improving communication skills among children with speech and language delays. Therefore, it is recommended that future intervention efforts in the study area prioritize parental training and support to enhance the effectiveness of speech and language interventions.

6. Recommendations

1) The Ministry of Education should develop Community-Based Workshops and Training. Establishing community-based workshops and training sessions tailored to the needs of parents from diverse socioeconomic backgrounds.
2) To enhance parental awareness and access to intervention services, parents should seek information from healthcare providers, educational institutions, and reliable sources to better understand speech and language development and available interventions.
3) Conduct further research to explore the long-term impact of parent-implemented therapies on children's language outcomes in the local context. This research should consider the socioeconomic context, cultural diversity, and effectiveness of different intervention approaches.

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Conflict of Interest Statement
The authors declare no conflicts of interest.

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