

Evaluation of Receptive and Expressive Language Skills of Children with Language Impairment in Lagos State, Nigeria

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Abstract

This study examined the receptive and expressive language skills of children with speech/language impairment in three centres in Lagos State, Nigeria, sampling ninety two children between the ages of eighteen months and six years, with evidence of speech/ language defects; using simple random technique. Five research questions generated were tested at 0.05 level of significance, using mean, standard deviations, t- test and Analysis of Variance. The participants were tested with the use of the Preschool Language Scale IV, and a self- deigned questionnaire; with the reliability rate set at 0.82, using the test-retest method. The findings showed that the receptive language skills strength of the participants is higher than their expressive language skills strength; the chronological age and the age equivalent was different; receptive and expressive language equivalent was not gender- sensitive; expressive language skills strength based on neuro- pathological conditions was comparable; and participants exposed to speech therapy have better receptive and expressive language skills than participants without. Based on these findings, it was recommended that help should be sought for the child with suspected deviations from speech/language development, and that the government should establish adequately-equipped early intervention centres in every local government area of the nation.

KEY WORDS: Language; Early Intervention; Preschool; Reception; Expression

INTRODUCTION

It is a common belief that birth cry does not only announce the arrival of a newborn child, it is also the beginning of language production; with its absence an indication of an underlying problem which may manifest later in life most especially in the form of speech and language/ delay and other form of developmental delays. Sound is at the beginning of language learning, and many times children would have to learn to distinguish different sounds and to segment the speech streams they are exposed to into units, in order to acquire words and sentences (Hoff, 2005). During the first few weeks of life, babies are most likely to communicate only through crying. Soon around six months, they show an influence of the ambient language in their babbling (Whalen, Levitt & Goldstein, 2007). At 12 months or thereabout, babies use their first word which represents people, object and actions. A first word user may also use one word for many different things. 'juice' might just be any drink; and 'doggie' might refer to any animal with four legs and a tail (Pepper & Weitzman, 2004).

Between 18 months and 3 years, children build up their vocabulary. The child makes use of words and fits it into sentences between the ages of 4 and 5 years. By now, the child is using over two thousand words. By the end of six years, children may be able to comprehend 13,000 words comprising nouns,

verbs, adverbs, adjectives, pronouns, opposites, conjunctions and time concepts; the average length of their expressive language at this time is 6.6 words (Schwartz & Miller, 1996). The processes involved in speech production and speech/language development described here are only consistent with normally developing individuals. These do not hold for children with developmental delays. Though, girls have been found to have greater brain activity in several known language areas, and typically develop speech earlier than boys, no gender difference exist in vocabulary knowledge (Burman, 2009). Children with speech/language delay fail to master the rules that guide language use and language comprehension. The rules vary and are taken into consideration within the context of communication. A variety of reasons might account for developmental speech delays in children, among such are some neuro- pathological conditions, including cerebral palsy, hearing impairment, autism and Down's syndrome. In assessing speech/ language delays, the task of the speech/language pathologists and other professionals working with children with developmental delays face is the differences, discrepancies in the development of various aspects of speech/language. The challenge is further complicated by the difficulty encountered in sourcing for a concise, easy, informative, diagnostic and quick to administer speech/language assessment tools that will provide information on the rate at which the receptive and expressive language skills are developing, and the extent to which they deviate from the norms set for the child's chronological age group. Most of the time, the standardized tests are used to assess speech/language delays in children, so that the delays can be ascertained. These tests are normed across a large representative sample, and have been found to be reliable (Moeller, 2000). An example of such is the Preschool Language Scale IV, packaged by Zimmerman, Steiner and Pond (2008).

PURPOSE OF THE STUDY

This study aims at evaluating receptive and expressive skills of children with language impairment, in order to determine the effect of language delay.

Specifically, the study intends to:

- Evaluate the receptive and expressive language skills in children with speech and language impairments.
- Investigate the account of different neuro- pathological conditions, such as autism spectrum disorder, hearing impairment, cerebral palsy and down syndrome on receptive and expressive language skills.
- To determine any major difference in terms of gender on the receptive and expressive language skills.
- To find out if children who have received any form of therapy have better receptive and expressive language scores than those who did not.

RESEARCH QUESTIONS

1. Is there any significant difference in the chronological age and age equivalent of participants assessed with the Pre-School Language Scale –IV?
2. Is there any significant difference in the receptive and expressive language skills of the participants assessed with the Pre- School Language Scale- IV?
3. Is there any significant difference in terms of gender in the receptive and expressive language skills of the participants assessed with the Pre- School Language Scale- IV?
4. Is there any significant difference in the receptive and expressive language skills of the participants assessed based on their neuro- pathological conditions using the Pre- School Language Scale – IV?
5. Is there any significant difference in the receptive and expressive language skills of participants with history of speech/language therapy using the Pre-School Language Scale IV?

RESEARCH METHODOLOGY

Research Design

The study adopted a descriptive survey research design.

Population

The population for the study included children with speech and language impairment of varying degrees, ranging between the ages of 1.6 (18 months) and 6 years (72 months) whose speech/language impairments resulted from Autism Spectrum Disorder, Hearing Impairment, Cerebral Palsy and Down Syndrome.

Sample and Sampling Techniques

The participants for the study included ninety two (92) children ranging between the ages of 1.6 (18 months) and 6 years (72 months), and were purposively selected from three (3) clinics within the Lagos environ.

Research Instruments

Two research instruments were used in the study, namely the Pre- School Language Scale –IV, and a self-designed interview. The Pre- School Language Scale IV consists of items that measure the receptive language skills (auditory comprehension) and expressive language skills (expressive communication) of children from birth through 6 years, 5 months. The items measure such specific areas as awareness of sounds in the environment, discrimination of sounds, response when called, action words, naming words, appropriate use of objects in play, inhibitory words, spatial concepts, body parts, pronouns, descriptive concepts, two- step commands, quantity concepts, time/sequence, ask questions, use plurals, functions of objects, analogies, cause- effect relationships, e.t.c. using the test- retest method, the reliability coefficient of the Preschool Language Scale IV was found to be between 0.82 and 0.97. The self- designed interview on the other hand consists of items providing information on Bio- data (Name, Age, Sex), onset of speech and language delay, and history of speech therapy.

Methods of Data Collection

Using the Pre- School Language Scale, each participant was given credit for passing a sub-item if E, S or C response is circled. (E= Elicited response, S= Spontaneous response, C= caregiver's response). "/" is marked in the box against each test item if the pass criterion is met and "0" is marked if the pass criterion is not met. Basal is set if three consecutive "/" scores prior to the first "0" score and ceiling is set with five consecutive "0" scores. The self designed scale was used to interview parents and care givers on the history of previous diagnosis, enrolment in therapy and bio-data.

Method of Data Analysis

Data collected was analyzed using both descriptive and inferential statistical tools. The descriptive statistical tools included mean and standard deviation; while the inferential statistical tools included the t- test and analysis of variance. Each research question was tested at 0.05 level of significance.

PRESENTATION OF RESULTS

Research Question 1: Is there any significant difference in the chronological age and age equivalent of participants assessed with the Pre-School Language Scale –IV?

Table 1: summary of t-test analysis on the Chronological Age (CA) and Age Equivalent (AE) {in months} of the participants assessed using the Pre- School Language Scale IV.

Variables	Number of participants	Mean	Std. deviation	t- score	Df	Sig. level (p)	Remarks
CA	92	43.71	15.14	13.532	182	.000	Sig
AE	92	18.59	9.37				

Note: CA= chronological age, AE= age equivalent

Table 1 above shows that there is a significant difference between the chronological age and age equivalent of the participants assessed ($t= 13.532$; $df= 182$; $p<0.05$). The participants' chronological age mean score (43.71) is higher than their age equivalent mean score (18.59). the implication is that the participants' receptive and expressive language skills fall below the norms set for their age group.

Research Question 2: Is there any significant difference in the receptive and expressive language skills of the participants assessed with the Pre- School Language Scale- IV?

Table 2: summary of t- test analysis on the receptive language skills (AC) and the expressive language skills (EC) Standard scores on the participants assessed.

Variables	Number of participants	Mean	Std. deviation	t-score	Df	Sig. level (p)	Remarks
Receptive & Expressive Standard scores							
AC	92	62.37	12.25	3.117	182	.002	Sig
EC	92	57.92	6.09				

Table 2 above shows that there is a significant difference between the receptive language skills and the expressive language skills standard scores of the participants assessed ($t= 3.117$; $df= 182$; $p< 0.05$). The participants' auditory comprehension mean score is higher (62.37) than their expressive communication mean score (57.92). This means that the participants' receptive language skill- strength is higher than their expressive language skill- strength.

Research Question 3: Is there any significant difference in terms of gender in the receptive and expressive language skills of the participants assessed with the Pre- School Language Scale- IV?

Table 3: Summary of t- test analysis on the receptive language skills (AC) Standard scores of the participants assessed based on gender.

Variables	Number of participants	Mean	Std. Deviation	t-score	Df	Sig.level	Remarks
Receptive standard scores							
Male	67	63.37	13.23	1.291	90	.200	Not. Sig
Female	25	59.68	8.79				

Table 3 shows that there is no significant difference in the receptive language skills (AC) Standard scores of participants assessed based on their gender ($t= 1.291$; $df= 90$; $p> 0.05$). This implies that males' receptive language skill- strength is comparable to that of their female counterparts.

Table 4: Summary of t- test analysis on the expressive language skills (EC) standard scores of the participants assessed based on their gender.

Variables	Number of participants	Mean	Std. deviation	t-score	Df	Sig. level	Remarks
Expressive (EC) Std. scores							
Male	67	58.37	6.77	1.160	90	.249	Not sig.
Female	25	56.72	3.55				

Table 4 shows that there is no significant difference in the expressive language skills (EC) standard scores of the participants assessed based on their gender ($t= 1.160$; $df= 90$; $p> 0.05$). This implies that males' expressive skills- strength is comparable to that of their female counterparts.

Research Question 4: Is there any significant difference in the receptive and expressive language skills of the participants assessed based on their neuro- pathological conditions using the Pre-School Language Scale – IV?

Table 5: Summary of Analysis of Variance (ANOVA) showing difference among the participants' receptive language standard scores based on their neuro- pathological conditions.

Variables	Number of participants	Mean	Std. deviation	F	Df	Sig. level (p)	Remarks
Receptive (AC) Std. scores							
Autism	59	61.66	11.39	2.854	3.88	.042	Sig
Down syndrome.	7	57.71	3.59				
Cerebral palsy	20	68.30	15.96				
Hearing impairment	6	55.00	.0000				
Total	92	62.37	12.25				

Table 5 shows that there is a significant difference among the participants assessed based on their neuro-pathological conditions $\{F(3, 88) = 2.854$; $p< 0.05\}$. the mean values show that cerebral palsy had the highest receptive mean standard score (68.30) followed by autism (61.66), followed by down syndrome (57.71) and Hearing Impairment had the least receptive language mean standard score (55.00). this

implies that participants with cerebral palsy have greater receptive language skills- strength followed by participants with autism, followed by participants with Down syndrome, while participants with Hearing impairment have the least receptive language skills- strength.

Table 6: Summary of the Analysis of Variance (ANOVA) showing difference among participants' expressive language standard scores based on their neuro- pathological conditions.

Variables	Number of participants	mean	Std. deviation	F	Df	Sig. level (p)	Remarks
Expressive (AC) std. scores							
Autism	59	58.51	6.64	.759	3.88	.520	Not sig.
Down syn	7	56.71	2.36				
Cerebral palsy	20	57.50	6.07				
Hearing impairment	6	55.00	.0000				
Total	92	57.92	6.09				

Research Question 5: Is there any significant difference in the receptive and expressive language skills of participants with history of speech/language therapy using the Preschool Language Scale IV?

Table 6: Summary of t-test analysis on the receptive language skills standard scores of the participants assessed based on exposure to speech/language therapy using the Preschool Language Scale IV

Variables	Number of participants	Mean	Std. dev	t-score	df	Sig. level (p)	Remarks
Exposure to speech/lang therapy							
Receptive standard scores							
NO	68	59.94	8.94	-3.379	90	.001	Sig.
YES	24	69.25	17.15				

Table 6 shows that there is a significant difference between the receptive language skills standard scores of the participants assessed based on their exposure to speech/language therapy ($t = -3.379$; $df = 90$; $p < 0.05$). The receptive language mean standard score (69.25) of the participants who were exposed to therapy is higher than the expressive language mean standard score (59.94) of the participants who were

not exposed to speech/language therapy. This implies that the participants who received some form of speech/language therapy have better receptive language skills than those who did not.

Table 7: Summary of t-test analysis on the expressive language skills standard scores of the participants assessed based on exposure to speech/language therapy using the Preschool Language Scale IV.

Variables	Number of participants	Mean	Std. dev	t- score	Df	Sig level (p)	Remarks
Exposure to speech/lang therapy							
Expressive standard scores							
NO	68	56.85	3.84				
YES	24	60.95	9.94	-2.955	90	.004	Sig.

Table 7 above shows that there is a significant difference between the expressive language skills standard scores of the participants assessed based on their exposure to speech/language therapy ($t = -2.955$; $df = 90$; $p < 0.05$). The expressive language mean standard score (60.96) of the participants who were exposed to therapy is higher than the expressive language mean standard score of the (56.85) of participants who were not exposed to speech/language therapy. This implies that the participants who received some form of speech/ language therapy have better expressive language skills than those who did not.

DISCUSSION

Data in table 1 shows that the receptive and the expressive language skills of the participants fall below the norms set for their age group. Based on the results, the findings therefore agreed with the findings of Smith (2004), and Woods & Wetherby (2003); that for most children who have language delays, their language development will remain below that of their peers who are developing below expected rates. The finding is also in line with the findings of Cornish, Cross, Green, Willatt and Bradshaw (1999). The Cornish et al study found age equivalent estimates within one to two years of the participants' chronological age on the measures of receptive language using British Picture Vocabulary Scale (BPVS) and Test of the reception of Grammar (TROG), but all Age Equivalent estimates on measures of Expressive Language using Expressive One Word Picture Vocabulary Test (EOWPVT) fell three to five years below the participants' chronological age in the Cornish et al study.

The results of table 2 show that the receptive language skills strength of participants is higher than their expressive language skills strength. These findings therefore agreed with the findings of Ingram (1999) and Kuhl (2000); that children's speech perception abilities are very strong. Not only do they understand more vocabulary than they can produce, but they also demonstrate awareness of the properties of the language or languages they are exposed to before they acquire words. This is corroborated by other findings from empirical studies such as Clark, O'Hare and Watson (2007). In the Clark et al findings, the receptive and expressive language skills of 58 children (age range 4.3- 16.8 years) were assessed using the Clinical Evaluation of Language Fundamentals- Revised (CELF-R) test, 52% of the participants had a receptive deficit that lay between one and two standard deviation below the mean. Expressive language of the participants was even more severely affected as 60% had expressive language below two standard

deviation from the mean; with an additional 29% between one and two standard deviation from the mean according to findings of Clark et al (2007) .

From the data in table 3, it is clear that receptive language skills and expressive language skills of participants are comparable. The findings therefore supported the findings of Burman (2009). The Burman Study used Magnetic Resonance Imaging (MRI) on participants' brain and recorded that there is much overlap in the language skill among boys and girls, as differences are very small. However, girls were found to have greater brain activity in several known language areas and typically develop speech earlier than boys but there is no gender difference in vocabulary knowledge (Burman, 2009).

The results of tables 4 and 5 showed that different neuro- pathological conditions account for varied receptive language skill strength, and that participants have comparable expressive language skills strength based on their neuro- pathological conditions. These results are however novel to this study. This could be due to the fact that studies rarely research into the expressive skills of persons with speech delay across neuro- pathological conditions, in order to make a qualitative comparison.

The results from table 6 and 7 showed that participants who received some form of speech/ language therapy have better receptive and expressive language skills than those who did not. The findings of this study therefore concurred with the findings of Girolametto, Pearce and Weitzman (1996). The Girolametto et al study explored the effects of training parents to administer focused stimulation intervention to teach specific target words to their toddlers with expressive language vocabulary delays. Concomitantly, the children of the parents of the Girolametto et al study used more target words in naturalistic probes, used more words in free- play interaction, and were reported to have larger vocabularies overall as measured by parent report. In addition, the treatment had effect on language development. The children in the experimental group of the Girolametto et al study used more multiword combinations and early morphemes than children in the control group.

Conclusion

This study has revealed that receptive and expressive language skills show variance in development; individuals with speech and language delay fall below the norms set for their age group on account of their neuro- pathological conditions; and also that individuals who receive some forms of therapy had effect on language development.

Recommendations

Based on the findings of this study, the following recommendations are given:

- In the event that parents noticed some form of deviations from milestones expected for speech and language development, appropriate help should be sought in terms of clinical evaluation of the speech and language condition.
- Speech and language therapy is a work in progress and requires consistency and continuity. After a diagnosis is given and programme planned for remediation, parents should be 'partners in progress' with the therapist working with the child and should also take basic training in therapeutic approaches.
- Since early identification of developmental delays including speech and language delay is critical for the well-being of children and comfort of their families, it is recommended that compulsory developmental screening measures be incorporated by pediatrics health professionals at every preventive care visit. In addition, screening tests should be administered regularly at 9-18, and, 30-months visits. Furthermore, the early identification of speech/ language delays and impairment should lead to medical evaluation, diagnosis and treatment, including early developmental intervention.
- Classmates are an important resource for all children, therefore mainstreamed classroom placements should be adopted at kindergarten. The teachers can promote children's language by

effectively managing children's behavior and by adopting teaching that facilitates speech and language development. The use of teaching aids, especially audio- visuals can be made compulsory for all lessons, while lesson time-tables and classroom arrangements should be made flexible enough one- on- one instruction for persons with speech/language needs.

- The government should establish adequately-equipped early intervention centres in every local government area for easy accessibility by all and sundry; and embark on intensive enlightenment campaign with the aim of sensitizing the society on the milestones expected of their wards and on the need to go for a consultation with a specialist in case a delay is noticed in the milestones expected for the age range of their ward.
- The government should also provide funds for materials (speech and language assessment tools, and teaching aids) and training of specialists for early intervention programme.

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