

# Communication Disorders among Children in a Developing Country, Nigeria

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## ABSTRACT

**Background:** Communication disorders in children are an invisible disability posing challenges to otorhinolaryngologist in developing countries. The aim of this study was to determine the prevalence, sociodemographic features, aetiology, types of communication disorders among under 18 years children attending our facility.

**Methods:** This was a prospective study conducted in ear, nose and throat department in a Nigerian university teaching hospital, from June 2014 to May 2019. Data were obtained by using pretested interviewers assisted questionnaires from consented patients and analyzed using SPSS version 20.0.

**Results:** Prevalence of communication disorder was 16.1%. Male was 68.2% with male to female ratio of 2.1:1. Communication disorder is commoner in first child 58.1% and detected by mother in 70.5% cases. Major cause was due to infection in 68.2%. Large percentage of communication disorder were language disorder in 60.8% and speech disorders which constitute 39.2% with associated varying degrees of hearing impairment in 78.8% of them. Sensorineural hearing impairment was noted in 69.6% cases. Language disorders were delayed speech & language, mutism and specific language impairment in 22.6%, 16.6% and 14.7% respectively. Major speech disorder was articulation problem in 15.7%. Main sources of referral were 52.5% from paediatrician while 30.9% was from general practitioners.

**Conclusions:** There was high prevalence of communication disorder which was associated with high prevalence of hearing impairment. The major causes were infection with inadequate obstetrics management. (*Int J Biomed Sci* 2019; 12 (4): 98-103)

**Keywords:** Communication disorders; Children; Speech disorder; Prevalence; Nigeria

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## BACKGROUND

Communication is defined as the process used to exchange information with others which includes the ability to receive, comprehend, produce and express messages (1). It involves interchange of thoughts, opinions, or information by speech, writing, or signs from a sender to a receiver via some media towards a mutually accepted goal or direction (2). Communication also occurs through a variety of modalities, including nonlinguistic, verbal, and paralinguistic processes (1).

Language is a communication involving syllables or words that can be combined to yield phrases and sentences expressed commonly as oral and aural (speech and hearing) or as manual and visual (reading and writing) (1).

Speech is a verbal language communication that involves oral production and articulation of words from specific motor behaviors which requires precise neuromuscular coordination of respiration, phonation, and resonance with articulation systems into sounds, as well as voice quality, intonation, and rate (1).

Communication disorder (hearing, swallowing, speech and language) is a form of disorder that affects somebody's ability to communicate which ranges from simple sound substitution to inability to understand (3).

Communication disorder is one of the most prevalent symptoms in young children with developmental delays (4). It is usually identified around 2–3 years of age (5). In high socio economic countries, the prevalence of both speech–language disorders range from 0.5% to 7% (decrease with age) and hearing loss range from 0.05% to 0.23% (lower than that found in low socio economic countries) (6-8). Meisels and Fenichel reported that communication disorders occur in 8% of all young children (9).

Communication disorder, impact a child's social and emotional skills, cognitive skills and the acquisition and mastery of academic skills in school (10).

The disorders may be congenital, developmental or acquired in children. They may also arise from hearing impairment, brain damage, organic and non-organic causes (11).

The literature and the statistical information on the magnitude of communication disorders among Nigeria children and other developing countries are scarce (12). This study was aimed to determine the prevalence, sociodemographic features, aetiology, types of communication disorders seen among under 18 – year old children attending our facility.

## METHODS

This was a prospective research design. The study was conducted in ear, nose and throat department in a Nigerian university teaching hospital, over a period of 5 years (June 2014 to May 2019).

All children with diagnosis of communication disorder were enrolled into the study. Informed consent was obtained and pretested interviewers assisted questionnaires were administered.

Apart from the demographic characteristics of the parents, detailed pre natal, natal and post natal history was taken. History of low birth weight, neonatal jaundice, birth asphyxia, preterm delivery, febrile illness was obtained (6). Relevant history as relates to congenital malformation of the head and neck, toxic infective processes, convulsions, developmental milestones, recurrent catarrh, noise exposure and past hospital admission was obtained.

General, systemic, ear, nose and throat examination were carried out including mandatory oto microscopy was carried out on all patients with findings also documented.

Audiological and other relevant tests were carried out to arrive at definitive diagnosis. Some of the tests administered were tympanometry, otoacoustic emission, free field audiometry, pure tone audiometry and brainstem audiometry where indicated.

Individuals with speech and language complaints were evaluated to arrive at a definitive diagnosis. Parents of children with hearing impairment, voice, fluency, articulation and language disorders were counseled regarding the nature of the disorder, causes and treatment (6).

The data collected were collated and analyzed using SPSS version 20.0 software. Descriptive statistics was done by frequency table, percentage, bar chart and pie chart to express the data.

Ethical clearance for this research was sought for and obtained from the ethical committee of our center.

## RESULTS

A total of 1,352 children under 18 years were seen out of which 217 (16.1%) had communication disorder. All the studied age group were affected with peak prevalence of 121 (55.8%) at (0-5) years (Figure 1).

There were 148 (68.2%) males and 69 (31.8%) females given a male to female ratio of 2.1:1. There were 196 (90.3%) Christian while 21 (9.7%) practices Islam. Majority 132 (60.8%) are urban dwellers as compare to 85 (39.2%) who

are rural dwellers. Educational levels of the parents were 96 (44.2%) secondary followed by 60 (27.6%) primary and 38 (17.5%) post-secondary. The parents occupation were civil servant and housewife in 111 (51.2%) and 52 (24.0%) respectively. Twenty eight (12.9%) parents smoke cigarettes while 127 (58.5%) indulge in alcohol consumption. Communication disorder is commoner in first child than other children in 126 (58.1%) and 91 (41.9%) respectively. Mother in 153 (70.5%) detected communication disorder than father in 64 (29.5%) as illustrated in Table 1.

Infections are responsible for major causes of communication disorders in 148 (68.2%) of patients. Major causes of communication disorder in this study were febrile illness/convulsion 44 (20.3%), otitis media 34 (15.7%), ototoxicity 21 (9.7%), measles 19 (8.8%), cerebral palsy 16 (7.3%) and adenotonsillar diseases 16 (7.3%). Other causes were meningitis, neonatal jaundice, low birth weight, birth asphyxia and trauma in 14 (6.5%) 13 (6.0%)

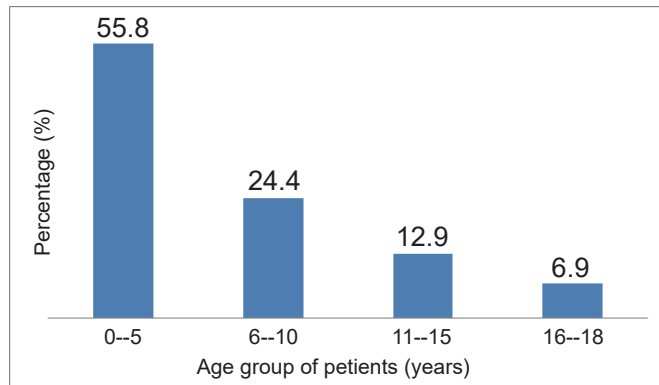


Figure 1. Age group distribution among patients.

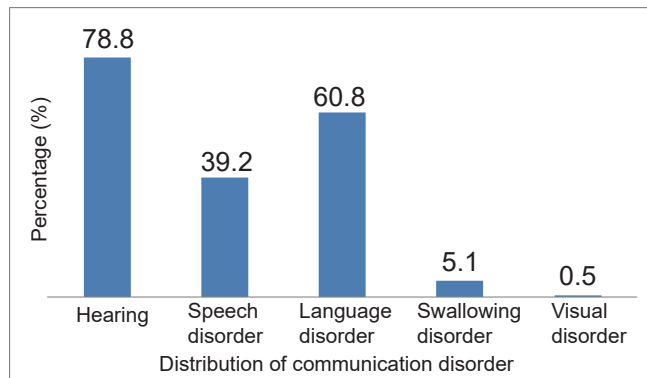


Figure 2. Distribution of communication disorder among patients.

12 (5.5%) 10 (4.6%) and 9 (4.1%) respectively showed in Table 2.

In this study, commonest types of communication disorder was language disorder in 132 (60.8%) of the patients others were 85 (39.2%) speech disorder and 11 (5.1%) swallowing disorder. One (0.5%) of the patient had visual disorder. Communication was associated with varying degrees of hearing impairment in 171 (78.8%) as in Figure 2.

Table 1. Socio demographic features among patients (n=217)

Sociodemographic features	Frequency (n)	Percentage (%)
Sex		
Male	148	68.2
Female	69	31.8
Religion		
Christian	196	90.3
Muslim	21	9.7
Residential		
Rural	85	39.2
Urban	132	60.8
Parent education level		
Nil	23	10.6
Primary	60	27.6
Secondary	96	44.2
Post secondary	38	17.5
Parent occupation		
Civil servant	111	51.2
Business	28	12.9
Farming	26	12.0
Housewife	52	24.0
Family social life		
Parent smoking cigarettes	28	12.9
Alcohol consumption	127	58.5
Children position		
First	116	58.1
Others	91	41.9
Detector		
Father	64	29.5
Mother	153	70.5

Sensorineural hearing impairment in 151 (69.6%) was the commonest types of hearing impairment followed by 56 (25.8%) conductive hearing impairment and 10 (4.6%) mixed hearing impairment. The encountered degrees of hearing impairment in this study included mild moderate, moderate-severe, severe and profound in 64 (29.5%), 31 (14.3%), 19 (8.8%), 23 (10.6%) and 31 (14.3%) respectively

Main type of language disorder were delayed speech and language, mutism and specific language impairment in 49 (22.6%), 36 (16.6%) and 32 (14.7%) respectively. Others were 9 (4.1%) mental motor retardation and 6 (2.8%) aphasia showed in Table 3.

Patterns of speech disorder among the patients were 34 (15.7%) articulation disorder, 21 (9.7%) voice disorder, 13 (6.0%) hypernasality, 12 (5.5%) hyponasality and 5 (2.3%) fluency disorder as demonstrated in Figure 3. Sources of

patients referral were 114 (52.5%) from paediatrician, 67 (30.9%) from general practitioners, 22 (10.1%) Obstetrician/gynaecologist and 14 (6.5%) self-reporting.

Commonest disability among the patients with communication disorder was 81 (37.3%) behavioural disability. Other disabilities were social well-being, cognition, poor academic achievement and limit vocational choices in 72 (33.2%), 54 (24.9%), 49 (22.6%) and 43 (19.8%) respectively.

**DISCUSSION**

Communication disorder is one of the most common childhood disabilities worldwide with limited relevant researches in low-income countries, such as Nigeria (13). The prevalence of communication disorder in this study was 16.1% this falls within the ranges of prevalence (10.0%-25.5%) from other African countries (14). This agrees with high prevalence of communication disorders in developing countries and Africa (15).

All the studied age group had different form of communication disorder. Commonest age of presentation for assessment was around preschool age group 3 and 4 years. Some were in nursery school with poor communication. There is poor social interaction with peers and teachers. The delayed in presentation was due to inexperience and watch to catch up with time by the parents (10, 11). Few other cases are delayed in seeking specialist intervention until when the child reaches 6 years of age or more. This may have adverse effects on learning, behavior, social skills (16).

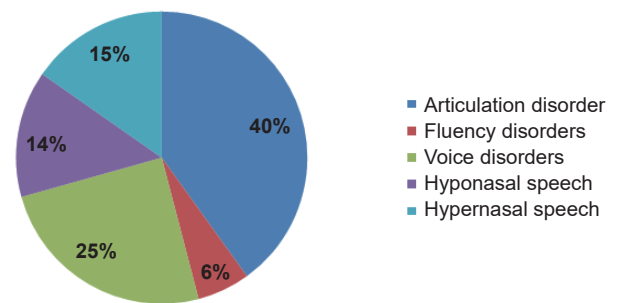
On the sociodemographic features, majority of the parents bring their children for communication assessment

**Table 2.** Aetiology of hearing speech language disorders among the patients

Aetiology	Frequency (n)	Percentage (%)
Cerebral palsy	16	7.3
Low birthweight	12	5.5
Otitis media	34	15.7
Adenotonsillar diseases	16	7.3
Measles	19	8.8
Birth asphyxia	10	4.6
Trauma	9	4.1
Neonatal jaundice	13	6.0
Febrile illness/convulsion	44	20.3
Ototoxicity	21	9.7
Preterm delivery	6	2.8
Idiopathic	3	1.4
Meningitis	14	6.5

**Table 3.** Types of language disorder

Language disorder	Frequency (n)	Percentage (%)
Mental motor Retardation	9	4.1
Delayed Speech & Language	49	22.6
Specific language impairment	32	14.7
Aphasia	6	2.8
Deaf Mutism	36	16.6



**Figure 3.** Types of speech disorder among patients.

and it was noted that male gender were more affected. This could be due to hormonal issues and slower neurological maturity in males (17). Poor social, vocal stimulation and interaction with other siblings is very poor in first child with poor parental obstetrics skills and child rearing contribute high prevalence of communication disorder among first child. Communication disorder is dominant among patients living in urban setting than rural setting (18, 19). Health care facilities with screening program are easily accessible among urban dwellers. Educated parents are well informed with good jobs and financially capable of caring for their wards. High prevalence of communication disorder is common in children of educated and civil servant with early presentation. Mothers detect communication disorder in children more than father. Fathers are engaged by various activities in searching and caring for family needs while mothers have more close contact with the children.

Hearing impairment and communication disorder was secondary to different aetiology. The commonest causes is infective or complications from its treatment. Major predisposing factors are unregulated access to ototoxic drugs, unlawful traditional/ native medical practices, high prevalence of local concussion hawkers, poor access to health care facilities due to inadequate professionals, high practice of traditional birth attendance, lack of awareness about the preventive measures and poor hygiene activities in low income countries like ours [6, 20, 21]. Common infection includes neonatal febrile illness/convulsion disorders, otitis media and measles. Other infections may be from viral, bacterial and parasitic lesion. These are usually wrongly treated as malaria with local concussion leading to neurological damage and hearing impairment. Poor obstetrics management leading to preterm delivery, low birth weight, birth asphyxia, cerebral palsy and neonatal jaundice are major causes of neurological damage and communication disorder. Poor medical history is a major reason for unknown aetiology in this study.

Communication disorder is associated with hearing impairment and swallowing disorder in our findings. These may be a co-morbid problem. Prevalence of hearing impairment was higher among patients with language disorder and speech disorder this may be due to study of paediatric groups (22, 23). Visual disorder was noticed in one of the patient whose both parents were blind (24). She was brought to the clinic on failure to verbal communicate at age 5 years. Main communication disorders in our findings were speech disorder and language disorder.

Bad obstetrics history, poor management of infection

are major causes of sensorineural hearing impairment with great effects on both language and speech development in this study less possibility of noise exposure (25, 26). Upper airway infection with otitis media was responsible for conductive hearing impairment which affects speech acquisition (27). Patients with severe and profound degrees of hearing impairment in this study mainly had language disorders. Patients with mild and moderate degrees of hearing impairment had mainly speech disorder.

Neurological damage of sense organ, neural and motor components in different degrees affect language acquiring and other developmental milestone as in this research. There was a higher prevalence in younger male children as documented in other study (28). Delayed speech and language were mainly due to mild, moderate and moderate severe hearing impairment. Deaf mutism and mental motor retardation are secondary to severe neurological disorder. Aphasia in this study was from head trauma.

Fluency disorder (stuttering or stammering) affect mainly male also uncommon speech disorder in this study (29). Commonest speech disorder is articulation disorder usually among first child with normal hearing. Voice disorder is common among children with voice abuse from singing, shouting, excessive noise and upper respiratory infection. In our findings hypernasality and hyponasality disorders were due to pharyngeal and sinonasal diseases respectively from adenoid, tonsils and sinonasal diseases.

There are various sources of patients with communication disorder for otorhinolaryngology, head and neck consultation in this study. Our major source was from paediatricians which are first contact by parents whose children with any medical disorder followed by family/general practitioners as a result of their closeness to the family. From parents (mothers) contacts and discussion which usually involves health issues usually leading to few cases of self-reporting in this research.

Communication disorder with associated hearing impairment greatly affected children behaviour, emotional, socialization and education in this research. Because communication skills remain pivot to social, emotional and psychological development in children even minor impairments can have great negative effect on patients (30). These problems if not identified, assessed and treated early may lead to frustrations that can lead to destruction to themselves and others members of the community. The limitation of the study is that it is hospital-based and the data cannot represent the entire population.

Communication disorders have high prevalence in this study with associated high prevalence of hearing

impairment. The major causes were both infection and inadequate obstetrics management. Early detection by screening of risk children and prompt treatment intervention to prevent avoidable disability in future is recommended.

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## CONFLICTS OF INTEREST

The authors declare that no conflicting interests exist.

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