

## **Holistic Assessment, Management and Rehabilitation for Learners with Hearing Disorders: Implications for Academic Performance**

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### ***Abstract***

*Effective communication is essential for quality of life; no one can do without interacting with his human and material environments. Dysfunctional hearing however causes communication breakdown thereby impacting negatively on the individual socially, emotionally, academically and economically, irrespective of the type or level of the impairment. There is therefore a need to remove the barrier or at least remediate the situation for the benefit of all concerned. This article explored the necessity for the identification and assessment of a hearing impairment, especially in a school setting. It also reviewed the essentiality of managing hearing impairment through rehabilitation of learners with hearing disorders. The paper further advocated for team work among professionals using aural rehabilitation as platform for the enhancement of total and effective intervention, thereby promoting social interaction through oral communication. It therefore suggested future directions for early detection, screening and intervention programmes.*

**Keywords:** *Holistic assessment, Management and rehabilitation, Learners with hearing impairment, Academic performance*

## Introduction

Over the years, there have been reports about downward academic performance of students who are deaf and hard of hearing manifesting in form of poor computational skill, literacy problem and reading comprehension. An extensive observation showed that children with any sort of hearing loss showed poorer academic outcomes as compared to normal hearing peers (Choudhry, et al., 2022). A study conducted in India, in 2005 on academic performance of deaf and hard of hearing by the National Association of the Deaf (NAD), found that education for the Deaf was characterised by lagging behind their hearing counterparts (Denmark, 2013). Research suggests several reasons for this troubling and longstanding underachievement. Many DHH students enter school lacking fluency in either a signed or a spoken language (Gregory, 1986; Singleton and Morgan, 2006). This affects their interaction with teachers and their peers for information that could have aided their academic and social development. The implication is that deafness resulting in hearing disorders has impeding effect on total development of a child.

Hearing disorders have been described as one of the serious public health problems. These disorders, though generic in nature, involve reduction in sound reception or auditory functioning. Consequently, the individual's perception and interpretation of sounds is often not accurate, irrespective of the magnitude of the loss (Mangal, 2007). These disorders are in forms of impairment, degenerating to disability, presenting as a handicapping condition. Hearing impairment goes beyond one losing his hearing; it affects almost all aspects of life. For instance, it is nearly impossible for the hearing impaired to perceive sounds meant to signal danger such as sirens for emergencies, smoke alarm and many more. This could be traced to the faulty temporal lobe and associated hearing mechanisms. Temporal lobe is a part of the brain which enables to manage emotions, process information, store and retrieve memories and it aids understanding of language (Matthew and Kelly, 2022). While other associated mechanisms are frameworks at the outer, middle and inner ear.

Language deprivation, socialisation deficit and life achievement and adjustment problem arise from drought of communication which accompanies hearing impairment. In essence, individuals with hearing impairment, particularly the learners, are deficient major developmental milestones. The impact of hearing impairment on the affected cannot be over-emphasised as it sometimes takes its toll on the cognition of the hearing impaired and subsequently affects their academic performances. Language proficiency has been proven to be a product of the exposure to pre-literacy activities. Mastery of language may be impossible without these activities, thereby creating communication lapses or gaps (Luckner, Sebald, Cooney, Young and Muir, 2005; Olufemi-Adeniyi, 2021).

As a result of this short fall, apart from academic challenges, social, emotional, mental health issues are common phenomena among children and adults with hearing impairment. Cases of isolation, anxiety, and depression are a common thing among them. In addition, behavioural problems such as hyperactivity are noticed among them. Other maladjusted conducts observed among this group include lying, truancy, and aggressiveness besides others (Calderon and Greenberg, 2011). All these may not be unconnected with low self-esteem, resulting from their inability to properly integrate in to the society (Stevenson, Kreppner, Pimpertor, et al., 2015; Bringler, et al., 2019).

Deficit in language acquisition does not only make children and adolescent learners with hearing impairment “strangers” in their immediate community, it also hinders them from developing literacy skills such as formal reading, writing and calculation when finally enrolled in school. As a result of this, an individual with hearing impairment is usually many years and experiences far behind his hearing peers in reading and writing, ending in a low academic performance. Their cognitive functioning is equally affected. Factors such as family background, social exposure, teaching methodology as well as the manner of presenting the examination could be the secondary causative agents (Hrastinski, et al., 2016). In order to reduce the burden that impairment of hearing has placed on the affected, there is need for rehabilitation. This will help them to carry out some activities necessary for day to day activities in order to achieve productive life

### **Essence of Intervention/Rehabilitation**

Hearing impairment is a health condition. Like every health problem, a treatment is desired. A treatment can be described as series of activities engaged by medical personnel, in order to control the patient's health problems, reduce the symptoms or completely clear it up. Treating a patient could come up in different dimensions, depending on the situation. While some health problems can be treated with medicine, surgery or other approaches, some may not be curable (Osborn, 2022).

A cure, in health sector is described as being given a treatment which could remove the health problem completely. Managing a health condition could mean giving the patient some measures, to reduce the pain or aches attending the health condition, though the health challenge may remain (Osborn, 2022). It is imperative for interventions to be in place in order to placate the incurable health condition.

An unaddressed hearing impairment can be very stressful as a lot of things are affected. An impairment does not necessarily need to be burdensome or limiting. Hearing impairment becomes a disability when an individual is limited in his daily functioning due to the hearing loss. Inability to benefit from the normal conversation or receive information is problematic and it can be torturing. Measures ought to be in place therefore to arrest the situation, failure of which makes the individual handicapped. Often times, persons with hearing impairment are reported to be academically, socially, emotionally and financially handicapped. The inability to access linguistic mechanisms needed for meaningful thinking and expressions affects every other parts of life (Steinmetz, Murray, Vos, Haile, et al., 2019; Kaindu, Simubaya, Museya and Simui, 2021). Such an individual could become a burden to himself and to the society at large as his potentials may not be maximised.

Rehabilitation has been described as series of interventions provided for children, adult or older persons experiencing challenging health conditions. The intervention, meant to rehabilitate, is intended to optimise the functioning of the individual. Rehabilitation is a package, which could be needed at any point in life as a decline in health can occur due to injury, surgery or age (World Health Organisation, 2021). This package could be referred to as “Habilitation” when the beneficiary has never had or put to use skills meant to be restored.

The programme, rehabilitation, is introduced when a health condition needs to be

managed because it cannot be cured. A typical example is hearing impairment. This is to reduce the burden of the disability on one hand, then enable the individual become self-dependent as much as possible. This will allow him undertake his daily assignments with less dependence and supervision in the areas of education, work/career, recreation and in carrying out familial duties or making daily decisions.

Various professionals are needed when rehabilitation programme targets a person with hearing impairment. It is a condition which affects an extensive area of life and so requires all hands to be on deck if an effective management for the hearing impaired is to be done.

### **Rehabilitation Programmes for the Hearing Impaired**

Individuals with hearing impairment deserve better and quality life. This cannot be achieved without bridging the social and communication gap between the hearing and hearing impaired individuals. The social and psychological cum educational problems bedeviling individuals with hearing impairment occur as a result of communication impediment occasioned by hearing loss in different degrees and onset of such loss. For such condition to be alleviated there should be some intervention that will help such to in speech integration and social acclimatisation. One of such is aural rehabilitation

### **Aural Rehabilitation**

Individuals with hearing loss can benefit from receiving services to help them communicate. The services or programmes/interventions are typically referred to as aural rehabilitation. It is usually referred to aural rehabilitation when such services or intervention are serving adults population but in the case of children who were born with hearing loss or develop it at younger age, it is called habilitative services (ASHA, 2021). Rehabilitation is the process of restoring loss skill. On the other hand, habilitative service is the teaching of skill the essential communication skills that are needed for social interaction. In children, these skills are often been taught for the first time, which is the reason it is appropriate to referred to them as habilitative programmes. Also, these services may also be referred to audiologic or auditory rehabilitation depending on the plan of care and the type of professional providing the services. Hence, aural rehabilitation is the process of helping people with hearing loss to overcome the challenges and limitations they face in their daily activities. This programme involves identifying and diagnosing the hearing loss, providing different types of therapies to improve communication and coping skills and implementing amplification device such as hearing aids or cochlear implants. It is a client-centered and holistic approach that aims to optimise a person's participation and quality of life.

The goal of rehabilitation is to restore quality of life by eliminating, reducing, or circumventing these deficits and limitations (Boothroyd, 2007). This can be addressed through combination of the following:

- i. sensory management to optimise auditory function;
- ii. instruction in the use of technology and control of listening environment; and

- iii. Counseling to enhance participation, and deal both emotionally and practically with residual limitation.

ASHA (2021) noted that the focus of rehabilitation service is based on individual child's needs which are determined by age, developmental strengths and weakness, including speech and language, age at which hearing loss began, age at which the loss is diagnosed, age at which the child is fitted with technology (cochlea implant, hearing aids or acoustic implant) and assistive technology, types of hearing loss, severity of hearing loss and causes of hearing loss (ASHA, 2021). Aural rehabilitation services can also be influenced by communication methods such as sign language types, auditory-oral, cue speech and total communication.

### **Steps in Aural Rehabilitation Programme**

- i. Assessment and impact of hearing loss
- ii. Assessment for the use of hearing aids and or assistive listening devices
- iii. Assessment of listening strategies and speech reading skills
- iv. Developing a treatment program including the family
- v. Delivery of the treatment program
- vi. Outcome measures

### **Components of Aural Rehabilitation**

Oral rehabilitation involves the following components namely: training in auditory perception, using visual and contextual cues, improving speech, developing language, managing communication, and managing hearing technology and assistive listening devices.

### **Training in Auditory Perception**

This includes activities to increase awareness of sound, identify sounds, tell the difference between sounds, and understand what is heard. In the end, this training helps children to differentiate one word from another. Auditory perception also includes developing skills in hearing with hearing technology and assistive listening devices, as well as learning how to handle easy and difficult listening situations.

### **Using Visual and Contextual Cues**

This involves all kinds of cues in conversation to help the hearing impaired to understand information is being passed across via verbal conversation. This process goes beyond recognising sound and words on the lips. Visual and contextual cues use facial expression, body language, and the context and environment which communication is taken place.

### **Improving Speech**

This entails working on the production of speech sound by individual with hearing impairment in words and conversation. This practice revolves round voice quality, speaking rate, breath control, loudness and speech rhythms.

### **Developing Language**

Developing language involves increasing language understanding in form of reception and language usage expression) according to developmental expectation. This is a complex process involving concepts, vocabulary, word knowledge, use in different social situation, narrative skills, expression through writing and understanding rules of grammar.

### **Managing Communication**

Managing communication in aural rehabilitation process helps the hearing impaired to understand their hearing loss, develop assertiveness and advocacy skills to use in different listening situations, manage communication breakdown and learnin ways to make communication easier.

### **Managing Hearing Technology and Assistive Listening Devices**

The fitting hearing technology (hearing aid) to people with hearing impairment demands care by individual with hearing impairment, family members and caregivers. Participating in this process helps adults and children with hearing impairment to be familiar with components and functionality of such device.

### **Professionals/Team Workers on Rehabilitation Programme for the Hearing Impaired**

Deafness is a silent disability. It can go on for years unnoticed or undetected. Bhargava (2022) presented a case study of a 10 year old girl with an undetected hearing impairment. The girl used to assume that her friends were whispering, deliberately not speaking loud enough. She often required the volume on the stereo or television be increased or sat close to the set. She also found it difficult to go along in group conversations, asking the speaker to repeat self.

A special educator is essentially needed to take note of situations like above. Those are enough symptoms to suspect a hearing disorder in a learner in the classroom. The special educator, at this juncture needs to make necessary decisions in conjunction with other stakeholders. Bhargava (2022) gave a list of professionals who are needed as a team for the holistic rehabilitation of the learners with hearing impairment.

**Medical Doctor:** Judging from the observation of the teacher, a learner who has been exhibiting, repeatedly, symptoms such as asking for the repetition of sentences, looking confused during a conversation, not responding when someone calls or speaks to him with his back turned, to mention but a few, the teacher will do well to refer the child to the general medical practitioner. The doctor is expected to carry out a general screening or examination

of the learner and then makes a referral as necessary.

**Audiologist:** In audiologist evaluates the hearing of the learner or patient who is referred based on issues with hearing. The audiologist carries out diagnostic assessment on the client with non-medical tools. He has been trained to make a prescription and fitting of a hearing aid, also to offer auditory rehabilitation services, once hearing impairment is established. Hearing aids assist in sound sensitisation and magnification. It should be noted that it is not a “one size fits all” hence the need for screening.

**Otologist/Otolaryngologist:** These are medical specialists, trained for medical, surgical and the diagnosis of diseases and disorders in the areas of the ear, nose and throat. While the otologist specialises on ears only, the otolaryngologist specialises in ear, nose and throat, and neck region.

A learner with hearing impairment may need more than the hearing aids, there may be need for surgeries. These specialists have been trained to deal with such a situation.

**Physiotherapist:** Often time, persons with hearing impairment experience motor skill problems. It maybe posture or flexibility of limbs or balancing. The physiotherapist is a specialist, who can carry out an assessment of the learner's gross motor skills, make recommendations on exercises that can enhance balance and coordination, and prescribe mobility aids if there is a need for that.

**Speech/Language Pathologist:** This is a specialist in regards to rehabilitation of the speech/language of the learner. The foundational problem for the learner with hearing impairment is lack of meaningful language adequate for thinking and expression as a result of the inability to perceive speech. The speech pathologist starts from the assessment of his communication skills, creation of an awareness of sounds, discrimination, differentiating and recognition of sounds as receptive skills are taught. Expressive, social and problem solving skills in communication are also developed in the learner. These are necessary for the learner in order to enhance socialisation of the learner with hearing impairment. It will allow for asserting, negotiating, interacting for friendship. This specialist often make use of aural/oral approach, building on the work of the audiologist. Lip-reading is favoured over sign language in this therapy.

**Psychologist:** These learners demonstrate maladjusted behaviours and conducts. These include fighting, hyperactivity, aggression, anxiety, depression, insomnia, and even suicidal ideation among the adolescents with hearing impairment particularly. These could be traced to the low self-esteem they developed, occasioning cognitive dysfunctioning. The end products, most times are poor academic performance, and becoming a social misfit, school dropout and unable to obtain gainful employment.

The psychologist would have to conduct an assessment in order to identify the exact problem. Afterwards, the therapy begins, most times starting with the emotional/psychological stress. One common talk therapy is Cognitive Behavioral Therapy by Beck. It combines restructuring therapies for both cognition and behavior. The therapist is meant to take into consideration the learner's learning, behavioural and emotional distresses (Olufemi-Adeniyi, 2021).

**Educational Staff:** Special educators for teaching and non-teaching activities in the school

environment are essential for the progress of the learner with hearing impairment. Some of the services they render include teaching, guidance to the regular teachers, counsel to the parents, interpreting with sign language, assistance on difficult subjects, and consulting on their behalf with outside agencies.

**Occupational Therapist:** He prepares and take the learner through some daily living skills. On education, the therapist takes the learner through the art of reading and writing until he develops passion for that on his own. The therapist also trains the learner with hearing impairment in acquiring self-helping skills which include washing, dressing among others.

## Conclusion

Hearing impairment is a “one health challenge, too many.” Its effect is serious on language development of the person. At best the hearing impaired gets partial information, and at the worst, he is completely uninformed though present in person. The multiplying effects of the impairment is communication breakdown. This is followed by isolation or withdrawing to self from the group, whether the home or elsewhere. In the school setting, the learner with hearing impairment neither benefits from the teaching if it is a regular or general school setting without the provisions necessary, he becomes uninterested and then checks out, even though physically present. This learner could become a failure academically and then waste the potentials nature has deposited in him to the detriment of himself and the society at large.

Rehabilitation, holistically done, is a non-negotiable venture for the learner with hearing impairment in order for them to maximise their potentials. This will enable the hearing impaired to feel accepted, belong and be committed to the course charted out for them. It will encourage full participation and great achievement from them, especially in their academics.

## Recommendations

The government should encourage and create awareness on neonate hearing screening. It should be made affordable and accessible by all new mothers to encourage them. It is believed that the earlier the rehabilitation the better. Without screening, hearing loss cannot be detected nor be treated. Further, the parents should be ready to shoulder some responsibilities and make sacrifices; these could be in form of financing, labor or time as there could be schedules of appointments with the professionals outside of the school settings.

Class and subject teachers should also be friendly and patient with the hearing impaired in their care. This also goes for the school management. The curriculum planners as well as policy makers should have them in mind, especially in the area of testing. If it is possible, the hearing impaired could be exempted from areas of test which are speech based, such as WAEC/NECO English Language (Paper3) known as Test of Orals in Nigeria and some other West African countries.

## References

American Speech-Language-Hearing Association (ASHA) (2021). Aural rehabilitation for children. *Audiology Information Series*.

Bhargava, R. (2022). Understanding and supporting learners with disabilities. Trinity University, *The Trinity Place*, 210-220

Blumenthai, L., and Sefotho, M. M. 2022. The effects of cognitive effort on academic performances of learners with cochlear implants in a private mainstream school in Gauteng. *African Journal of Disability*, 11, 886

Boothroyd, A. ( 2007). Adult aural rehabilitation: What is it and does it work? *Trend in Amplification*, 11(2), 63-71

Brigler, D., Burke, K., Laurreano, N., Alfonso, K., Jacobs, J. and Bush, M. L. (2018). Assessment and treatment of behavioural disorders in children with hearing loss: A systematic Review. *Otolaryngology-Head and Neck Surgery*, 160 (1), 36-48.

Choudhry, A. M., Noor, H. S., Shahid, R., Mukhtar, T., Zahra, S. M., & Butt, G. A. (2021). Academic performance of hearing impaired children who received early intervention. *Journal of Pharmaceutical Research International*, 33(57A), 227-234.

Denmark, A. C. (2013). An online learning platform for English as a second language for young Deaf Indian sign language users: Usage patterns and user engagement (Unpublished master's thesis). University of Central Lancashire, UK.

Garberoglio, C.L., Cawthon, S. W. and Bond, M. (2013). Assessing English literacy as a predictor of post school outcomes in the lives of deaf individuals. *Journal of Deaf Studies and Deaf Education*, 21 (2),

Gregory, S. (1986). Bilingualism and the education of deaf children. Proceedings of the conference on Bilingualism and the Education of Deaf Children: Advances in Practice (pp. 18–30). United Kingdom: University of Leeds.

Hrastinski, I. and Wilbur, R. (2016). Academic Achievement of Deaf and Hard-of-Hearing Students in an ASL/English Bilingual Programme. *Journal of Deaf Studies and Deaf Education*, <http://doi.org/10.1093/deafed/en072> Corpus ID: 3841692.

Kaindu, E., Simuyaba, E., Muleya, G. and Simui, F. (2021). Exploration of Academic Performances of Learners with Hearing Impairment at Munali Secondary School, Zambia. *International Journal of Research and Scientific Innovation*, VIII (IX), 2321-2705

Lederberg, A. R., Schick, B. and Spencer, P. E. (2013). Language and literacy development of deaf and hard-of-hearing children: Successes and challenges. *Developmental*

*Psychology*, 49 (11), 15-30.

Luckner, J. L., Sebald, A. M., Cooney, J., Young, J. and Muir, S. G. (2005). An Examination of the Evidence-Based Literacy Research in Deaf Education. *American Annals of the Deaf*, 15(5),

Mangal, S. K. (2007). *Educating Exceptional Children; An Introduction to Special Education*. New Delhi Prentice-hall of India

Matthews, D. and Kelly, C. (2022). Pragmatic development in deaf and hard of hearing children: A review. *Deafness and Education International*, 24(4), 296-313

Olufemi-Adeniyi, O. A. (2021). Effect of cognitive behavioural and self-management therapies on psychological distress among in-school adolescents with hearing impairment in Oyo State, Nigeria. (An Unpublished Thesis); University of Ibadan, Nigeria

Osborn, R. (2022). Difference between cure and treatment. [www.differencebetween.net](http://www.differencebetween.net)

Qi, S. and Mitchell, R. (2012). Large-scale academic achievement testing of deaf and hard of hearing students: past, present and future. *Journal of Deaf Studies and Deaf Education*, 17 (1), 1-18

Singleton, J. L., Morgan, D. D., Schick, B., Marschark, M. and Spencer, P. (2006). Natural signed language acquisition within the social context of the classroom. *Advances in the Sign Language Development of Deaf Children*, 344-375.

Steinmetz, J., Murray, C. J. L., Vos, T., Haile, L., Kamemov, K., Briant, P. and Orji, A., et al. (2019). Hearing Loss Prevalence and years lived with disability, 1990-2019: Findings from the Global Burden Disease Study, GBD 2019 Hearing Loss Collaborators.

Stevenson, J., Krepper, J. and Kennedy, C. (2013). Emotional and behavioral difficulty in children and adolescents with hearing impairment: A systematic review and meta-analysis. *European Child and Adolescent Psychiatric*, 24(5), 477-496

Walowska, J., Bolach, B. and Bolach, E. (2017). The influence of pilates exercises on body balance in the standing position of hearing impaired people. Science.gov (United States)

World Health Organisation, (2021). Package of Interventions for Rehabilitation. Information Sheet. WHO