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UNIVERSITY OF IBADAN, IBADAN, NIGERIA

DYNAMICS OF SPECIAL EDUCATION PRACTICE

In Honour of
PROFESSOR MOJI OYEBOLA

Editors:
Prof. O. A. Fakolade
Dr. A. Osisanya
Dr. A. F. Komolafe

Dynamics of Special Education Practice

A book of Readings in Honour of
Professor Moji Oyebola

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TABLE OF CONTENTS

CHAPTER 1	
Assessment of Challenges Facing Children with Special Needs in Oyo State, Nigeria - Joseph Olusola Fehintola Ph.D	1
CHAPTER 2	
Developmental Aphasia; Assessment, Diagnosis and Management Options - Uloaku, N. Okoro and Lawal, Ahmed Olaitan	12
CHAPTER 3	
Counselling Children with Special Needs: The Role of the Special Education Counsellor - S. N. Ubani Ph.D and Osuagwu C. E	30
CHAPTER 4	
Social Integration and Social Support as Predictors of Quality of Life of Adults with Hearing Impairment in Oyo State, Nigeria - Amaize, Sunday Omoikhudu and Oyewumi, Adebomi M. Ph.D	50
CHAPTER 5	
Impact of Visual Impairment on Learning and Social Life of Persons with Visual Impairment - Sunday Abodunrin Ph.D	68
CHAPTER 6	
Facilitating the Learning Process of Children with Intellectual Disability Using Assistive Technology Devices - Udeme Samuel Jacob	82
CHAPTER 7	
Suicidal Ideation and the High Ability Learners - Fakolade, O.A Ph.D. and Olajide Teniola Julianah	94
CHAPTER 8	
Educating Creatively Gifted Students in Ibadan Metropolis - G.A. Adelodun Ph.D and A.B. Asiru	99

CHAPTER 9

Inclusive Education within Early Childhood Development -

Gifty Nana Yaa Rockson & Sesi Collins Akotey 112

CHAPTER 10

Effect of Scaffolding Instruction and Social Stories on the Social Skills of Children with Moderate Intellectual Disability in Ibadan, Oyo State. - **Oyundoyin, J.O. Ph.D and Musa, Aminat Oiza**

125

CHAPTER 11

Inclusive Education and Sexual Diversity Among Learners -

RabiAbbu-Sadat 142

CHAPTER 12

Sustainability Programmes and Disability: The Case of Persons with Disabilities in Nigeria

- **Adebiyi, Benedictus Adekunle, Ph.D and Archibong, I.E. Ph.D** 153

CHAPTER 13

Effect of Token Reinforcement and Storytelling on Listening Skills of Pupils with Intellectual Disability in Selected Schools in Ibadan, Oyo State, Nigeria - **Esther O. Oyefeso(Ph.D) and Aremu, Omodolapo C.**

162

CHAPTER 14

Gender, Age, Peer Pressure and Creative Ability of Selected Secondary School Students in Ibadan, Oyo State - **Mitchell N. Amaechi, Ikechukwu A. Nwazuoke Ph.D., Onyinyechi B. Ezeanochie Ph.D. and Oduwole J. Babatunde Ph.D.**

172

CHAPTER 15

Achieving Sustainable Development Goal on Education For Persons with Disabilities in Nigeria: The Place of Second Chance Education Programme - **Adeleke Owoade Philip Ph.D**

188

CHAPTER 16

Stress among The Caregivers of Persons with Intellectual Disability in Nigeria. - **Gafaar A. Salami Ph.D**

199

CHAPTER 17

The Significance of Early Intervention For Language Development of Children with Hearing Impairment -

Aderibigbe Samson Akinwumi Ph.D

207

CHAPTER 18

Educating Persons with Special Needs in The 21st Century through Appropriate Educational Programmes for Relevance and Development in Nigeria -

Isaiah, O.O. Ph.D. and Lazarus, K.U. Ph.D.

216

CHAPTER 19

Governance as a Strategic Option for Improved Performance within The Nigerian Educational System -

Ogundoro Elijah Olufemi, Akinwumi Femi Sunday Ph.D and Akinyemi Olukemi Yetunde Ph.D

223

CHAPTER 20

Effect of Prompted Speech in Facilitating Speech Acquisition in Children with Nonverbal Autism in Ibadan, Nigeria -

Abiodun T. Adewunmi Ph.D, Kayode Emmanuel Orisajuyigbe and Bukola Oluwatoyin Hammed

241

CHAPTER 21

Promoting Disability Friendly Community: Implications For Health Promotion In Nigeria -

Olajide, O. E., Ph.D

250

CHAPTER 22

Therapeutic Considerations for Individuals with Communication Difficulties and Co-morbid Challenges -

Ayo Osisanya, Ph.D

260

CHAPTER 23

Modifying Attitudinal Barriers to Create Opportunities for People with Special Needs -

Bolaji, Y. O. Ph.D and Adeosun, M.A. (Mrs.)

277

CHAPTER 24

Safe Practices in The Teaching of Practical Concepts in Physical Education: Challenges and Intervention -

A. O. Fadoju Ph.D and Mr. M. A. Balogun

286

CHAPTER 25

Digital Literacy Skills And Media Resource Utilisation as Predictors of Lecturers' Productivity in The State-owned Polytechnics in Southwestern Nigeria. - **A. O. Egunjobi Ph.D. and O. A. Adebayo** 296

CHAPTER 26

Prevalence of Risk Factors and Posttraumatic Stress Disorder among Economically Disadvantaged Pregnant Women in Egbeda Local Government Area, Oyo State. - **M. S. Eniola Ph.D and Afusat Olanike Busari, Ph.D.** 320

CHAPTER 27

The Need for Adaptive Physical and Health Education to Promote Inclusive Education among Pupils with Intellectual Disabilities - **Olubukola Christiana Dada and Adegoke Oladipe Olaniyan** 340

CHAPTER 28

Educating Children with Special Needs in The 21st Century for Development: A Case for Inclusive Education - **Komolafe, Adebayo Francis Ph.D** 351

CHAPTER 29

Psychosocial Adjustment to Blindness - **Edozie, Isioma Sitamali** 368

CHAPTER 30

Self-esteem as a Predictor of Academic Achievement of Students with Learning Disabilities in Ilorin West Local Government Area, Kwara State - **Adedayo Adesokan (Ph.D) and Rasheed Alaro Adewale Hamzat** 372

CHAPTER 31

Parenting Styles and Self-esteem as Predictors of Anxiety Disorders of Adolescents with Hearing Impairment - **Ogunwale Oluwatoyin Racheal and Adebomi Oyewumi Ph.D** 385

CHAPTER 22

THERAPEUTIC CONSIDERATIONS FOR INDIVIDUALS WITH COMMUNICATION DIFFICULTIES AND CO-MORBID CHALLENGES

By

Ayo Osisanya, Ph.D

Department of Special Education, University of Ibadan, Ibadan, Nigeria.

E-mail: ayoosisanya@gmail.com

Abstract

The comorbidity nature of communication difficulties and associated developmental challenges often times impair the overall functional ability and quality of life, learning and psycho-social behaviours, and health stability of those with the conditions, especially the children. With the attendant effect of those comorbid challenges, children would experience delayed language development, reduced vocabulary, poor clarity of speech, poor word recall, difficulty forming sentences, poor understanding of spoken speech, difficulty following instructions, poor empathy, poor ability to express needs/feelings, literal understanding/speech, repetitive speech, swallowing problems, poor listening skills and poor copying/imitation skills. Therefore, the management of such communication difficulties and associated developmental challenges in children is a complex task requiring professional competence and expertise, experience, a blend of therapeutic options and multidisciplinary team-work approach. It is against this background that this paper highlighted the benefits of different therapeutic options for both children and adults with comorbidity of communication difficulties and developmental challenges. The need for multidisciplinary team-work services in rehabilitating the conditions has also been emphasized. The paper concluded by advocating cooperative efforts of the allied professionals and combined therapeutic options towards rehabilitating comorbid communication and developmental challenges.

Keywords: Communication difficulty, Developmental challenges, Delayed language development

Introduction

Communication is the process of sending and receiving messages through verbal and non-verbal means. This includes speech, or oral communication, writing and graphical representations (such as infographics, maps and charts), signs and, signals and behavioural display. It is simply the process of transmitting and sharing ideas, opinions, facts, values from one person to another. Communication has been identified as a learned skill. However, most people are born with the physical ability to talk, but not all can communicate well as expected in the human world, unless they make special efforts to develop and refine their skill further. Clearly, there are several major elements in communication process: a sender, message, channel, receiver, feedback and context as well there is both the speaker's intention to convey a message and a listener's reception of what has been said. Therefore, listening skill is as important as speaking skill in order for communication to be effective, absence of these elements results in disruption in communication.

A message is considered successfully communicated when both the sender and the receiver perceive and understand it in the same way. If this does not happen, then there may be a breakdown in communication. Kenyon (2001) posited that the elements in communication process determine the quality of communication. Hence, communication is a complex process which involves many skills as auditory, listening, visual, and tactile. In case of brain injury, these skills might become impaired, and it can as well affect the ability to communicate successfully, resulting in communication difficulties. Feelings of frustration and confusion can arise from ineffective communication and people experiencing this may either give vent to their frustration and anger in very obvious ways or become quiet, and even withdrawn when they feel the act of communication is too difficult to keep on trying.

National Institute of Health (2014) defined communication difficulties as deficits in understanding or producing speech correctly (aphasia), slurred speech characterized by weak muscles tone (dysarthria), inability in programming oral muscles for speech production (apraxia) as well as difficulty in social communication, that is difficulty in taking turns in conversation and problem in maintaining a topic of conversation. It encompasses a wide range of difficulties related to all aspects of communication in both young and adult individuals which include difficulties with fluency, forming sounds and words, formulating

sentences, understanding what others say as well as using language socially. The delay or disorder ranges from simple sound substitution to inability to understand or use one's native language appropriately. In general, communication difficulties is commonly referred to as a problem in speech (comprehension and/or expression) that significantly interferes with an individual's achievement and/or quality of life (Gleason, 2001). These wide range of difficulties and corresponding needs may be short-term or may remain with the person throughout their childhood and adult life. It results from delayed language development, reduced vocabulary, poor clarity of speech, poor word recall, difficulty forming sentences, poor understanding of spoken speech, difficulty following instructions, poor empathy, poor ability to express needs/feelings, literal understanding/speech, repetitive speech, swallowing problems, poor listening skills, and poor copying/imitation skills.

Communication difficulties frequently occur concomitantly with other health conditions, such as hearing loss, chromosomal conditions, cerebral palsy, stroke, traumatic brain injury, head and neck cancer, Parkinson's disease, multiple sclerosis, Frederich's ataxia, dementia, primary progressive aphasia and host of others. The comorbidity nature of the related challenges might adversely affect their overall functional ability and quality of life, learning and psycho-social behaviours, socio-economic and health stability. Persons with these challenges would need help to acquire skills for effective communication and healthy living, therefore, considerations for rehabilitative options remain a must. Rehabilitative options must follow appropriate diagnosis and classifications of the conditions viz-a-viz the identification of the associated challenges and provision of suitable intervention strategies. It must also involve experts as well as consideration for an effective multidisciplinary team-work services, including patient-centred decision making and effective use of varied resources (McCallin and McCallin, 2009) to carry out a holistic management to ensure improved, effective, efficient and natural communication.

Impact of Developmental Challenges on Children

Developmental difficulties refer to a range of difficulties experienced by infants and young children including developmental delay in the areas of cognitive, language, socio-emotional behaviour and neuromotor development (WHO, 2012). In addition, developmental challenges could

be referred to as a diverse group of conditions that occur as a result of expected developmental milestone not being achieved. From the time a child is conceived, they are expected to gain skills in different areas of life. One of these skills is communication both expressive and receptive language skills. Inability to achieve this results in communication difficulties which can occur from childhood as primary difficulties such as specific language impairment or stammering. It can also occur as a secondary difficulties due to conditions such as learning disability, autism, hearing impairment and certain mental health conditions. Nearly all the developmental challenges appear as an overlap difficulties at this stage, presenting more than two (2) kinds of challenges. This is common among children.

The common developmental challenges have serious implication on the overall well-being of any individual with any of the difficulties. In addition to the observed communication difficulties: the overlap difficulties impact nearly all the functional capacity, involving the adverse effect on the skills to make accurate and fluent word, reading and spelling (Dyslexia), motor functions (Dyspraxia), specific learning difficulties (LD), having very poor attention, being overactive and impulsive in all situations (ADHD), having difficulty with social interaction and social communication (Autism), having related auditory-language problems (SLI), difficulty in processing of auditory information (APD), auditory attention and memory.

Common Signs and Symptoms of Communication Difficulties among Children

- Trouble communicating with others;
- Difficulties understanding or making words;
- Struggle with choice of order words, or sentence structure for his/her age;
- Trouble grasping simple directions or naming objects;
- Limited choice of words for his/her age;
- Difficulties expressing and understanding abstract ideas;
- Have poor social interaction;
- Behavioural challenges;
- Reading and writing difficulties.

Diagnosis

An accurate diagnosis requires the input of several specialists, family physicians, psychologists, speech and language pathologists and many more. The test includes a complete physical examination. The evaluation may involve:

- Psychological testing of thinking abilities;
- Psychometric testing to check a child's reasoning skills, reactions to different situations and thinking;
- Speech and language tests for example, Illinois Test of Psycholinguistic Abilities (ITPA);
- Magnetic and resonance imaging (MRI);
- Computed tomography (CT) Scan;
- Psychiatric evaluation;
- Auditory evaluation.

In order to supply the necessary diagnostic and therapeutic data to the referring professionals or agency, and in order to assure proper habilitative measures, a detailed examination is necessary. Since language and speech functions depend upon the action and interaction of peripheral and central organs within a frame of emotional equilibrium, defects or dysfunction in any of these areas may constitute causative or contributory factors to difficulties in communication, therefore complete diagnosing is required.

Types of Communication Disorders in Children

1. Mixed Receptive- Expressive Language Disorder: Marked evidence of developmental delays and problems understanding spoken language and speaking to express their thoughts and ideas. At times, a child can understand and pronounce words, but they have problems creating complex sentences to express complex thoughts and ideas. A child with this condition may manifest lack of comprehension which can lead to giving a wrong answer or ignoring directions, trouble with abstract nouns, complex sentence structures, and spatial terms.
2. Expressive Language: This is a kind of communication difficulty that affects a child's ability to communicate effectively, using spoken language. Most times, it appears as problems with vocabulary and difficulties communicating. The disorder does not affect individual's ability to understand language, but does make it hard for them to get their points across.

3. **Speech Sound Disorder:** A child has a hard time expressing words clearly, even as the child grows up in age and stature.
4. **Childhood Onset-Fluency Disorder:** This is also known as primary stuttering. It starts in childhood and can last throughout life. It refers to disruption in the natural flow of language. It manifests itself in repetition or prolongation of speech as well as hesitation before they speak or use monosyllabic repetitive sounds.

Implication of Communication Difficulties in Children

Communication development is at the heart of all children's learning and link to other areas of a child's development. Without speech, language and communication skills, a child will not be able to reach their full potential. The impact of a child's communication difficulties will vary depending on the child's individual needs considering other health conditions and severity. The following areas could be some of the observed implications:

1. High risk of difficulties with reading, writing and spelling. For instance, if children cannot say words, they will be more likely to have difficulties in 'sounding out' words for reading and spelling, or writing them down.
2. Children with communication difficulties are more likely to have behaviour difficulties. Many children with identified behaviour needs have previously unidentified speech, language and communication needs.
3. Self-esteem (self-efficacy) and confidence level is affected: Children with communication need often see themselves as less able and less popular than their friends. Young people identify good communication skills as important for feeling confident.
4. Many children with communication difficulties are withdrawn, which means they are less likely to start conversations, they play alone more and are less liked by others in their class.
5. Children with speech, language and communication needs are significantly at risk of literacy difficulties. As children become literate, literacy and language development support each other, so young people with communication difficulties are doubly impaired.
6. Children need to have good language skills in order to use their language to learn. Talking is key in supporting and extending

children's thinking and advancing their learning and understanding. The ways in which teachers talk to children can influence learning, memory, understanding and the motivation to learn.

7. Communication needs have been identified as a risk factor for mental health. 40% of children (7 to 14 years) presented with mental health challenges have suspected language impairment.

Rehabilitative (or Therapeutic) Approach for Children

In rehabilitating patients with communication difficulties and developmental challenges, a multidisciplinary management approaches will make it effective and efficient with appropriate selection of right professionals as well as rehabilitative strategies that best suit the condition based on its nature and type. Therefore, the following therapeutic approaches are recommended:

Compensatory Approach

This is a technique used to compensate for a deficit, weakness, injury or perceived inadequacy in a specific area or skill, and a provision of required capacity to function appropriately. This approach makes use of habitual learning strategies to reach goals in domains such as attention, learning and executive functioning. It involves the use of calendar, props, lists, reminders and other environmental manipulations. A person with communication difficulties can be encouraged to carry a card that lists emergency contact information, use of "communication notebook" which contains pictures with words describing each picture. This can facilitate communication with others in expressing his/her needs and wants. This in turn stimulates the client's use of language despite expressive difficulties, use of multiple questions or polar questions with simple response of "Yes or No" help save the stress of expressing in a long statement e.g what would you like to eat for lunch? Bread and Egg, Rice and Stew or Are your clothes washed? Also, use of technological assistance e.g text-to-speech apps, communication board can be helpful in more routine situations. Speaking slowly, directly and clearly is also a compensatory strategy for individuals with receptive language difficulties.

Metalinguistic Approach

Fey and Proctor-Williams (2000) posited that it is a therapy approach to

mainly train morphosyntactic skills implicitly by using techniques like recasting, elicited imitation and modelling. The rationale for metalinguistic approach is based on the fact that persons with communication difficulties have differences learning grammar implicitly but benefit from explicit teaching of grammatical rules (Ebbels, Maric, Murphy and Turner, 2014). A typical feature of existing metalinguistic approach is the use of visual support such as writing or the encoding of linguistic structures of shapes or colours, provision of visual cues help to develop a concrete explicit representation of grammatical structures. Use of colour codes helps in structuring sentences and to identify specific syntactic elements and use of shape coding helps to enhance comprehension of dative forms, comparative questions as well as the use of past tense in written work. Use of riddles also helps. Riddles are a fun way to stimulate metalinguistic awareness and positively influence reading comprehension.

Structural Approach

This is a scientific study of the fundamental structures of a language; their analysis and logical arrangement. Every language has its own pattern of structure and the structure forms the basis for communication. Structures then mean the different arrangements or patterns of words which must be mastered or learnt for easy communication. The main aim of this approach is teaching the fundamental elements which are phonemes, morphemes, words, structures and sentence types upon which the fundamental skills of language is developed and they include: listening, speaking, reading and writing. The approach helps to enlarge the vocabulary of the clients, corrects speech habits and also enables the learners to attain mastery over an essential vocabulary of about 3000 root words for active use. It emphasizes on speech and oral drilling of learning which involves a lot of repetition and conscious drilling of the language items. It is also known as Aural-oral Approach.

Cognitive Behavioural Therapy

This is an educational model where individuals with communication difficulties and comorbid challenges are helped to unlearn negative reactions and learn new ones. This approach develops more positive belief and behaviours as well as learning new coping skills to handle issues. It is based on the concept that thought, feelings, physical sensations and

actions are interconnected, it then makes use of practical ways to improve the state of mind. The approach focuses on the problem rather than the cause and it emphasizes self-analysis and the importance of home-work for the practice of the new skills introduced to ascertain progress and change in behaviour. It also focuses on the use of wide range of strategies to help clients, such strategies includes journaling, role-playing, relaxation techniques and mental distractions.

Direct Remediation

This focuses on helping persons with communication difficulties to use age appropriate linguistic structures in a variety of contexts. It explicitly trains phonological awareness, morphological awareness as well as lexico-syntactic arrangement in an attempt to improve reading decoding skills, fluency and reading comprehension. This approach emphasizes role-playing, practice and repetition.

Communication Difficulties and Physio-pathological Challenges

These conditions are peculiar to increase in age, emotional challenges, fatigue (stress), neurological and metabolic disorders. It is mostly found among adults. An established relationship has been found between communication difficulties and some specific physiologic disorders such as neurological disorders, Alzheimer's disorder, bipolar disorders, visual problems, respiratory disorders, psychiatric disorders, cardiovascular and stroke-related disorders among others.

The above listed disorders in addition to other related disorders have negative impact on both the hearing and speech production of individuals with any of those disorders. The most common communication difficulty with any of the disorders could be explained as poor speech perception, poor understanding and discrimination, and poor auditory working memory, due to auditory neuropathy and processing difficulties, as well as articulation and voice disorders.

Common Signs and Symptoms of Communication Difficulties and Comorbidity in Adults

A. Expressive Difficulties:

- Repetitive sounds and speech or frequently switching sounds within words seemingly without noticing;
- Misuse of words or substituting related words even when they do

not mean the same thing;

- Inability to communicate in an understandable way;
- Poor clarity of speech;
- Use of made-up words frequently when the correct words cannot be produced;
- Inability to comprehend message;
- Poor ability to express needs/feelings;
- Forgetting words or saying them out of order;
- Misusing of idioms or saying them incorrectly;
- Trouble answering a direct question, even when he/she knows the answer.

B. Receptive difficulties:

- Difficulties in understanding spoken speech, especially complex sentence structures;
- Difficulties following multi-steps verbal instructions;
- Inability to understand jokes or taking everything very literally;
- Inability to focus on what someone is saying particularly if there is a background noise.

Types of Communication Difficulties in Adults

1. **Speech Sound Disorders:** These affect voice and they include:
 - i. **Articulation Disorder:** is a speech sound disorder which manifests itself in changing or substituting words so that messages are harder to understand.
 - ii. **Fluency Disorder:** manifest in speaking with irregular rate or rhythm of speech
 - iii. **Voice Disorder:** refers to abnormal pitch, volume or length of speech
2. **Language Disorder:** is a kind of difficulty in learning and using language caused by problems with vocabulary, grammar and putting sentences together in a proper manner. The problem can be receptive (understanding language) and expressive (producing language). It includes the following:
 - i. **Phonology:** is a common disorder with inability to use speech and sound for communication. It includes failure to use sounds correctly, substituting sounds inappropriately

- and omitting sounds altogether e.g. “dat” for “that”.
- ii. Morphology: involves the structure and construction of words.
 - iii. Syntax: manifests in how sentences are formed.
 - iv. Language content: disorder affects the semantics i.e. the meaning of words and sentences.
 - v. Language function disorder: affects the pragmatics i.e. use of socially appropriate message.

3. **Speech Difficulties.**

- a. Stuttering: This is a speech disorder characterized by a break in fluency where sounds, syllables, words may be repeated or prolonged. It affects the flow of speech, and it is disrupted by involuntary repetitions and prolongations of sounds, syllables, words or phrases as well as involuntary silence, pauses or blocks.
- b. Social Communication Disorder: This refers to difficulties in the social use of verbal and non-verbal communication in naturalistic context which affects the development of social relationship and/or discourse comprehension.
- c. Apraxia: The tongue and lips are not moving in a correct way to produce sounds. In a severe case, it can make someone calling “chicken” for “kitchen”. It is typically caused by stroke, dementia, brain tumors or traumatic brain injury.
- d. Voice Disorder: This is a problem with larynx (voice box). It includes:
 - i. Hoarseness: This manifests in adults who use their voice as part of their daily jobs (such as teachers, singers). It is typically a temporary condition. However, chronic hoarseness may be an indication of other problems.
 - ii. Polyps or Nodules on the Vocal Cords: This growth makes it difficult for production of speech. Large growths are removed surgically, while smaller ones can be successfully managed by treating the underlying condition.
 - iii. Spasmodic Dysphonia: This occurs when the vocal folds spasm or tightens when speaking. At times, one may not be able to speak. It is typically caused by problems with nervous system or a brain disorder.
 - iv. Vocal Fold Paralysis: This is immobility of the vocal folds

which does not only cause speech problems. It can also lead to serious breathing and swallowing problems

4. **Aphasia:** It is a neurological condition which affects an individual's ability to properly comprehend or produce language, either spoken or written. According to ASHA (2016), it is a communication disorder which results from damage to the parts of the brain that contain language (typically in the left half of the brain). In adults, aphasia can be an aftermath of stroke or other brain related injury, accident or trauma. This makes it difficult to speak, read and/or understand conversation.

Implication of Communication Difficulties and Comorbidity Challenges

- Communication difficulties have a broad impact on every aspect of life. Not only does it prevent an individual from expressing opinions, needs and wants but also reduces the ability to express personality and exercise autonomy (Pam, 2013)
- People with speech, language and communication needs have poor conversational skills, poor non-verbal skills and poor social perception, all of which can hinder their ability to form friendships and may lead them to becoming marginalized. Those who become isolated in this way often experience anxiety and depression which can affect their mental health.
- Speech, language and communication difficulties can erode self-esteem and affect educational achievement, social integration and general behaviour which may likely increase the probability of offending behaviour.
- Communication difficulties bring about high-stress levels in workplace. It creates a little or no sense of humour, sense of fear that causes tension which is counterproductive to efficiency, whereas good communication skills cause a sense of stability and predictability

Rehabilitative (or Therapeutic) Approach for Adults

Rehabilitating patients with these conditions requires combined therapies focusing on the nature of the involved disorders and specific

levels or difficulties of the involved patients. The following rehabilitative options will be appropriate:

1. Speech Training: Voice Production Training

This is a training on how thoughts are translated into speech. This includes selection of words, organization of relevant grammatical forms and then the articulation of the resulting sounds by the motor system using the vocal apparatus. This may be difficult for persons with motor dysfunctioning related problem such as cardiovascular and stroke-related problem. Speech and language therapists then provide a range of services or training which increases the clients fluency, speech sound intelligibility as well as strengthening and increasing coordination of the muscles used in speech production e.g lips, tongue, jaw, hard and soft palate to have proper respiration, phonation, articulation, prosody and resonance. The training helps to create a change in the client's communicative environment to make the feel more relaxed and comfortable in using their speech especially when it is accompanied with socio-emotional or psychological challenge. Generally, speech training helps to develop proper control of the vocal and respiratory systems for correct voice production, regular exercises to activate the speech organs, breathing control as well as conversation exercises.

2. Aural Rehabilitation

This is a rehabilitative protocol designed to remediate hearing loss induced deficits of function, activity, participation and quality of life through a combination of sensory management, instruction, perceptual training and counseling. The approach helps persons with hearing loss to organize and actively take charge of communication by creating a hearing loss management plan, and also to tackle the obstacles presented in important communication events and to evaluate possible solutions. The rehabilitative strategy includes: the use of hearing assistive technology and/or captions, communication strategies, auditory training sessions to build stamina for listening and sustained attention, relaxation techniques and peer support groups to build confidence, skill sets and social support.

3. Cognitive Management

This is simply used in restructuring the reasoning faculty and processing of the affected individual especially persons with neurological disorder, psychiatric disorder and soon. It involves increasing reliance on intact cognitive abilities to compensate for the deficient ones. Appropriate goals require modification of discrete behaviours of both the clients and caregivers that have an impact on the individual's ability to communicate and participate in desired activities e.g A caregiver is taught positive communication strategies that help to decrease aberrant (e.g disruptive vocalisation) or increase desirable (e.g conversational initiations) communication. Also, the use of basic technique to validate (through words, gestures etc) what the person says regardless of accuracy or basis in fact, rather than correcting or re-orientating the person. The use of written factual information and/or familiar photographs to facilitate communication. In addition, the use of photographs and words are incorporated into memory books/wallets, memo boards and activity calendars. Creating a structured stimulating activities that are appropriate to an individual's cognitive abilities, allowing engagement in tasks and also opportunity for social interaction.

4. Environmental Modification/Restructuring

This refers to internal and external physical adaptations to the home, which are necessary to ensure the health, welfare and safety of the waiver participant. Restructuring helps an individual with communication difficulties and comorbid challenges to function with greater independence, prevent institutionalization, reduce noise and light, and improved sleeping conditions and generally creating a suitable and friendly environment. E-mods in the home include the purchase and/or installation of ramps, lifts, widened doorways and hallways, hand rails and grab bars, automatic or manual door openers and doorbells, specialized electric and plumbing systems that are necessary to accommodate the medical equipment and supplies that have been determined medically necessary. All these adaptations help in modifying the speech and easy flow of communication of the waiver participant.

5. Psychotherapy

This simply refers to a range of treatments that can help with mental health problems, emotional challenges as well as other health challenges. It aims to enable clients to understand their feelings, and what makes them feel positive, anxious or depressed. This can equip them to cope with difficult situations in a more adaptive way by learning healthy coping techniques and problem solving skills. Psychotherapy is sometimes called a talking treatment” because it uses talking rather than medication. Techniques can include other forms of communication such as drama, narrative story or music.

6. Drug Management

This is defined as the standard of care that ensures a patient's medications (whether they are prescription, non-prescription, alternative, traditional, vitamins or nutritional supplements) which are individually assessed to determine that each medication is appropriate for the patient. The therapy ensures optimum therapeutic outcomes for targeted beneficiaries through improved medication use, reduce risk of adverse events, reduce drug-drug interactions, improve medication adherence and empower patients to take an active role in managing their medications. This approach is purely medical and handled by medical practitioners.

7. Family-Focused Approach

This approach is a rehabilitation service in which families are recognised as the experts on their child and work with service providers to make informed decisions about their child's care. It is made up of a set of values, attitudes and approaches to services for persons with special needs. It recognizes that each family is unique, and that the family is constant in the child's life. In this approach, the strengths and needs of all family members are considered. It requires effective communication between the family and service providers, which facilitate positive behaviours.

8. Music Therapy

This is an interpersonal therapeutic process in which the therapist uses music and all of its facets to help improve, restore or maintain health. It can also be described as a systematic process of

intervention wherein the therapist helps the client to promote health, using musical experiences and the relationships that develop through them as a dynamic forces of change (Geretsegger, Elefant, Mossler and Gold, 2014). Musical interaction serves as non-verbal and pre-verbal language. It allows people who are verbal to gain access to pre-verbal experiences and also gives non-verbal people the chance to communicate with others. It allows people to interact on a more emotional, relationship-oriented way than may be possible relying on verbal language. Music therapy sessions are designed with a number of factors in mind, including the client's physical health, communication abilities, cognitive skills, emotional well-being and interest.

9. Dichotic Listening Training

This is a psychological test commonly used to investigate selective attention within the auditory system. It is used as a behavioural test for hemispheric lateralization of speech sound perception. It simply refers to listening to different acoustic events presented to each ear simultaneously, the acoustic signals are speech such as digits, words, consonants-vowels or sentences. During a standard dichotic listening test, a participant is presented with two different auditory stimuli simultaneously (usually speech). The different stimuli are directed into different ears over headphones. Later the content of the message listened to will be asked. It simply tests the selective consciousness of the client which helps in communication to minimising external noise and focus on the man discussion or instruction, alertness and awareness of the surroundings, tolerance of noisy situations, follow group and multi-step directions, self-awareness and ability to express needs verbally, interpretation of abstract and interactions with others.

Conclusion

Communication difficulties and other related challenges require cooperative efforts of different professionals such as audiologists, parents, psychologists, social workers, classroom teachers, guidance counsellors, physicians, dentists, nurses, and neurologists, speech pathologists to provide a comprehensive diagnosis, to determine the problem and to provide adequate rehabilitation.

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