

# Efficiency of Speech and Language Therapy in Facilitating Higher Education in Adults with Intellectual Disability: A Case Study

Srabanti Khemka<sup>1</sup>, Saurav Chandra Sharma<sup>2</sup>, Chandni Taneja<sup>3</sup>, Prachi Patwari<sup>4</sup>

<sup>1</sup>Associate Professor, Sri Aurobindo Institute of Medical Sciences, SAU, Indore

<sup>2,3</sup>Post Graduate student (SLP), Sri Aurobindo Institute of Medical Sciences, SAU, Indore

<sup>4</sup>Intern (B. ASLP), Sri Aurobindo Institute of Medical Sciences, SAU, Indore

Corresponding Author: Srabanti Khemka

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## ABSTRACT

Intellectual disability is characterized by significant limitations both in intellectual functioning and in adaptive behaviour as expressed in conceptual, social, practical adaptive skills and manifests during the early developmental period (AAIDD, 2010). Communication difficulties are a significant risk factor in this population predominantly reducing access to education, employment and social integration. Speech and language therapy maximizes the participation and independence of individuals with intellectual disability as they experience life transitions that place new demands on communication. The present case study aimed to view the efficiency of speech and language therapy in facilitating higher inclusive education in adults with intellectual disability. A 26-year old female with mild ID underwent assessment and speech and language therapy to develop a communicative capacity to be autonomous, self-determined and to exercise control over higher education and their lives. The results showed enhanced output of oral language and overall communication skills which are important factors of higher education. Adults with intellectual disability should have access to intervention strategies across their lifespan such as during transitions, or when external communication barriers arise.

**Keywords:** Intellectual disability; communication; speech and language therapy; oral language

## INTRODUCTION

use world over till late 20th century, has now been replaced with Intellectual disability in most countries.

Intellectual disability (ID) refers to a particular state of functioning that begins prior to age 18, characterized by significant limitations in both intellectual functioning and adaptive behaviour (AAMR, 2002). The definition of intellectual disability has been reviewed many

times as the understanding of the disorder has changed. American Association on Intellectual and Developmental Disabilities (AAIDD, 2010) defined intellectual disability as “significantly sub average general intellectual functioning existing concurrently with deficit in adaptive behaviour and manifested during the developmental period that adversely affects a child’s educational performance.” Adaptive behaviour is the collection of conceptual,

social, and practical skills that are learned and performed by people in their everyday lives. Individuals with ID exhibit significant limitations in two or more adaptive skill areas. Conceptual skills - language and literacy; money, time, and number concepts; and self-direction.

Social skills - interpersonal skills, social responsibility, self-esteem, gullibility, naïveté (i.e., wariness), social problem solving, and the ability to follow rules/obey laws and to avoid being victimized.

Practical skills - activities of daily living (personal care), occupational skills, healthcare, travel/transportation, schedules/routines, safety, use of money, use of the telephone.

Individuals with intellectual disability exhibit deficits in reasoning, problem solving, planning, abstract thinking, judgment, academic learning and adaptive functioning which results in communication disturbances, challenges in daily living activities and social participation. Approximately 70% of individuals with severe intellectual disability and 50% of individuals with mild intellectual disability have an organic or biological basis for their disorder (McLaren & Bryson, 1987). Up to 90% of adults with an ID will experience a communication difficulty at some stage of their lives (RCSLT, 2010). Common speech, language and communication difficulties that may be experienced by adults with an ID include challenges in understanding and expressing language (whether spoken, written or symbolically represented), difficulties in social skills, reduced speech intelligibility and dysfluency (Ogletree, Bartholomew, Wagaman, Genz, & Reisinger, 2012; Smith and Matson, 2010; Thurman, 2011). Barriers to successful communication can occur as a result of non-supportive communication environments. Adults with ID have limited social networks and their communication partners may often comprise of family members (McCausland, McCallion, Cleary, & McCarron, 2016; McConkey, Morris &

Purcell, 1999). Therefore, the quality and frequency of communicative interactions experienced by adults with an ID may be substantially different to the everyday interactions that people without an ID experience. One of the results of failing to attend to the communication needs of adults with an ID includes struggle to access formal education at all levels (McCarron et al., 2014). Speech and language therapy (SLT) intervention ranges from building capacity in the wider community to specialist intervention at an individual level in adults with an ID (RCSLT 2018). Specialist intervention involves the individual's presenting needs and are provided on an individual basis or in groups in natural contexts across multiple settings (Brady et al., 2016; Coyne, 2015). This can focus directly on an adult with ID's means of communication (pre-verbal, speech, sign, symbol, object, voice output communication aids), expressive or receptive language skills, and conversation/interaction skills to enhance the functional communication skills.

The goals for speech and language therapy mainly focus on enhancing reception and expression of language through any modalities of oral or written communication and social interaction which helps in inclusive education and supports the development of inclusive communication environments. The intervention strategies work collaboratively with educational goals to ensure that individuals with ID understand the academic content when presented in a variety of forms. This promotes active attention and engagement strategies, various opportunities and modalities to communicate and to share information. These factors indicate the need for speech and language therapy that can make a valuable contribution by supporting adults with ID having communication-related disabilities towards inclusive education. This study therefore aimed to investigate the efficacy of speech and language therapy in

facilitating education in an adult with intellectual disability.

## **MATERIALS AND METHODS**

A Hindi speaking 26yr old female reported to the speech and language department with the complaint of communication deficit and problem in social interaction. Caregivers report of difficulty in following classroom and educational instructions, social interaction with peer groups, and maintaining attention during verbal interaction. Birth history reported of home delivery with birth asphyxia and a feeble birth cry. Presence of tongue tie was noticed at an early age and surgical procedure for the removal was done at the age of 6 months. Parental perception revealed a delay in acquisition of motor, social and cognitive developmental milestone. A marked delay in language developmental milestones were reported in stages of babbling (12 months), first word (18 months) and simple sentence (3 years). Psychological test results indicated a mild intellectual disability. The communication mode of the case was predominantly and preferably in simple syntactic structures and occasionally in complex sentences. The case completed secondary and higher secondary examinations on repeated attempts and presently pursuing undergraduate course. A detailed comprehensive speech and language assessment was followed by speech and language therapy for 16 sessions each of duration 45 minutes. Language investigation was performed using Linguistic Profile Test (LPT) and Clinical Evaluation of Language Fundamentals, CELF-5. Articulation test in Hindi, speech intelligibility rating scale and oral peripheral examination were used to assess the speech parameters. Voice evaluation was done using the perceptual self-rating scale (GRBAS) and MDVP for instrumental

analysis. The goal for speech and language intervention targeted towards facilitating the functional communicational skills. This was achieved by working in the domains of enhancing the receptive and expressive skills (semantic and syntactic structure), pragmatic skills (turn taking, topic maintenance, response to conversation), correction of speech sound errors (word and connected speech), use of appropriate prosody in conversational speech and to improve the overall intelligibility of speech.

## **RESULTS**

The present study highlighted on assessment followed by speech and language intervention in an adult Hindi speaking female diagnosed with mild intellectual disability. Linguistic profile test revealed receptive and expressive language age of 6-7 years. The language receptive score (receptive semantic and syntax score) was 66.6% whereas expressive language score (expressive semantic and syntax score) was 50.8%. Comprehensive and expressive deficits were marked in conditional clauses, semantic synonymy, plurals, case markers and tenses indicating a deficient language skill. The findings of Clinical Evaluation of Language Fundamentals, (CELF-5) showed a scoring of 82 in core language, receptive language index/expressive language index suggestive of borderline severity of language disorder. The case had poorer scores in semantic relationships and sentence assembly compared to the categories of word class, recalling sentences and formulating sentences. Pragmatic profile revealed reduced scores in pragmatic tasks of “rituals and conversational skills” followed by “ask for, gives and responds to information” and “nonverbal communication skills” (Table 1).

**Table 1: Pragmatic Profile scores**

Sections	Scores
Section 1 – Rituals and conversational skill	33/72
Section-2 – Ask for, gives and responds to information	48/80
Section-3 – Nonverbal communication skills	28/48

Oral peripheral examination suggested of occasional inappropriate jaw movements and affected tongue elevation during connected speech and nonspeech tasks. Precision of tongue movements were absent for speech tasks. Results of articulation test revealed that aspirated speech sounds in Hindi were mostly substituted by unaspirated phonemes and inconsistent distortion of liquids /l/ and /r/ in initial, medial and final positions at word and sentence level. Speech was intelligible with concentration and effort, especially by a sympathetic listener.

The case underwent individualized speech and language therapy and intervention strategies focussed on receptive & expressive language skills, pragmatic skills and prosodic aspects. The receptive intervention strategies focused on comprehension of complex sentences of various syntactic structure and understanding of auxiliary verbs, tenses, word definitions,

following directions whereas for improving expressive skills, formulation of simple sentences with different grammatical and syntactic structures of Hindi language, recalling of sentence (SOV structure) and sentence assembly were considered. The tasks taken up for intervention of pragmatic skills included initiation and ending of conversation along with introduction and maintenance of the topic and turn taking in conversation. The prosodic intervention targeted on the maintenance of intonation in different types of sentences and appropriate use of stress and pauses in word and sentence level. The intervention strategies targeted towards the overall improvement in speech intelligibility and comprehensibility. CELF-5 was readministered post 18 sessions of speech and language therapy to monitor the progress in the language and literacy domains.

**Table 2. Pre and Post speech and language therapy CELF scores**

	Pre therapy scores	Post therapy scores
Word Class	8	17
Following Directions	8	19
Formulated Sentences	10	16
Recalling Sentences	36	46
Understanding Spoken Paragraph	4	6
Word Definition	5	8
Sentence Assembly	3	5

**Table 3. Pre and Post speech and language therapy Core language and Index scores**

	Pre therapy scores	Post therapy scores
Core Language Score	55	57
Receptive Language Index	55	57
Expressive Language Index	55	59
Language Content Index	53	57
Language Memory Index	53	64
Core Language Score	55	57

## DISCUSSION

The present case study aimed to understand the efficiency of speech and language therapy in facilitating higher education in an adult with mild intellectual deficit. The scores of

administered test and assessment of client observation indicated a provisional diagnosis of deficient speech and language skills secondary to mild intellectual deficit. In the present study intervention goals assisted in

post therapeutic improvement of the receptive and expressive skills (Table 3) which aided in the progress in use of oral language. Oral language is critically important for developing good literacy skills, as children need their oral language skills in phonology (speech sounds), vocabulary and grammar when learning to read and write. Oral language serves as the foundation for reading and writing skills. Through oral language skills individual can become successful as they wade through a variety of academic concepts and challenges. Individual need to be able to speak academic oral language in order to become successful learners and readers in the classroom (Hart & Risley,2003). The US National Early Literacy Panel (2008) officially identifies oral language as a key factor which consistently predicts later literacy achievement.

The results of the present study also indicated that SLT intervention improved scores in domains of sentence formulation and sentence assembly (Table 2) resulting in growth of functional communication skills. Previous researches have also highlighted the role of intensive SLT therapy in enhancing social integration on improving the communication skills (Brady et al., 2016; Rispoli et al., 2010; RCSLT, 2010; Kleitsch et al.,1983; Lovell et al.,1998). Communication skill is an important factor in making higher education effective. Emphasis on grammatical structure, sentence formulation, pronunciation and vocabulary are important aspects of communication skills (Khan,2008).

## **CONCLUSION**

Higher education requires multilateral communication. Expressing through writing, documentation of experiences and expressing facts are the communication facilitator of higher education. Speech and language therapy are tailored to the changing needs in an adult with an ID which plays a pivotal role in ensuring access to opportunities for literacy

growth and communication by improving language skills.

## **Declaration by Authors**

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**Conflict of interest:** The authors declare no conflict of interest.

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