# Alternative Communication in Adults with Developmental Disabilities who are Deaf, Hard-of-hearing and use Non-traditional forms of Communication: A Scoping Review.

## PURPOSE

- **33–50% of Deaf individuals, before they have developed language,** have co-occurring developmental disabilities, worsening communication challenges in healthcare, work, and daily life.[1]

- Lack of professional communication support in healthcare increases medical risks, while **workplace discrimination and inaccessible tools** limit job opportunities.[2,3]

**Knowledge gap:**

1) The communication needs of individuals with **developmental disabilities and deafness** are **complex and often overlooked**.
2) Most studies focus on children or one condition (developmental disabilities or sensory loss) in isolation.

**Research Objective (Developed by DeafBlind Ontario Services) :**

- Compile the body of research on the communication strategies employed in the home, workplace, and healthcare contexts by adults with developmental disabilities and who are Deaf, hard of hearing, or use non-traditional communication techniques.
- This research aims to spread awareness through insightful information to guide future study, policy, and practice.

## METHODS

**Search Strategy:**

- Databases: Google Scholar, APA PsychInfo, Web of Science. Supplemented by reports provided by **DeafBlind Ontario Services**, grey literature and reference list searches.

- A total of **3,315 articles** were identified. After removing **448 duplicates**, **2,867 articles** remained.

- Title and abstract screening excluded **2,855 articles** based on the following criteria:
  - Did not include both developmental disability and deafness
  - Focused on children or students
  - Were conducted outside North America or Europe

- The information from articles that met the criteria were then thoroughly read and synthesized into a scoping review.

| Inclusion Criteria | Exclusion Criteria |
|---|---|
| Adults with both developmental disabilities and deafness or hearing impairments | Studies focused on children or students |
| Investigated verbal, non-verbal, bilingual, or alternative communication systems | Articles not written in English |
| Addressed communication in healthcare, workplace, or home settings | Did not specifically examine communication among adults with both developmental disabilities and deafness |
| Explored the effects of language deprivation on communication | Studies focusing on populations outside North America or Europe |
| Published within the last 15 years | |
| Peer-reviewed research (e.g., case studies, reviews, mixed methods) | |

## RESULTS

**Key findings from articles:**

- **The following table outlines different communication methods, and its challenges found in the articles.**

| Category | Key Findings |
|---|---|
| Communication Methods | - **AAC** (Sign language, picture boards, devices)<br>- **Gestures & Facial Expressions**<br>- **Written Communication** (Notes, text messaging) |
| Barriers | - **Limited AAC Access** (Cost, training, availability)<br>- **Language Deprivation** (Delayed exposure)<br>- **Lack of Professional Training** (Healthcare, workplace settings) |
| Effective Strategies | - **Tailored Communication Plans** (Individualized approaches)<br>- **Caregiver & Professional Training** (Improves outcomes)<br>- **Visual Supports & Technology** (Enhances comprehension) |

1) **Communication Challenges and Impacts**: Communication difficulties are linked to increased maladaptive behaviours and poorer mental health outcomes. Language deprivation, especially delayed access to sign language, exacerbates challenges.
2) **Sign Language and Accessibility**: Regular use of sign language (can also be referred to as Augmentative and Alternative Communication; AAC) improves social awareness, adaptive behaviour, and emotional regulation. Bilingual communication (spoken and sign language) enhances emotional health and engagement.
3) **Role of Technology**: Existing communication apps meet basic needs but lack features for emotional regulation and environmental challenges. Improved assistive technologies (e.g., tactile/visual alerts and sign language integration) are essential.
4) **Structured and Tailored Interventions**: Skilled caregiving and structured environments enhance communication outcomes. Tailored approaches (e-g., respecting non-traditional communicative cues) are crucial for success.
5) **Social Communication and Mental Well-Being**: Social networks and accessible communication environments positively impact mental health and social engagement.

## CONCLUSIONS

**This study:**

- Highlights unique challenges such as communication barriers and language deprivation for this underserved population.
- Provides actionable insights for improving policies that mandate legislation requiring accessible communication, support for early language access and funding for assistive technology in workplaces, healthcare and education,
- Identifies areas for future research such as personalized communication techniques, technology integration, caregiver training and support and lastly long-term effects of language deprivation.


**References:**

(1) Fellinger, M., et al., (2022). Communicative deficits associated with maladaptive behavior in individuals with deafness and special needs. Frontiers in Psychiatry

(2) Bruce, S. M., et al., (2016).The state of Research on Communication and Literacy in deafblindness *American Annals of the Deaf*.

(3) Alnfiai, M. M., & Kabir, M. A. (2024). Social and communication apps for the deaf and hearing impaired. *Heliyon*.



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