# The role of Augmentative and Alternative Communication in Speech and Language Therapy: A mini review

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## Abstract

Augmentative and Alternative Communication is an aided or unaided means of communication which supports existing communication abilities of an individual or replaces natural speech due to any speech and language disorder. The deficit could be developmental or acquired such as autism spectrum disorder, cerebral palsy, learning difficulties, dysarthria, dyspraxia or due to any acquired neurological condition such as aphasia and other degenerative disorders. Furthermore, it may be due to surgical procedures such as laryngectomy. Alternate means of communication have also been successfully used with COVID-19 patients. These tools may include pictures, symbols, signs or voice output devices. Parents of children with special needs and medical professionals have been reluctant in implementing the approach due to certain misconceptions. The aim of this review is to summarize the current evidence for the use of Augmentative and Alternative Communication with a range of disorders in relation to in relation to Pakistan..

**Keywords:** Assistive technology, Aided communication, Complex communication needs, Early intervention, Speech generating devices, Speech and language intervention

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## Introduction

Globally, particularly in the developing world Augmentative Alternative Communication (AAC) is frequently being employed for its ability to provide a consistent means of communication. The aim of AAC is to augment speech and to build on the existing strengths of the person communicating. When speech is not possible due to an impairment caused by a developmental or acquired condition an alternate means of communication is employed, which could range from a simple paper-based system to a more complex speech generating system. The first account of AAC can be dated back to 1920s, when a communication board was first used with cerebral palsy.[1] Subsequently, more advanced systems have been developed to ensure effective use of AAC.

Individuals are provided with the most suitable and efficient methods of communication, which may include pictures, symbols, signs, writing or the use of low to high tech devices such as communication-based apps, eye gaze tracking systems as well as other speech generating devices. These AAC tools are customized to the needs of the individuals.[1]

### Conditions which benefit from the use of AAC

There are a variety of speech and language disorders in which AAC has been successfully used. There are recommendations for the use of AAC in all age groups including pre-school and school age children, adolescents, and adults. The literature highlights the benefits of using AAC in children with autism, cerebral palsy, learning difficulties, dysarthria and dyspraxia.[3] Acquired neurological conditions in adults such as post stroke aphasia, motor neuron disease and other neurological and degenerative disorders.[4] It has been shown to be effective in individuals with laryngectomy, tracheostomy and other surgical procedures affecting speech.

### Types of AAC

**There are two main types of AAC**

**Unaided AAC:** It does not require use of a physical tool or technology. It may incorporate natural communication modes that remain unspoken such as facial expression, body language including gestures and/or sign language.

**Aided AAC:** It involves use of physical tools or devices. These can be classified as low, mid and high-tech systems. Low or basic system refers to the use of a simple pen or paper, pointing to written alphabets or words through a customized board. The use of some technology for speech generation through simple electronic devices such as switches is mid tech. The use of more sophisticated and advance tools such as eye gaze or touch screen systems is high tech. Speech generating Devices are customized to address individual needs and languages.[5]

### Barriers towards implementing AAC

The rationale behind lack of AAC acceptance has been evaluated by several researchers in the West and the myths

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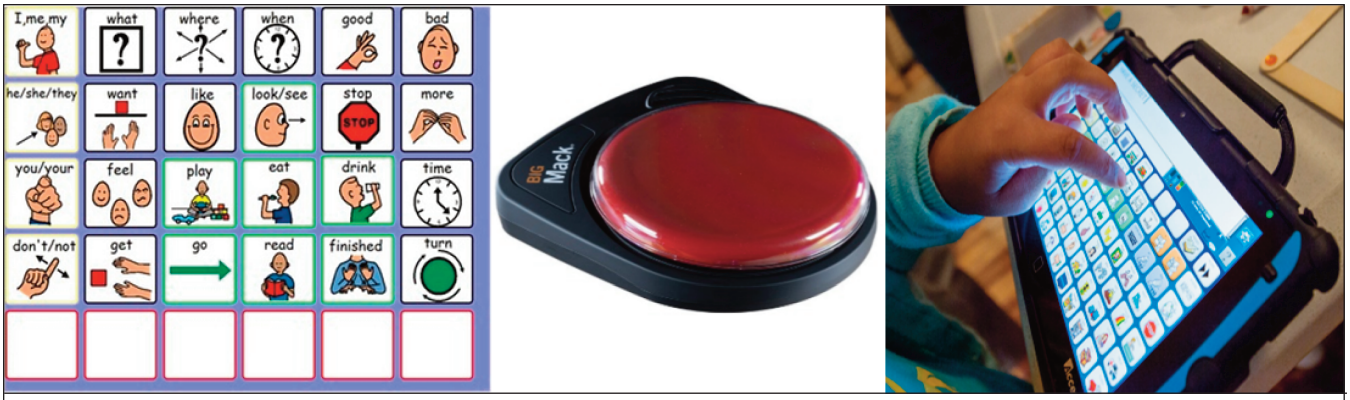


Low-tech AAC | Mid-tech AAC | High-tech AAC

**Figure:** Types of AAC. *Pictures taken from: https://www.flickr.com/photos/ablenetinc/ Permission granted by Mr. Paul Thomson of Ablenet Inc.*

appear to be universal. To date limited research has addressed these myths in Pakistan. It is pertinent that these misconceptions are addressed in the context of Pakistan, with an emphasis on bringing to light the advantages and the possible hindrance in accepting an evidence-based method, not only by parents but also by a range of professionals. The most common myths include using AAC as a last resort, and that use of such methods impeding speech, furthermore, it is believed that there is a hierarchy of skills that needs to be first addressed.[6] Myths that are associated with external factors include the inability to employ AAC in natural settings, additional unjustified stress, difficulty of use, AAC use only with non-familiar people.[7] The following most common misconceptions have been addressed in the context of Pakistan.

**Myth 1:** AAC should be used as a last option as it may impede natural speech development in children.

Despite the evidence in support of early use of AAC, there is a reluctance to adopt it, amongst parents in Pakistan. Parents and clinicians insist on targeting verbal output rather than communication. It is only when all options have been exhausted that AAC is considered as a possible intervention. This myth stems from a prevailing belief that incorporating AAC will impede natural speech development However, children introduced to AAC at an early age have demonstrated improved natural speech skills.[8] Improved speech and pragmatics were reported with the use of picture exchange communication system,[9] Intervention groups who received augmented intervention demonstrated greater functional vocabulary gains compared to those with no augmentation.[10] Early intervention plays a pivotal role through greater inclusion and social acceptance, reducing parental stress.[11] The current evidence refutes this myth and supports the impact of early implementation of AAC.

**Myth 2:** There is a specific skill set required in order to use AAC.

The perception that certain skills must be mastered before AAC can be implemented has been refuted by several studies. The development of cognition is often considered essential for understanding the relationship between cause and effect. There is a misconception that certain cognitive skills must be acquired prior to the use of AAC. Cognition develops parallel to speech and language skills and not in isolation.[12] When children or adults are provided with a means of communication, the use of these methods becomes natural to them.[13] There are some physical requirements that need to be addressed prior to an AAC tool selection such as fine and gross motor skills, visual and auditory skills. The multidisciplinary rehabilitation team will often work in collaboration to ensure the most beneficial outcomes.

**Myth 3:** Lack of cultural appropriateness and relevance.

There is a growing concern that AAC symbols have been adopted from the West and therefore, there is limited cultural appropriateness and representation of the Pakistani culture. This has also been a limiting factor in the use of AAC. In order to address these difficulties a website names 'Global Symbols' was created as a result of work carried out by the Tawasol team who developed 'The Arabic Symbols Dictionary' in Qatar.[14] The website is open-source and allows culturally appropriate symbols for use in several languages including specific evidence-based symbols for Urdu Core Vocabulary

**Myth 4:** Parental Stress due to complexity of the devices and techniques.

In Pakistan, parents and caregivers of the persons in need of speech and language interventions rely on the therapists as primary intervention providers and follow medical

model. There is now a paradigm shift in intervention, which has led to a more family-centered model, emphasizing the importance of naturalistic and functional means of interaction. This increased interaction and communication in everyday routines at home does not add to stress.[5] Parental stress due to the complexity of AAC has been addressed by the advancements in technology resulting in portable, light weight and user-friendly systems. Most AAC applications are accessible through smart phones and devices have been designed to be used in or in a similar manner for ease of use.

**Myth 5:** Financial Implications:

The cost, sustenance, transportability, operating and handling of these devices are some of the other concerns that have been highlighted in the literature. The cost of some high-tech devices continues to be a deterrent, but there are more cost-effective alternatives available.[15] The ability to directly record voice over symbols in some apps and devices has helped with eliminating language barriers.

**Challenges in the use of AAC in Pakistan**

In addition to the above-mentioned reasons for lack of AAC acceptance in Pakistan, there are some other factors that also to most of the developing countries.

- AAC based on the use of pictures and symbols, requires access to resources such as printing and lamination which are readily available in the cities. However, such facilities are not always easily available in the rural areas (comprising of the largest segment of the society). This may deter the parents and family members to use AAC for their patients.
- Disability continues to be considered a taboo and matter of shame for some of the families. Sometimes parents must make a decision regarding finances and disability management in form of provision of AAC. It doe not receive priority particularly when the disability is permanent and progressive. They may prioritize the education and needs of other children over a child with disability who would benefit from AAC.
- There are limited training opportunities in the use of AAC available in Pakistan both for the speech - language pathologists and patients. This often leads to a dilemma where speech-language pathologists do not feel confident in using systems in which they lack competency.
- The high-tech AAC devices, require a regular power source for charging. However, prolonged periods of electricity failure are a common occurrence in Pakistan. Therefore, in the absence of a backup plan, the individual may be left with an uncharged non-operating device.
- Most of the current AAC apps and devices are in English and other foreign languages. Although efforts have been made to adapt them to a range of languages but currently there is a dearth of resources in Urdu and regional languages which limits the availability of choices and acceptance of these devices in Pakistani patients.

## Conclusion

AAC is rapidly evolving and appears to be the preferred option for enhancing communication in children and adults with speech and language difficulties. However, there are several barriers and misconceptions particularly in the developing countries which do not allow widespread acceptance and use of these technological advances. There is a need to address these barriers by involving all stake holders including the patients, care givers, medical doctors and rehabilitation professionals. Wherever, possible efforts should be made to create low cost, culturally and linguistically relevant AAC solutions to increase acceptability. In addition, speech and language pathologists should engage physicians, patients, and care givers pro-actively to highlight the value of early implementation of AAC in the management of different speech, language and communication disorders. A decisions pertaining to AAC selection should always ensure matching the device to the individuals and their needs.

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