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A Systematic Review of AWAZ App on Non Verbal Children of Neurological Conditions

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Abstract:- The goal of the AWAZ app is to offer a user-friendly interface with voice output and pictorial symbols to non-verbal children with neurological conditions. This systematic review assesses how well the AWAZ app works to improve social interaction, communication skills, and overall quality of life for these children. Relevant studies were found through a thorough search of electronic databases, which were then evaluated for quality and results. The results indicate that the AWAZ app significantly improves social engagement and communication abilities, making it a promising tool for non-verbal children with neurological conditions.

Keywords:- *AWAZ App, Non-Verbal Children, Neurological Conditions, Communication, Assistive Technology, Speech Therapy, Systematic Review.*

I. INTRODUCTION

Children with neurological problems face major challenges when it comes to nonverbal communication, which affects both the children and the carers. Speech and language abilities are frequently affected by these illnesses, which include autism spectrum disorder, cerebral palsy, and other developmental disabilities. One useful tool for tackling these issues is assistive technology, especially communication-focused apps. One such software is the AWAZ app, which was created with an easy-to-use interface that combines audio output and graphical symbols to improve communication abilities. The purpose of this systematic review is to assess how well the AWAZ app works to enhance social interaction and communication in non-verbal kids with neurological problems.

The development of assistive technology has given carers and educators of non-verbal youngsters fresh hope. Children with neurological disorders can interact more and communicate more effectively thanks to these technology, especially the communication-focused apps. AWAZ is one such programme that employs an easy-to-use UI with voice output and visual symbols to overcome these communication issues.

II. OVERVIEW OF NEUROLOGICAL CONDITIONS AFFECTING COMMUNICATION

A. Autism Spectrum Disorder (ASD)

ASD is a complex developmental disorder characterised by issues with communication, social interaction, and repetitive behaviours. Both verbal and nonverbal communication are frequently impaired to varied degrees in children diagnosed with ASD. While some children with ASD may speak very little, others may not speak at all. Although traditional speech therapy has its advantages, the introduction of communication apps and other technologies offers the potential to improve these kids' communication skills.

B. Cerebral Palsy (CP)

A group of chronic mobility disorders known as CP first manifest in early childhood. It is brought on by aberrant development or injury to the brain regions responsible for posture, balance, and movement. Speaking is one of the motor skills that children with cerebral palsy frequently struggle with. There are differences in the severity of speech impairment; some kids never speak at all. These kids can improve their communication skills by using AWAZ and other assistive communication devices and application.

C. Developmental Disorders

A child's capacity for communication can also be impacted by other developmental diseases, including intellectual difficulties, Rett syndrome, and Down syndrome. Communication may become more difficult as a result of these illnesses' effects on motor and cognitive abilities. Finding alternate forms of communication for non-verbal kids with various disorders is essential to their growth and well-being.

D. AWAZ App: An Assistive Technology Solution

The goal of the AWAZ app is to improve nonverbal children's communication skills with neurological problems by providing them with an augmentative and alternative communication (AAC) tool. With the use of voice output and pictorial representations, the app's user-friendly design makes communication easier. By choosing symbols and having them translated into speech, users can construct phrases. By bridging the communication gap, this functionality allows kids to express their wants, feelings, and thoughts.

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E. Features of the AWAZ App

- **Pictorial Symbols:** A huge library of visual symbols for different items, actions, and emotions is included in the programme. These symbols are simple to recognise and can be altered to meet the needs of the young learner.
- **Voice Output:** The application speaks the sentences that are created with the symbols. Even if a youngster is mute, this feature enables them to converse vocally.
- **Customization:** The application enables customisation to meet every child's specific demands. To suit the child's preferences, carers and therapists can modify the settings, add new symbols, and make their own unique categories.
- **User-Friendly Interface:** Children can easily access and use the app on their own or with little assistance because to its straightforward and intuitive UI design.
- **Interactive Learning:** To keep kids interested and motivated to use the app frequently, AWAZ offers interactive learning modules. The goal of these lessons is to enhance your vocabulary, ability to compose sentences, and general communication abilities.

III. METHOD AND SEARCH STRATEGY

Many internet databases, such as PubMed, Google Scholar, and the Cochrane Library, were thoroughly searched. The search query included the terms "AWAZ app," "neurological conditions," "non-verbal children," "communication app," "assistive technology," and "speech therapy."

A. Inclusion Criteria:

- Studies published in English.
- Studies involving non-verbal children with neurological conditions.
- Studies evaluating the AWAZ app.
- Peer-reviewed articles.

B. Exclusion Criteria:

- Research not using the AWAZ app.
- Research not specifically focusing on nonverbal kids.
- Editorials, meta-analyses, and reviews.

C. Extraction of Data

- The following information was taken out of the chosen studies: authors, year of publication, study design, sample size, neurological condition, specifics of the intervention, outcome measures, and outcomes.
- Evaluation of Quality
- The Cochrane risk-of-bias tool for randomised controlled trials and the Newcastle-Ottawa Scale for observational studies were used to evaluate the quality of the studies.

Table 1: Outcome Measures

Study	Sample Size	Hite	Duration	Outcome Measure	Results
White J., Thompson S (2021)	45	Various Neurological Conditions	6 months	Communication skills, social interaction	Significant improvement in communication skills and social engagement
Green L., Hall S. (2021)	60	Various Neurological Conditions	12 months	Long-term communication abilities, quality of life	Sustained improvement in communication abilities and quality of life
Smith el al. (2020)	50	Autism Spectrum Disorder	6 months	Communication skills, social interaction	Significant improvement in communication skills and social engagement
Patel R., Shah A (2019)	35	Developmental Dealys	8 months	Communication frequency, user satisfaction	Increased communication frequency and high user satisfaction
Johnson et al. (2019)	30	Cerebral Palsy	4 months	Communication frequency, quality of life	Increased communication frequency and enhanced quality of life
Lee et al. (2018)	40	Developmental Disorders	8 months	User satisfaction, communication ability	High user satisfaction and improved communication ability

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IV. RESULTS

There were six studies in the review that satisfied the inclusion requirements. When non-verbal children used the AWAZ app, most studies found that they had considerable increases in their social interaction and communication skills. Other frequent results were increased life satisfaction and quality of life. The results must be interpreted cautiously, though, because to differences in study design, sample size, and outcome measures.

- Communication Skills: Kids who used the AWAZ app had a noticeable increase in their capacity for communication. With the use of voice outputs and pictorial symbols, they were able to construct longer, more complex phrases that better expressed their wants and ideas.
- Social Interaction: It stands to reason that improved communication abilities will result in more frequent and significant social encounters. Kids were able to interact with peers, participate more fully in social situations, and speak with carers more skillfully.
- Quality of Life: Improved social contact and communication both helped the children and their carers live better lives overall. While carers reported less stress and more satisfaction, children reported less behavioural problems and frustration.
- User satisfaction: The AWAZ app proved to be user-friendly and advantageous for both children and carers, as seen by the high levels of user happiness reported. Special recognition was given to the user-friendly interface and customisable features.

V. DISCUSSION

According to the review's findings, non-verbal kids with neurological disorders may find the AWAZ app to be a useful communication aid. With its customisable communication options and easy-to-use layout, the app is a great tool for improving social interaction and communication. Larger sample numbers and standardised outcome measures are needed for more research to validate these findings, even with the favourable results. Furthermore, extended research endeavours would offer valuable perspectives on the app's enduring advantages and possible constraints.

VI. CONCLUSION

Children with neurological problems who are non-verbal may benefit greatly from enhanced communication and social engagement through the use of the AWAZ app. This review emphasises how crucial assistive technology is in helping these kids overcome communication difficulties and live better lives. Large-scale, long-term studies should be the main focus of future research in order to confirm the app's effectiveness and guide clinical practice.

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