Review

Assistive Communication Devices in Rett Syndrome: A Case Report and Narrative Review

Justin Lee¹, Jessica Lee¹, Mouath Abu-Daoud² and Yazan A. Al-Ajlouni¹,*

¹ School of Medicine, New York Medical College, Valhalla, NY 10595, USA
² Department of Engineering, New York University Abu Dhabi (NYUAD), Abu Dhabi, P.O. Box 129188, United Arab Emirates
* Correspondence: yal_ajlo@student.nymc.com; Tel.: +1-914-484-1014

Abstract: Rett syndrome (RTT) is a severe neurodevelopmental disorder primarily affecting females, characterized by developmental regression and significant communication impairments. Despite the critical role of communication in maintaining quality of life, the long-term efficacy and optimal utilization of augmentative and assistive communication (AAC) devices in RTT remain underexplored. This study evaluates the impact of AAC devices on communication outcomes and quality of life in individuals with RTT through a case report and narrative review. We conducted a comprehensive literature review and thematic analysis categorizing technologies into communication aids, mobility aids, educational tools, and daily living aids, assessing their effectiveness and challenges. The results show that AAC technologies, including eye-tracking devices, speech-generating devices, and adapted computers, enhance communication, cognitive development, and quality of life for individuals with RTT. The case report of Patient E, utilizing the Tobii Dynavox device, highlights the transformative impact of AAC devices despite challenges in device complexity and therapist training. AAC devices are indispensable for supporting individuals with RTT, though challenges persist related to accessibility, device complexity, and therapist training. Future research should focus on longitudinal studies to assess the sustained impact of AAC technologies and explore family-centered approaches to AAC integration.

Keywords: Rett syndrome; assistive communication devices; augmentative communication; quality of life; narrative review

1. Introduction

Communication is a fundamental aspect of human interaction, shaping relationships, conveying emotions, and facilitating social connections. However, when communication is impaired, as seen in various neurological disorders, the consequences can be profound, affecting not only the individuals directly impacted but also their families and caregivers. Among these conditions, Rett syndrome (RTT) stands out as a particularly devastating neurodevelopmental disorder, primarily affecting females, with an incidence of approximately one in every 10,000 to 15,000 live female births [1,2]. This syndrome, first identified by Andreas Rett in 1966, is characterized by a range of symptoms, including developmental regression, the loss of purposeful hand movements, and severe impairment in communication abilities [3]. Rett syndrome additionally exhibits a substantial detrimental effect on motor skills, visual attention, expressive and receptive speech, and other communication processes [4–9].

RTT is predominantly caused due to mutations or deletions in the MECP2 gene, located on the X chromosome, leading to dysregulation of the epigenetic regulator methyl-CpG-binding protein 2 (MeCP2) [10,11]. This genetic anomaly results in a spectrum of clinical manifestations, with affected individuals progressing through distinct stages of the disease. From the early-onset stagnation phase, characterized by developmental problems and communication difficulties, to the late motor deterioration stage, marked by
profound mobility issues and the loss of communication abilities, the impact of RTT on communication evolves over time [12].

The loss of communication abilities for individuals with RTT not only impedes their capacity to express themselves but also isolates them from meaningful social interactions, contributing to a diminished quality of life for both patients and their families. Recognizing the importance of communication as a basic human right, organizations like the National Joint Committee for the Communication Needs of Persons with Severe Disabilities (NJC) have emphasized the need to safeguard and promote communication rights for individuals with disabilities. The NJC’s Communication Bill of Rights underscores the significance of ensuring access to interventions and technologies that facilitate communication, thereby enabling individuals with disabilities to maintain social connections, express preferences, and preserve dignity [13,14].

Amidst these challenges, advances in assistive communication technology offer a glimmer of hope for individuals with RTT and their families. Augmentative and assistive communication devices, ranging from application-based programs to sophisticated computer/tablet systems, have shown promise in mitigating communication difficulties and enhancing the quality of life for individuals with RTT.

Despite the growing recognition of the importance of assistive communication devices in improving the quality of life for individuals with RTT, there remains a notable gap in the literature regarding their long-term efficacy and optimal utilization in this population. While several studies have demonstrated the short-term benefits of these devices in enhancing communication outcomes, there is limited research exploring their sustained impact over time, particularly as individuals progress through different stages of RTT. Additionally, the majority of studies primarily focus on specific types of assistive devices or narrow aspects of their use, leaving broader questions regarding their overall effectiveness and practical implementation unanswered. Addressing these gaps in the literature is essential to informing evidence-based practices and policies aimed at maximizing the benefits of assistive technology for individuals with RTT and promoting equitable access to communication interventions tailored to their diverse needs and preferences. Consequently, using a case report and narrative review, this study aimed to contribute to bridging these gaps by providing a comprehensive examination of the role of assistive communication devices in enhancing communication outcomes and quality of life for individuals with RTT, thereby informing future research directions and clinical interventions in this critical area.

2. Methods

This narrative review study conducted a comprehensive literature review to gather research-based information on assistive technologies used in managing Rett syndrome, identifying gaps in the current literature. Utilizing online databases such as PubMed, Web of Science, and Google Scholar, our search strategy—adapted and modified from Townend et al. [15] to fit our focus—aimed to categorize the assistive technologies employed for Rett syndrome management. Focusing on literature published up until the search date of 16 September 2023, we selected peer-reviewed articles based on their relevance, geographic coverage, study design, and contributions to advancing the field.

Rett syndrome, a neurodevelopmental disorder predominantly affecting females, leads to significant regression in speech, motor skills, and cognitive abilities [16]. Augmentative and alternative communication (AAC) technologies are vital, enhancing communication, cognitive development, and quality of life for individuals with Rett syndrome [17]. These technologies facilitate interactions with family and caregivers and promote independence. Drawing on the literature, we categorized AAC technologies into four interconnected categories: communication aids, mobility aids, educational tools, and daily living aids. Each category addresses unique challenges posed by Rett syndrome, from facilitating basic communication to supporting educational engagement and daily independence. In subsequent sections, we will delve into each category’s tools, assessing their suitability,
their effectiveness, and the challenges they pose in managing Rett syndrome, as illuminated in the reviewed literature.

A case report of Patient E, a 22-year-old Rett syndrome patient, was conducted. The case report included in-depth interviews with the patient and their caregivers to gain insight into their experience with augmentative and alternative communication (AAC) devices. We also reviewed relevant medical records and conducted observational assessments to evaluate the impact of these devices on the patient’s communication abilities and quality of life.

3. Results
3.1. Communication Aids

Understanding the progression of Rett syndrome is crucial before delving into the assistive technologies designed to aid communication for those affected. The disorder unfolds in stages, beginning with an early-onset phase during which symptoms may be mild and not immediately indicative of Rett syndrome [18,19]. This phase gradually transitions into a period of rapid deterioration or regression during which significant losses in motor skills and communication abilities occur alongside the disappearance of purposeful hand use and the emergence of stereotypic movements. Following this, individuals enter a plateau stage, characterized by a slowing of regression, with possible improvements in behavior and motor skills. The final stage involves late motor deterioration marked by reduced mobility, muscle weakness, and increased rigidity.

In the second stage of Rett syndrome, marked by regression, patients exhibit a noticeable decline in communication, language, and motor skills [20]. Addressing these challenges necessitates a multifaceted approach utilizing various AAC aids to facilitate interaction between patients and their caregivers or family members.

Research has explored both high-tech and low-tech AAC options tailored to the individual’s retained level of motor function. For instance, eye-tracking technology represents a high-tech AAC solution particularly beneficial for patients with severe motor limitations. It enables users to communicate complex messages through eye movement, selecting items on a screen without the need for physical manipulation [20]. This technology has proven instrumental in bridging the communication gap for those unable to speak or physically interact with conventional devices.

Moreover, speech-generating devices (SGDs) serve as another high-tech option, producing speech based on user inputs such as touch, switch activations, or eye gaze. SGDs are crucial for individuals who have lost their ability to verbalize, offering them a voice through alternative means [20].

Conversely, for patients retaining some motor skills but who are non-verbal, low-tech communication boards equipped with symbols or pictures facilitate communication. These boards allow patients to convey messages and needs through pointing or eye gaze [16], providing a simple yet effective communication method.

Additionally, manually activated single-message microswitches have been implemented, particularly in training scenarios where caregivers learn to assist children with Rett syndrome in using AAC devices effectively [21]. Focused training on using these devices to make requests has led to a notable increase in AAC usage and overall communication effectiveness, demonstrating the potential of tailored interventions to enhance the quality of life for those affected by Rett syndrome.

3.2. Educational Tools

Rett syndrome introduces distinct educational challenges, significantly impacting speech, motor skills, and cognitive abilities. Within this context, eye-tracking technology stands out as a pivotal educational aid, enabling communication and learning for individuals with Rett syndrome. This technology, in combination with adapted computers and specialized software, offers a bridge across the motor and cognitive gaps these individuals
face [17,22,23]. These tools are not merely compensatory devices but are integral to creating an effective and accessible learning environment.

Adapted computers and software designed for accessibility cater to the unique needs of individuals with Rett syndrome, offering customized interfaces that accommodate motor difficulties and cognitive limitations. This customization ensures that learners can engage with educational content at their own pace and in a manner that aligns with their capabilities, thereby enhancing their educational experience.

Tablets equipped with specialized applications further enrich the educational landscape for individuals with Rett syndrome. These devices offer an interactive and engaging platform that leverages play and direct interaction to facilitate cognitive development. The tactile and visual nature of tablets, combined with applications tailored for educational purposes, provides a dynamic and adaptable tool for learning. Their user-friendly design and the immediate feedback they provide make tablets particularly effective in capturing interest and meeting the educational needs of students with varying levels of ability [24].

The use of communication technologies to enhance education for people with Rett syndrome has been the subject of numerous studies. As per Vessoyan et al., eye-tracking technology can assist people with Rett syndrome in meeting their communication objectives and enhancing their psychosocial functioning when used in conjunction with AAC therapists [17]. Additionally, the favorable impacts of assistive technology—including microswitches—on the adaptive capabilities and quality of life of children and adolescents with Rett syndrome were noted by Stasolla et al. and Ciarmoli et al. [25,26]. These results suggest that communication technology can be extremely important in improving the educational experience for individuals diagnosed with Rett syndrome.

The integration of these educational tools into the learning environment of individuals with Rett syndrome represents a significant advancement in special education. By compensating for the inherent challenges posed by Rett syndrome, these technologies not only facilitate cognitive development and learning but also promote independence and self-expression among learners. The use of eye-tracking technology, adapted computers, software, and tablets in educational settings underscores a commitment to providing a comprehensive and inclusive educational experience, recognizing the potential within each individual affected by Rett syndrome.

3.3. Assessment and Effectiveness of Assistive Communication Technologies in Rett Syndrome

Understanding the nuanced needs of individuals with Rett syndrome requires a comprehensive assessment of the assistive technologies designed to improve their quality of life. Given the disorder’s complex symptomatology and progression, the suitability of various assistive technologies is paramount. Technologies such as eye-tracking devices provide invaluable support for those with significant motor impairments, facilitating communication without physical movement. Meanwhile, adapted computers and specialized software offer tailored solutions that accommodate both motor and cognitive limitations, presenting customizable interfaces for enhanced learning and interaction.

The versatility of tablets equipped with specialized applications makes them a cornerstone in addressing the educational and communicational needs of individuals across different stages of Rett syndrome. Their adaptability ensures that users with varying cognitive and motor skills can benefit from an interactive and engaging educational experience. Similarly, communication aids—ranging from advanced speech-generating devices to simpler low-tech communication boards—demonstrate the importance of personalized tools that cater to each individual’s capabilities, whether through eye gaze or limited motor functions.

To accurately assess the effectiveness of these technologies, we propose a semi-quantitative scale based on criteria such as communication improvement, user satisfaction, and caregiver support. This scale, detailed in Table 1, facilitates a structured evaluation of each technology’s impact, guiding the selection of the most appropriate tools for everyone.
Table 1. AAC effectiveness scale.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
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<tr>
<td>Communication [13,27]</td>
<td>Reported increase in communicative acts or complexity of communication</td>
</tr>
<tr>
<td>User satisfaction [27]</td>
<td>Ease of use, increase in independence, and overall satisfaction</td>
</tr>
<tr>
<td>Caregiver support [28]</td>
<td>Ease of device setup, customization, and daily use support needs</td>
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Our narrative analysis, grounded in a review of peer-reviewed journals, categorizes the effectiveness of technologies like eye-tracking, speech-generating devices, and adapted computers as high, due to their significant positive impacts on communication, independence, and psychosocial well-being. In contrast, technologies such as virtual reality, while promising, are noted to have limitations in generalizability and accessibility, impacting their overall effectiveness rating. Table 2 outlines the semi-quantitative comparison of AAC technologies.

Table 2. Semi-quantitative comparison of AAC technologies.

<table>
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<tr>
<th>Technology</th>
<th>Improvements</th>
<th>Limitations</th>
<th>Effectiveness</th>
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<tr>
<td>Eye-gaze/eye-tracking technologies [16,17,29]</td>
<td>Positive psychosocial impact Improvement in communication and engagement Increased daily use support and high user satisfaction Most commonly used technology</td>
<td>High cost Low customizability</td>
<td>High</td>
</tr>
<tr>
<td>Speech-generating devices [30]</td>
<td>Increase in independence Positive psychosocial impact Improvement in communication High customizability</td>
<td>Limited generalizability</td>
<td>High</td>
</tr>
<tr>
<td>Virtual reality [31]</td>
<td>Enhances communication and engagement Aids cognitive functions Positive psychosocial impact</td>
<td>High cost Not widely applied to Rett syndrome High cost Difficult to set up</td>
<td>Low</td>
</tr>
<tr>
<td>Manually activated single-message microswitches [21]</td>
<td>Enhances communication and engagement Easy to use Aids cognitive functions Positive psychosocial impact</td>
<td>Dependent on caregivers Not widely applied to Rett syndrome Limited options for communication Difficulty in retention of switches</td>
<td>Moderate</td>
</tr>
<tr>
<td>Adapted computers [32,33]</td>
<td>Enhances communication and engagement Highly customizable Easy to use Aids cognitive functions Positive psychosocial impact</td>
<td>High cost</td>
<td>High</td>
</tr>
</tbody>
</table>

This comprehensive assessment underscores the variability in response to AAC technologies among individuals with Rett syndrome, advocating for personalized, individualized approaches. Despite notable advancements, challenges remain, including the retention of learned responses and the integration of skills into daily life. Future research is directed towards closing these gaps, with an emphasis on durable, effective interventions and the role of family-centered approaches in enhancing outcomes.

The evidence supports the effectiveness of communication interventions yet also points to significant areas for further investigation. Addressing these knowledge gaps through targeted research will be crucial in developing more effective, sustainable AAC strategies for individuals with Rett syndrome.
3.4. Case Report

Patient E is a 22-year-old female diagnosed with Rett syndrome resulting from a methyl-CpG-binding protein 2 (MECP2) defect. At age 14, she began using augmentative and alternative communication (AAC) to communicate, as she had previously been unable to do so. Following an assessment by a speech therapist who was specially trained in Tobii technology at the Children’s Hospital at Montefiore, Patient E was provided with a Tobii Dynavox device. This hospital has extensive expertise in working with individuals with Rett syndrome. Patient E is now in her final year of school and will be attending a day program next year. She currently uses her Tobii Dynavox to communicate her preferences for things such as food and TV shows, as well as to converse with her applied behavior analysis (ABA) therapist. Patient E receives two hours of training per week with her AAC device from her ABA therapist for one hour at a time. Additionally, she uses her Tobii Dynavox at school.

According to her family, one of the drawbacks of the Tobii device is that it can be challenging to find therapists who are knowledgeable about Tobii, as only a small percentage of these professionals have adequate training. The lack of familiarity with Tobii makes it challenging to find therapists who are interested in learning more about the device. In addition, becoming fluent in Tobii requires patience, which is not a trait that everyone possesses. While online webinars and helplines can serve as resources for those who require assistance, it can sometimes be challenging to receive timely help.

Furthermore, Patient E has had several AAC devices since the age of 14 and typically exchanges her old Tobii every 4–5 years. Her device has been fully covered by her insurance throughout the years of her use. In addition, her school district is able to cover the cost of the device for those individuals whose insurance does not cover it.

Patient E’s family believes that the Tobii device has been invaluable in aiding her communication. Since obtaining the device, Patient E has been able to control it independently after initial setup. Prior to Tobii, Patient E had no means of communicating independently. While her family can interpret her wishes, they acknowledge that the device plays a particularly crucial role in enabling her to communicate with those who are not as familiar with her. However, one drawback of the device that they have noted is the amount of time investment required to use it effectively. They find the device to be complex, and they observed that its advanced features limit its ease of use.

4. Discussion

This narrative review, complemented by a detailed case report, systematically explored the landscape of assistive technologies, with a particular focus on AAC technologies, for individuals with Rett syndrome. Our thematic analysis, derived from a comprehensive literature review spanning several online databases, revealed a significant reliance on AAC technologies to mitigate the communication challenges inherent to Rett syndrome. These technologies, ranging from high-tech eye-tracking devices and speech-generating devices to low-tech communication boards, have been shown to play a crucial role in enhancing the communication abilities, cognitive development, and overall quality of life of those affected by this neurodevelopmental disorder. Furthermore, the case report of Patient E provides a poignant illustration of the real-world application and transformative impact of AAC technologies. By enabling Patient E to communicate her preferences and interact more effectively with her environment, the Tobii Dynavox device has not only facilitated her communication but also significantly contributed to her psychosocial well-being. Together, these findings highlight the indispensable role of AAC technologies in supporting individuals with Rett syndrome while also pointing to the challenges and limitations that need to be addressed to optimize these devices’ effectiveness and accessibility.

Our research findings resonate with and extend the current literature on AAC technologies for Rett syndrome, corroborating the essential role of these technologies in enhancing communicative functions across different stages of the syndrome. Consensus-based guidelines [15] underscore the necessity for standardized approaches in AAC interventions,
aligning with our categorization of AAC technologies and their application. Similarly, studies highlighted by Wandin et al. that demonstrate AAC’s potential to increase expressive communication in adults with Rett syndrome [6] reinforce the broad applicability and critical importance of these interventions. Our thematic analysis builds upon the foundational work of Hagberg [34] by not only reviewing the clinical stages of Rett syndrome but also showcasing the real-world impact of AAC technologies, such as eye-gaze technology, in improving the lives of individuals with Rett syndrome. These real-world applications, as observed in the case report of Patient E and supported by Townend et al. [16], emphasize the transformative potential of AAC technologies when complemented with adequate training and support. Collectively, our findings contribute new insights into the effectiveness of specific AAC aids and underline the importance of personalized, patient-centered approaches in the management of Rett syndrome.

AAC technologies have emerged as a cornerstone in transcending the communication barriers encountered by individuals with Rett syndrome. The transformative impact of these technologies, particularly eye-tracking devices, speech-generating devices, and adapted computers, has been substantiated through research, demonstrating their potential to unlock communicative capabilities and enhance cognitive engagement. Prior research [6,13,35] underscores the broad applicability and positive outcomes of AAC interventions, ranging from innovative eye-gaze technology to both high-tech and low-tech modalities, in improving communication skills. These studies affirm the critical role of AAC in fostering a better quality of life for individuals with Rett syndrome by enhancing their ability to express needs, preferences, and emotions [36]. The integration of eye-tracking technology in assessing cognitive functions further illustrates the multifaceted benefits of AAC technologies not only in communication but also in providing insights into cognitive processes within this population and expanding future research [13,28]. Several articles have examined the impact of eye-tracking technology on cognition, yielding varying results. Therefore, further studies are needed to establish a definitive conclusion regarding the substantial effect of this technology on cognition [13,28,37–39]. This holistic approach to AAC technology application emphasizes its significance in addressing the complex needs of individuals with Rett syndrome, advocating for a comprehensive support system that includes technology, family involvement, and professional guidance to maximize the therapeutic benefits and foster a conducive environment for growth and learning.

Finally, the case of Patient E presented in this review vividly illustrates the real-world application, adaptation, and learning process associated with AAC technologies, particularly highlighting the Tobii Dynavox device’s role in facilitating communication for individuals with Rett syndrome. This case underscores the importance of insurance and educational support in accessing such technologies, revealing how comprehensive coverage and school district support can remove financial barriers to AAC utilization. However, challenges such as the complexity of devices and the scarcity of therapists trained in specific AAC technologies like Tobii significantly impact user satisfaction and the effectiveness of these interventions. Patient E’s experience emphasizes the need for targeted therapist training and simplification of AAC devices to enhance usability and ensure that individuals with Rett syndrome can fully benefit from the communication opportunities that these technologies offer.

4.1. Challenges, Limitations, and the Imperative of Health Equity

The implementation of AAC technologies for individuals with Rett syndrome presents several challenges, as identified in our review. The high costs associated with state-of-the-art AAC devices, such as eye-tracking technology and speech-generating devices, pose significant barriers to accessibility, limiting widespread adoption. The effectiveness of these technologies also varies, with certain interventions demonstrating limited generalizability across the diverse presentations of Rett syndrome. A notable challenge lies in the scarcity of therapists trained in the use of these advanced AAC technologies, which can hinder optimal utilization and support for patients and their families.
In addition to the aforementioned challenges, our findings emphasize the critical need for health equity in the deployment of AAC technologies for Rett syndrome. The high costs and limited generalizability of these technologies, coupled with the scarcity of trained therapists, not only reflect the existing barriers to access but also highlight the broader issue of health inequity. It is imperative that future research and policy efforts focus on making AAC technologies accessible and affordable for all individuals with Rett syndrome, regardless of their socio-economic status or geographical location. Advancing health equity in assistive technology research and application is essential to fostering more inclusive health outcomes. By addressing these disparities, we can ensure that all individuals with Rett syndrome, and individuals with similar neurodevelopmental disorders, have the opportunity to benefit from the advancements in AAC technologies, thereby enhancing their communication abilities, independence, and overall quality of life.

Nonetheless, our study was not without limitations. The scope of the reviewed literature, though extensive, may have harbored biases stemming from the predominance of studies with specific geographic focuses or study designs, potentially affecting the generalizability of our findings. For instance, a speech-generating device that is programmed to respond to certain phrases or situations would not be able to adequately meet the varied communication demands and preferences of people in various social circumstances or conversational settings. Furthermore, the diversity in the methodologies of the included studies could impact the homogeneity of the results, calling for a cautious interpretation of the effectiveness and applicability of AAC technologies across all individuals with Rett syndrome. These limitations highlight the necessity of ongoing research and the development of standardized training programs for AAC technologies to ensure that their benefits are accessible to all individuals affected by this condition.

4.2. Future Research

The gaps identified in our review indicate a pressing need for longitudinal studies to evaluate the long-term impacts of AAC technologies on individuals with Rett syndrome, providing insights into their sustained efficacy, adaptation, and integration into the lives of users. Future research should also delve into family-centered approaches, exploring how AAC technologies can be seamlessly incorporated into daily life to support not only the individuals with Rett syndrome but also their caregivers. This includes assessing the sustainability of interventions and the pivotal role of caregiver support in enhancing communication outcomes, promoting independence, and improving quality of life. Such directions will contribute to a more holistic understanding of AAC technologies’ benefits and challenges, ensuring that interventions are both effective and practical for the families they aim to assist.

5. Conclusions

This narrative review has comprehensively synthesized the current state of assistive technologies for Rett syndrome, highlighting their substantial promise in enhancing communication and overall well-being. By examining all categories of technology, from high-tech devices to low-tech solutions, the review has extended the existing literature, offering a nuanced, qualitative understanding of such technologies’ application and impact. Furthermore, the findings of this review exemplify the necessity of longitudinal research and family-centered approaches to ascertain the long-term efficacy and integration of AAC technologies. Future investigations should continue to explore these dimensions in order to ensure that advancements are both meaningful and accessible to those living with Rett syndrome.

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References


26. Bhattacharya, U.; Pradana, W.A.; Wei, X.; Ogunsola, B. “Why don’t they talk to our daughter?”: Eye-tracking AAC and medical communication in Rett syndrome. *Lang. Health* **2023**, *1*, 32–43. [CrossRef]


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