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THE INTEGRATION OF ELECTROENCEPHALOGRAPHY AND VIRTUAL REALITY FOR REHABILITATION: A PERSPECTIVE REVIEW OF SUCCESSES AND PITFALLS

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Abstract. The combination of neurotechnology and advanced digital environments has opened promising opportunities in rehabilitation. Integrating electroencephalography (EEG) with virtual reality (VR) offers a novel approach to remedy by combining real-time neural monitoring with immersive, interactive environments. This perspective review examines the successes and pitfalls associated with EEG-VR applications in rehabilitation, highlighting how these modern technologies can enhance patient outcomes. The other part of this review identifies current challenges that delay the widespread clinical adoption of this technology combination.

Methods: A comprehensive literature review was conducted across PubMed, Scopus, and Web of Science databases from their inception to February 2025. We identified the studies investigating the combined use of EEG and VR in rehabilitation and reviewed them using the SANRA method. Each study was then evaluated based on its methodology, patient demographics, technological integration strategies, therapeutic outcomes, and reported limitations.

Results: Out of 105 articles, 65 remained after filtering. 11 articles were included to our analysis after the title screening, as well as abstract and full-text reviews. The review identified growing evidence supporting the efficacy of EEG-VR systems in motor recovery, cognitive function, and neurofeedback training across various patient populations. We found EEG-VR therapy successes in enhanced user engagement and the ability to adapt rehabilitation protocols based on real-time neural data. On the other hand, the analysis also has shown pitfalls, including technical challenges such as signal interference, synchronization issues between EEG and VR platforms, and a lack of standardized protocols, limiting outcomes' scalability and consistency.

Conclusions: The integration of EEG and VR is an emerging area in rehabilitation, offering innovative approaches for personalized and adaptive therapy. Despite encouraging preliminary results, current technological and methodological hurdles need further investigation. Future research should focus on optimizing system integration, standardizing intervention protocols, and conducting large-scale clinical trials to investigate thoroughly the usage of EEG-VR systems in rehabilitation.

Keywords: Electroencephalogram, Virtual Reality, Rehabilitation, Stroke Recovery, Musculoskeletal Rehabilitation, Cognitive Rehabilitation

Introduction

The adoption of modern technologies in healthcare has created new opportunities for innovative rehabilitation techniques. Among these, the integration of Electroencephalography (EEG) and Virtual Reality (VR) for rehabilitation represents a promising frontier in neurorehabilitation, particularly for patients recovering from strokes and other neurological impairments. This review presents the successes and challenges of this innovative approach, drawing from various studies that highlight both the efficacy and obstacles associated with combining these technologies.

With its capacity to capture real-time brain activity, EEG offers an essential insight into the neurological mechanisms underlying motor control and cognitive function. Meanwhile, VR provides a versatile, compelling platform to imitate real-life situations, making it a perfect tool for generating personalised rehabilitation experiences.

This perspective review analyses the advancement in integrating EEG and VR in rehabilitation, emphasising its significant achievements and inherent difficulties. Preliminary research has shown that EEG-VR systems can improve motor learning, foster neuronal plasticity, and elevate patient involvement, essential for effective rehabilitation. Nonetheless, the implementation of these technologies frequently faces challenges. The complexity of precisely capturing and interpreting EEG signals in a VR environment, along with challenges such as signal noise, technical synchronization, and the absence of standardised procedures, highlight the necessity for thoroughly evaluating this burgeoning subject.

This review summarises existing research to present a balanced viewpoint on the advantages and disadvantages of EEG-VR integration in rehabilitation contexts. It aims to inform future research, directing technical advancements and clinical practices to improve patient outcomes.

Problem Statement

Over the past decade, electroencephalography (EEG) and virtual reality (VR) have shown significant promise in rehabilitation. However, integrating these two technologies to enhance patient recovery has not been without its challenges. Despite numerous studies reporting encouraging outcomes—such as improved motor learning and increased patient engagement—the practical application of EEG-VR systems in clinical settings remains inconsistent and, at times, underwhelming.

One major issue is the technical complexity of synchronising EEG signals with immersive VR environments. Noise and artefact interference can restrict reliable signal acquisition, while interpreting these signals in real time adds another layer of difficulty. Additionally, the lack of standardised protocols across research studies leads to a fragmented body of evidence, making it hard to compare results or establish best practices.

Moreover, there is an ongoing debate about the long-term efficacy of EEG-VR interventions. Many existing studies are limited by small sample sizes and short follow-up periods, leaving questions about sustained benefits unanswered. Human factors—such as user comfort, cognitive load, and adaptability to VR—also play a crucial role in determining the success of these interventions, yet they remain underexplored in the literature.

This perspective review aims to critically assess the successes and pitfalls of EEG-VR integration for rehabilitation. By identifying and analysing the current challenges, we hope to provide a roadmap for future research that bridges the gap between experimental promise and practical clinical application.

Review of Modern Information Sources on the Subject of the Paper

One of the primary successes of integrating EEG and VR is the enhancement of motor rehabilitation outcomes. Studies have demonstrated that VR environments can significantly improve motor function in stroke patients by providing immersive experiences that promote neuroplasticity. For instance, Vourvopoulos et al. reported that an immersive motor imagery brain-computer interface (BCI) combined with VR led to increased brain activation and improved clinical scales of motor function in stroke patients, suggesting that such systems can effectively promote plastic changes in the brain [1]. Similarly, Turolla et al. found that VR could be tailored to individual patient needs, thereby stimulating effective brain reorganization and enhancing recovery [2].

Furthermore, integrating EEG with VR facilitates real-time neurofeedback, potentially improving rehabilitation results. For example, Juliano et al. demonstrated that neurofeedback training in an immersive VR environment could lead to beneficial changes in motor function, particularly for clinical populations such as stroke survivors [3]. This real-time feedback mechanism is crucial as it enables patients to adjust their efforts based on immediate brain activity, thereby optimizing their rehabilitation process. Additionally, the ability to measure cognitive workload through EEG in VR settings can provide insights into the mental states of patients, allowing for more personalized rehabilitation strategies [4].

Despite these successes, there are notable challenges associated with the integration of EEG and VR for rehabilitation. One significant issue is the variability in individual responses to VR-based interventions. While some patients may thrive in immersive environments, others may experience discomfort or disorientation, which can hinder their rehabilitation progress. For instance, Dahdah et al. highlighted that while VR can reduce barriers to treatment for certain populations, it may not be universally beneficial for all patients, particularly those with severe physical limitations [5[5]]. This variability necessitates careful consideration of patient selection and the customization of VR experiences to accommodate individual needs.

Another challenge lies in the technical aspects of combining EEG with VR. The accuracy and reliability of EEG signals can be affected by the physical setup of VR systems, including the positioning of electrodes and the potential for motion artifacts during immersive experiences. This concern is echoed by Yadav and Maini, who noted that while EEG-based BCIs hold promise for rehabilitation, challenges related to signal quality and user interface design remain significant hurdles [4]. Ensuring that EEG data is accurately captured and interpreted in real-time is essential for the success of VR-EEG rehabilitation systems.

Furthermore, the integration of these technologies often requires interdisciplinary collaboration, which can be difficult to achieve in practice. The development of effective VR-EEG rehabilitation programs needs expertise in neuroscience, engineering, and clinical practice, as highlighted by Nieto-Escámez et al. [6]. This complexity can lead to challenges in implementation, particularly in resource-limited settings where access to advanced technologies may be restricted.

In addition to these technical challenges, there is also a need for robust clinical evidence to support the widespread adoption of VR-EEG rehabilitation systems. While numerous studies have reported positive outcomes, there remains a lack of large-scale, randomized controlled trials that can definitively establish the efficacy of these interventions across diverse patient populations. For example, while some studies have shown improvements in motor function and cognitive performance, others have reported mixed results, indicating that VR may not always be more effective than traditional rehabilitation methods [7]. This inconsistency in findings highlights the need for further research to clarify the conditions under which VR-EEG integration is most beneficial.

Ethical considerations surrounding the use of VR and EEG in rehabilitation must be addressed. The immersive nature of VR can lead to profound psychological effects, and it is crucial to ensure that patients are adequately prepared for the experiences they will encounter. As noted by Ros et al., the psychological impact of neurofeedback and immersive environments can vary widely among individuals, necessitating careful monitoring and support throughout the rehabilitation process [8]. Ensuring patient safety and comfort should remain a priority as these technologies continue to evolve.

Objectives and Problems of Research

The primary objective of this perspective review is to provide a comprehensive analysis of the integration of EEG and VR in rehabilitation, mapping out both the successes that have driven the field forward and the pitfalls that continue to impede broader clinical application. To achieve this, the review sets out to:

1. **Synthesize Existing Literature:** Collate and critically analyse current research findings, highlighting where EEG-VR systems have successfully enhanced rehabilitation outcomes, such as motor recovery and cognitive engagement improvements.

2. **Identify Key Technical Challenges:** Examine the technical obstacles that affect seamless integration, including signal acquisition, noise reduction, data synchronization, and the interpretation of EEG signals in dynamic VR environments.

3. **Evaluate Clinical Efficacy:** Review clinical trials and case studies to assess the effectiveness of

EEG-VR interventions.

4. **Explore User-Centred Considerations:** Investigate the human factors affecting EEG-VR applications in rehabilitation, including patient comfort, adaptability to VR environments, and the cognitive load imposed by immersive experiences.

5. **Propose Future Research Directions:** Based on identified challenges and gaps in the current literature, offer recommendations for future research, emphasizing the need for standardized methodologies, improved signal processing techniques, and longitudinal studies to validate long-term benefits.

In pursuing these objectives, the review also confronts several core research problems:

1. **Technical Integration Difficulties:** How can the inherent challenges of synchronizing EEG signals with immersive VR platforms be overcome, particularly in minimizing artefacts and ensuring accurate, real-time data analysis?

2. **Standardization of Protocols:** What steps can be taken to develop universally accepted guidelines and methodologies that facilitate more reliable comparisons across different studies and clinical settings?

3. **Long-Term Efficacy and Sustainability:** How can future studies be designed to assess better the long-term benefits and sustainability of EEG-VR interventions in rehabilitation beyond the short-term improvements often reported?

4. **User Experience and Adaptability:** What strategies can be implemented to optimize the user experience, ensuring patients benefit from the technology and remain engaged and comfortable throughout their rehabilitation process?

By addressing these objectives and confronting these research problems, this review aims to create the theoretical basis to build more effective and reliable EEG-VR systems and ultimately enhance their potential to transform rehabilitation practices and patient outcomes.

Main Material Presentation

This review followed the SANRA quality criteria [9]. Comprehensive literature research was conducted from the inception to February 2025 on PubMed, Scopus and Web of Science, using the search string "VR" AND "EEG" AND "rehabilitation" and the related combination "integration of EEG and VR in rehabilitation", to analyze the scientific evidence in the rehabilitation field and their potential benefits for patients. The inclusion criteria included (a) any human trial, ranging from randomized controlled trials (RCTs) to prospective and retrospective studies, that focuses on the application of the EEG in rehabilitation; (b) published in the English language; (c) no restrictions on publication date. We excluded reviews, letters to the editor, expert opinions, interviews, and studies irrelevant to the review's central theme.

Out of 105 articles generated by the initial electronic search, 65 articles which belonged to the discussed theme were left after the fact-checking. After that we reviewed title, abstract and performed full-text screening, which gave us 11 articles we aggregated in the next chapters.

1. Integration of EEG with VR: Emotional and Cognitive Responses

Several studies highlight that integrating electroencephalography (EEG) with virtual reality (VR) allows for real-time monitoring of emotional and cognitive states. EEG measures were found to effectively capture emotional responses to VR environments, demonstrating the critical role of brain synchronization in emotional processing [10]. This capability is particularly relevant in rehabilitation contexts, where immediate insights into a patient's affective status can inform therapeutic strategies and enhance the design of VR exercises [11]. Additionally, integrating EEG into VR fosters higher engagement by adapting virtual experiences based on the user's emotional state.

2. Motor Rehabilitation and Cognitive Workload

Research into motor rehabilitation suggests combining EEG with immersive VR can bolster motivation and active participation among stroke patients [12]. By leveraging EEG to assess cognitive workload in VR [13], therapists can dynamically adjust task difficulty levels, ensuring patients remain in an optimal zone for physical and cognitive recovery. This combination of immersive VR stimulation and concurrent EEG feedback represents a notable advancement in personalized motor therapy.

3. Psychological Therapy and Exposure Approaches

The use of VR for exposure therapy—particularly in conditions such as anxiety and PTSD—has been further refined through the addition of EEG monitoring [14]. By tracking patients' real-time emotional states, exposure protocols can be modified on the fly, ensuring patients neither disengage due to overwhelming stress nor fail to make progress due to insufficient stimulus [15]. This nuanced feedback loop points to improved therapeutic efficacy, underlining how EEG data can shape the unfolding of VR-based psychological treatments.

4. Technical Feasibility and Advancements

Despite the promise of EEG-VR integration, challenges persist. Movement artefacts, interference from head-mounted displays, and difficulties in maintaining high-quality EEG signals during interactive VR sessions pose technical hurdles [16]. However, the advent of lighter, wireless EEG systems and more sophisticated artifact-suppression algorithms has improved data integrity [17]. Such advancements ease the transition to fully immersive rehabilitation settings, expanding possibilities for more dynamic and patient-centred VR experiences.

5. Mechanistic Insights and Personalization

Detailed EEG measurements within virtual environments also give researchers deeper insights into the neural mechanisms underlying rehabilitation processes. For instance, EEG microstate analysis has pinpointed dynamic neural patterns associated with emotional reactions in VR [18], enhancing our understanding of how VR can be optimized for therapeutic benefit. Simultaneously, these data enable ongoing adjustments to therapy sessions, tailoring VR environments to each patient's cognitive and emotional needs. This is particularly beneficial in stroke rehabilitation, where individual recovery trajectories vary widely [19].

6. Data Aggregation and Broader Applications

Beyond single-patient sessions, accumulated EEG data in VR contexts may inform future clinical guidelines and best practices. Large-scale data analysis could shed light on patterns and correlations that improve the standardization of EEG-VR protocols. By drawing from aggregated patient data, clinicians can refine rehabilitation strategies across diverse patient populations, ensuring the most effective and efficient use of EEG and VR technologies [20].

Results and Discussion

Integrating EEG and VR for rehabilitation marks a transformative step in personalized therapy. From an emotional and cognitive standpoint, real-time EEG monitoring offers immediate feedback that can tailor VR-based tasks to a patient's affective and cognitive load. This real-time adaptation enhances engagement and outcomes, as patients remain optimally challenged throughout therapy.

In motor rehabilitation, EEG-derived insights into cognitive workload support the dynamic calibration of therapy sessions, potentially boosting motor recovery in conditions like stroke. Similarly, psychological interventions benefit from EEG-driven modulation of VR exposure therapy; the ability to detect heightened stress or anxiety and adjust therapy on the fly seems to bolster treatment efficacy in anxiety-related disorders. Table 1 presents the key considerations for VR usage in rehabilitation, while Table 2 demonstrates the points of EEG in VR.

Despite these promising findings, technical challenges remain. Movement artefacts, interference from VR headsets, and the complexity of data interpretation can all hinder seamless EEG-VR integration. However, the ongoing development of wireless EEG headsets and advanced artifact-suppression methods is gradually resolving these obstacles. In parallel, the rapid evolution of VR hardware and software should help maintain signal quality and user comfort, which are critical for consistent rehabilitation sessions.

Table 1.

Key Points of VR in Rehabilitation

Key Point	**Description**
Immersion	- Creates a fully immersive environment for patients to practice real-world tasks - Simulates scenarios that may be challenging or impossible to replicate elsewhere
Motivation & Engagement	- Employs gamified tasks and interactive challenges - Enhances interest, adherence, and enjoyment in long-term therapy
Real-Time Feedback	- Offers immediate performance data (e.g., visual, auditory, or haptic cues) - Allows on-the-spot adjustments by therapists and patients
Data-Driven Personalization	- Tracks user performance and adapts task difficulty accordingly - Enables customized rehabilitation goals based on each patient's progress
Telerehabilitation	- Facilitates remote therapy sessions, reducing geographical or mobility barriers - Broadens access for patients who cannot easily attend in-person appointments

Table 2.

Key Points of EEG in Rehabilitation

Key Point	**Description**
Real-Time Neural Feedback	Provides immediate information about the patient's brain activity, enabling clinicians to adjust therapy protocols in real time for more effective interventions
Monitoring Neuroplastic Changes	Tracks shifts in brain wave patterns over time, offering insights into patient progress and the overall efficacy of therapeutic interventions
Personalized Therapy	Tailors rehabilitation tasks based on individual EEG patterns, ensuring interventions are patient-specific and adaptable to ongoing changes in brain activity.

Another important consideration centres on personalization and large-scale data aggregation. EEG-derived biomarkers could facilitate better understanding of the neural processes behind rehabilitation while also opening the door to standardized protocols and broader clinical adoption. Nevertheless, questions remain about cost, accessibility, and the need for specialized expertise to implement EEG-VR therapies effectively. Future research should also address longitudinal follow-up to confirm that gains observed in the short term remain robust over time. Table 3 aggregates both successes and pitfalls of VR and EEG in different types of rehabilitation:

Table 3.

Successes and pitfalls of VR and EEG in different types of rehabilitation

Rehabilitation field	VR	EEG
Physical Rehabilitation	**Usage:** - Immersive exercises for balance and strength - Simulated environments for safe practice (e.g., walking) **Successes:** - Improves motivation via gamified	**Usage:** - Monitoring muscle activation and motor pathways - Providing biofeedback for movement quality **Successes:** - Identifies neuromuscular deficits in real

	tasks - Enhances adherence to therapy **Pitfalls:** - Motion sickness in some users - Hardware cost and learning curve	time - Can guide targeted interventions **Pitfalls:** - Prone to movement artifacts - Requires trained personnel for data interpretation
Neuro Rehabilitation	**Usage:** - Virtual environments for stroke or Parkinson's therapy - VR-based tasks to retrain coordination and motor planning **Successes:** - Delivers task-specific training - Potentially accelerates neuroplasticity **Pitfalls:** - Limited availability of specialized VR systems - May not suit severely impaired patients	**Usage:** - Tracks brain wave patterns to assess neuroplastic changes - Facilitates brain–computer interface (BCI) for motor or cognitive recovery **Successes:** - Offers direct insight into cortical reorganization - Can evaluate rehab progress objectively **Pitfalls:** - EEG caps can be uncomfortable for long sessions - High risk of noise in data with complex movements
Cognitive Rehabilitation	**Usage:** - Gamified memory or attention tasks in VR - Scenario-based training (e.g., grocery shopping) **Successes:** - Increases engagement with interactive elements - Mimics real-world challenges **Pitfalls:** - Over-stimulation for some cognitive deficits - Requires quality hardware for smooth performance	**Usage:** - Identifies cognitive workload and mental fatigue - Biofeedback for attention training (e.g., neurofeedback) **Successes:** - Detects subtle improvements in attention or executive function - Highly customizable protocols **Pitfalls:** - Artifacts from facial/muscle activity can obscure cognitive signals - Interpretation complexity without standardized protocols
Psychological Rehabilitation	**Usage:** - VR exposure therapy for phobias, anxiety, or PTSD - Creates safe yet realistic environments **Successes:** - Gradual, controlled exposure to stressors - Reduces reliance on imaginal exposure **Pitfalls:** - May trigger severe anxiety if not carefully monitored - Costs/time for setup and training	**Usage:** - Measures emotional reactivity (e.g., alpha asymmetry) - EEG neurofeedback to regulate stress or anxiety **Successes:** - Offers real-time insight into emotional states - Facilitates personalized intervention adjustments **Pitfalls:** - EEG may not capture all facets of psychological states - Requires expert supervision to manage complex data

Social Integration	**Usage:** - Multiplayer VR platforms for social skill training - Role-playing scenarios (e.g., job interviews, group activities) **Successes:** - Safe environment to practice communication - Can help patients with social phobias or ASD adapt **Pitfalls:** - Requires reliable internet/computer setup for multi-user VR - Some users may feel disoriented or isolated in VR	**Usage:** - Tracks engagement levels and emotional responses in group settings - EEG-based social cognition tasks (e.g., empathy or joint attention) **Successes:** - Quantifies social interaction progress - Allows objective, continuous data collection **Pitfalls:** - EEG in group environments can be hard to manage - Movement or speech artifacts reduce data quality

Overall, the integration between EEG and VR in rehabilitation holds significant promise. By allowing clinicians to monitor and adapt therapy in real time, interventions become more targeted, engaging, and potentially more successful. Additional large-scale and long-term studies focusing on specific patient populations, cost-benefit analyses, and standardized methodologies will be essential. These steps will help establish clear guidelines and best practices, ensuring that the integration of EEG and VR continues to evolve as a cutting-edge approach in neurorehabilitation and psychological therapy.

Conclusions

Combining EEG and VR technology has opened an exciting new avenue for rehabilitation, offering patients more personalized and engaging therapy sessions. By capturing real-time brain activity and blending it with immersive virtual experiences, these integrated systems can adapt on the fly, keeping people motivated and actively involved in their recovery. Studies suggest that EEG-VR approaches are beneficial for improving motor skills and cognitive function in patients who have had strokes, musculoskeletal injuries, or psychological challenges such as anxiety and PTSD.

However, like any emerging field, EEG-VR therapy still faces obstacles. One main concern is that movement and headset equipment can interfere with accurate EEG measurements, making it tricky to capture clean brain signals. Each person’s response to VR can also vary widely, and because there are not yet well-established guidelines for EEG-VR therapy, it is tough to compare results across different research sites.

Despite these challenges, the future looks bright. As next-generation EEG headsets become more comfortable and better at filtering out noise and VR technology improves, these therapies will likely become more practical for routine clinical use. Large-scale clinical trials are the next crucial step to confirm long-term benefits, refine standard protocols, and guide best practices. At the same time, designing patient-focused VR scenarios that tailor activities to an individual’s brain signals, emotions, and performance could greatly enhance therapeutic benefits.

Ultimately, these technical and research gaps should be addressed. In that case, EEG-VR therapy has the potential to revolutionize rehabilitation by providing more tailored, adaptive, and effective treatments for patients with diverse needs.

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ІНТЕГРАЦІЯ ЕЛЕКТРОЕНЦЕФАЛОГРАФІЇ ТА ВІРТУАЛЬНОЇ РЕАЛЬНОСТІ ДЛЯ РЕАБІЛІТАЦІЇ: ОГЛЯД ПЕРЕВАГ І НЕДОЛІКІВ

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Анотація. Поєднання нейротехнологій і передових цифрових середовищ відкрило багато можливостей у сфері реабілітації. Інтеграція електроенцефалографії (ЕЕГ) із віртуальною реальністю (ВР) створює інноваційний підхід до лікування, поєднуючи моніторинг мозкової активності в реальному часі зі занурювальними й інтерактивними середовищами. У цій оглядовій статті розглянуто успіхи та недоліки застосування ЕЕГ-ВР у реабілітації, а також висвітлено, яким чином ці технології можуть покращити результати лікування пацієнтів. В іншій частині огляду визначено поточні виклики, що перешкоджають широкому клінічному впровадженню цієї комбінації технологій.

Методи: Було проведено комплексний пошук літератури у базах даних PubMed, Scopus і Web of Science від дати їх створення до лютого 2025 року. Ми відібрали дослідження, що вивчали сумісне застосування ЕЕГ і ВР у реабілітації, та проаналізували їх за допомогою методу SANRA. Кожне дослідження оцінювали за методологією, демографічними характеристиками пацієнтів, стратегіями технологічної інтеграції, терапевтичними результатами й задекларованими обмеженнями.

Результати: Із 105 виявлених статей після відбору залишилося 65. Після аналізу назв, анотацій та повних текстів до огляду було включено 11 робіт. Огляд надав докази ефективності систем ЕЕГ-ВР у відновленні рухових функцій, когнітивних здібностей та під час нейро-тренувань у різних груп пацієнтів. Успіхи ЕЕГ-ВР-терапії полягали, зокрема, у підвищеній залученості користувачів та здатності адаптувати реабілітаційні протоколи на основі даних мозкової активності в реальному часі. Водночас виявлено і недоліки, серед яких технічні виклики, зокрема перешкоди мозкових сигналів, проблеми з синхронізацією між платформами ЕЕГ та ВР, а також відсутність стандартизованих протоколів, що обмежує масштабованість і узгодженість результатів.

Висновки: Інтеграція ЕЕГ та ВР є перспективним напрямом у реабілітації, пропонуючи інноваційні методи персоналізованої та адаптивної терапії. Попри обнадійливі попередні результати, існують поточні технологічні та методологічні труднощі, які потребують глибшого дослідження. Майбутні дослідження мають бути спрямовані на оптимізацію інтеграції систем, стандартизацію лікувальних протоколів і проведення масштабних клінічних випробувань для ґрунтовного вивчення застосування систем ЕЕГ-ВР у реабілітації.

Ключові слова: електроенцефалографія, віртуальна реальність, реабілітація, відновлення після інсульту, реабілітація опорно-рухового апарату, когнітивна реабілітація.