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Emotion Regulation and Behavioral Therapies in Post-acute Brain Injury Rehabilitation

Dedman Walters*

Department of Clinical Neuropsychology or Behavioral Neurosciences, University of Freiburg, Freiburg, Germany

Introduction

Post-acute Brain Injury (BI) rehabilitation extends far beyond physical recovery it encompasses emotional, behavioral and cognitive domains that are often disrupted due to trauma to the brain. Survivors frequently experience mood swings, irritability, depression, anxiety and emotional lability, which pose significant barriers to reintegration and quality of life. Emotion regulation becomes a cornerstone in helping individuals rebuild their interpersonal relationships, participate in community life and re-enter the workforce. Post-injury emotional dysregulation may arise from damage to the prefrontal cortex, amygdala, or anterior cingulate cortex, which play pivotal roles in emotion processing and impulse control. Emotion-focused Therapy (EFT), though less studied in BI populations, shows promise in enhancing self-awareness and emotional intelligence. Importantly, therapies are often adapted to suit the cognitive limitations of brain-injured individuals, using simplified language, visual cues and shorter sessions. The involvement of caregivers and family members in the therapeutic process also enhances emotional recovery by reinforcing skills in home environments. Despite these advances, emotional rehabilitation still remains underutilized in many post-acute settings due to workforce shortages, time constraints and limited insurance coverage. Addressing emotional health systematically within brain injury care is imperative for achieving whole-person rehabilitation outcomes [1].

Description

The integration of behavioral therapies into post-acute brain injury care requires a multidisciplinary, structured and individualized approach. Neuropsychologists, clinical psychologists, occupational therapists and social workers collaborate to assess emotional dysregulation and devise tailored therapeutic plans. A thorough neurobehavioral assessment at the beginning of rehabilitation helps clinicians understand the extent of injury-related behavioral impairments, ranging from impulsivity and disinhibition to apathy and aggression. Environmental modifications, such as reducing sensory overload or providing structured routines, can be powerful in minimizing emotional outbursts and promoting stability. Token economies, behavior contracts and self-monitoring charts are frequently used to encourage goal-directed behavior, particularly in inpatient and supported-living environments. Moreover, mindfulness-based stress reduction (MBSR) techniques have demonstrated utility in enhancing emotional self-regulation, even in patients with limited insight. Studies have shown that brief, repeated exposure to mindfulness practices improves mood and reduces perceived stress in BI patients. Biofeedback and neurofeedback techniques, though still emerging, offer additional promise in enhancing self-regulation by allowing patients to gain real-time awareness of physiological signals such as heart rate variability. Therapists are increasingly using Virtual Reality (VR) to simulate emotionally triggering scenarios in a controlled setting, where patients can practice coping strategies. Furthermore, motivational interviewing has become a key tool in enhancing engagement and adherence in patients with limited motivation or anosognosia. Behavioral therapies are not "one-size-fits-all," and cultural, linguistic and neurocognitive diversity must be considered in intervention design. Unfortunately, not all clinicians working in BI rehabilitation are trained in advanced behavioral methods, highlighting the need for continuing education and workforce development. These behavioral interventions, when effectively applied, can transform a passive rehabilitation experience into an empowered, participatory recovery journey [2-3].

Emotion regulation challenges following BI are also tightly intertwined with social cognition deficits, such as problems recognizing others' emotions, reduced empathy and misinterpretation of social cues. These difficulties can escalate interpersonal conflict, isolate patients and strain familial relationships, particularly when loved ones fail to understand the neurological basis of behavior changes. Social Skills Training (SST) and theory of mind (ToM)-based interventions have shown efficacy in reestablishing relational functionality. Therapies incorporate role-playing, video feedback and real-world practice to improve eye contact, conversational turn-taking and appropriate emotional expression. Simultaneously, family psychoeducation is crucial, as it reduces caregiver burnout and empowers families to respond with compassion rather than criticism. Importantly, caregiver emotion regulation is a predictor of patient behavior regulation, especially in home-based or outpatient care. Children and adolescents with BI may face unique developmental challenges in emotion regulation, necessitating child-centered therapies with play-based components. Schools can be powerful partners in this process by incorporating social-emotional learning into individualized education plans (IEPs). For older adults with BI, emotion regulation is often compounded by age-related cognitive decline, requiring careful consideration in therapy pacing and delivery. Telehealth and mobile app-based behavioral therapies have emerged as promising platforms, especially in underserved or rural areas where in-person therapy is inaccessible. These platforms allow asynchronous modules, self-tracking and video check-ins, thereby increasing flexibility and access to care. Peer mentoring programs pairing long-term BI survivors with newer patients are gaining popularity as adjunct interventions that promote hope and emotional normalization. Overall, addressing emotion regulation is a continuous, adaptive process that must evolve with the patient's life context, support system and neurological recovery trajectory [4-5].

Conclusion

Clinically, more randomized controlled trials are needed to test the long-term effectiveness of specific behavioral therapies in diverse BI populations, including those with severe cognitive impairments. From a policy perspective, insurance models need to evolve to reimburse psychological rehabilitation services equitably with physical therapies. Institutions should also incorporate standardized outcome measures such as the Brain Injury Rehabilitation Trust

***Address for Correspondence:** Dedman Walters, Department of Clinical Neuropsychology or Behavioral Neurosciences, University of Freiburg, Freiburg, Germany, E-mail: walters.dedman@freiburg.gr*

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Emotion Regulation Scale (BIRT-ERS) to objectively track emotional recovery over time. Lastly, advocacy for increased awareness and destigmatization of emotional and behavioral symptoms post-injury is necessary, both within healthcare and in broader society. As the understanding of neurobehavioral science advances, so too will the tools, frameworks and possibilities for truly comprehensive brain injury rehabilitation that centers the emotional life of every survivor.

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Conflict of Interest

None.

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