INNOVATIVE TECHNOLOGIES AND CARE IN THE TREATMENT OF DEPRESSION

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Abstract

This article highlights the importance of depression in modern medicine and the role of innovative technologies and care in its treatment. Depression is a widespread mental disorder globally that negatively affects a person's quality of life, social activity, and work capacity. The article analyzes digital therapeutic applications, telepsychiatry, artificial intelligence–based monitoring, neurostimulation methods, and modern pharmacological approaches based on scientific sources. In addition, the role of nursing care, psychotherapy, and psychosocial support in depression is also discussed. Integrating innovative technologies with comprehensive care helps accelerate the recovery process of patients and improves their quality of life.

Keywords: Depression, innovative technologies, digital therapy, telepsychiatry, artificial intelligence, neurostimulation, transcranial stimulation, antidepressants, psychotherapy, nursing care, mental health.

Introduction

Depression is a widespread mental health disorder that significantly affects a person's quality of life, social activity, and work capacity. According to the World Health Organization (WHO), more than 300 million people worldwide suffer from depression. Although traditional treatment methods — antidepressants and psychotherapy — are effective, in some patients the results

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are not sufficient. Therefore, modern medicine emphasizes the use of innovative technologies, including digital therapeutic applications, telepsychiatry, artificial intelligence, and neurostimulation methods, as well as psychosocial and nursing care. These approaches play an important role in improving treatment outcomes and supporting patients' mental well-being.

Digital Therapeutic Applications and Mobile Platforms

In recent years, digital therapeutic applications have been widely used to support mental health. For example, **Rejoyn** is the first mobile application approved by the U.S. FDA for the treatment of adult depression, engaging patients in daily therapy through cognitive behavioral therapy (CBT) exercises and notifications. Clinical studies have shown that approximately half of the patients using the Rejoyn app experienced significant symptom improvement. This application is used alongside standard antidepressant therapy and can enhance treatment effectiveness.In addition, artificial intelligence (AI)–based conversational applications such as **Wysa** provide support using CBT-based methods. Research indicates that digital mental health interventions (DMHIs) like Wysa reduce symptoms of depression and anxiety and demonstrate high levels of user engagement and retention.Digital platforms not only improve the quality and accessibility of therapy, but also help patients in geographically limited or underserved areas receive psychological support.Telepsychiatry refers to the provision of psychiatric services remotely through videoconferencing and mobile applications, including psychotherapy, medication management, and mental health counseling. This approach reduces geographical barriers, lowers the cost of psychological care, and enables patients to access mental health services more quickly and conveniently.

In the field of telepsychiatry, artificial intelligence (AI) technologies are also being applied. AI assists in diagnosis, therapy modeling, predicting the risk of relapse, and developing individualized treatment plans. For example, studies show that AI systems provide positive results in early detection and optimization of treatment strategies. When using these technologies, ethical standards, data security, and patient confidentiality must be carefully considered, as AI becomes involved in fundamental medical decision-making processes.

Immersive Technologies (VR/AR)

Immersive technologies such as virtual reality (VR) and augmented reality (AR) are being explored as a new direction in depression therapy. These systems place patients into therapeutic environments and support emotional processing. In addition, research indicates that immersive technologies enhance the effectiveness of therapeutic sessions and deepen engagement between patients and therapists.

Neurostimulation. Neurostimulation methods are approaches aimed at regulating neurochemical processes associated with depression by delivering stimulation to the brain, opening new prospects in the treatment of depression. Transcranial magnetic stimulation (TMS) and other electromagnetic techniques show positive effects in patients who do not respond to medication. These methods are applied in clinical settings, and research is also being conducted on their possible use in home environments.In addition, a form of magnetic stimulation known as magnetic seizure therapy (MST) is attracting scientific interest for the treatment of depression. This method is similar to electroconvulsive therapy (ECT) in that it induces stimulation, but it uses a magnetic field instead of direct electrical current, which may allow for more targeted and controlled stimulation.

The Role of Artificial Intelligence in Diagnosis and Management

Artificial intelligence (AI) is creating significant changes in mental health not only in therapy but also in diagnosis and monitoring. AI algorithms using data such as electroencephalography (EEG) demonstrate high accuracy in detecting depressive states. This allows for the customization of various treatment methods to the individual patient's condition. Furthermore, AI-collected data are used to support clinical decision-making, enable early detection of relapse, and help develop the most effective treatment strategies for each patient.

The Role of Psychotherapy and Care

Alongside digital and technological approaches, psychotherapy remains crucial in the treatment of depression. Cognitive behavioral therapy (CBT), emotional regulation training, and group therapy improve patients' mental health and reduce depressive symptoms. Psychotherapy combined with digital tools often produces even more effective outcomes.Nursing care enhances overall treatment effectiveness by monitoring medication adherence, assessing symptoms, and providing psychological support.In the treatment of depression, innovative technologies—such as digital therapeutic applications, telepsychiatry, immersive technologies, neurostimulation, and artificial intelligence—complement traditional therapy. They provide patients with individualized approaches, remote assistance, and effective care. Furthermore, integrating these technologies with psychotherapy and modern nursing practices significantly improves patients' quality of life.

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