



Virtual reality technologies in the system of psychological assistance to military personnel after participating in combat operations

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◆ **Abstract.** The purpose of the study was to carry out a theoretical analysis of the possibilities of using virtual reality technologies in the system of psychological assistance to military personnel after participating in combat operations. The psychological consequences of combat experience, in particular post-traumatic stress disorder, anxiety states, violation of emotional regulation, and difficulties of social adaptation, necessitate a search for innovative approaches to psychological support. Contemporary scientific publications devoted to the use of virtual reality therapy (VR therapy) in working with combat psychotraumatization were analysed. The theoretical foundations of using virtual reality as an immersive psychological tool that combines cognitive, emotional, and sensorimotor components of experience were substantiated. The main areas of using VR therapy in the psychological rehabilitation of military personnel were identified, in particular, exposure work with traumatic memories, development of emotional regulation skills, restoration of psychological resources, and social and professional readaptation. Special attention was paid to resource VR environments aimed at restoring the psychoemotional state and developing self-regulation skills. The advantages and limitations of using VR technologies in psychological practice, and prospects for their integration into the system of psychological assistance to the military in Ukraine, were outlined. It was determined that VR therapy can be effectively applied within the framework of exposure work with traumatic memories, development of emotional regulation skills, restoration of psychological resources, and in the process of social and professional readaptation of military personnel. The use of immersive virtual environments allowed creating safe conditions for gradual development of combat experience and reducing the risk of retraumatization. The practical significance of the study is to determine the possibilities of integrating VR technologies into the practice of psychological assistance to military personnel and outline guidelines for the introduction of immersive therapeutic tools in programmes of psychological rehabilitation of combat veterans

◆ **Keywords:** rehabilitation; combatants; post-traumatic stress disorder; immersive technologies; exposure therapy

◆ Introduction

Contemporary military conflicts are accompanied by a significant increase in the number of military personnel exposed to the psychotraumatic impact of military operations. Chronic stress, immediate threat to life, loss of siblings, injuries, and moral dilemmas determine the development of a wide range of psychological disorders, among which a special place is occupied by post-traumatic stress disorder (PTSD), anxiety and depressive states, disorders of sleep and emotional regulation. In this regard, the problem

of effective psychological assistance to military personnel after participating in combat operations becomes particularly relevant. Conventional psychotherapeutic approaches, which rely primarily on verbalising traumatic experiences, are not always sufficiently effective when working with military personnel, who typically struggle with emotional self-disclosure, tend to avoid memories, and exhibit a high degree of psychological control. This leads to the need to introduce innovative methods of psychological

Suggested Citation:

Pomytkina, L. (2026). Virtual reality technologies in the system of psychological assistance to military personnel after participating in combat operations. *The Bulletin of National Defence University of Ukraine*, 21(2), 71-79. doi: 10.33099/2617-6858-26-21-2-71-79.

Article's History: Received: 29.10.2025; Revised: 20.02.2026; Accepted: 30.03.2026; Published: 16.04.2026



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rehabilitation that can provide safe, controlled and simultaneously effective treatment of combat psychotrauma. One of these promising areas is the use of virtual reality (VR) technologies in the system of psychological assistance.

VR therapy allows simulating realistic or symbolic environments in which military personnel can gradually process traumatic experiences, develop emotional regulation skills, restore cognitive functions, and adapt to the conditions of peaceful life. An important advantage of VR is the ability to individualise therapeutic effects and reduce the risk of retraumatisation by controlling the intensity of stimuli. Despite the active development of VR technologies in psychotherapy and psychological rehabilitation of military personnel in the European Union and the United States of America, where VR exposure therapy is widely used to treat PTSD and other traumatic conditions, in Ukraine the use of these technologies in the system of psychological assistance to combat veterans remains insufficiently systematised at the theoretical and methodological levels (Difede *et al.*, 2022). The study by S. Folke *et al.* (2023) and L. Loucks *et al.* (2025) showed that VR therapy creates a controlled and safe environment for gradual exposure to traumatic memories, which helps to reduce PTSD symptoms and improve psychological adaptation of military personnel after combat experience. This makes it necessary to generalise contemporary scientific approaches, analyse the possibilities and limitations of using VR in working with military personnel after participating in combat operations.

N.V. Pavlyk (2024) analysed the main areas of psychological rehabilitation of military personnel in the context of their professional and social adaptation. N.V. Pavlyk considered psychological rehabilitation as a multi-level process that combines psychotherapy, psychoeducation, and social support. Special attention was paid to the need to individualise rehabilitation programmes, considering the depth of traumatic experience, motivational characteristics, and resources of the serviceman's personality. The results of the study emphasised the relevance of finding such methods of psychological assistance that allow working with trauma in a gentle mode, which makes it advisable to turn to VR technologies as an auxiliary tool for psychological rehabilitation. Ya. Pylypchuk & L. Ponomarenko (2024) conducted a thorough review of scientific approaches to the problem of psychological traumatising as a result of military events. The researchers summarised the achievements of Ukrainian scientists regarding the features of psychotrauma, its coping mechanisms, and the role of interdisciplinary interaction in the rehabilitation process. The paper emphasised the limitations of conventional verbal methods of psychological assistance and the need to introduce new formats of work that combine cognitive, emotional, and sensorimotor components. This approach correlates with the possibilities of VR therapy, which allows integrating physical and emotional experiences into the process of psychological rehabilitation. Z.Ya. Kovalchuk & N.Ye. Zavadska (2025) described the stages of psychological rehabilitation and

restoration of professional activity of law enforcement specialists, such as psychological state assessment, psychotherapeutic intervention and physical recovery, reintegration into professional activity, psychological adaptation, monitoring and correction of the rehabilitation process to avoid relapses of psychological problems. Their findings are of great practical importance and can undoubtedly be used in the process of re-socialisation and rehabilitation of the military. Publications by S.A. Kamkuimo *et al.* (2021) and H. Kim *et al.* (2025) also confirmed the effectiveness of VR exposure therapy in the treatment of PTSD and combat-related traumatic conditions.

Simultaneously, the issue of systematic use of VR technologies remains insufficiently developed, which determines the relevance of further theoretical analysis of the possibilities of their integration into the system of psychological assistance to military personnel after participation in combat operations. The purpose of the study was to assess the possibilities of integrating VR technologies into the process of psychological rehabilitation of military personnel after participating in combat operations. To achieve this goal, the following research objectives were defined: to analyse contemporary scientific publications on the use of VR in the psychological rehabilitation of military personnel; to reveal the theoretical and methodological foundations and main areas of using VR therapy in dealing with the consequences of combat mental trauma; to determine the advantages, limitations and prospects of introducing VR technologies into the system of psychological assistance to military personnel.

◆ Literature Review

The problem of using VR technologies in the psychological rehabilitation of military personnel is actively developed in contemporary scientific research. Special attention is paid to the possibilities of using VR as an innovative tool in working with PTSD, anxiety states, emotional regulation disorders, and cognitive dysfunctions resulting from combat experience. In contemporary scientific discourse, the issue of psychological rehabilitation of military personnel is considered mainly in the context of an integrated approach to overcoming the consequences of combat psychotrauma. Of particular value for this study are the papers by Ukrainian researchers 2024-2025, in which the problem of psychological rehabilitation of military personnel was considered in the context of contemporary military challenges and the search for innovative forms of psychological assistance. The paper by V.H. Panok & V.V. Predko (2024) considered the problem of psychological assistance to military personnel through the prism of the concept of post-crisis development. The researchers stressed that the combat experience experienced is not limited only to traumatic consequences, but can become the basis for personal changes, provided that timely and professional psychological support is provided. The paper emphasised the need to move from an exclusively compensatory model of rehabilitation to approaches focused on restoring psychological resources,

meanings, and life prospects of military personnel. Although the researchers did not directly analyse digital technologies, their concept of post-crisis development created a theoretical basis for the introduction of innovative methods, in particular VR, as tools for safe processing of traumatic experiences and stimulating adaptation processes.

Ye.O. Romanenko *et al.* (2021) emphasised the need to introduce the latest technologies of psychological assistance in wartime conditions. The purpose of psychocorrection should be to normalise the psychoemotional state, aimed at reducing the manifestations of aggression, impulsivity, depressive mood, obsessive-compulsive and vegetative disorders, establishing and restoring social ties, subjective improvement of well-being and mood, increasing psychosocial adaptation. Special psychocorrective exercises aimed at achieving emotional stabilisation, normalising self-esteem, developing adequate and effective strategies for behaviour and interaction with others with mandatory reflection. Such trends in the research environment indicate the development of a holistic scientific vision of psychological rehabilitation of military personnel, focused on post-crisis development, resource recovery, and innovative approaches to psychological assistance. In particular, the findings by L.V. Eshuis *et al.* (2021) showed that the use of VR technologies allows creating controlled therapeutic environments for reproducing traumatic situations, which contributes to gradual exposure to traumatic memories and reduces the intensity of anxiety responses. L.V. Eshuis *et al.* also emphasised that the use of immersive virtual environments helps to reduce avoidant behaviour and increases patients' involvement in the therapeutic process, which positively affects the effectiveness of psychotherapy interventions. Systematic reviews by O.D. Kothgassner *et al.* (2019) and L. Dellazizzo *et al.* (2023) focused on the use of VR technologies in combination with cognitive behavioural therapy in the treatment of anxiety and post-traumatic disorders, in particular those related to combat experience. The results of these studies showed the high effectiveness of VR exposure therapy in the structure of cognitive behavioural interventions. The use of immersive virtual environments has been shown to promote more controlled exposure to traumatic stimuli, reduce avoidant behaviour, and increase the effectiveness of the psychotherapy process in patients with anxiety and post-traumatic disorders.

Additionally, O.D. Kothgassner *et al.* (2019) demonstrated the effectiveness of VR exposure therapy in the treatment of PTSD in military personnel and veterans. In particular, the results of clinical studies and systematic reviews showed that VR exposure demonstrates effectiveness comparable to conventional methods of long-term exposure therapy, while often characterised by higher acceptability for patients and a better level of involvement in the therapeutic process. D. Freeman *et al.* (2017) also highlighted the significant potential of VR technologies in regulating anxiety responses in clinical populations, making this approach promising for use in psychological assistance to military personnel after combat. The potential of

immersive virtual environments in the processes of emotional regulation, development of adaptive coping strategies, and normalisation of psychophysiological reactions in individuals who have experienced traumatic events was revealed. Analysis by L. Dellazizzo *et al.* (2023) reported the active implementation of VR therapy in veterans' psychological support programmes, where it is considered as a promising innovative intervention for dealing with the consequences of combat mental trauma.

A separate area of research was devoted to the use of VR technologies for emotional regulation, reducing anxiety, and restoring cognitive functions in military personnel after experiencing combat traumatic events. J. Difede *et al.* (2022) noted that immersive VR environments can be effectively used to model therapeutic situations aimed at developing emotional self-regulation skills and gradually reducing the intensity of anxiety responses. The researchers also emphasised the importance of sensorimotor and body-oriented components of mental trauma, which makes VR technologies particularly relevant tools in the process of psychological rehabilitation of military personnel and combat veterans. Thus, the use of VR technologies in combination with cognitive behavioural psychotherapy techniques contributes to a significant reduction in anxiety symptoms, the intensity of traumatic experiences and avoidant behaviour (Difede *et al.*, 2022; Dellazizzo *et al.*, 2023). Thus, the analysis of the above-mentioned publications showed a growing interest in the use of VR technologies in psychological assistance to military personnel at the international level and a insufficient systematisation of this area in Ukrainian research. This determined the relevance of further theoretical analysis of the possibilities, advantages and limitations of VR therapy in the system of psychological assistance to military personnel after participation in combat operations.

◆ Materials and Methods

The study was of a theoretical and analytical nature and was aimed at generalising contemporary scientific approaches to the use of VR technologies in the system of psychological assistance and rehabilitation of military personnel after participation in combat operations. The type of research was review and analytical with elements of comparative analysis of scientific sources. The object was a system of psychological assistance and rehabilitation of military personnel who were subjected to the psycho-traumatic impact of military operations. The subject was the possibilities and features of using VR technologies as a tool for psychological support, therapy and restoration of the psychoemotional state of combatants. The design of the study provided for a systematic theoretical analysis of scientific publications devoted to the use of VR technologies in clinical psychology, trauma psychotherapy, and rehabilitation of military personnel. The analysis included scientific papers published in peer-reviewed journals, and materials from interdisciplinary research covering the fields of psychology, medicine, neuroscience, and digital

therapy technologies. The source base of the study included the papers by Ye.O. Romanenko *et al.* (2021), O.D. Kothgassner *et al.* (2019) and V.H. Panok & V.V. Predko (2024), highlighting contemporary approaches to the investigation of these areas and their impact on the development of psychological rehabilitation.

VR therapy was positioned as an innovative tool for psychological rehabilitation of military personnel with combat experience. In particular, the analysis focused on the following areas: VR exposure – for processing traumatic memories; VR emotional regulation – for developing emotional self-control skills; VR resource environments – for restoring positive emotional experiences; VR social and professional readaptation – for preparing for adaptation in peaceful life and professional functioning. A set of methods was used in the course of the study. The first of them was a theoretical analysis of the scientific literature, which helped to determine the main areas of using VR technologies in the psychological rehabilitation of military personnel. A comparative analysis was also applied, which contrasted different approaches to the use of VR in the treatment of post-traumatic conditions, in particular PTSD, anxiety, and depressive manifestations. The generalisation method was used to systematise the results of previous empirical studies and determine the potential therapeutic effects of VR technologies. The latest method was the conceptual synthesis method, which allowed integrating the results of various research approaches into a holistic model of the use of VR in the system of psychological support for combatants. The application of these approaches and methods allowed forming a generalised idea of the therapeutic potential of VR technologies, determining their advantages and limitations, and outlining promising areas for their integration into the practice of psychological rehabilitation of military personnel.

◆ Results and Discussion

Participation in combat operations is one of the most powerful psychotraumatic factors affecting the mental health of military personnel. Combat experience is often accompanied by chronic stress, constant threat to life, loss of fellow soldiers, the need to make morally difficult decisions, which together leads to the development of a wide range of psychological disorders. The most common among them are PTSD, anxiety and depressive states, sleep disorders, emotional numbness, increased irritability, and difficulties in social adaptation. Psychological rehabilitation of military personnel should go beyond an exclusively symptomatic approach and be aimed at restoring personal resources, the ability to self-regulate and professional functioning. In this context, the concept of post-crisis development considers traumatic experience not only as a source of destructive consequences, but also as a potential resource for personal changes with proper psychological support (Pylypchuk & Ponomarenko, 2024; Kovalchuk & Zavadzka, 2025). However, conventional verbal psychotherapy methods are not always effective enough in working with military personnel.

This is conditioned by the specific features of military culture, a high level of psychological control, avoidance traumatic memories, and difficulties in verbalising emotional experiences. These factors necessitate a search for such forms of psychological assistance that allow working with trauma indirectly, through sensorimotor, emotional, and imaginative experiences. In contemporary psychological practice, VR is considered as an immersive computer-modelled environment that creates a sense of presence and interaction with virtual space (Maples-Keller *et al.*, 2017; 2019). From a theoretical standpoint, VR combines the cognitive, emotional, and bodily components of experience, making it an effective tool for psychological impact. As part of the cognitive behavioural approach, VR is primarily used as a means of controlled exposure. Virtual environments allow gradually reproducing traumatic stimuli with the ability to adjust their intensity, which helps to reduce avoidance and develop new adaptive responses. This approach is particularly relevant for dealing with combat trauma, where direct imagination or verbal reconstruction of events can be overly traumatic. From the standpoint of body-oriented and sensorimotor approaches, VR is considered as a means of integrating body responses, emotions, and cognitive assessments. The virtual environment activates sensory perception channels, which allows working with implicit trauma memory, which is often not realised at the verbal level (Kaczurkin *et al.*, 2016). This is especially important in cases where the traumatic experience is “imprinted” in the form of bodily reactions and automatic emotional responses.

It is advisable to identify several key areas of using VR technologies in working with military personnel after participating in combat operations. The first area is VR exposure therapy, aimed at working out traumatic memories. In this case, virtual environments simulate combat-related situations, allowing the client to gradually encounter traumatic stimuli in a safe therapeutic space. The second area is the use of VR to develop emotional regulation skills and reduce anxiety levels. Virtual environments of a relaxation or resource nature help to stabilise the psychoemotional state, restore a sense of control and security. The third area is the use of VR in the process of professional and social readaptation of military personnel. Modelling civilian or professional situations in a virtual space allows practicing social roles, communication skills, and behavioural scenarios necessary to return to peaceful life. However, it is necessary to identify the advantages and limitations of using VR. The main advantages of using VR therapy in the psychological rehabilitation of military personnel include a high level of client involvement, the ability to individualise therapeutic effects, control the intensity of stimuli, and reduce the risk of retraumatisation. In addition, VR can increase motivation for therapy in those military personnel who are sceptical of traditional forms of psychological assistance. Simultaneously, the use of VR has certain limitations. Among them – the need for specialised technical equipment, the need to train specialists, and possible

individual reactions in the form of sensory overload or cyber embarrassment. This makes it important to carefully select clients and gradually introduce VR technologies into

the psychological assistance system. A generalised model of the use of VR in the system of psychological rehabilitation of military personnel is shown in Figure 1.

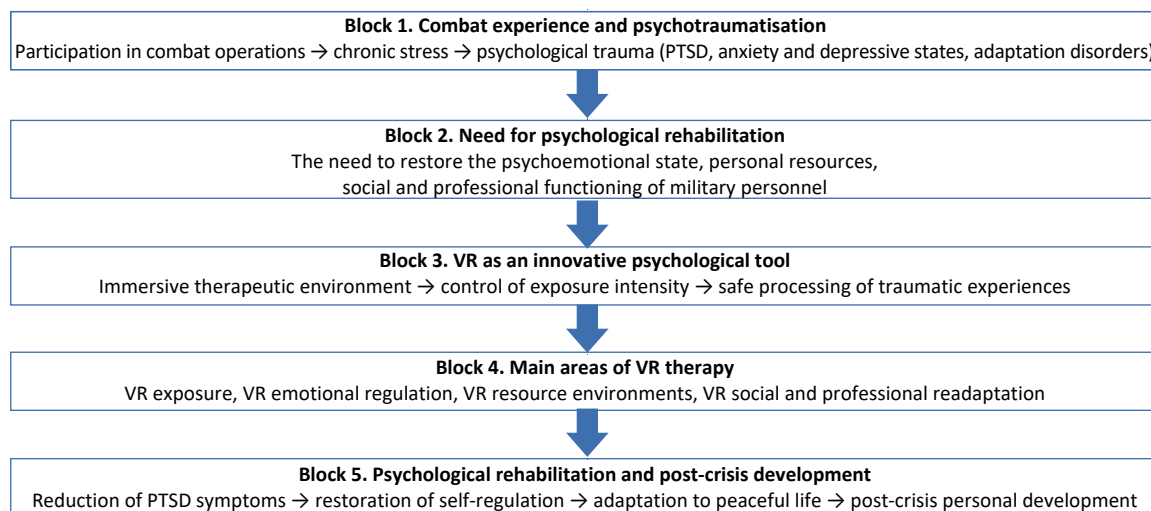


Figure 1. Conceptual model of the use of VR technologies in the system of psychological rehabilitation of military personnel

Source: compiled by the author

The model reflects a consistent process of psychological rehabilitation of military personnel after the combat experience. Participation in combat operations and prolonged exposure to stressful factors can lead to psychotraumatization, which leads to the need for psychological assistance and restoration of the psychoemotional state. In this process, VR technologies act as an innovative therapeutic tool that allows safely processing traumatic experiences in

a controlled immersive environment. The use of various areas of VR therapy (exposure, resource, emotional regulation, and readaptation) helps to reduce the symptoms of PTSD, restore self-regulation and successful adaptation of military personnel to peaceful life, which in the future can contribute to their post-crisis personal development. The main areas of using VR therapy in the psychological rehabilitation of military personnel are summarised in Table 1.

Table 1. Main areas of using VR technologies in psychological rehabilitation of military personnel

Area of application of VR therapy	Purpose of psychological influence	Main psychological effects
VR exposure therapy	Processing of traumatic memories, reduction of the avoidance of traumatic stimuli	Reduction the intensity of PTSD symptoms, reduction of anxiety, and development adaptive responses
VR as a means of emotional regulation	Stabilisation of the psychoemotional state, development of self-regulation skills	Reduction of stress levels, increase of sense of security and control
VR resource environments	Activation of psychological resources, restoration of positive emotional experience	Increase of stress tolerance, restoration of emotional balance
VR in social readaptation	Development of social roles and communication skills	Facilitation of adaptation to peaceful life, reduction of social isolation
VR in professional rehabilitation	Modelling of professional situations and restoration of activity skills	Increase of confidence in own abilities, readiness for professional activity

Source: compiled by the author

As shown in Table 1, VR technologies can be used not only for exposure therapy, but also in the process of emotional regulation, social and professional readaptation of military personnel. Thus, the analysis of the main areas of using VR in the psychological rehabilitation of military personnel shows their significant therapeutic potential and multidimensional psychological impact. The use of VR technologies allows integrating various approaches of psychological assistance – from clinically oriented exposure therapy to restorative and socio-adaptive practices, which is especially important in the context of post-traumatic consequences of combat experience. The most

studied area is VR exposure therapy, which promotes safe processing of traumatic memories, gradually reducing the avoidance of traumatic stimuli and, as a result, reducing the symptoms of PTSD. Moreover, the use of VR as a tool for emotional regulation and creating resource virtual environments demonstrates effectiveness in stabilising the psychoemotional state, restoring a sense of security, developing self-regulation skills, and increasing the stress tolerance of military personnel. VR capabilities in the field of social and professional readaptation are of particular value. Modelling of social and professional situations contributes to a gradual return to peaceful life,

the development of communicative competencies, overcoming social isolation, and restoring confidence in own professional capabilities. This is especially important for comprehensive rehabilitation of veterans, as psychological

recovery is closely linked to social integration and professional self-realisation. Table 2 shows the main psychological, neurophysiological, and social consequences of using this approach.

Table 2. Main consequences of using VR therapy in the rehabilitation of veterans

Category of consequences	Positive effects	Mechanism of influence	Possible risks
Psychological	Reduction of PTSD symptoms (flashbacks, nightmares, avoidance)	Controlled exposure to traumatic memories in a safe environment	Repeated traumatising with excessive intensity
	Reduction of anxiety and depression	VR relaxation scenarios, cognitive behavioural exercises	Emotional exhaustion
	Improvement of emotional regulation	Training of self-control and mindfulness skills	Temporary increase in anxiety
	Restoration of a sense of control	Active interaction with the virtual environment	Frustration in complex scenarios
Neurophysiological	Reduced amygdala hyperactivity	Desensitisation of fear reactions	Nervous system overload
	Improvement of the prefrontal cortex	Increased cognitive control	Temporary cognitive discomfort
	Development of new neural connections	Neuroplasticity through repetitive experiences	Unstable effect without regularity
	Reduction of somatic manifestations of stress	Regulation of the autonomic nervous system	Cyber vertigo
Social	Improvement of communication skills	Modelling of social situations	Avoidance of real interaction
	Reduction of social isolation	Group VR therapy, a sense of support	Over-reliance on the virtual environment
	Facilitation of adaptation to civilian life	Simulation of everyday and professional scenarios	Gap between virtual and real experiences
	Increase of motivation for therapy	Interactivity and originality of the technology	Reduction of interest in long-term use

Source: compiled by the author

Analysis of the psychological, neurophysiological, and social consequences of using VR technologies in the rehabilitation of veterans shows their comprehensive therapeutic potential. VR not only helps to reduce the symptoms of PTSD, anxiety, and depression, but also affects the underlying mechanisms of fear and stress regulation at the neurophysiological level. Through the mechanisms of controlled exposure and neuroplasticity, there is a gradual restructuring of the brain's responses to traumatic triggers. In addition to the individual psychological effect, VR therapy has a significant social dimension: it facilitates the return of veterans to civilian life, reduces social isolation, and increases motivation to participate in rehabilitation programmes. Simultaneously, the effectiveness of this approach directly depends on professional support, individual selection of scenarios, and metered application of the technology. Without proper monitoring, there may be risks of re-injury or emotional overload. Thus, VR technologies are becoming a promising tool for comprehensive psychological rehabilitation of military personnel, combining therapeutic, adaptive, and preventive functions. Further research should be aimed at developing standardised VR rehabilitation programmes, evaluating their long-term effectiveness, and integrating these technologies into the system of psychological assistance to military and veterans.

The results of the theoretical analysis are consistent with the conclusions of a number of other studies on the use of VR technologies in the treatment of PTSD. The first systemic attempts to use VR exposure in combat trauma psychotherapy were presented by D.J. Ready *et al.* (2010) and R.N. McLay *et al.* (2011), who demonstrated the

ability to reproduce combat situations in a controlled therapeutic environment. They showed that a gradual reduction in the intensity of traumatic reactions in veterans is possible due to VR technologies that allow patients to relive traumatic situations in a safe environment, gradually adapting their psyche to the perception of these situations without excessive stress. Further research, in particular by E. Carl *et al.* (2019), W. Deng *et al.* (2019) and S. Heo & J.-H. Park (2022), showed that VR exposure therapy not only demonstrates effectiveness comparable to conventional long-term exposure therapy, but also has advantages, in particular a higher level of patient involvement in the psychotherapy process. In addition, it is characterised by better tolerance of interventions, since patients feel more comfortable in conditions where the controlled intensity of traumatic stimuli allows them to gradually reduce stress responses without overloading the emotional state. These results set the stage for further development of VR technologies in clinical practice.

The current stage of research development is characterised by a significant expansion of the scientific evidence base. In particular, the results of A. Vianez *et al.* (2022) also demonstrated the effectiveness of VR exposure therapy in reducing PTSD symptoms, anxiety, and avoidant behaviour. They noted that VR therapy can be just as effective as conventional methods, but with more flexibility in adapting to the patient's needs. L. Loucks *et al.* (2025) emphasised the importance of using immersive virtual environments to develop emotional regulation skills, restore cognitive functioning, and increase the adaptive potential of military personnel after experiencing

combat traumatic events. They found that VR technologies significantly contribute to restoring the ability to self-regulate and stabilise the psychoemotional state of the military. Thus, VR technologies were gradually transformed from an experimental tool of psychotherapy into a full-fledged component of comprehensive programmes of psychological rehabilitation of military personnel. This helps to effectively integrate the latest technologies into the process of restoring psychoemotional health. In this context, the results of the theoretical analysis confirmed the prospects of using VR technologies in the system of psychological assistance to the military, in particular in combination with cognitive behavioural and exposure psychotherapy approaches.

◆ Conclusions

The conducted theoretical analysis showed that VR technologies are a promising and scientifically based tool for psychological rehabilitation of military personnel after participating in combat operations. The characteristics of combat-related psychological trauma – linked to the intensity of stressful experiences, difficulties in verbalising traumatic experiences, and a tendency to avoid them – make it necessary to employ innovative approaches to psychological support that are capable of integrating the cognitive, emotional and physical components of these experiences. As a result of the analysis, it was found that VR therapy can be effectively applied within the framework of exposure work with traumatic memories, development of emotional regulation skills, restoration of psychological resources, and in the process of social and professional readaptation of military personnel. The use of immersive virtual environments allowed creating safe conditions for gradual development of combat experience and reducing the risk of retraumatisation. It was revealed that VR technologies organically complement existing models of psychological rehabilitation, in particular,

cognitive behavioural, body-oriented, and resource-oriented approaches. Simultaneously, their application requires a clear methodological substantiation, compliance with ethical standards, and training of specialists who can integrate technological tools into psychological practice. The generalised model of using VR technologies demonstrated the importance of integrating various therapeutic approaches for effective rehabilitation of military personnel after combat experience. It also stressed the need for careful selection of clients and phased implementation of VR technologies to ensure the safety and effectiveness of psychological assistance. Prospects for further research are seen in conducting empirical studies of the effectiveness of VR therapy in various groups of military personnel, considering the stages of rehabilitation, individual psychological characteristics, and the nature of combat experience. Comparative studies of VR methods with conventional forms of psychological assistance, in particular, in combination with EMDR therapy and cognitive behavioural interventions, are also relevant. Further study requires the introduction of VR technologies in the system of state psychological assistance to military personnel, the development of standardised application protocols, and the adaptation of virtual environments to the cultural and social context of Ukraine. These areas can become the basis for improving the effectiveness of psychological rehabilitation of military personnel and contribute to their successful adaptation to peaceful life.

◆ Acknowledgements

None.

◆ Funding

None.

◆ Conflict of Interest

None.

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Технології віртуальної реальності у системі психологічної допомоги військовослужбовцям після участі в бойових діях

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♦ **Анотація.** Метою статті було здійснення теоретичного аналізу можливостей застосування технологій віртуальної реальності у системі психологічної допомоги військовослужбовцям після участі в бойових діях. Розглянуто психологічні наслідки бойового досвіду, зокрема посттравматичний стресовий розлад, тривожні стани, порушення емоційної регуляції та труднощі соціальної адаптації, які зумовлюють необхідність пошуку інноваційних підходів психологічної підтримки. Проаналізовано сучасні наукові публікації, присвячені використанню терапії віртуальної реальності (VR-терапії) у роботі з бойовою психотравматизацією. Обґрунтовано теоретичні засади використання віртуальної реальності як імерсивного психологічного інструменту, що поєднує когнітивні, емоційні та сенсомоторні компоненти досвіду. Визначено основні напрями застосування VR-терапії у психологічній реабілітації військовослужбовців, зокрема експозиційну роботу з травматичними спогадами, розвиток навичок емоційної регуляції, відновлення психологічних ресурсів, а також соціальну й професійну реадaptaцію. Окрему увагу приділено ресурсним VR-середовищам, спрямованим на відновлення психоемоційного стану та формування навичок саморегуляції. Окреслено переваги та обмеження використання VR-технологій у психологічній практиці, а також перспективи їх інтеграції у систему психологічної допомоги військовим в Україні. Визначено, що VR-терапія може ефективно застосовуватися у межах експозиційної роботи з травматичними спогадами, розвитку навичок емоційної регуляції, відновлення психологічних ресурсів, а також у процесі соціальної та професійної реадaptaції військовослужбовців. Використання імерсивних віртуальних середовищ дозволяє створювати безпечні умови для поступового опрацювання бойового досвіду та знижувати ризик ретравматизації. Практична цінність дослідження полягає у визначенні можливостей інтеграції VR-технологій у практику психологічної допомоги військовослужбовцям та окресленні орієнтирів для впровадження імерсивних терапевтичних інструментів у програми психологічної реабілітації ветеранів бойових дій

♦ **Ключові слова:** реабілітація; комбатанти; посттравматичний стресовий розлад; імерсивні технології; експозиційна терапія