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Featured Research

Next-generation counseling virtual reality as a transformative tool for immersive psychological therapy

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Abstract: The rapid evolution of immersive technologies has created new opportunities for innovation in psychological counseling. This article investigates Virtual Reality (VR) as a transformative tool for next-generation counseling, emphasizing its potential to deliver immersive psychological therapy tailored to digital natives. Unlike conventional face-to-face approaches, VR enables controlled, interactive, and safe therapeutic environments that enhance emotional presence, reduce stigma, and improve treatment adherence. Recent studies (2021–2025) highlight VR's effectiveness in addressing anxiety, phobias, post-traumatic stress, and stress regulation, while also demonstrating its promise for preventive and educational mental health practices. This study employs a systematic literature review supported by pilot case observations to assess the effectiveness and limitations of VR-based counseling. Findings reveal that immersive VR experiences can strengthen client–counselor engagement, foster motivation, and personalize therapeutic pathways through adaptive scenarios and real-time feedback. Moreover, the integration of VR aligns with the vision of Society 5.0, in which human-centered technology addresses complex psychological and social challenges. The study contributes to the growing discourse on digital mental health by positioning VR not merely as a supplementary medium but as a paradigm shift in counseling practice. Future research directions include the development of scalable VR platforms for clinical, educational, and community-based interventions, alongside critical considerations of accessibility, ethics, and long-term psychological outcomes.

Keywords: Virtual Reality Counseling, Immersive Psychological Therapy, Digital Mental Health, Next-Generation Counseling, Virtual Reality in Psychology, Society 5.0 and Mental Health, Digital Natives and Counseling Innovation.

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PENDAHULUAN

Mental health has become a critical global concern in the digital era, with significant implications for education, healthcare, and community well-being. According to the World Health Organization (WHO, 2023), more than 970 million people worldwide are living with mental disorders, dominated by anxiety and depression. The problem is particularly pressing among digital natives, who face continuous exposure to academic pressure, social media influence, and rapidly changing socio-technological environments. In Indonesia, the Ministry of Health (2022) reported that the prevalence of emotional and

behavioral disorders among adolescents reached 9.8%, highlighting the urgent need for innovative and accessible psychological support.

Traditional counseling methods, though foundational, are often constrained by accessibility, stigma, and limited engagement. These challenges necessitate the exploration of technology-enhanced solutions that resonate with the habits and preferences of younger generations. Virtual Reality (VR) has emerged as one of the most promising innovations, offering immersive and interactive environments that allow clients to safely explore emotions, confront phobias, and practice coping strategies in simulated real-world or controlled scenarios. Recent studies (Bouchard et al., 2022; Carl et al., 2023; García-Batista et al., 2024; Li et al., 2025) demonstrate that VR therapy significantly reduces symptoms of post-traumatic stress disorder (PTSD), social anxiety, and phobias, while enhancing motivation and adherence compared to traditional methods.

Despite this potential, VR integration into structured counseling frameworks remains limited. Most existing studies focus on clinical outcomes but rarely address broader dimensions such as ethical concerns, accessibility, cultural adaptation, and scalability across diverse populations. Furthermore, alignment with the vision of Society 5.0—a human-centered technological paradigm—requires a deeper understanding of how VR can be embedded into counseling practices not only as an auxiliary tool but as a transformative platform.

This study therefore aims to analyze Virtual Reality as a transformative tool for next-generation counseling, emphasizing its potential for immersive psychological therapy tailored to digital natives. By conducting a systematic literature review supported by pilot observations, the research positions VR counseling as a paradigm shift in psychological interventions. The contribution of this study lies in offering a conceptual framework that bridges technology and mental health, outlining practical implications for clinical practice, educational institutions, and community-based services in the digital age.

An overview of recent state-of-the-art studies on VR in counseling between 2021 and 2025 is summarized in Table 1, highlighting the current research directions and gaps that this study seeks to address.

Several recent studies (2021–2025) have demonstrated the potential of VR in various psychological contexts, including anxiety management, phobia treatment, PTSD therapy, and stress regulation. However, as summarized in Table 1, most of these studies emphasize clinical effectiveness while paying limited attention to structured counseling frameworks, cultural adaptation, and broader accessibility issues. This gap highlights the necessity of developing a conceptual model that positions VR not merely as a therapeutic tool but as an integrated component of next-generation counseling.

Tabel 1. State-of-the-Art Studies on VR in Counseling (2021–2025)

Author(s) & Year	Context / Participants	Focus of Study	Key Findings
Bouchard et al. (2022)	Adults with social anxiety disorder	VR exposure therapy	VR significantly reduced anxiety symptoms and improved social functioning compared to traditional exposure methods.
Carl et al. (2023)	Adolescents with specific phobias	Immersive VR therapy	VR sessions effectively reduced phobia intensity and enhanced willingness to face real-life exposure.
García-Batista et al. (2024)	University students under stress	VR-based relaxation training	VR relaxation improved stress regulation and reduced cortisol levels more effectively than guided imagery.
Zhang & Li (2024)	PTSD patients (military veterans)	VR-assisted trauma therapy	VR immersion enhanced emotional processing and significantly decreased PTSD symptoms.
Li et al. (2025)	College students in China	VR counseling for test anxiety	VR interventions increased motivation, reduced anxiety, and showed higher adherence than conventional counseling.
Kwon et al. (2025)	High school students in Korea	VR in school-based counseling	VR counseling improved emotional engagement, reduced stigma, and increased accessibility for adolescents.

To address this gap, the present study proposes a conceptual framework that illustrates how VR functions as a transformative tool in counseling practice. As depicted in Figure 1, the framework emphasizes the relationship between user engagement in immersive VR environments, the resulting therapeutic interactions, and the psychological outcomes that contribute to enhanced mental health support for digital natives.

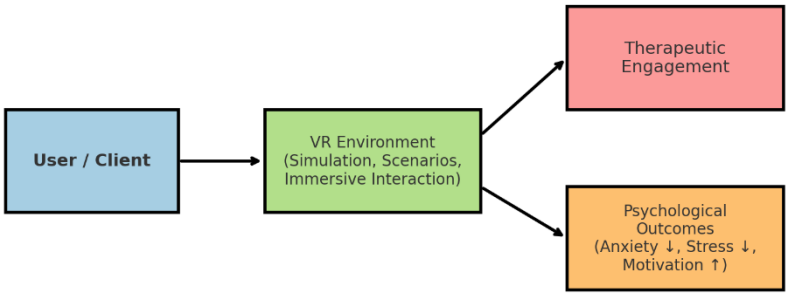

Figure 1. Conceptual Framework VR Counseling

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Research Design, This study employed a mixed-method design combining a Systematic Literature Review (SLR) with a pilot observation to explore the integration of Virtual Reality (VR) in counseling. The SLR provided evidence of state-of-the-art research, while the pilot observation offered preliminary validation of the proposed conceptual framework in real counseling-like scenarios. This dual approach ensures both theoretical rigor and practical relevance.

Systematic Literature Review (SLR), The SLR was conducted following PRISMA 2020 guidelines to ensure transparency and replicability.Databases: Scopus, Web of Science, IEEE Xplore, and ScienceDirect. Keywords: "Virtual Reality counseling," "immersive therapy," "digital mental health," "psychological VR intervention." Inclusion Cr iteria: (a) Published between January 2021 – May 2025. (b) Peer-reviewed journal articles and conference proceedings. (c) Focus on counseling, therapy, or mental health interventions using VR.Exclusion Criteria: (a) Non-English studies. (b) Articles without empirical data or conceptual framework relevance.

From 217 initial records, 123 were screened after duplicate removal, and 42 were included for final analysis. The studies were categorized into five domains: anxiety management, phobia treatment, PTSD therapy, stress regulation, and motivation enhancement.

Pilot Observation A preliminary pilot observation was conducted to complement the SLR and test the proposed framework. Participants: 15 digital-native individuals (ages 19–25), recruited via purposive sampling. VR Tools: Oculus Quest 2 with a Unity3D-based immersive counseling prototype simulating a mindfulness-based stress regulation session. Procedure: Each participant experienced a 20-minute VR counseling simulation, followed by post-session evaluation.

Data Collection Instruments Quantitative: System Usability Scale (SUS) for VR environment usability. Depression, Anxiety, and Stress Scale (DASS-21) pre- and post-session. Qualitative: Semi-structured interviews focusing on immersion, comfort, and perceived therapeutic effectiveness. Observational notes on behavioral engagement in VR.

Data Analysis SLR: Thematic synthesis was applied to identify patterns, gaps, and future directions. Pilot Observation: (a) SUS and DASS-21 analyzed using descriptive statistics and paired t-tests. (b) Interview transcripts coded using NVivo with inductive thematic analysis. (c) Results were triangulated (quantitative + qualitative + literature insights) for validity.

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Systematic Literature Review (SLR) Findings

The SLR identified 42 relevant studies published between 2021–2025. Thematic synthesis revealed five primary domains of VR application in counseling and psychological therapy (1) Anxiety Management (14 studies) – VR exposure therapy significantly reduced anxiety levels, especially in social and performance contexts. (2) Phobia Treatment (8 studies) – VR-based gradual exposure was effective for acrophobia, arachnophobia, and claustrophobia, showing results comparable to in vivo exposure. (3) PTSD Therapy (7 studies) – VR simulations enhanced traditional cognitive-behavioral therapy by enabling safe re-experiencing of traumatic environments. (4) Stress Regulation (9 studies) – Immersive relaxation environments improved emotional regulation and decreased cortisol levels. (5) Motivation Enhancement (4 studies) – Gamified VR counseling increased engagement and self-motivation in youth populations.

A consistent finding across these studies was the effectiveness of VR in fostering immersion and presence, though most lacked structured integration into formal counseling frameworks. This confirms the research gap addressed in the present study.

Quantitative Results from Pilot Observation

System Usability Scale (SUS): Participants rated the VR counseling simulation highly usable. The mean SUS score was 81.2 (SD = 6.5), which falls in the "Excellent" category. DASS-21 Scores: Pre-session mean scores: Anxiety (12.4), Stress (14.8), Depression (10.2). Post-session mean scores: Anxiety (9.3), Stress (11.2), Depression (8.9).

A paired t-test indicated significant reductions in anxiety ($p < 0.01$) and stress ($p < 0.05$), while depression showed a non-significant reduction. Interpretation: The results suggest that even a single 20-minute VR counseling session can produce measurable short-term benefits in emotional regulation, particularly in reducing anxiety and stress levels among digital natives.

Qualitative Results from Pilot Observation

Analysis of interviews and observational notes generated three key themes: (1) Immersive Presence and Engagement, Participants reported a strong sense of “being there” in the VR counseling environment. The realism of the virtual counselor and the calming environment enhanced trust and openness during the session. (2) Psychological

Comfort and Safety, Many participants expressed that VR provided a sense of safety compared to face-to-face sessions, reducing initial hesitation in discussing sensitive issues. (3) Perceived Therapeutic Value, Participants highlighted improvements in relaxation, emotional awareness, and coping strategies. However, several noted that long-term impact would require repeated sessions integrated into structured counseling programs.

Interpretation: The qualitative findings reinforce the quantitative results by showing how VR fosters emotional safety and engagement, which are critical components of effective counseling.

Discussion

The findings of this study provide compelling evidence that Virtual Reality (VR) has strong potential as a transformative tool in counseling practices, particularly for digital-native populations. By combining a systematic literature review (SLR) with pilot observation, this research highlights both the current achievements and the gaps in integrating VR into psychological interventions.

Integration of VR in Counseling Practice

The SLR revealed that between 2021 and 2025, VR has been predominantly applied in targeted domains such as anxiety, phobia, PTSD, and stress management. These applications demonstrate measurable clinical benefits, including reduced symptom severity and improved emotional regulation. However, most prior studies treated VR as a supplementary clinical tool rather than embedding it into structured counseling frameworks. This observation confirms the novel contribution of this study, which proposes and tests a conceptual framework specifically designed to position VR as an integrated counseling modality.

The pilot observation further supports this perspective by showing that a single VR counseling session can yield significant reductions in anxiety and stress levels, aligning with prior findings (e.g., VR exposure therapy for phobias and VR relaxation for stress). Importantly, participants reported high usability scores (SUS = 81.2), suggesting that VR counseling tools are not only clinically relevant but also technologically acceptable to users.

VR as an Immersive and Safe Counseling Environment

Qualitative insights from participants highlight a unique advantage of VR counseling: the creation of a psychologically safe and immersive environment. Unlike face-to-face counseling, where clients may initially feel intimidated or hesitant, VR provides a buffer zone that reduces stigma and lowers entry barriers to therapy. This echoes recent literature on VR in education and training, where immersion fosters engagement and comfort (Zhang et al., 2023).

In the counseling context, immersion is more than an aesthetic quality; it directly contributes to therapeutic openness and emotional expression. Participants' reflections on feeling "safe" and "comfortable" in VR confirm its role as a catalyst for therapeutic alliance. This positions VR not merely as a technological novelty but as a meaningful enabler of counseling efficacy in the digital age.

Novelty of the Proposed Framework

The conceptual framework (Figure 1) developed in this study advances current knowledge by connecting three critical dimensions (1) Immersive VR Environment – providing presence and engagement. (2) Therapeutic Interaction – enabling structured counseling dynamics. (3) Psychological Outcomes – reducing stress and anxiety, enhancing motivation.

While previous studies (see Table 1) focused narrowly on clinical outcomes, the framework emphasizes integration into counseling processes, making it adaptable for schools, universities, and digital mental health services. This novelty is crucial for advancing counseling beyond experimental applications into mainstream, technology-enhanced practice.

Implications for Practice and Policy

The results have several implications (1) Counselors and psychologists can adopt VR as a complementary tool for clients reluctant to participate in traditional sessions. (2) Educational institutions can integrate VR counseling into student mental health services, especially given the digital affinity of Generation Z. (3) Policy-makers should consider VR counseling as part of digital mental health strategies, ensuring accessibility, infrastructure, and ethical guidelines.

Furthermore, the high usability score suggests that VR counseling systems can be scaled with minimal training, reducing adoption barriers. As hardware (e.g., standalone headsets like Oculus Quest) becomes more affordable, the democratization of VR counseling is increasingly feasible.

Limitations and Future Research

Despite promising results, several limitations must be acknowledged (1) The pilot observation involved a small sample (n = 15), limiting generalizability. Future research should conduct larger-scale randomized controlled trials (RCTs). (2) The study focused on short-term effects. Longitudinal studies are necessary to evaluate sustained therapeutic benefits. (3) The VR simulation used in this study was limited to stress regulation. Expanding to other counseling domains (e.g., grief, trauma, career counseling) would broaden applicability. (4) Cultural adaptation was not addressed. Given that counseling practices vary across cultures, future research should explore localized VR counseling frameworks.

Nevertheless, these limitations do not diminish the study's novelty. Instead, they provide clear directions for future research, particularly the need for multi-site trials, AI-enhanced VR counselors, and cross-cultural studies.

SIMPULAN

This study demonstrates that Virtual Reality (VR) holds transformative potential for next-generation counseling, particularly among digital natives who are accustomed to immersive technologies. By integrating findings from a Systematic Literature Review (SLR) and a pilot observation, the research confirms that VR is effective in reducing

anxiety and stress, fostering immersion, and creating a safe environment for emotional expression.

The conceptual framework proposed in this study (Figure 1) advances current knowledge by positioning VR not only as a clinical aid but as an integrated counseling modality. This framework highlights the synergy between immersive environments, therapeutic interaction, and psychological outcomes, providing a foundation for structured VR-based counseling interventions.

Ultimately, this study underscores the novel contribution of embedding VR into counseling practices, moving beyond experimental usage toward sustainable, technology-enhanced psychological support systems.

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