Mental Health Virtual Coaching

Introduction

The project focuses on the development of an immersive mental health virtual coaching platform utilising virtual reality (VR) technology. The goal is to leverage the immersive nature of VR to create a transformative therapy experience that enhances accessibility, engagement, and effectiveness for individuals seeking mental health support.

Purpose

In this presentation, I aim to provide a comprehensive exploration of my project idea: the development of an immersive mental health virtual coaching platform using virtual reality (VR) technology. My primary goal is to delve deeper into the implementation and potential benefits of this innovative approach to mental health therapy. Through a thorough examination of key concepts, research findings, and practical considerations, I seek to convey the significance and potential impact of my proposed project.

Potential of VR Therapy

Making Therapy More Accessible

- Make therapy more accessible through virtual reality, VR offers an immersive and engaging experience Users can feel like they are physically present in the therapeutic environment, which can enhance their sense of connection with the therapist and the therapeutic process.

- In VR, "presence" refers to the psychological feeling of actually being in the virtual environment. This feeling of immersion goes beyond seeing well-rendered visuals; it incorporates a sense of embodiment and the ability to interact meaningfully with the virtual world.

Challenging Contrary Views

Why Opt for VR Therapy Over Traditional Video and Voice Calls?

- In contrast to traditional video and voice calls, where the interaction is limited to a two-dimensional screen, VR therapy offers a three-dimensional immersive environment that can simulate real-life scenarios. This spatial immersion enables a deeper level of engagement and presence, allowing users to interact with their therapist and therapeutic exercises in a more natural and lifelike manner. By providing a sense of being physically present in the therapeutic environment, VR therapy can foster greater rapport and connection between the user and therapist, enhancing the overall therapeutic experience.

- Lack of embodied cues: Non-verbal communication is crucial in therapy. Subtle gestures, posture shifts, even how someone occupies space – these cues are lost or diluted through a video call.

Evidence-Based Approach

1. **Virtual reality in the assessment, understanding, and treatment of mental health disorders**

In 2017 a review was completed by Professor Daniel Freeman of every study that has used VR to assess, understand and treat mental health conditions. In over 25 years, and 285 studies across the range of anxiety disorders, the results unequivocally confirm that VR is a proven modality for delivering rapid, lasting improvement for patients.

[Virtual reality in the assessment, understanding, and treatment of mental health disorders](#)

2. **Automated psychological therapy using immersive virtual reality for treatment of fear of heights: a single-blind, parallel-group, randomised controlled trial**

In early 2018 Oxford VR with the University of Oxford conducted one of the largest randomised controlled trials of fear of heights treatments, in which 100 people who had suffered a fear of heights for an average of 30 years were randomly allocated either automated VR therapy or no treatment. The VR therapy was delivered via 30-minute interventions in a clinic, where a virtual assistant guided users through a cognitive treatment program.

On average, people spent approximately two hours in VR over five treatment sessions. The findings, published in the Lancet Psychiatry, showed results that were better than outcomes typically delivered by premium face-to-face therapy. All participants in the VR group showed a reduction in their fear of heights, with the average reduction being 68%. Half of the participants saw a reduction in their fear of over 75%. These results demonstrate the dramatic effects on psychological well-being that automated VR therapy can produce.

[Automated psychological therapy using immersive virtual reality for treatment of fear of heights: a single-blind, parallel-group, randomised controlled trial](#)

3. **Virtual reality exposure therapy for social anxiety disorder: a randomised controlled trial**

This study investigated the effectiveness of virtual reality exposure therapy and exposure group therapy for social anxiety disorder (SAD) with a focus on public speaking fear. Researchers recruited 97 participants with SAD and assigned them to either virtual reality therapy, group therapy, or a wait list. The participants were mostly women and around 39 years old. The study measured anxiety levels and public speaking performance before and after treatment, with follow-up assessments at later points.

Analysis of covariance showed that, relative to wait list, people completing either active treatment significantly improved on all but one measure (length of speech for exposure group therapy and self-reported fear of negative evaluation for virtual reality exposure therapy). At 12-month follow-up, people showed significant improvement from pretreatment on all measures. There were no differences between the active treatments on any process or outcome measure at any time, nor differences on achieving partial or full remission.

[Virtual reality exposure therapy for social anxiety disorder: a randomised controlled trial](#)

4. **Treatment of flying phobia using virtual reality: data from a 1-year follow-up using a multiple baseline design**

Method:

- This study examined the short-term (post-treatment) and long-term (1-year follow-up) effectiveness of VR exposure therapy for treating flying phobia (FP).

- Nine participants were included in the study.

- The treatment program consisted of six VR exposure sessions targeting flying anxiety, accompanied by one session on education about anxiety, flying, and exposure therapy.

- A VR software with three scenarios was developed: air plane (common scenario), room (for anticipatory anxiety), and airport (for anticipatory anxiety).

Result:

- The results showed a decrease in fear, avoidance behaviours, and belief in catastrophic thoughts about flying after VR exposure therapy, both immediately after treatment and at the 1-year follow-up.

- Scores on specific self-report measures for flying phobia also confirmed these improvements.

- Importantly, all participants were able to fly after the treatment.

[Treatment of flying phobia using virtual reality: data from a 1-year follow-up using a multiple baseline design](#)

5. Virtual reality cue reactivity assessment in cigarette smokers

Abstract:

- Drug craving is linked to relapse in substance use.

- Traditional methods to assess craving have limitations (unrealistic settings, lack of complexity, etc.).

- Researchers developed a Virtual Reality Nicotine Cue Reactivity Assessment System (VR-NCRAS).

- Ten nicotine-dependent smokers participated.

- They were exposed to VR scenarios with smoking cues and neutral cues in a controlled setting.

- Researchers measured subjective craving and physiological responses.

Results:

- Smokers reported increased craving and showed physiological signs of craving when exposed to VR smoking cues.

- Neutral cues did not trigger craving responses.

[Virtual reality cue reactivity assessment in cigarette smokers](#)

6. Virtual reality treatment of claustrophobia: a case report

- The patient was a 43-year-old widow. She was referred by the Mental Health Services because of her strong fear, anxiety and inability to undergo a CTS to detect a possible lesion in the spinal column that may have been contributing to her back pain for three years. The CTS was the last neurological test she had to complete but her great fear of this kind of exploration prevented her from carrying it out. She reported she had been afraid of closed places since she was a child (e.g. elevators, aeroplanes, putting her head into water, having the windows closed during sleep).

Results:

As can be seen in Table 1 all the measures were reduced following VR exposure and were maintained at follow-up. Fear and avoidance measures dramatically decreased, providing evidence for the efficacy of the therapy.

[Virtual reality treatment of claustrophobia: a case report](#)

We have explored the potential of leveraging virtual reality (VR) technology to revolutionise mental health therapy. By examining a series of groundbreaking studies, we have gained valuable insights into the effectiveness and versatility of VR-based interventions across various mental health conditions.

In conclusion, the findings from these studies underscore the transformative potential of VR therapy in advancing mental health treatment. By harnessing the immersive capabilities of VR technology, we have the opportunity to create a more accessible, engaging, and effective therapeutic experience for individuals worldwide. Our project idea of developing an immersive mental health virtual coaching platform represents a significant step forward in this endeavour, offering hope and healing to those in need.

Integration of Study Findings with Project Concept:

Project Concept Alignment with Study Findings:

- The overarching goal of my project is to develop an immersive mental health virtual coaching platform that leverages VR technology to provide personalised and effective therapeutic experiences.

    - My project aligns closely with the findings and methodologies presented in the studies we've reviewed, which highlight the effectiveness of VR therapy in treating various mental health conditions.

    - The studies emphasise the importance of creating immersive environments where individuals can confront and address their issues in a controlled and supportive setting, mirroring the core objective of my project.

Creating Immersive Environments for Therapeutic Engagement:

- Drawing inspiration from the research on VR exposure therapy for fear of heights, social anxiety disorder, and flying phobia, my project aims to create immersive environments tailored to each user's specific needs and challenges.

    - Customised exposure scenarios will be incorporated into the virtual platform, allowing users to confront their fears and anxieties in a safe and controlled environment.

    - By providing a virtual space where users can engage with their mental health concerns, my project seeks to facilitate lasting therapeutic improvements and promote overall well-being.

Example Scenario:

Imagine a user experiencing social anxiety, struggling with the fear of public speaking. In the **immersive environment of our virtual coaching platform, they can enter a simulated auditorium** setting where they are tasked with delivering a speech to a virtual audience.

- The user can customise the size and demographics of the audience, adjusting the level of challenge to their comfort level.

- With each session, the user gains confidence and mastery over their fear, ultimately leading to improved public speaking skills and reduced anxiety in real-life scenarios.

Biofeedback Integration:

As part of our immersive mental health virtual coaching platform, we integrate biofeedback technology to provide users with real-time feedback on their physiological responses.

- This includes monitoring parameters such as heart rate and skin conductance, which are indicative of the user's anxiety levels and emotional arousal.

- By **visualising** these physiological responses **within the virtual environment**, users can gain insight into their stress levels and practice coping techniques in a controlled and supportive setting.

The biofeedback feature enhances the therapeutic experience by empowering users to monitor and regulate their physiological responses, ultimately facilitating greater self-awareness and emotional regulation.

Users may see how their skin conductance and heart rate react to the simulated audience in the situation when they are facing their fear of public speaking thanks to the biofeedback integration.

- As they deliver their speech, users can see real-time fluctuations in their physiological responses, providing immediate feedback on their anxiety levels.

- This **visual feedback** enables users to practise relaxation techniques and cognitive strategies to manage their anxiety effectively, leading to improved confidence and performance over time.