CHAPTER I

INTRODUCTION

Rationale

The ability to connect with others is a fundamental part of human nature. As social beings, interacting and associating with others is an excellent method to expand our social circles while improving our mental health. Others, on the other hand, find it easier said than done.

Exposure Therapy in Psychology, especially in psychological treatment, has already been a reality for some people. It has been used in the treatment of returnees from the war due to their experiences which caused PTSD in place of imaginal prolonged exposure therapy. By creating a low-threat atmosphere with controlled events by the clinician/psychologist, the users could process their feelings and experiences in a safer environment (Difede et al., 2009). Repeated exposures ensure that these patients can practice being non-anxious in these situations. The researchers created this research to incorporate this into everyday technology and make it available to professionals and their clients.

Statement of the Problem

According to a study conducted by the National Comorbidity Survey Replication and published by the National Institute of Mental Health, an estimated 7.1 percent of the adult population in the United States has a social anxiety disorder. This study aims to use video games to reduce social anxiety and develop social skills by mimicking real human interaction scenarios in a secure and controlled setting to ease the user into exposure treatment.

Traditional procedures have a high success rate, with 60-90 percent of patients reporting significantly reduced symptoms after their sessions (Legg, 2020). However, some of these sessions can be resource-intensive in real life. It takes time and money to recreate these situations or even to accompany these participants to real-life scenarios. These circumstances are why some, like our team, have taken to combining treatments with technology. Of course, exposure therapy is best captured by experiencing and devoting time to socializing with others face-to-face. The game does not aim to replace existing solutions. In these times of the pandemic, patients with social anxiety can use this application to continue treatments online and as part of the initial stages of treatment before introducing them to actual stimuli.

The use of mobile applications to help in the mitigating of anxiety caused by social activities has been around (Miloff et al., 2015). VRET, or Virtual Reality Exposure Therapy, has gained much traction as a treatment for various anxiety disorders (Gahm, G.A, Reger, G.M, 2008). In a randomized controlled trial involving VRET for social anxiety disorder, they discovered that participants improved their ability to deal with social situations in a year. "*Virtual reality exposure therapy is equally effective as exposure group therapy...*" they emphasized (Anderson et al., 2013). Multiple studies praise the flexibility of VRET. If we were to integrate these realistic simulations on a smaller scale where more people could afford and access them, the research could provide insight and help to a larger audience.

Significance of the Study

With the help of this study, researchers will be able to grasp better how video games can assist psychology, particularly in psychotherapy. We want to understand better how games can aid in the sessions people undergo by making them more engaging.

REVIEW OF RELATED WORKS

Video Game Industry and Social Anxiety

Social anxiety prevails as one of the most common anxiety disorders (NCBI, n.d.). Although the current society has opened its eyes to its significance, there still is a lack of cost-effective methods to aid treatment. The lack of cost-effective solutions is why some have turned to collaborate with the video game industry in search of alternatives.

There have been numerous positive studies where even casual gaming has benefitted patients with anxiety. For example, a clinical study researching the use of electronic games in therapy has determined results where commercial video games showed benefits in anxiety management in patients (Horne-Moyer et al., 2014). Another controlled study showed significantly reduced anxiety symptoms after playing casual video games (Fish et al., 2014). However, one study found that adolescent girls who reported the most hours spent playing games had higher anxiety levels than boys, implying that playing games is beneficial in reducing anxiety levels in boys but not in girls (Ohannessian, C.M., 2018). To further verify this, the research will also bear this factor to help determine how gender plays into the study.

Aside from casual games, several companies have recognized the value of focusing their game designs on mental health, particularly social anxiety. A similar study was accomplished that aims to treat social anxiety through a mobile app called "The Challenger App," which also relays that with the help of gamification, even the mobile game industry shows the potential to reduce the

ABSTRACT

burden of Social Anxiety Disorder. However, to successfully do so, there were still challenges, such as personal data privacy. The application focused on players completing challenging interactions with their environments while setting self-goals and reflections as motivation (Carlbring et al., 2015). On the other hand, a third of the other existing commercial applications for mental health reports focus on psychoeducation, symptom management, and supportive resources, with 23 out of 28 applications exclusively focused on social anxiety (Alyami H. et al., 2017). A systematic review by Campbell et al. (2021) highlighted how the need for more accessible alternative treatment methods had increased, especially in the current worldwide COVID-19. The future of commercial video games has been spotlighted by how "*researchers and video game companies are beginning to find new solutions to address mental health support through VR gaming...Given the immersive nature of VR technology and the controllability of the virtual environment, it could be particularly well suited for exposure therapy*".

It is worth looking out for the rise of VRET, or Virtual Reality Exposure Therapy. Tailored for clinical use, VRET takes up the treatment for anxiety up a notch. A study took this approach to exposure to virtual social interactions to treat social anxiety. Results show that the exposure effectively reduced the levels of Social Anxiety Disorder in the 60 patients they had (Brinkman et al., 2016). Walkom (2016) supports these results who shared details of where his participants became anxious within the VRET sessions but managed to lower their anxiety levels after repeated exposure sessions. Participants with slight stutter also showed improvement in speech. Several other studies show other promising results; however, many researchers share the same sentiment that it is still not stable or efficient enough to be a stand-alone clinical treatment for various disorders (Emmelkamp et al., 2020).

Exposure Therapy and Simulating Stress Related to Social Anxiety

Exposure therapy is a type of psychotherapy that assists people in confronting their fears. This method is accomplished by repeatedly exposing the person to the stimulus that causes fear. This type of psychotherapy is rooted in assisting the individual in avoiding the sources of their fears, whether they are phobias of specific animals, people, or activities. In this case, the person would be exposed to the stimulus in a safe environment to reduce fear and avoid avoidance in the long run.

However, the question of how to mimic the distress people experience in real-life social situations remains. Luckily, some studies have delved into discussing several points of view regarding evoking similar emotions from individuals through virtual environments.

In 2016, Barros-Neto and his team found that exposure to computer-generated 3D images was enough to reduce social anxiety. They repeatedly showed the participants images of social situations within 12 sessions. According to their findings, there was a significant increase in treatment adherence despite just showing realistic imagery.

Conversations with virtual avatars were also fear-inducing, although less realistic than conversations with a Vivo assistant (Briceno et al., 2013). This study could mean that presence and being "in" the simulation with the avatars also plays a significant role in immersing an individual in a virtual environment. However, there were positive and challenging points in a study that sought to determine whether virtual reality audiences elicit distress similar to an authentic audience. The average score for subjective distress in participants with Social Anxiety Disorder indicates moderate distress. Therefore, the results show some ability of a virtual environment to evoke anxiety and distress in individuals. However, the study notes that the participants judged that the environment was less immersive. One participant stated that "*...you know that the virtual people are not thinking negatively about you*" when tasked to perform a speech in front of the virtual characters as their audience (Beidel & Owens, 2015). As the simulation utilized audiences with neutral facial expressions and static behavior, this may have been a significant factor in its lesser realism.

Another study by Nomani and Sekhavat (2017) looks into a different angle and tries to determine whether there is a difference in eliciting anxiety if participants face passive or active scenarios. True to their hypothesis, participants did experience a considerable level of stress on both, but active scenarios elicited more distress from the participants. Active scenarios consist of interactive scenarios where the content of the environment changes in response to the participant's actions in real-time.

Current issues

Expanding and creating a virtual environment that simulates a nearly realistic environment involving socializing as a tool for exposure therapy experts have been studied extensively and has yielded positive results thus far. VRET is an excellent avenue, but we have to understand that equipment can be scarce, and only some have access to VR headsets. On the other hand, a heavier percentage of the population has desktops at their disposal.

Although there may be considerable differences between VR and PCs, desktop games are more common and easily accessible to the masses. Existing desktop games like Solitude, for example, have explored the depths of social anxiety through engaging narratives. The theme of social anxiety and mental health, in general, is not new in video games. However, other than that, there appears to be a gap in pure real-life simulations of various social situations.

Another area in this exposure therapy not yet explored is AI integration, especially a form that discerns the user's emotions through facial recognition. With advancements and accessibility to open-source dynamic analysis technology based on facial landmarks, this may be an excellent opportunity for further studies in emotion recognition and improving desktop simulations for social anxiety and handling complex emotions. By integrating this, we can better track the user's state and understand one's behavior when experiencing social anxiety in social situations. The ease of progress tracking makes for a suitable environment for adaptive gameplay that makes the game dynamic—altering the game elements based on the user's actions and emotions. Of course, it needs professional input as it entails the details of the adjustments to the game elements during listed common scenarios. There have also been conflicting studies that emphasize there may or not be different results according to gender. As long as we can effectively find a way to introduce a safe amount of stressors effectively and take into mind these other factors, this research hopes to broaden the scope and address other psychological disorders by incorporating these integrations.