
The Use Of VR Technology To Treat Phobias And Other Anxiety Disorders

Over the past decade, virtual reality had massive breakthroughs, with its usage extended into various fields, such as arts, film production, medial, video gaming, and even military training. The virtual environment is presented through a head mounted display (HMD) composed of separate screens for each eye, stereo earphones and a head-tracking device. The users of the device can navigate freely in the three - dimension virtual world with a real sense of presence. With the involvement of real-time computer graphics, sounds, smell and other sensory, virtual reality technology invites and immerses its users into real-world interactive experiences.

Among the multiple fields that adapted the technology of virtual reality is clinical treatment. A number of VR applications have been developed for the mental health field including the treatment of anxiety disorders, which is a type of health diagnoses shown by the feelings of worry, fear and anxiety. There are many anxiety disorders and scientists have found that phobia is the most common one which is defined by intense “fear of a situations or objects that actually pose little or no danger”. The patients usually would do anything possible to avoid interactions with their phobias by behaving irrationally and unreasonably. Phobias can be divided in three categories: agoraphobia (the fear of open spaces, unfamiliar or uncomfortable environments), social phobia or social anxiety disorder (intense fear manifested by the patient when he faces social situations, must perform in public or be part of social settings) and specific phobia. Specific phobia is the kind of unreasonable fear related to exposure to specific objects or situations and can be divided in five sub-categories: animal, natural environment, situational, blood-injection-injury and other.

Many people believe that phobias cannot be cured and the existing treatments are ineffective so they don't even try to seek possible treatments. However, various treatments have been used to treat phobias and most of them are effective and convenient. The most commonly used treatment is cognitive behavioral therapy. Basically, what CBT does is guiding the patient to view and confront their fear through a different angle and learn to control his feelings and thoughts. Another possible method is suggested after scientists found out that phobias are usually related to particular “fear memories” which can be disrupted by exposure to a tarantula. However, more researches and instructions need to be conducted on this method. Another treatment, exposure therapy, might be the reason why patients want to avoid treatment: they don't want to confront with their fear. However, exposure treatments have been proven to be the most durable method with the intensity of exposure is added up gradually. For example, from photo of the object to a video and eventually to the real object, and the whole process is

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carefully monitored and guided by a therapist.

For the past several years, technology has been developing unprecedently rapid, making virtual reality an ideal tool for mental health application. With more researches and studies conducted, computers and VR devices now operate faster than before, create better quality of graphics and the cost of experiments has been significantly reduced, which also proves the effectiveness of virtual reality as a treatment for mental health. What really makes VR intervention stands out among other types of treatments is that it invites patients to a real - life experience that can be modified based on different preferences and needs.

Various studies have been conducted using VR as psychological conditions treatment, and VR interventions were proven to be successful for multiple types of phobias, including Agoraphobia, social phobia, spider phobia, and fear of heights. Like exposure approach, VR therapy is also based on the idea of exposure and interaction while preventing potential dangers that might happen in exposure approaches. The idea that VR is controlled by therapists and is designed based on each patients' needs and feelings make the patients feel safer and willing to participate and engage actively.

According to an experiment conducted on 12 patients with panic disorder, both VR therapy and imaginal exposure are effective in treating Agoraphobia. The researchers divided the patients into three groups: VR assisted cognitive therapy group, imaginal exposure group, and a control group. In the VR therapy, patients were exposed to 4 situations: in an elevator, a market, a square, and a subway, with the number of people in the crowd controlled by the therapist. The researchers found out that both the VR cognitive therapy group and the imaginal exposure group improved on their level of fear towards crowd with decreased anxiety and the VR cognitive therapy group achieved this within shorter period of time.

In an experiment designed for spider phobia patients, a virtual tarantula was created through VR technology. After the treatment, 23 patients were tested on their improvement. About 83 % of the virtual reality treatment group showed low or moderate level of fear when tarantulas were presented in real life.

In order to deal with the anxiety and fear some people have when they are in a social situation, researchers focused on treating public speaking anxiety as an approach to social phobias. In a study conducted on students from public speaking classes, scientists found that VR treatment group showed significant alleviation on their level of fear after only 4 treatment sessions that lasted less than 15 minutes.

The first study conducted on VR technology as therapy for patients with height phobia was in 1995. In this experiment, patients in VR treatment group received 7 sessions of VR exposure

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each week. There are three situations in the experiment: a bridge, a balcony, and a glass elevator and were presented to the patients at different level of difficulties based on the patients' reactions and improvements. The VR treatment group later showed obvious alleviation in anxiety, distress, and fear when they were put in high positions. However, the researchers were not sure if the result was caused by VR or not because the participants also went through vivo exposure while the research was conducted.

There is no denying that VR technology opens up a new possibility of treating mental disorders and has already yield promising results. However, some scientists claim that there is no direct and definite proves for VR's superiority over other treatments. Also, some patients might still prefer traditional therapies over VR because they feel uncertain about this newly emerged technology. So, although there are multiple potentials for adopting VR as a therapy for mental disorders and phobias, more researches, studies and clinical experiments need to conducted to draw conclusions on VR's effectiveness or advantages over traditional treatments.

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