

TREATING PHOBIAS USING VIRTUAL REALITY

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Abstract:

Phobia is a type of anxiety disorder defined by a persistent and excessive fear of an object or situation. A phobia is an overwhelming and debilitating fear of an object, place, situation, feeling or animal. Phobias are more pronounced than fears. They develop when a person has an exaggerated or unrealistic sense of danger about a situation or object. It is a type of anxiety disorder. Some phobias are very specific and limited. Virtual reality therapy (VRT) uses specially programmed computers, visual immersion devices and artificially created environments to give the patient a simulated experience that can be used to diagnose and treat psychological conditions that cause difficulties for patients. Computerized Cognitive Behavior Therapy (CBT) is the use of virtual reality technology for psychological or

occupational therapy and in affecting virtual rehabilitation. This project mainly focuses on Specific phobias. In specific phobia we are mainly concentrating on Acrophobia (fear of heights), Virtual reality therapy offers a drug-free method. Unity environment is used for development of virtual reality. It is a default tool for quick development of virtual reality applications. cause difficulties for patients. Computerized Cognitive Behavior Therapy (CBT) is the use of virtual reality technology for psychological or occupational therapy and in affecting virtual rehabilitation. This project mainly focuses on Specific phobias. In specific phobia we are mainly concentrating on Acrophobia (fear of heights), Virtual reality

Key Words: Virtual reality, phobia, Acrophobia, Aerophobia and Zoophobia Virtual reality therapy, Cognitive Behavior Therapy (CBT), Unity environment

Introduction:

A phobia is an excessive and irrational fear reaction. Environments, situations, or objects can trigger this reaction. Severe phobias may limit the person's ability to participate in daily activities. They may also cause the person severe anxiety and depression. Phobias can be divided into specific phobias, social anxiety disorder, and agoraphobia. Specific phobias are further divided to include certain animals, natural environment, blood or injury, and particular situations. The most common are fear of spiders, fear of snakes, and fear of heights. Specific phobias may be caused by a negative experience with the object or situation in early childhood. Social phobia is when a person fears a situation due to worries about others judging them. It is recommended that specific phobias be treated with exposure therapy, in which the person is introduced to the situation or object in question until the fear resolves.

Medications are not helpful for specific phobias. Social phobia and agoraphobia may be treated with counseling, medications, or a combination of both. Medications used include antidepressants, benzodiazepines, or beta-blockers. It is recommended that specific phobias be treated with exposure therapy, in which the person is introduced to the situation or object in question until the fear resolves. Medications are not helpful for specific phobias. Social phobia and agoraphobia may be treated with counseling, medications, or a combination of both. Medications used include antidepressants, benzodiazepines, or beta-blockers.

Specific phobias affect about 6–8% of people in the Western world and 2–4% in Asia, Africa, and Latin America in a given year. Social phobia affects about 7% of people in the United States and 0.5–2.5% of people in the rest

of the world. Agoraphobia affects about 1.7% of people. Women are affected by phobias about twice as often as men. The typical onset of a phobia is around 10–17, and rates are lower with increasing age. Those with phobias are more likely to attempt suicide.

I. Survey

There are multiple theories about how phobias develop and likely occur due to a combination of environmental and genetic factors. The degree to whether environment or genetic influences have a more significant role varies by condition, with social anxiety disorder and agoraphobia having around a 50% heritability rate.

A. Vicarious conditioning:

Vicarious fear acquisition is learning to fear something, not by a subject's own experience of fear, but by watching others, oftentimes a parent (observational learning). For instance, when a child sees a parent reacting fearfully to an animal, the child can also become afraid of the animal. Through observational learning, humans can learn to fear potentially dangerous objects—a reaction observed in other primates

B. Informational/Instructional acquisition:

Informational/instructional fear acquisition is learning to fear something by getting information. For instance, fearing electrical wire after hearing that touching it causes an electric shock. A conditioned fear response to an object or situation is not always a phobia. There must also be symptoms of impairment and avoidance

C. Therapy:

Cognitive behavioral therapy (CBT) can be beneficial by allowing the person to challenge dysfunctional thoughts or beliefs by being mindful of their feelings to recognize that their fear is irrational.

D. Medication:

Medications are a treatment option often utilized in combination with CBT or if CBT was not tolerated or effective. Medications can help regulate apprehension and fear of a particular fearful object or situation

E. Antidepressants:

Antidepressant medications such as selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), or monoamine oxidase inhibitors (MAOIs) may be helpful in some cases. SSRIs / SNRIs act on serotonin, a neurotransmitter in the brain

F. Hypnotherapy:

Hypnotherapy can be used alone and in conjunction with systematic desensitization to treat phobias. Through hypnotherapy, the underlying cause of the phobia may be uncovered. The phobia may be caused by a past event that the person does not remember, a phenomenon known as repression. The mind represses traumatic memories from the conscious mind until the person is ready to deal with them. Hypnotherapy may also eliminate the conditioned responses that occur during different situations. People are first placed into a hypnotic trance, an extremely relaxed state in which the unconscious can be retrieved

II. Acrophobia

Acrophobia is the fear of heights. Acrophobia is a mental health condition in which the individual experiences an intense fear of heights. It's a type of anxiety disorder. A person with acrophobia experiences intense fear and anxiety when they think of tall heights or are positioned at a significant height. They often avoid situations or places that involve heights people with acrophobia experience intense and unreasonable fear when they're faced with heights, including everyday tasks such as climbing a flight of stairs, standing near a balcony, or parking a car in a multiple-floor parking garage. A person with a phobia either tries to avoid the thing that triggers fear or endures it with great anxiety and distress

Signs and Symptoms:

The symptoms increased sweating, chest pain or tightness, and increased heartbeat at the sight or thought of high places. feeling sick or lightheaded when you see or think about heights

III. Proposed model

Virtual Reality:

Virtual Reality is a simulated computer-generated experience taking place within a virtual environment. By using virtual reality, we can simulate different fear scenarios to treat people with phobias. The virtual reality helps people to get out the phobias.

Mobile VR headsets: Mobile headsets are shells with lenses into which we place our smartphone.

Examples – Google Cardboard, Gear VR etc.

UNITY ENGINE

Unity is a multi- platform gaming engine that allows you to create interactive 3D content with ease. A lot of indie developers use Unity for its excellent functionality, high-quality content, and ability to be used for pretty much any type of game. It includes the engine with all features and can (for the most part) be used to make games on every platform.

A treatment based on virtual reality for treating height phobia. An environment is designed and developed by using unity engine and it consists of various scenarios like steps with mountains and the tall apartment fetching fruits which can be used for treating the height phobia. The scenarios are composed of various animated 3D scenes that can simulate a fearful event by using which we can treat people and make them get used to that environment. This can be played on android mobile phone by using Google Cardboard VR headset.

Virtual Reality supporting device:



Figure-2.6 Google Cardboard

Google Cardboard is an inexpensive handheld

device that powers a virtual reality (VR) experience using almost any smartphone running Cardboard-enabled apps.

Creating Virtual Environment:

We created the 3D plane using 3D cube object by adding desired sizes in all dimensions. Then, we created the walls on three sides of the plane object with same dimensions and the fourth wall is created with same dimensions as the previous walls and with empty space at the center for elevator by using Pro Builder tool which is installed from Unity package manager.

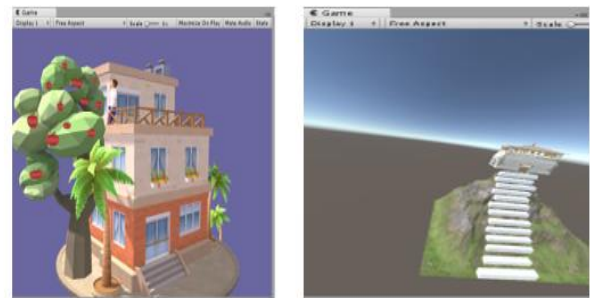
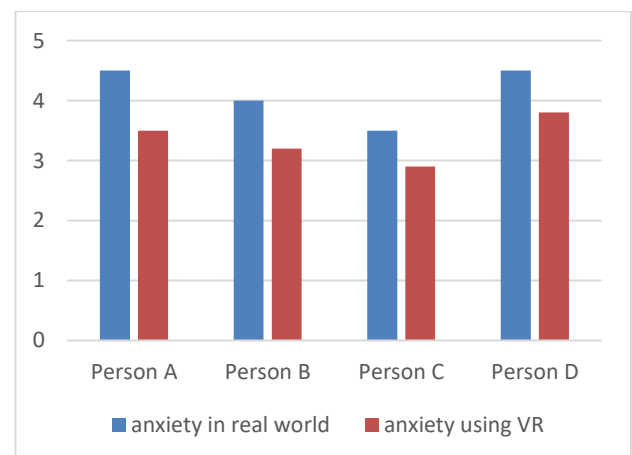


Figure-5.4 heights view

IV. RESULTS

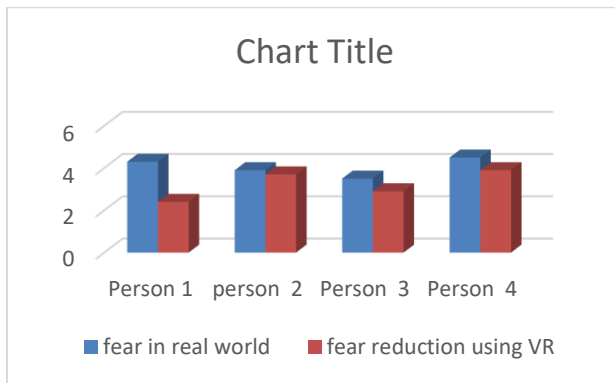
A. Anxiety

Phobias can be divided into specific phobias, social anxiety disorder. By using the virtual reality gaming environment, we can reduce the anxiety of the people. The anxiety will be reduced when they are compared to the real world.



B. FEAR REACTION

By using the virtual reality gaming engine, we can reduce the fear of any situation and environment. The people's fear will be reduced among the people by using this technique.



V. CONCLUSION:

Virtual reality therapy can help people in treating phobias by gradually exposing them to their greatest fears. With the help of virtual reality, multiple scenarios can be created to treat people with safer risks. Virtual reality can also allow us to customize environments to exactly what the person strives to overcome. Virtual reality can also provide drug free method of treatment for the patients. Virtual reality can provide more engaging and more authentic experience than normal therapy.

As the world population is growing the phobias are also increasing accordingly. we should implement the new techniques for reducing any kind of phobia by using this virtual reality gaming environment.

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