

## Comparison of Virtual Reality and Occupational Therapy Intervention for Glossophobia among Undergraduate Students in SRM College of Occupational Therapy

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### **Abstract:**

*To find the comparison between effectiveness of virtual reality based intervention and conventional occupational therapy intervention for glossophobia among undergraduate students in SRM College of occupational therapy. 15 participants (N=15) participated in the study with the age group from 18-22 of years. They were selected by using the assessment tool Personal Report of Public Speaking Anxiety scale (PRPSA). The participants are divided into Virtual reality group (n=5), Conventional group (n=5) and Control group (n=5). The Virtual reality group received Virtual reality exposure therapy and the Conventional group received Occupational therapy intervention such as Desensitization and Jacobson's Progressive Muscle Relaxation (JPMR) technique for about 6 weeks. The results shows that there was a significant difference between the Post test scores of Virtual reality, Conventional, Control group (F-value = 14.779, p=0.001). However, on comparing the three group, Conventional group which used systematic desensitization and JPMR shows more significant improvement compared to the other given interventions. This study concluded that the traditionally used intervention in occupational therapy is more effective than the highly speculated intervention using virtual reality. Hence systematic desensitisation and relaxation techniques are found to be more effective in reducing the public speaking anxiety among undergraduate students.*

**Keywords:** *Glossophobia, Systemic Desensitization, Virtual Reality.*

## **1. Introduction**

### **1.1 Glossophobia**

The word glossophobia comes from the Greek word glossa and means language and phobo, fear of phobias or fears (Hancock et al., 2010). Glossophobia characterized as “an extreme anxiety before to, or simply when thinking of having to interact verbally with any group, avoiding the activities that concentrate the group’s attention on individuals attending, and physical distress, nausea, or panic feeling in such instance” (National Institution of Mental Health, 2010). One of the most common phobias related to anxiety is glossophobia, which is fear of public speaking or of any event in which audience attention will be focused on the individual. About 75% of the world’s population suffers from the glossophobia. Glossophobia can affect both males and females. Women suffer more than males (Furmark, 2002). The social anxiety individuals assess that their social performance is lower when compare to others (Rapee & Hayman, 1996). Glossophobia is most common fear among all the healthy individuals and also the individual with social phobia (Ruscio et al., 2008). The social anxiety has greater impact on many areas such as social skills, work and education due to the intense fear (Chagas et al., 2010). The public speaking anxiety students facing many problems related to academic performance such as work attendance, low marks in school and overall performance (Schneier et al., 1992).

### **1.2 Role of occupational therapy in Glossophobia**

Occupational therapy is effective in reducing anxiety and teaching alternative coping strategies. Occupational Therapy for anxiety disorders may focus on managing anxiety in life occupations. One method is to teach the person and recognize and engage in activities that are relaxation, both at times of stress and on a regular basis. When the anxiety is stimulus specific and impairs function as in glossophobia, systemic desensitization and/or cognitive behavior therapy may be used to neutralize the anxiety response.

### **1.3 Virtual reality**

Virtual reality is outlined as associate application that enables a given user to navigate and move in real time with a three-dimension and computer-generated environment. In a computer generated situation, performing exposure in a virtual scenario allows a therapist to show an individual fear provoking stimuli (Pratt et al., 1995). Importantly, Virtual Reality has provoking successful in developing a convincing public speaking scenario that cause comparable distress for the participants. Patients exposed to anxiety stimulation as part of exposure therapy report that fear, a process known as addiction, intensifies over time (Emmelkamp et al. 1995).

### **1.4 Desensitization**

The Systemic desensitization is the most familiar treatment for behavioral problems which incorporated with classical and operant conditioning which help to person to get over of the anxiety and attain the positive behavior change (Wolpe, 1958). The effects of graduated exposure and peer feedback had a great impact on reducing speech anxiety (Lawn et al., 1994).

## 1.5 Jacobson's relaxation techniques

Jacobson's progressive muscle relaxation (JPMR) is a technique in which each muscle group develops and relaxes through relaxation. This means relaxing every muscle contraction. JPMR particularly useful for individual whose anxiety is strongly linked to muscle tension. (Jacobson, P.B., & Heather, S.J., 2008). Enhancing circulation that helps muscle relaxation which in turn reduces fear or anxiety is done through Jacobson's relaxation technique. It helps the larger muscle group to relax and simultaneously experiencing varied senses that arise while tension and relaxing is done (Bernstein and Borkovec, 1973).

## 2. Literature Review

### 2.1 Effect of Desensitization Intervention and Jacobson's Muscle Relaxation Techniques in Glossophobia

Joy, F. E., Jose, T. T., & Nayak, A. K. (2014), did a study that checked for "the effectiveness of Jacobson's Progressive Muscle Relaxation technique on social phobia". 193 students from 8<sup>th</sup> and 9<sup>th</sup> standard between the ages of 12-14 years. From the 193 students 52 students were selected by assessing The Social Anxiety Scale for Adolescent. The 52 students were trained JPMR technique for 10 days after that post test was conducted. The study revealed a significant positive correlation between pre and post test. Thus the result concluded that social anxiety is common among adolescent and JPMR technique is very useful in decreasing the social phobia.

Gilchrist, E. M. C., (2013), conducted the study on "the effect of video self modelling as an intervention for teenagers with Public Speaking Anxiety". People with Public Speaking Anxiety experience behaviors such as heart rate (HR), negative thoughts, self-focus, tremors or constant conversation. The study includes 10 high school students of 16-18 years. The Video Self Modelling (VSM) intervention is helpful to perform efficiently and reduce the anxiety (cognitive, behavioral & physiological) while performing a Presentation. The measurement scales used in this study are "Personal Report of Public Speaking Anxiety scale (PRPSA) and Self Statement during Public Speaking (SSPS)" to assess Public Speaking Anxiety, The Behavioral Assessment of Speech Anxiety (BASA) to measure the behaviours and ECG to measure Heart Rate. This the result shows that VSM intervention for high school students is an effective in reduce anxiety & to improve their cognitive, behavioral and physiological skills for effective public speaking.

### 2.2 Effectiveness of Virtual reality on public speaking anxiety

Valls Ratés, I. (2019), conducted a study to find "the effect of virtual reality simulation on public speaking anxiety in school students". Fifty six high school students were assessed by "Personal Report of Public Speaking Anxiety (PRPSA) and Anxiety Physiological Assessment Measures". The students were trained the public speaking performance by using virtual reality exposure (VRE) in three sessions with pre and post test design. The three different virtual audience are exposed to the students. The study concluded that virtual reality exposure increases the oral performance and reduces the public speaking anxiety of the high school students.

### **3. Methodology**

#### **3.1 Research Design**

The research design used for the study is Quasi-Experimental and quantitative study. The sample population includes undergraduate students in SRM college of Occupational Therapy.

#### **3.2 Sampling**

Fifteen (N=15) participants were recruited through convenient sampling. The participants were divided into virtual reality (n=5), conventional group (n=5) and control group (n=5).

#### **3.3 Instrument Used**

Personal Report of Public Speaking Anxiety (PRPSA) was developed by McCroskey, J.C. The Personal Report of Public Speaking Anxiety is a 34 point questionnaire that enables to assess speaking in the public as an entity to report the self-perceived communication anxiety. It was also used to investigate the efficacy of the systemic desensitization on communication apprehension.

#### **3.4 Data collection procedure**

The study sample consisted of 15 students from SRM college of occupational therapy and were duly assessed prior using PRPSA scale with scores ranging more than 96. Then the students who are the participants were divided into 3 groups, with 5 participant in each group. First group is Virtual Reality group, the students exposed to the virtual exposure therapy for 6 weeks (each week 2 session). Second group is conventional group, here the students underwent occupational therapy intervention for 6 weeks (each week 2 session). Third group is the control group. After completion of intervention, the post test was conducted and the score are compared.

#### **3.5 Intervention protocol:**

##### **Virtual reality therapy:**

Week 1 : Orientation about Virtual Reality and relaxation techniques should be trained.

Week 2 : Relaxation technique for 5mins with few mins exposure to Virtual environment

Week 3 : Relaxation technique for 5mins with 2 minute presentation in front of 3 people with static virtual audience.

Week 4 : Relaxation techniques for 5mins with 3 minute presentation in front of 8 people with positive voice from virtual audience.

Week 5 : Relaxation techniques for 5 mins with 5 minute presentation in front of 21 people with both positive and negative voice from virtual audience.

Week 6 : feedback and post-test

**Occupational Therapy Intervention:**

Week 1: Orientation about the occupational therapy intervention and

Identify the trigger factor by using the questionnaire

Week 2: Jacobson's Muscle Relaxation technique should be thought for the participants

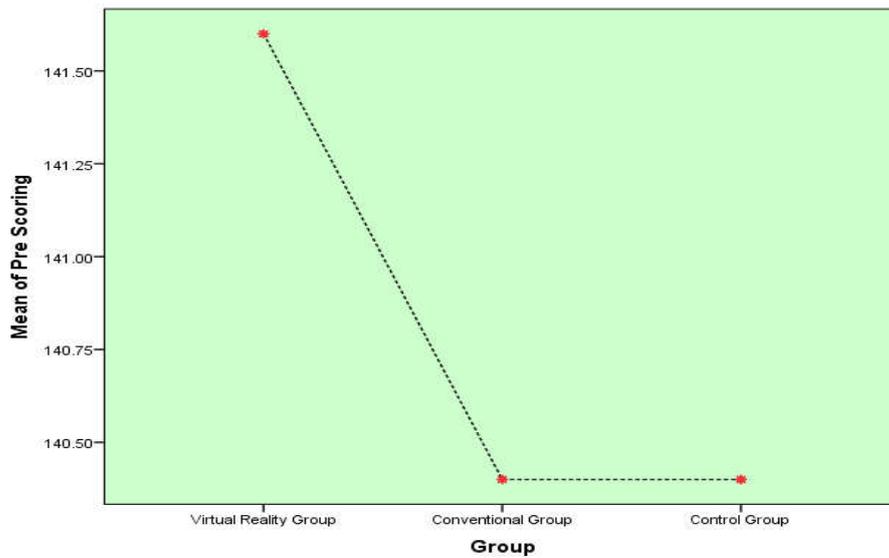
Week 3 & 4: Desensitize the participants fear according to the trigger factors

Week 5: Self Modelling will be given

Week 6 : Feedback and post-test.

**4. Results and Interpretation****Table No. 1****Comparison of Pre-test Scores of Virtual reality, Conventional and Control group**

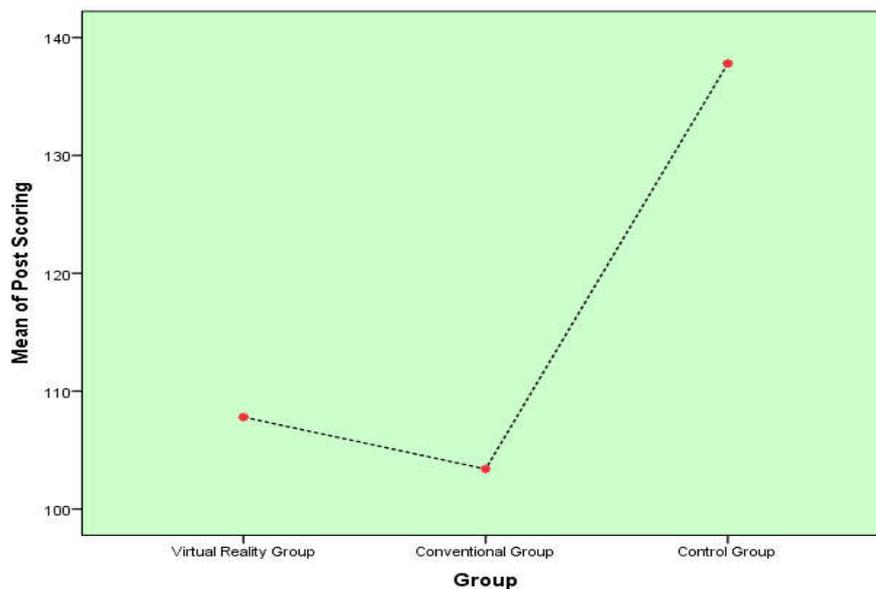
Pre Test	N	M	SD	95% Confidence Interval for Mean		Min	Max	F (p – Value)
				Lower Bound	Upper Bound			
Virtual Reality	5	141.60	10.455	128.62	154.58	124	151	<b>0.038</b>
Conventional	5	140.40	6.427	132.42	148.38	134	150	<b>(0.963)</b>
Control	5	140.40	6.427	132.42	148.38	134	151	<b>NS</b>



**Table No. 2**

**Comparison of Post-test scores of Virtual reality, Conventional, and Control group**

Post Test	N	Mean	SD	95% Confidence Interval for Mean		Min	Max	F – Value (P – Value)
				Lower Bound	Upper Bound			
Virtual Reality Group	5	107.80	12.657	92.08	123.52	90	124	<b>14.779 (0.001) S</b>
Conventional Group	5	103.40	12.361	88.05	118.75	90	120	
Control Group	5	137.80	6.535	129.69	145.91	131	148	



## 5. Discussion

The result of statistical analysis performed the post test score between the Virtual reality, Conventional, and Control group. This study states that there is a significant difference between the post tests of three groups. The result shows that the both the Virtual reality exposure therapy and the Conventional group i.e., Occupational therapy intervention are effective in reducing the fear of public speaking. But the Conventional group who undergoes Occupational therapy intervention such as Systemic Desensitization and Jacobson's Progress Muscle Relaxation technique are more effective in reducing Glossophobia comparatively than the Virtual reality exposure therapy. The other studies reported that standard Systemic Desensitization and deep relaxation results in reconditioning of an anxiety response to situations specifically focused on the treatment (Zemore, R., 1975).

## 6. Clinical Implication

The study provided insight into the much speculated discussion of VR vs traditional intervention that the conventional approach is highly effective compared to the usage of the VR. This further stresses on the need for the use of conventional therapy as the transfer of learning or facing the public proved to be livelier in the traditional approach than the simulated scenarios of providing the lecture. Although VR is helpful in various other conditions, therapist can stick to systematic desensitization and JPMR when treating clients with fear of public speaking as it enables a graded approach in moving up the ladder of fear thereby successfully completing the minor hurdles.

## 7. Limitation:

There were a number of study limitations which have been described. The small sample size (N=15) and the selection of samples through convenience sampling due to shorter period of data collection. Since the study took place in the OT department during the college hours, it was hard to provide intervention to the participants as they were in the busyness of the college work. Lasting effects of the intervention could not be followed up.

## 8. Conclusion:

The study intended to compare virtual reality and conventional occupational therapy intervention through systematic desensitization and Jacobson's Progressive Muscle Relaxation technique. The results revealed that the conventional intervention that is practised in occupational therapy is more effective than the highly speculated virtual reality. Hence systematic desensitization and Jacobson's Progressive Muscle Relaxation technique is highly significant in reducing the fear of public speaking.

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