

Virtual Reality Assisted Treatment of Public Speaking Anxiety

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Social Phobia

- *Social phobia* is defined as a fear of and desire to avoid a situation in which the individual may come under scrutiny by others and fears he/she may act in a way that will be humiliating or embarrassing.
- This is exacerbated when these others are strangers, are critical of or focus their attention on the performer.

Social Phobia

- **Onset of Social Phobia:** Adolescence or early adulthood.
- **Prevalence of Social phobia:** Approximately 13% of the population are effected and these problems are generally chronic.
- **Prevalence of Public Speaking Anxiety:** Occurs among 37% of those suffering from social phobia. Half state it is their only disturbance.

Treatment of Social Phobia

- Cognitive Behavior Therapy (*CBT*) has been found to be the treatment of choice for phobias.
- CBT is superior to all other psychotherapeutic approaches, in the percentages of people improving, degree of improvement as well as long term effects.
- The exposure component in CBT can be employed in a natural setting (“in-vivo”) or in imagination (“in-vitro”)

Advantages of VRCBT over in-vitro therapy

- In-vitro therapy is difficult to implement with people who have
 - difficulty imagining situations vividly,
 - avoid remaining in the imagined fearful situation,
 - are unable to control their imagination and flood themselves.
- With VRCBT the therapist has full knowledge of and control over the VR exposure.

Advantages of VRCBT over in-vivo therapy

- Protecting the client's anonymity,
- Increasing therapist's control over the environment,
- A large saving in time.

Studies using VRCBT for public speaking anxiety

- North, North and Coble (1998 in Wiederhold & Wiederhold, 2005)
 - Significant reduction in fear measures.
 - 16 participants,
 - No comparison between groups.
- Harris, Kemmerling and North (2002)
 - Significant reduction in fear measures.
 - 14 participants,
 - Non-random assignment,
 - Only one comparison was significant.
- Anderson, Rothbaum and Hodges (2003)
 - Two single case studies.

Hypotheses

- Both treatment groups (*VRCBT* and *CBT*) will be more successful in reducing social phobia than a no treatment (wait-list control) group as measured by pre minus post therapy questionnaires
- *VRCBT* will be superior to *CBT* in reducing social phobia as measured by pre minus post therapy questionnaires.

Characteristics of Subjects

	N	Age		Sex		Status			Student	
		M	Sd	M	F	S	M	C	Yes	No
VR	16	26	3.16	2	14	14	2	0	12	4
CBT	15	26	3.79	3	12	11	3	1	14	1
WL	22	25	2.61	6	16	20	2	0	21	1
Total	53	26	3.15	11	42	45	7	1	47	6

Measures

- Fear of negative evaluation (FNE) (Watson & Friend, 1969 in Salaberia & Echeburua, 1998)
- 2. Leibovitz Social Anxiety Scale (LSAS)(Fresco, Coles, Heimberg, Leibowitz, Hami, Stein, & Goetz, 2001).
- 3. Self Statements During Public Speaking, (SSPS) (Hoffman & DiBartolo, 2000).

Treatment Groups

- *VRCBT* – Virtual Reality Assisted Cognitive Behavior Therapy
- *CBT* – Cognitive Behavior Therapy
- *WLC* - Wait List Control

Treatment of Public Speaking Anxiety Design

- *VRCBT* and *CBT*: Filled out questionnaires before and after 12 individual one hour treatment sessions.
- *WLC* : Filled out questionnaires before and after a 12 week wait period.

Treatment of Public Speaking Anxiety Cognitive Component

- The cognitive model of social phobia
- The rationale for cognitive treatment
- Training in cognitive restructuring

Treatment of Public Speaking Anxiety Behavioral Component

- The behavioral model of social phobia
- The rationale for behavioral treatment
- Graded in session behavioral exposure in imagination in CBT or in virtual environments in VRCBT

Treatment of Public Speaking Anxiety Virtual Reality Exposure

- Scenes in which the subject reads a prepared talk in front of an audience which responds:
 - By showing interest by
 - Clapping their hands politely
 - Clapping their hands enthusiastically
 - By showing disinterest by
 - Yawning
 - Talking
 - Asking questions
 - Walking out of the room
 - The ring of a cell phone

Treatment of Public Speaking Anxiety Results – Characteristics of Subjects

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Treatment of Public Speaking Anxiety Results

Pre Minus Post Anxiety Measures

	FNE		LSAS fear		LSAS avoid		SSPS positive		SSPS negative		SSPS total	
	M	Sd	M	Sd	M	Sd	M	Sd	M	Sd	M	Sd
VRCBT	1.1	9.2	8.8	16.6	10.8	15.9	8.3	6.2	2.1	7.5	10.4	12.8
CBT	1.4	5.0	4.1	10.8	6.9	10.2	4.1	4.9	4.4	4.8	8.5	9.1
WL	0.6	4.5	2.8	7.9	0.8	7.2	0.8	5.0	0.0	4.8	0.8	8.3

Treatment of Public Speaking Anxiety Summary of Results

- VRCBT was significantly superior to WL on three out of six measures (Leibovitz avoidance, SSPS positive statements, SSPS total)
- CBT was significantly superior to WL on two out of six measures (SSPS negative statements and SSPS total)
- VRCBT was significantly superior to CBT on one out of six measures (SSPS positive statements)

Treatment of Public Speaking Anxiety Discussion

- Difficulties in previous research:
 - Lack of large treatment groups,
 - Lack of random allocation of subjects
 - Lack of a control group
- Findings in this study:
 - Subjects receiving *VR*CBT improved more than subjects in the wait-list control group on three measures (LSAS avoidance, SSPS positive, SSPS total).
 - Subjects receiving *VR*CBT improved more than subjects receiving *CBT* on one measure (SSPS positive)
 - Subjects receiving *CBT* did not improve more than subjects receiving *VR*CBT on any measure
 - Subjects receiving *CBT* improved more than subjects in the *WLC* group on two measures (SSPS negative, SSPS total).
- Therefore, we can conclude that *VR*CBT is a viable and effective treatment strategy for public speaking anxiety.

Treatment of Public Speaking Anxiety Difficulties

- Difficulties encountered in the present research:
 - Audience attire and reactions were foreign to our subjects
 - Audience reactions were not variable enough
 - HMD not totally immersive
 - Subjects advanced at different rates making it difficult to maintain a uniform protocol

Treatment of Public Speaking Anxiety Solutions

- Here are several solutions our very capable research assistants devised for the difficulties we encountered:
 - Audience attire and reactions were foreign to our subjects – constructing the image
 - Audience reactions were not variable enough
 - HMD not totally immersive – blocked the bottom
 - Subjects advanced at different rates making it difficult to maintain a uniform protocol – adapted the protocol