Virtual Reality Therapy for Social Phobia: its Efficacy through a Control Study

Evelyne Klinger

LTCI - ENST, Paris – GREYC, Caen

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TELEMEDICINE AND PORTABLE VIRTUAL ENVIRONMENTS FOR CLINICAL PSYCHOLOGY

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Background : Social Phobia

- A **persistent and irrational fear of social or performance situations that provokes :**
  - **Intense anxiety, avoidance, distress**
  - **Interference with routine or social activities or relationships**

Background: 4 types of Social Phobia

Holt et al., 1992

Performance	**Speaking in public, interviews** → **In a meeting room**
Intimacy	**Informal contacts, small talk, next-door neighbor, friends** → **In a friend's flat**
Assertiveness	**Protecting one's interests, viewpoints, being respected** → **In a lift, a hall, a shoe store**
Scrutiny	**People around, crossing a coffee shop, being observed** → **Outside a coffee shop**

→ **Four Virtual Exposure Situations**

Figure 1 : Performance environment

Figure 2 : Intimacy environment

Figure 3 : Scrutiny environment

Figure 4 : Assertiveness environment

Klinger E., Légeron P. et al., 2001-2003, Greyc-EnsiCaen, Hôpital Ste-Anne

Method

- **Participants**
  - 36 consecutive outpatients
    - → **Virtual Reality Therapy** (18 patients)
    - → **Cognitive and Behavioral Therapy** (18 patients)
  - Meeting inclusion and exclusion criteria
  - Suffering from Social Phobia for 14.5 years (VRT) and 16.4 years (Group CBT)

Method

- **Measures**
  - **Selection:**
    - **Short Beck Depression Inventory (BDI-13)**
  - **Primary: Social Phobia:**
    - **Liebowitz Social Anxiety Scale (LSAS)**
  - **Secondary: Social functioning:**
    - **Rathus Assertiveness Schedule**
    - **Questionnaire on Social Context Inducing Anxiety (SCIA)**
  - **Tertiary: General functioning:**
    - **Zigmond and Snaith Hospital Anxiety Depression Scale (HAD)**
    - **Sheehan Incapacity Scale**
    - **Clinical Global Impression Scale (CGI)**

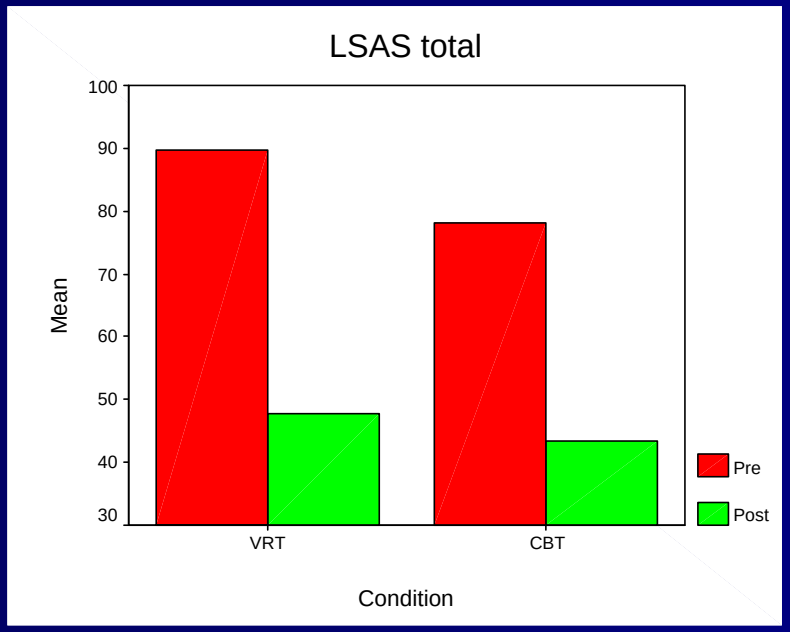
Pre/Post

- **Treatment**
  - **VRT: 10 females and 8 males, Mean age = 30.5 years**
  - **Group CBT: 9 females and 8 males, Mean age = 32.0 years**

Method: Structure of the therapy

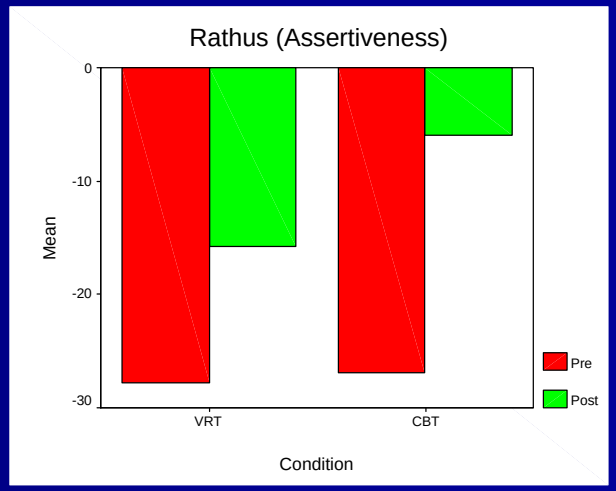
VRT (18 patients)	CBT (18 patients)
Individual sessions	Small group (8 – 10 patients)
Directed by CB therapist	Directed by CB therapist
Duration : 30 – 45 min	Duration : 2 hours
12 weekly sessions	12 weekly sessions
Tasks	Tasks

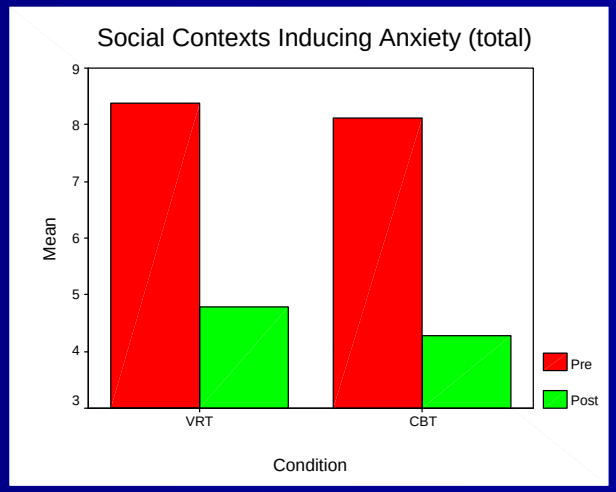
Results: Primary & Secondary variables



Primary variable

Secondary variables





Results: Tertiary variables

	VRT (n=18)		CBT (n=18)	
	Pre	Post	Pre	Post
General functioning				
HAD				
Anxiety	8,9 (3,7)	7,6 (2,7)	11,8(3,8)	9,3 (3,7)
Depression	5,1 (3,2)	3,3 (3,9)	6,2 (3,2)	3,9 (4,6)
Sheehan				
Family	4,4 (2,2)	3 (1)	4,9 (2,4)	2,7 (1,8)
Social	7,4 (0,9)	4 (0,9)	7 (1,9)	3,9 (1,8)
Work	5,9 (2,5)	2,8 (1,9)	6,2 (2,7)	3,2 (2,3)
Clinical Global Impression (CGI)	4,8 (0,7)	2,8 (0,6)	4,7 (0,8)	3,1 (1,2)

Statistical Analysis (1)

	ANOVA (df = 1,34)			*Effect size of the interaction*		
Variables	*Time*	*Condition*	*Interaction*	*Interaction eta squared*	*Effect size*	*Estimated N to find a significant difference*
LSAS						
Anxiety	146.71***	.96	1.43	.04	Small	> 200
Avoidance	123.94***	1.50	1.12	.03	Small	> 300
Total	147.34***	1.30	1.41	.04	Small	> 300
Rathus	36.30***	0.46	2.66	0.07	Medium	120
SCIA						
Performance	178.36***	2.72	.088	.003	very small	> 3000
Intimacy	174.08***	1.24	(0)	(0)		
Assertiveness	65.77***	3.29	.81	.02	Small	> 350
Scrutiny	77.27***	1.04	(0)	(0)		
Total	437.32***	.80	.39	.01	small	> 800

Statistical Analysis (2)

	ANOVA (dl = 1,34)			*Effect size of the interaction*		
Variables	*Time*	*Condition*	*Interaction*	*Interaction eta squared*	*Effect size*	*Estimated N to find a significant difference*
HAD						
Anxiety	11.94***	4.96	1.11	.03	Small	> 300
Depression	6.46*	0.66	0.10	.0003	Very Small	> 3000
Sheehan						
Family	34.43***	.01	1.50	.04	Small	> 200
Social	145.36***	0.40	0.23	.01	Small	> 800
Work	97.29***	0.21	0.01	.00	Very Small	> 3000
CGI	97.46***	0.12	0.58	0.02	Small	> 350

Results: Summary

- Features:
  - Sample of young social phobics
  - Diverse virtual social situations
  - Full spectrum of social phobia
- Comparison
  - Effect size of the difference in efficacy
- Result: Similar efficacy of VRT and group-CBT
  - To reduce key symptoms of social phobia
  - To improve social and global functioning

➔ **Efficacy of VRT in the treatment of Social Phobia**

Conclusion

- Necessity of additional outcome studies
- 3D computer generated virtual humans can be effective
  - Documented by (Herbelin, 2002), (James, 2003), (Slater, 2004)
- Some possible explanations:
  - Interplay between believability of VR and emotions of the user
  - Strong correlation between anxiety, presence and realism

Thanks to my colleagues in this study

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  - Françoise Lauer, psychologist

Statistical contribution

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Thank you for your attention

klinger@enst.fr