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Virtual Reality Assessment of Checking Symptoms in Patients with Obsessive Compulsive Disorder

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Abstract

Virtual reality(VR) is being used in many field of psychiatry and psychology. However, there are few cases of its application to ob-sessive compulsive disorder(OCD). We developed virtual reality system for OCD. The aim of this study is to assess the checking symptoms in patients with OCD using Severance virtual reality system for OCD(SeVROS).

Keywords:

virtual reality, obsessive-compulsive disorder, assessments

Methods

The sample population comprised the checking-type OCD group (n=11), non checking-type OCD group (n=10), and a control group of matched healthy volunteers (n=14). The virtual environment was designed to induce checking behavior. Two virtual environment was implemented: a home environment with a gas burner, a gas valve, a water tap, a window, a light switch, a door, and a lock to a gate; an office with a heater, a computer, a cabinet, a light switch, a door, and a lock to a gate. After leaning and distracting tasks, participants were given a mission that checks whole things in the environment. During ckecking session, response time, behavioral response (object operation, gazing, and trajectory) and checking urge were measured by computer. We also used Yale-Brown Obsessive-Compulsive Scale(Y-BOCS) for severity of symptoms.

Results

There was no significant difference in accomplishment of task between patients and matched healthy controls (age, gender, education, VR experience and intelligence matched controls). There was significant difference in checking time in checking-type OCD group as compared to that of other groups.

Conclusion

Virtual reality is useful in assessment of symptoms in patients with obsessive compulsive disorder. Furthermore it can give us more profound data of attention and visuospatial function in OCD patients. Further study for cognitive and behavioral treatment of OCD patients using SeVROS is being executed.

		Checking type	Non-checking type	Control group	p-value
Demographic characteristics of participants	N	11	10	14	
	Age	31.91 ± 10.88	28.90 ± 6.59	28.93 ± 7.37	0.63
	Sex (M:F)	10:01	7:03	8:06	0.19
	Education (years)	13.73 ± 2.83	14.60 ± 1.96	15.07 ± 2.73	0.44
Patients' characteristics	YBOCS	26.36 ± 8.56	24.20 ± 6.91		0.53
	HAMD	12.36 ± 8.80	7.40 ± 7.41		0.18
VR parameters	Total checking time	333.64 ± 128.49	224.42 ± 82.76	176.44 ± 27.05	0
	Total number of over operation	6.45 ± 10.83	2.50 ± 2.72	1.14 ± 1.10	0.12
	Total gazing time	66.05 ± 41.06	39.46 ± 23.01	30.50 ± 12.19	0.01
	Incomplete items	3.55 ± 2.25	5.7 ± 4.27	4.79 ± 2.01	0.24

Table 1 - Y-BOCS: Yale-Brown Obsessive-Compulsive Scale, HAMD: Hamilton Depression Scale