Psychological Medicine, Page 1 of 11. *f* Cambridge University Press 2010
doi:10.1017/S0033291710000607

Efficacy and specificity of computer-assisted cognitive remediation in schizophrenia: a meta-analytical study

O. Grynszpan[1,2]*, S. Perbal[1], A. Pelissolo[1], P. Fossati[1,2], R. Jouvent[1,2], S. Dubal[1] and F. Perez-Diaz[1]

[1] Centre Emotion, CNRS USR 3246, Hoˆpital de La Salpeˆtrie`re, Paris, France

[2] Pierre et Marie Curie University, Paris, France

Background. Cognitive remediation is frequently based on computerized training methods that target different cognitive deficits. The aim of this article was to assess the efficacy of computer-assisted cognitive remediation (CACR) in schizophrenia and to determine whether CACR enables selective treatment of specific cognitive domains.

Method. A meta-analysis was performed on 16 randomized controlled trials evaluating CACR. The effect sizes of differences between CACR and control groups were computed and classified according to the cognitive domain assessed. The possible influences of four potential moderator variables were examined: participants' age, treatment duration, weekly frequency, and control condition type. To test the domain-specific effect, the intended goal of each study was determined and the effect sizes were sorted accordingly. The effect sizes of the cognitive domains explicitly targeted by the interventions were then compared with those that were not.

Results. CACR enhanced general cognition with a mean effect size of 0.38 [confidence interval (CI) 0.20–0.55]. A significant medium effect size of 0.64 (CI 0.29–0.99) was found for Social Cognition. Improvements were also significant in Verbal Memory, Working Memory, Attention/Vigilance and Speed of Processing with small effect sizes. Cognitive domains that were specifically targeted by the interventions did not yield higher effects than those that were not.

Conclusions. The results lend support to the efficacy of CACR with particular emphasis on Social Cognition. The difficulty in targeting specific domains suggests a ' non-specific ' effect of CACR. These results are discussed in the light of the possible bias in remediation tasks due to computer interface design paradigms.
Received 20 March 2009 ; Revised 10 October 2009 ; Accepted 13 October 2009

Key words: Human computer interface, neuropsychology, rehabilitation, social cognition, training.