

CORRESPONDENCE

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To the Editor:

We were intrigued by the recent meta-analysis by Pilling *et al.* (2002) of results from randomized, controlled trials of the effects of cognitive remediation on neurocognitive deficits in patients with schizophrenia. Their meta-analysis is particularly welcome in light of the rapid growth in published empirical work in this area over the last several years. Pilling *et al.* document limitations in the research literature at the time their analysis was published and a particular strength of their approach was the careful methodological criteria they employed for inclusion of studies in their analysis. For their meta-analysis, only remediation studies that described: (a) randomized trials with a control group, (b) a separately identifiable group of patients with schizophrenia spectrum disorders, and (c) an intervention designed to enhance performance in a specified cognitive function, were included.

Nonetheless, several limitations of their analysis should be noted. First, Pilling *et al.* note that only seven articles on remediation were identified for their analysis of which three were disqualified on methodological grounds. However, at the time of their review there were 13 published studies of remediation of performance on the Wisconsin Card Sorting Test (WCST) alone. These studies were described and critiqued in our own review and meta-analysis (Kurtz *et al.* 2001). At the very least, seven of these studies would appear to meet Pilling *et al.*'s criteria for inclusion in their meta-analysis as described in their paper. Each study: (1) provided sufficient data in the published paper for computation of an effect-size; (2) randomized patients into experimental conditions; (3) included at least control or alternate intervention condition; and (4) studied an intervention 'with the intention of bringing about an improvement in the level of that specified

cognitive function'. In a subsequent Letter to the Editor, Pilling & Bebbington (2003) note that most of the studies reviewed in our article on the WCST were reviewed and rejected from their analysis on methodological grounds. Based on their published criteria it is unclear what those methodological grounds were.

Second, we sound a cautionary note regarding averaging effect sizes consisting of different neurocognitive tests into general domains of attention, verbal memory, visual memory, and executive function. Inter-test differences in task difficulty, test–retest reliability, and practice effects even among tests measuring the same putative cognitive construct, make some tests more sensitive to behavioral or pharmacological intervention effects than others. Thus, experimental effects on a highly sensitive and reliable measure may be obscured by averaging with less precise measures. It is for this reason we restricted our meta-analysis to studies that selected the WCST as a dependent measure.

In summary, we laud the authors for their meta-analytic synthesis of the literature in remediation of neurocognitive deficits in schizophrenia and are sympathetic to their claim that empirical data collected to date do not support its use as a part of routine clinical care. Nonetheless, we also note the existence of a substantial group of studies with highly robust and consistent effect-sizes suggesting that performance on the WCST, once thought to reflect static dorsolateral prefrontal cortex damage in schizophrenia, can be improved by a wide variety of very brief behavioral interventions.

REFERENCES

- Kurtz, M. M., Moberg, P. J., Gur, R. C. & Gur, R. E. (2001). Approaches to cognitive remediation of neuropsychological deficits in schizophrenia: a review and meta-analysis. *Neuropsychology Review* **11**, 197–210.
- Pilling, S. & Bebbington, P. (2003). Correspondence. *Psychological Medicine* **33**, 756–758.
- Pilling, S., Bebbington, P., Kuipers, E., Garety, P., Geddes, J., Martindale, B., Orbach, G. & Morgan, C. (2002). Psychological

treatments in schizophrenia: II. Meta-analyses of randomized controlled trials of social skills training and cognitive remediation. *Psychological Medicine* **32**, 783–791.

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