



Modafinil Improves Episodic Memory and Working Memory in Patients with Remitted Depression

Muzaffer Kaser^{1,2,3}, Julia B. Deakin^{1,4}, Albert Michael⁵, Camilo Zapata⁵, Rachna Bansal⁶, Dragana Ryan⁴, Francesca Cormack⁷, James B. Rowe^{2,8,9}, Barbara J. Sahakian^{1,2}

1) Department of Psychiatry, University of Cambridge
 2) Behavioural and Clinical Neuroscience Institute, University of Cambridge
 3) Department of Psychiatry, Bahcesehir University, Istanbul 4) Cambridgeshire and Peterborough NHS Foundation Trust,
 5) Norfolk and Suffolk NHS Foundation Trust, 6) North Essex Partnership NHS Foundation Trust,
 7) Cambridge Cognition, 8) Department of Clinical Neurosciences, University of Cambridge,
 9) MRC Cognition and Brain Sciences Unit

Correspondence: Dr Muzaffer Kaser mk708@cam.ac.uk

Background

- Cognitive dysfunction in depression persist even after mood symptoms recover¹.
- Cognitive dysfunction in depression should be a target for treatment.
- Modafinil, a medication with reported beneficial effects on cognitive functions², is a candidate to improve cognition in patients with remitted depression.

Method

- Double-blind, randomised, placebo-controlled, parallel groups design
- 60 participants with remitted depression (MADRS score < 12)
- Tests from the CANTAB Battery
 - Paired Associates Learning
 - Spatial Working Memory
 - One Touch Stockings of Cambridge
 - Rapid Visual Information Processing
- Baseline session: Cognitive testing, MADRS, Psychosocial Functioning (GAF)
- Intervention session – modafinil 200 mg (n=30) or placebo (n=30) Testing 2 hours after drug administration
- Repeated measures ANCOVA baseline session performance and NART as covariates

Results

- Modafinil group had significantly better performance on tests of episodic memory (Figure 1) and working memory (Figure 2). The effects were most evident at the most difficult stages.
- Modafinil did not improve performance on planning (OTS accuracy: $F=1.057$, $p=0.37$, $\eta_p^2=0.01$) or sustained attention (RVIP A' - sensitivity index: $F=1.544$, $p=0.21$, $\eta_p^2=0.02$) tests.

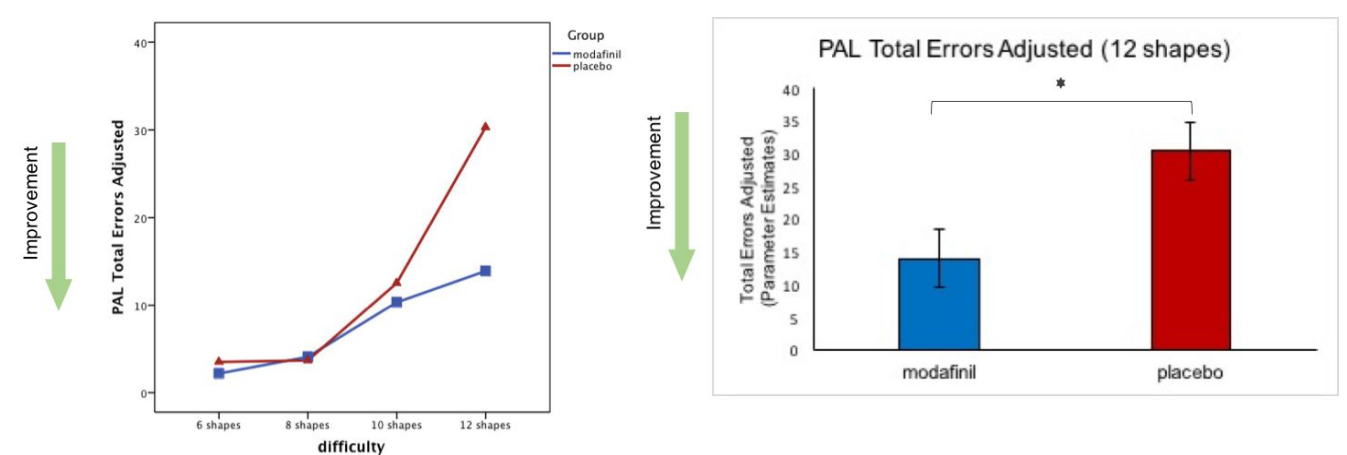


Figure 1. Episodic memory performance: Figure on the left demonstrates a significant main effect of modafinil across difficulty levels ($F=6.199$, $p=0.01$, $\eta_p^2=0.10$). On the right, the bar graph shows the significant difference between modafinil and placebo groups at PAL 12 shapes stage, after controlling for baseline performance ($t=-2.62$, $p=0.01$, $\eta_p^2=0.11$).

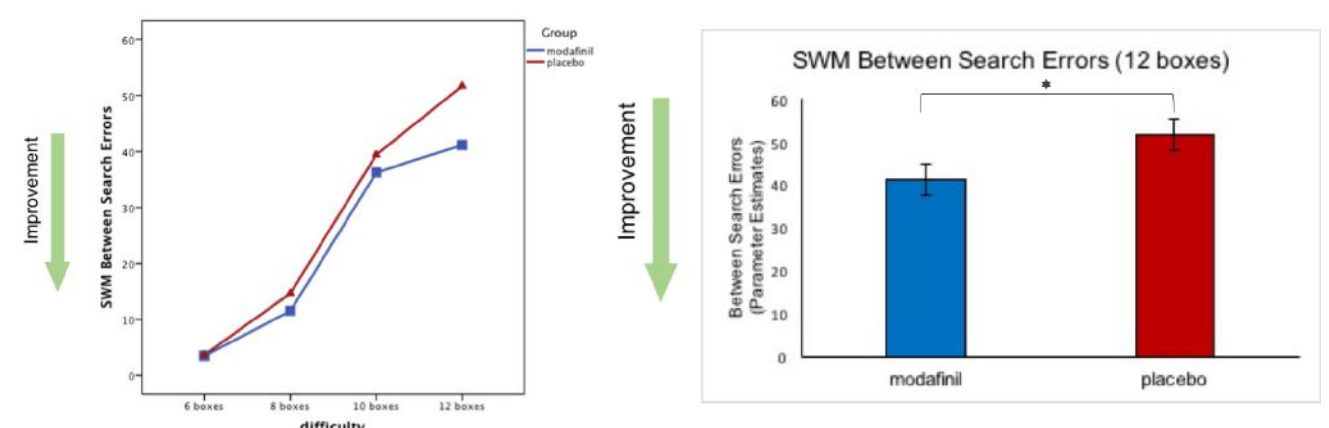


Figure 2. Working memory performance: Figure on the left demonstrates a trend effect of modafinil across difficulty levels ($F=3.023$, $p=0.08$, $\eta_p^2=0.05$). On the right, the bar graph shows the significant difference between modafinil and placebo groups at SWM 12 boxes stage, after controlling for baseline performance ($t=-2.30$, $p=0.04$, $\eta_p^2=0.06$).

Conclusion

- This proof of concept study suggested that modafinil could be a feasible option to tackle episodic memory and working memory dysfunction in patients with remitted depression.

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