Cost utility of behavioural activation delivered by the non-specialist

David Ekers, Christine Godfrey, Simon Gilbody, Steve Parrott, David A. Richards, Danielle Hammond and Adele Hayes

Summary

Behavioural activation by non-specialists appears effective in the treatment of depression. We examined incremental cost-effectiveness of behavioural activation (n = 24) v. usual care (n = 23) in a randomised controlled trial. Intention-to-treat analyses indicated a quality-adjusted life-year (QALY) difference in favour of behavioural activation of 0.20 (95% CI 0.01-0.39; P = 0.042), incremental cost-effectiveness ratio of £5756 per QALY and a 97% probability that behavioural activation is more cost-effective at a threshold value of £20,000. Results are promising for dissemination of behavioural activation but require replication in a larger study.

Declaration of interest

None.

A pragmatic randomised controlled trial of behavioural activation by non-specialists v. usual care (ISRCTN27045243) examining costs and health state, adopting a health service perspective set down by the National Institute of Health and Clinical Excellence (NICE).6 The Northumberland local research ethics committee approved this study. Details of methods and clinical effectiveness have been published in detail elsewhere.7

We recruited adults with depression on stable or no antidepressant medication for 6 weeks from general practice or primary care mental health services. We confirmed ICD-10 diagnosis of depression with the revised Clinical Interview Schedule (CIS-R).8

Behavioural activation was delivered over 12 1-hour sessions by two mental health nurses on post-qualification pay bands with no previous formal therapy training. They received 5-day training in behavioural activation and 1 hour clinical supervision fortnightly from the principal investigator (D.E.).7

Participants assigned to usual care were followed up by their GP or primary care mental health worker.

We generated incremental cost-effectiveness ratios (ICERs)17 with cost-effectiveness acceptability curves to explore uncertainty around cost utility findings18 by conducting 1000 non-parametric bootstrap replications.

Results

Overall, 68 participants were referred to the trial: 47 met inclusion criteria, resulting in 23 receiving behavioural activation and 24 usual care. Sixteen participants completed behavioural activation and twenty-two usual care. Participants had long-term severe depression with substantial functional impairment.

Individual therapist 5-day course training costs were £641.55 and for the 12-session behavioural activation protocol £219.96. Training and supervisor costs were £3059. Scenario A costs per participant were £247.00 and scenario B £272.52.
There were no cost differences at baseline (behavioural activation £1050.12 (s.d. = £1907.73), n = 23; usual care £899.31 (s.d. = £1131.33), n = 24) or with behavioural activation added to usual care: scenario A £149.24 more costly than usual care alone (95% CI = −£354.82 to £56.34, P = 0.151, n = 47), scenario B £3495 per QALY gained during the study. A breakdown of service use and cost is available on request.

Intention-to-treat analyses showed a mean difference on BDI-II scores of −15.78 in favour of behavioural activation (95% CI = −24.55 to −7.02, P = 0.001) at 3 months. We found a QALY gain in favour of behavioural activation (mean 0.79 (s.d. = 0.24), n = 16) over usual care (mean 0.58 (s.d. = 0.39), n = 22) of 0.24 (95% CI 0.052 to 0.437, P = 0.01). Using multiple imputation this difference reduced to 0.20 (95% CI 0.01 to 0.39, P = 0.042).

Scenario A provided a cost of £2985 per QALY and £9.45 per BDI-II point reduction and scenario B £3495 per QALY and £11.04 per BDI-II point reduction. Examining uncertainty at a threshold value of £20 000/QALY there was a 97.7% probability that behavioural activation is more cost-effective than usual care for scenario A and a 97.0% probability for scenario B (online Fig. DS1). Results suggest an ICER of £5006 and £5756 per QALY for scenarios A and B respectively, indicating that the additional cost of behavioural activation over usual care per QALY gained is less than the UK accepted value of £20 000.

**Discussion**

Mental health economic analysis should be conducted within a general decision-making context; NICE suggests that a QALY gain valued below £20 000 provides good value for money. We found non-specialist behavioural activation delivered QALY gains substantially below this threshold using the recommended EQ-SD. Changes reflect the clinical, functioning and satisfaction benefits of behavioural activation reported elsewhere, indicating that behavioural activation may offer lower cost per QALY or point reduction on the BDI-II when compared with usual primary care than brief problem-solving or online CBT interventions also aimed at increasing accessibility. These results focus on observed differences over 3 months making no assumptions regarding maintained improvement.

Owing to the lack of previous economic analyses of behavioural activation we could not power our study on economic models. External validity and precision of estimates of difference are limited by the small numbers of participants and therapists. Results are promising, however a larger trial is required to provide more robust estimates. The short follow-up limits the long-term assessment of QALY gains. Behavioural activation has demonstrated durability for up to 2 years for depression symptoms, however we could only incorporate the realisable gains found during the study.

We were able to train non-specialists to deliver cost-effective behavioural activation using stringent assumptions. Findings require replication in a larger study with follow-up. If results maintain and are translated into routine healthcare, then it is likely that behavioural activation provides good value for money.

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**References**


Data supplement

**Fig. DS1** Cost-effectiveness and acceptability curves for scenarios A (dark blue) and B (light blue) v. usual care.

QALY, quality-adjusted life-year. WTP, willingness to pay.
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Access the most recent version at DOI: 10.1192/bjp.bp.110.090266

Supplementary Material
Supplementary material can be found at:
http://bjp.rcpsych.org/content/suppl/2011/09/15/bjp.bp.110.090266.DC1

References
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