CollAborative care and active surveillance for Screen-Positive EldeRs with subthreshold depression (CASPER): a multicentred randomised controlled trial of clinical effectiveness and cost-effectiveness

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Declared competing interests of authors: none

Published February 2017
DOI: 10.3310/hta21080

Scientific summary

The CASPER Trial

Health Technology Assessment 2017; Vol. 21: No. 8
DOI: 10.3310/hta21080

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Scientific summary

Background

Depression is one of the most common reasons for consulting with a general practitioner (GP) and its associated personal and economic burden is considerable. Depression is often associated with long-term medical conditions but is commonly unrecognised or suboptimally treated. Older people are disproportionately affected by depression and this is associated with poor function and poor outcomes. Strategies to encourage the recognition and management of depression among older people and those with long-term conditions have been proposed. Guidance often encourages GPs to screen for depression and evidence-supported treatments include the prescription of antidepressants and/or the provision of brief psychological treatments.

Less attention has been paid to those with mild disorders/subthreshold depression or those who give positive responses to screening questions but who do not have sufficient levels of depressive symptoms to meet diagnostic criteria. Even relatively minor levels of depression are associated with a significant decrement in all quality of life domains. Subthreshold depression is also a clear risk factor for progression and the development of more severe depressive syndromes. For people with subthreshold depression, antidepressants are held to be ineffective and treatment needs to be psychologically and/or socially based. The focus of the CollAborative care and active surveillance for Screen-Positive EldeRs with subthreshold depression (CASPER) study was to develop an intervention suitable for older adults who screen positively for depression but who do not have sufficient symptoms to meet the full criteria for depressive illness, yet who might need treatment.

Collaborative care involves the provision of low-intensity psychosocial treatment by a case manager working in collaboration with the primary care team. Psychological interventions form part of care and are delivered over the telephone. Collaborative care has a strong evidence base among people with depression but there are few trials focusing on older adults or those with subthreshold depression. In this trial we adapted collaborative care for a population of older adults with subthreshold depression whereby an evidence-supported treatment (behavioural activation) was delivered by primary care psychological well-being practitioners predominantly over the telephone.

Objectives

The CASPER trial was a randomised controlled trial (RCT) of usual GP care compared with usual GP care with the addition of collaborative care for the treatment of lower severity (subthreshold) depression in older adults. This included concurrent qualitative and economic evaluations. We first conducted an internal pilot trial in which the objectives were to:

1. develop a low-intensity collaborative care intervention based on evidence-supported models of care for older adults with screen-positive subthreshold depression
2. establish the acceptability and uptake of this service by older adults with screen-positive subthreshold depression in primary care
3. test the feasibility of conducting a successful trial of a low-intensity intervention of collaborative care for older adults with screen-positive subthreshold depression
4. validate the Whooley questions as a screening tool in a UK older adult population.

The specific objectives of the main CASPER trial were to:

1. establish the clinical effectiveness of a low-intensity intervention of collaborative care for older adults with screen-positive subthreshold depression
2. examine the cost-effectiveness of a low-intensity intervention of collaborative care for older adults with screen-positive subthreshold depression across a range of health and social care costs.

Method

Design

We conducted a pragmatic, multicentred, two-arm, parallel, open RCT. Participants with subthreshold depression were individually randomised (1 : 1) to receive either collaborative care or usual GP care.

Setting

Participants were recruited from GP practices in four centres in the north of England: York centre (core centre) covering the cities of York, Harrogate and Hull and the surrounding areas; Leeds centre and the surrounding area; Durham centre and the surrounding area; and Newcastle upon Tyne centre including Northumberland and North Tyneside.

Participants

Potential participants were identified by postal questionnaire; participants were eligible if they reported depressive symptoms ('screened positive') in response to the Whooley questions and were then found to have subthreshold depression according to standardised diagnostic criteria using the Mini International Neuropsychiatric Interview. Respondents with major depressive disorder were offered the opportunity to take part in a related Health Technology Assessment (HTA) programme-funded trial [CASPER+ (ISRCTN45842879)] which is not reported in this monograph]. We excluded people with known alcohol dependency, psychotic symptoms, recent evidence of suicidal risk/self-harm, significant cognitive impairment or other factors that would make an invitation to participate in the trial inappropriate, such as recent bereavement or terminal illness.

Interventions

Participants in the intervention group were allocated to receive a manualised low-intensity programme of collaborative care using behavioural activation, designed specifically for those aged ≥ 65 years with subthreshold depression. Collaborative care was delivered by a case manager [a primary care mental health worker/Improving Access to Psychological Therapies (IAPT) worker] for an average of six sessions over 7–8 weeks. Collaborative care in the CASPER trial included telephone support, symptom monitoring and active surveillance, facilitated by computerised case management. The first session was delivered face to face and subsequent sessions by telephone.

Participants in the control group were allocated to receive usual GP care. They received no additional care to the usual primary care management of subthreshold depression offered by their GP.

Main outcome measures

The primary outcome was self-reported symptoms of depression, assessed with the Patient Health Questionnaire-9 items (PHQ-9) at 4 and 12 months post randomisation. Secondary outcomes were a dichotomised measure of depression according to 'caseness' (PHQ-9 score = 10), anxiety [measured by the Generalised Anxiety Disorder seven-item scale (GAD-7)], somatoform complaints (measured by the Patient Health Questionnaire-15 items) and health-related quality of life [measured by the Short Form

questionnaire-12 items (SF-12)], each measured at 4 and 12 months. We also measured resilience (using the Connor–Davidson Resilience Scale two-item version) and antidepressant use. The economic evaluation resource use was ascertained from GP records and health state utility was measured using the European Quality of Life-5 Dimensions three-level version.

Results

A total of 705 patients (mean age 77 years; average of two long-term conditions) were recruited to the trial between June 2011 and July 2013, with 344 participants randomised to collaborative care and 361 to usual GP care. In total, 586 participants (83%; collaborative care 76%, usual care 90%) were followed up at 4 months and 519 participants (74%; collaborative care 68%, usual care 79%) were followed up at 12 months. For those allocated to collaborative care, 85% engaged with the intervention and the median number of sessions completed was seven (out of the planned eight sessions). There was differential attrition between the two groups, with a higher number of withdrawals from the intervention arm (62 participants) than from the usual-care arm (nine participants).

Clinical effectiveness

Adjusted PHQ-9 mean scores and group differences for the primary analysis model revealed significant differences between trial arms at each of the follow-up time points in favour of collaborative care [primary end point at 4 months: difference 1.31 score points, 95% confidence interval (CI) 0.67 to 1.95 score points, $p < 0.001$; 12 months' follow-up: difference 1.33 score points, 95% CI 0.55 to 2.10 score points, $p = 0.001$). This represented a standard effect size of 0.30. The results were robust to a number of sensitivity analyses including adjustment for clustering at the level of the case manager. The proportion of participants with case-level depression at 4 and 12 months was reduced in the collaborative-care group and this reached statistical significance at 12 months [odds ratio (OR) at 4 months 1.35, 95% CI 0.85 to 2.16, $p = 0.205$; OR at 12 months 1.98, 95% CI 1.21 to 3.25, $p = 0.007$]. Between-group differences were observed in favour of collaborative care for a range of secondary outcomes including anxiety (GAD-7 mean score difference: 4 months: 1.08, 95% CI 0.52 to 1.64, $p < 0.001$; 12 months: 1.01, 95% CI 0.42 to 1.61, $p = 0.001$) and health-related quality of life physical domains (SF-12 physical component summary mean score difference: 4 months: 2.83, 95% CI 1.62 to 4.03, $p < 0.001$; 12 months: 1.67, 95% CI 0.27 to 3.06, $p = 0.020$) and mental domains (SF-12 mental component summary mean score difference: 4 months: 1.88, 95% CI 0.47 to 3.29, $p = 0.009$; 12 months: 2.15, 95% CI 0.59 to 3.70, $p = 0.007$).

Cost-effectiveness analysis

Providing collaborative care was estimated to cost an average of £494.73 per participant (accounting for the costs of training case managers, the expected rate of patient contacts and the cost of a standardised agenda case manager). Participants allocated to collaborative care displayed significantly higher quality-adjusted life-years (QALYs) than those allocated to the control group (annual difference in adjusted QALYs of 0.044, 95% bias-corrected CI 0.015 to 0.072, $p = 0.003$). Base-case cost-effectiveness analysis found an incremental cost-effectiveness ratio (ICER) of £9633 per QALY. Accounting for uncertainty (as illustrated on a cost-effectiveness acceptability curve) demonstrated that the probability that the ICER for collaborative care is < £20,000 per QALY [i.e. p(ICER < 20,000)] is 0.9239 and the probability that the ICER for collaborative care is < £30,000 per QALY [i.e. p(ICER < 30,000)] is 0.9735. From our audit of registered contact with case managers, sensitivity analysis suggests that the mean cost of collaborative care was £223.70 (95% CI £210.98 to £236.42) and that collaborative care had an associated ICER of £3328 per QALY.

Qualitative evaluation

The qualitative study suggests that the intervention was acceptable to a large proportion of participants, but that others did not engage. The main reasons for non-engagement were explored and these related to participants having misgivings about the potential benefits of behaviourally based programmes or not viewing themselves as sufficiently unwell to justify treatment. The importance of the adaptation of treatment to those with long-term conditions or limitations was underlined. The positive aspects of

treatment included that people saw the benefits of behavioural activation and engaged well with their case managers even if there were initial misgivings. Case managers and older adults with subthreshold depression were generally happy to deliver and/or receive collaborative care by telephone. The preventative aspects of collaborative care were highlighted, such as the importance of modifying unhelpful behavioural patterns and spotting future symptoms.

Conclusions

This is the first large-scale trial to test the effectiveness and cost-effectiveness of collaborative care among older people with subthreshold depression in the UK. Collaborative care has been shown to be clinically effective and cost-effective for older people with subthreshold depression. Collaborative care also reduced the proportion of people who went on to develop case-level depression at 12 months. This intervention could feasibly be delivered by the NHS at an acceptable cost–benefit ratio.

Implications for health care

- Collaborative care was acceptable to the majority of older people with low-severity depression and could readily be delivered by low-intensity IAPT workers over the telephone, following a first face-to-face meeting.
- In this large-scale trial for older people with low-severity/subthreshold depression, collaborative care was clinically effective at improving depression and preventing the onset of case-level depression.
- The provision of care for older people with subthreshold depression will require expansion of the scope of IAPT services. The cost-effectiveness of collaborative care for subthreshold depression has been robustly estimated within the CASPER trial and collaborative care could be viewed as cost-effective under conventional willingness-to-pay thresholds.

Recommendations for research

- There were clinical benefits of collaborative care in the short and medium term, but the longer-term impacts of collaborative care are unknown. It would be useful to know whether or not the benefit seen at 12 months is sustained and across which domains.
- Depression is a recurrent disorder and it would be useful to judge the longer-term impact of collaborative care on relapse and the prevention of future case-level depression.
- A significant proportion of older people in the CASPER trial had a long-term health problem and there were some improvements in function and quality of life across the trial population. Future adaptations and trials of collaborative care could focus on its use in populations with serious physical ill health and its impact on physical outcomes.
- Many patients in the collaborative-care arm discontinued treatment or dropped out of the trial. Further qualitative and quantitative work should explore the reasons for this and identify the most appropriate target population for the intervention.
- There are no trials of collaborative care for people of working age with subthreshold depression. It would be useful to decision-makers to know whether or not the results of the CASPER trial can be replicated in this population.

Trial registration

This trial is registered as ISRCTN02202951.

Funding

Funding for this study was provided by the HTA programme of the National Institute for Health Research.

Health Technology Assessment

HTA/HTA TAR

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 4.058

Health Technology Assessment is indexed in MEDLINE, CINAHL, EMBASE, The Cochrane Library and the ISI Science Citation Index.

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) (www.publicationethics.org/).

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This report

The research reported in this issue of the journal was funded by the HTA programme as project number 08/19/04. The contractual start date was in September 2010. The draft report began editorial review in November 2014 and was accepted for publication in September 2015. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

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