

Adding web-based behavioural support to exercise referral schemes for inactive adults with chronic health conditions: the e-coachER RCT

Adrian H Taylor,^{1*} Rod S Taylor,^{2,3} Wendy M Ingram,¹
Nana Anokye,⁴ Sarah Dean,² Kate Jolly,⁵
Nanette Mutrie,⁶ Jeffrey Lambert,^{2,7} Lucy Yardley,^{8,9}
Colin Greaves,^{2,10} Jennie King,¹ Chloe McAdam,⁶
Mary Steele,⁹ Lisa Price,² Adam Streeter,¹
Nigel Charles,[†] Rohini Terry,² Douglas Webb,^{1,11}
John Campbell,² Lucy Hughes,⁵ Ben Ainsworth,^{9,12}
Ben Jones,¹ Ben Jane,¹³ Jo Erwin,¹⁴ Paul Little,⁹
Anthony Woolf¹⁴ and Chris Cavanagh¹⁵

¹Faculty of Health, Medicine, Dentistry and Human Sciences, University of Plymouth, Plymouth, UK

²University of Exeter Medical School, University of Exeter, Exeter, UK

³Medical Research Council/Chief Scientist Office Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK

⁴Department of Clinical Sciences, College of Health and Life Sciences, Brunel University London, London, UK

⁵Institute of Applied Health Research, University of Birmingham, Birmingham, UK

⁶Physical Activity for Health Research Centre, University of Edinburgh, Edinburgh, UK

⁷Department for Health, University of Bath, Bath, UK

⁸School of Social and Community Medicine, University of Bristol, Bristol, UK

⁹Centre for Applications of Health Psychology, University of Southampton, Southampton, UK

¹⁰School of Sport, Exercise and Rehabilitation, University of Birmingham, Birmingham, UK

¹¹Bristol Medical School, University of Bristol, Bristol, UK

¹²Department of Psychology, University of Bath, Bath, UK

¹³School of Sport, Health and Wellbeing, Plymouth Marjon University, Plymouth, UK

¹⁴Bone and Joint Research Group, Royal Cornwall Hospitals NHS Trust, Truro, UK

¹⁵PPI representative, Plymouth, UK

*Corresponding author Adrian.Taylor@plymouth.ac.uk

†In memoriam

Declared competing interests of authors: Rod S Taylor is currently co-chief investigator on a National Institute for Health Research (NIHR)-funded programme grant designing and evaluating the clinical effectiveness and cost-effectiveness of a home-based cardiac rehabilitation intervention for patients who have experienced heart failure (RP-PG-1210-12004). He is also a member of the NIHR Priority Research Advisory Methodology Group (August 2015–present). Previous roles include NIHR South West Research for Patient Benefit Committee (2010–14); core group of methodological experts for the NIHR Programme Grants for Applied Research programme (2013–October 2017); NIHR Health Technology Assessment (HTA) Themed Call Board (2012–14); NIHR HTA General Board (2014–June 2017); and chairperson of NIHR Health Services and Delivery Research Researcher-led Panel (March 2014–February 2018). Nanette Mutrie reports a grant from NIHR during the conduct of the study, and personal fees in relation to UK physical activity guidelines revision outside the submitted work. Chloe McAdam reports grants from NIHR and Economic and Social Research Council Impact Acceleration Accounts during the conduct of the study, and is employed by NHS Greater Glasgow and Clyde, which funds and manages the exercise referral scheme involved in this research. Sarah Dean, Wendy M Ingram, Rohini Terry, Lucy Yardley, Nigel Charles and Ben Ainsworth report grants from NIHR during the conduct of the study. The research programme of Lucy Yardley and Mary Steele is partly supported by the NIHR Southampton Biomedical Research Centre. Kate Jolly reports that she is part-funded by NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRC) West Midlands and is a subpanel chair of the NIHR Programme Grants for Applied Health Research programme. Lisa Price reports personal fees from the University of Plymouth during the conduct of the study and grants from Living Streets (London, UK) outside the submitted work. Ben Ainsworth reports grants from the NIHR School of Primary Care Fellowship (October 2016–October 2018) for RP-PG-1211-20001. Sarah Dean reports grants from NIHR outside the submitted work as she is a co-applicant or named applicant and academic lead on a number of grants. Sarah Dean is partly funded by the South West Peninsula Applied Research Collaboration. Wendy M Ingram reports grants from the NIHR Research for Patient Benefit (RfPB) programme (PB-PG-0215-36142) and the NIHR HTA programme (15/111/01). Rohini Terry reports grants from the NIHR Programme Grants for Applied Research programme. Paul Little was the Programme Director of the Programme Grants for Applied Research (PGfAR) programme (until 31 May 2018), Editor-in-Chief for the PGfAR journal and a member of the NIHR Journals Library Editorial Group.

Published November 2020

DOI: 10.3310/hta24630

Plain English summary

The e-coachER RCT

Health Technology Assessment 2020; Vol. 24: No. 63

DOI: 10.3310/hta24630

NIHR Journals Library www.journalslibrary.nihr.ac.uk

Plain English summary

When health-care professionals refer patients with chronic conditions to an exercise referral scheme, the effects on long-term increases in physical activity are limited. We therefore developed the e-coachER support package to add to usual exercise referral schemes and to prompt the use of skills such as self-monitoring and goal-setting. This package was also intended to empower patients to increase their levels of physical activity long term. The seven-step programme was delivered online (via an interactive website). As part of the package, we mailed participants a guide for accessing the online programme, a pedometer and a fridge magnet with a notepad to record physical activity. We aimed to determine whether or not adding the e-coachER support to usual exercise referral schemes resulted in lasting changes in moderate and vigorous physical activity and whether or not it offers good value for money compared with exercise referral schemes alone.

A total of 450 inactive individuals were recruited across Plymouth, Birmingham and Glasgow and were referred to an exercise referral scheme for the following participant-reported main reasons: weight loss (50%), low mood (19%), osteoarthritis (12%), type 2 diabetes (10%) and high blood pressure (8%).

Half of the individuals were given access to the e-coachER support and the other half were not. All individuals were mailed a wrist-worn movement sensor (accelerometer) to wear for 1 week and a survey to assess other outcomes at the start of the study as well as at 4 and 12 months post randomisation.

At the start of the study, the participants were inactive and most had multiple health conditions. The participants had an average body mass index of 33 kg/m² and an average age of 50 years. Most (83%) were white.

Participants with access to e-coachER support were only slightly more active at 12 months than those who did not have access, but we cannot be confident in the findings because we had data from fewer participants than planned. The lack of a clear effect may have been as a result of around one-third of participants not accessing the website, but otherwise there was reasonable engagement. The provision of the e-coachER support package led to an additional cost of £439 per participant over a 12-month period.

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 3.370

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

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

Editorial contact: journals.library@nihr.ac.uk

The full HTA archive is freely available to view online at www.journalslibrary.nihr.ac.uk/hta. Print-on-demand copies can be purchased from the report pages of the NIHR Journals Library website: www.journalslibrary.nihr.ac.uk

Criteria for inclusion in the *Health Technology Assessment* journal

Reports are published in *Health Technology Assessment* (HTA) if (1) they have resulted from work for the HTA programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

Reviews in *Health Technology Assessment* are termed 'systematic' when the account of the search appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

HTA programme

Health Technology Assessment (HTA) research is undertaken where some evidence already exists to show that a technology can be effective and this needs to be compared to the current standard intervention to see which works best. Research can evaluate any intervention used in the treatment, prevention or diagnosis of disease, provided the study outcomes lead to findings that have the potential to be of direct benefit to NHS patients. Technologies in this context mean any method used to promote health; prevent and treat disease; and improve rehabilitation or long-term care. They are not confined to new drugs and include any intervention used in the treatment, prevention or diagnosis of disease.

The journal is indexed in NHS Evidence via its abstracts included in MEDLINE and its Technology Assessment Reports inform National Institute for Health and Care Excellence (NICE) guidance. HTA research is also an important source of evidence for National Screening Committee (NSC) policy decisions.

This report

The research reported in this issue of the journal was funded by the HTA programme as project number 13/25/20. The contractual start date was in January 2015. The draft report began editorial review in January 2019 and was accepted for publication in November 2019. 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.

This report presents independent research funded by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care.

© Queen's Printer and Controller of HMSO 2020. This work was produced by Taylor *et al.* under the terms of a commissioning contract issued by the Secretary of State for Health and Social Care. This issue may be freely reproduced for the purposes of private research and study and extracts (or indeed, the full report) may be included in professional journals provided that suitable acknowledgement is made and the reproduction is not associated with any form of advertising. Applications for commercial reproduction should be addressed to: NIHR Journals Library, National Institute for Health Research, Evaluation, Trials and Studies Coordinating Centre, Alpha House, University of Southampton Science Park, Southampton SO16 7NS, UK.

Published by the NIHR Journals Library (www.journalslibrary.nihr.ac.uk), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.uk).

Editor-in-Chief of *Health Technology Assessment* and NIHR Journals Library

Professor Ken Stein Professor of Public Health, University of Exeter Medical School, UK

NIHR Journals Library Editors

Professor John Powell Chair of HTA and EME Editorial Board and Editor-in-Chief of HTA and EME journals. Consultant Clinical Adviser, National Institute for Health and Care Excellence (NICE), UK, and Professor of Digital Health Care, Nuffield Department of Primary Care Health Sciences, University of Oxford, UK

Professor Andrée Le May Chair of NIHR Journals Library Editorial Group (HS&DR, PGfAR, PHR journals) and Editor-in-Chief of HS&DR, PGfAR, PHR journals

Professor Matthias Beck Professor of Management, Cork University Business School, Department of Management and Marketing, University College Cork, Ireland

Dr Tessa Crilly Director, Crystal Blue Consulting Ltd, UK

Dr Eugenia Cronin Senior Scientific Advisor, Wessex Institute, UK

Dr Peter Davidson Consultant Advisor, Wessex Institute, University of Southampton, UK

Ms Tara Lamont Senior Scientific Adviser (Evidence Use), Wessex Institute, University of Southampton, UK

Dr Catriona McDaid Senior Research Fellow, York Trials Unit, Department of Health Sciences, University of York, UK

Professor William McGuire Professor of Child Health, Hull York Medical School, University of York, UK

Professor Geoffrey Meads Emeritus Professor of Wellbeing Research, University of Winchester, UK

Professor John Norrie Chair in Medical Statistics, University of Edinburgh, UK

Professor James Raftery Professor of Health Technology Assessment, Wessex Institute, Faculty of Medicine, University of Southampton, UK

Dr Rob Riemsma Reviews Manager, Kleijnen Systematic Reviews Ltd, UK

Professor Helen Roberts Professor of Child Health Research, UCL Great Ormond Street Institute of Child Health, UK

Professor Jonathan Ross Professor of Sexual Health and HIV, University Hospital Birmingham, UK

Professor Helen Snooks Professor of Health Services Research, Institute of Life Science, College of Medicine, Swansea University, UK

Professor Ken Stein Professor of Public Health, University of Exeter Medical School, UK

Professor Jim Thornton Professor of Obstetrics and Gynaecology, Faculty of Medicine and Health Sciences, University of Nottingham, UK

Professor Martin Underwood Warwick Clinical Trials Unit, Warwick Medical School, University of Warwick, UK

Please visit the website for a list of editors: www.journalslibrary.nihr.ac.uk/about/editors

Editorial contact: journals.library@nihr.ac.uk