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The effects of app-based mental health and wellbeing apps in a working sample

Submission date
27/03/2026

Recruitment status
No longer recruiting

Registration date
09/04/2026

Overall study status
Completed

Last Edited
27/03/2026

Condition category
Mental and Behavioural Disorders

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
Mental health disorders are now the leading cause of both short-term sickness and long-term absences from the workplace, with depression, anxiety and stress related conditions cited as the most common factors Sub-clinical depression and anxiety have been found to affect work performance; with daily hassles and stressors encountered in the workplace in turn increasing anxiety and depression. Therefore, managing workplace stress is a priority to mitigate effects on both employee wellbeing and workplace productivity.

Research investigating digital executive function training has found reductions in cognitive impairments in depressed and anxious populations, as have studies investigating digital CBT. They may, therefore, offer promise as interventions for improving mental health and wellbeing in the workplace. However, questions remain about whether they are effective for real-world use and their mechanism of action when successful.

The aim of this study, then, is to compare the effectiveness of 'hot' and 'cold' cognitive trainings at improving mental health outcomes, and whether they translate to real world benefits. This leads us to our primary research questions:
1) Do both executive function training and CBT apps show superiority over a waitlist control group in both mental health and workplace wellbeing outcomes?
2) Are any changes in outcome mediated by changes in cognitive control capacity?

Who can participate?
UK residents between the ages of 18 and 67 who were experiencing mild symptoms of anxiety and depression.

What does the study involve?
Participants completed surveys asking about their mental health and wellbeing, alongside a task measuring cognitive control at three time points: at baseline, after 4 weeks of using a randomly assigned app, and 12 weeks after recruitment.

What are the possible benefits and risks of participating?
Participants may experience some benefit to their wellbeing as a result of taking part in this

study. Participants may have found some questions about their mental health and wellbeing stressful to answer.

Where is the study run from?
The study was run from the University of Bath, UK; questionnaires were completed online.

When is the study starting and how long is it expected to run for?
July 2022 to September 2025.

Who is funding the study?
University of Bath Research Studentship Award, UK.

Who is the main contact?
Alexander MacLellan, akem20@bath.ac.uk

Contact information

Type(s)
Public, Scientific, Principal investigator

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Study information

Scientific Title
The effectiveness and mechanisms of action of app-based interventions for improving mental health and workplace wellbeing: a randomised controlled trial

Study objectives
Hypotheses
1) Both our executive function app group and CBT app group will demonstrate superiority over our waitlist control group on depressive and anxious symptomatology at our primary endpoint 3-months post-training.
2) Changes in cognitive control capacity, as measured by the OSPAN task, will partially mediate the reduction in anxious and depressive symptomatology for both CBT and executive function training.

Ethics approval required
Ethics approval required

Ethics approval(s)
1. approved 22/03/2022, University of Bath Psychological Research Ethics Committee (Department of Psychology, University of Bath, Claverton Down, Bath, BA2 7AY, United Kingdom; +44 01225388388; psychology-ethics@bath.ac.uk), ref: 22-011

2. approved 03/03/2023, University of Bath Psychological Research Ethics Committee (Department of Psychology, University of Bath, Claverton Down, Bath, BA2 7AY, United Kingdom; 01225388388; psychology-ethics@bath.ac.uk), ref: 22-154

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Blinded (masking used)

Control
Uncontrolled

Assignment
Parallel

Purpose
Treatment

Study type(s)

Health condition(s) or problem(s) studied
Depressive symptoms
Anxious symptoms

Interventions
The quantitative arm will be a 3 x 3 mixed design with Intervention (Waitlist, Executive Function Training, Cognitive Behavioural Therapy) as the between-subjects factor and Time (Pre-training, Post-Training and 3 months Post-Training) as the within-subjects factor.

Participants who have met the inclusion criteria and have given their informed consent to participate will be randomly allocated to one of the three intervention groups. Participants were randomly allocated to groups via block randomisation, with block sizes of 3, 6 and 9. After completing their initial testing session, participants will download their allocated app, and activate their account for the duration of the study. During each day of the training period participants will be texted a reminder to complete their training, alongside a question about their usage of the app and apps in general, with waitlist controls only being asked about their app use in general. Participants will complete further testing sessions post-training period and 3 months after the end of the training period. After this final measurement has been completed,

they will be presented with a debrief sheet in which will inform them of the nature of the trainings, and those in the control group will be offered an active form of training if they wish. Participants will have 7 days after the final testing session to withdraw their data, after which it will be anonymised.

Waitlist control
Participants assigned to this group will complete questionnaires and tasks either side of a 28-day waiting period, and at the three-month follow-up time point.

Executive Function Training
Participants allocated to complete the executive function intervention will complete 21 sessions in a four week (28 day) training period using the NeuroNation app on their Android or iOS phone. This app has been utilised in previous research and found to result in improvements to working memory capacity, as compared to an active control group in a similar time frame. The app itself presents participants with a selection of games to complete each day based on our pre-defined goals of improving attention, speed and memory. Each session is accompanied by psychoeducation detailing how improving certain executive functions could improve everyday situations (such as conversations with loved ones). Each game takes around 120 seconds, with 10 games in each training session.

Self-Guided Cognitive Behavioural Therapy
Participants allocated to the CBT intervention will complete a daily mood journal and CBT thought record using the Moodfit app on their Android or iOS phone. Moodfit has been selected based upon its layout, provision of core CBT techniques such as guided cognitive restructuring and popularity. Participants will be asked to complete a mood journal each day, and at least one cognitive restructuring entry twice a day for at least 21 out of the 28-day training period. Apps with similar functionality have been found to lead to reductions in depressive symptomatology, as assessed by the PHQ-9, over a similar period.

Intervention Type
Behavioural

Primary outcome(s)
1. Depressive symptoms measured using the Patient Health Questionnaire (PHQ-9) at post-training (4 weeks) and follow-up (12 weeks)

2. Anxious symtpoms measured using the General Anxiety Disorder-7 (GAD-7) questionnaire at post-training (4 weeks) and follow-up (12 weeks)

3. Workplace Wellbeing measured using the Utrecht Work Engagement Scale at post-training (4 weeks) and follow-up (12 weeks)

Key secondary outcome(s))

Completion date
01/09/2025

Eligibility

Key inclusion criteria

1. Aged between 18 and 67
2. Resident of the UK
3. Working at least 16 hours per week
4. Score above 5 on the PHQ-9
5. Score above 4 on the GAD-7

Healthy volunteers allowed
Yes

Age group
Mixed

Lower age limit
18 years

Upper age limit
67 years

Sex
All

Total final enrolment
228

Key exclusion criteria
1. Currently in talking therapy

Date of first enrolment
27/07/2022

Date of final enrolment
31/05/2025

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
University of Bath
Claverton Down
Bath
England
BA2 7AY

Sponsor information

Organisation
University of Bath

ROR
https://ror.org/002h8g185

Funder(s)

Funder type

Funder Name
University of Bath

Alternative Name(s)
UniofBath

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
This is a retrospective registration on this site, the study is now completed. This study's aims, research questions, hypotheses, outcomes and full analysis plan were registered on the Open Science Framework prior to data collection, accessible from the OSF page: https://osf.io/h8j6e/.

IPD sharing plan summary
Stored in publicly available repository