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The addition of mobile elements to online physical activity programs for adults aged 50 years and older

Submission date
14/04/2023

Recruitment status
No longer recruiting

Registration date
24/04/2023

Overall study status
Completed

Last Edited
15/11/2024

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Although being sufficiently physically active is important for healthy ageing, a large proportion of adults 50 years and older are not meeting the physical activity guidelines of the World Health Organization (WHO). Online computer-based programs can help this population increase their physical activity levels. In recent years, also mobile-based programs are more often used for this purpose. During this study, combined computer- and mobile-based programs were tested. Three mobile elements were developed: an activity tracker, a smartphone program with personal physical activity (PA) tips, and a digital PA coach. These mobile elements were separately integrated with the existing computer-based programs Active Plus and I Move. The aim of this study is to investigate whether the renewed programs could improve physical activity behavior and whether use and ratings differed between the programs.

Who can participate?
Adults aged 50 years and older

What does the study involve?
Participants are equally divided among four research groups. The first group follows an online physical activity program including an activity tracker. The second group follows an online program including a smartphone program with physical activity tips. The third group follows an online program including a mobile-based physical activity coach. The fourth group is a control group which completes only the measurements and followed no online program. Physical activity levels are measured at three timepoints via questionnaires, namely at the start, at 3 months and at 6 months. Physical activity levels are also measured via motion meters (accelerometers) at the start and at 6 months. The results of the research groups following an online program are compared to the results of the control group. Also the usability and satisfaction of the renewed online programs were rated by participants through questionnaires.

What are the possible benefits and risks of participating?
Following the online programs could improve the PA behavior of participants, which is important for improving and/or maintaining their health. There are no risks involved for participants.

Where is the study run from?
Open Universiteit (Netherlands)

When is the study starting and how long is it expected to run for?
June 2019 to April 2022

Who is funding the study?
ZonMW (Netherlands)

Who is the main contact?
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Study information

Scientific Title
A randomized controlled trial of online physical activity interventions with added mobile elements within adults aged 50 years and over

Acronym
A4L

Study objectives
H1: Higher objectively and subjectively measured physical activity levels are shown at T1 and T2 in the intervention groups compared to the waitlist control group.
H2: Effects regarding physical activity levels at T1 and T2 differ between the intervention groups.
H3: Intervention programs differ regarding appreciation rates on usability and content.
H4: Intervention programs with better appreciation rates lead to better results on physical activity levels.
H5: Participation and drop-out rates differ between research groups and levels of engagement with the intervention differ within the experimental conditions.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 07/07/2020, central ethical review committee of the Open Universiteit of the Netherlands (Valkenburgerweg 177, 6419 AT Heerlen, the Netherlands; +31 (0)45 5762410; ceto@ou.nl), ref: U202004903

Primary study design
Interventional

Study design
Four-arm randomized controlled trial with repeated measures

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Stimulation of physical activity within adults aged 50 years and over

Interventions
Block randomization is applied, where each participant is randomly assigned to one of the research groups. The randomization procedure takes place automatically via a built-in algorithm within the software of the used online intervention programs after inclusion procedures (inclusion criteria questionnaire and signing informed consent).

Participants are randomly allocated to one of three experimental groups or to a waiting list control group. All participants are instructed to wear an ActiGraph accelerometer for 7 days at baseline (T0) and 6 months post-baseline (T2). Online questionnaires are filled in at T0, three months post-baseline (T1) and T2. Participants in the experimental groups follow the online physical activity stimulating intervention Active Plus or I Move with a duration of 12 weeks

including one of the following three mobile elements:
1. Activity tracker
2. Ecological momentary intervention (EMI)
3. Chatbot

Participants in the control group participate in the first 6 months only in the accelerometer and questionnaire measurements. No access is provided to the intervention during this period. Control group participants receive a combined tailored physical activity advice of the Active Plus intervention directly after completion of the T2 questionnaire.

Intervention Type
Mixed

Primary outcome(s)
Moderate to vigorous physical activity (MVPA) measured via the self-reported SQUASH questionnaire at T0, T1 and T2 and via ActiGraph accelerometers at T0 and T2

Key secondary outcome(s)
1. Commitment measured using a scale based on Webb et al. (2005) at T0, T1 and T2
2. Self-efficacy measured based on the self-efficacy for exercise scale at T0, T1 and T2
3. Intention measured based on Sheeran et al. (1999) at T0, T1 and T2
4. Appreciation rates of the mobile elements measured using a self-composed usability and experience questionnaire at T1
5. Appreciation rates of the intervention program including mobile element measured using a self-composed usability and experience questionnaire at T2
6. Participation rates and drop-out rates are measured via questionnaire participation rates (at T0, T1, and T2), accelerometer participation rates (at T0 and T2), Active Plus (at T0, 4 weeks post-baseline, and at T1) and I Move (at T0, 3 weeks post baseline, 6 weeks post-baseline and at T1) participation rates and process data (continuously)

Completion date
30/04/2022

Eligibility

Key inclusion criteria
1. 50 years or older
2. Able to use a computer, laptop or tablet
3. Own a smartphone from 2012 or later

Participant type(s)
Mixed

Healthy volunteers allowed
No

Age group
Mixed

Sex

All

Total final enrolment
954

Key exclusion criteria
1. Younger than 50 years of age
2. Not able to use a computer, laptop or tablet
3. Not owning a smartphone from 2012 or later

Date of first enrolment
01/04/2021

Date of final enrolment
30/09/2021

Locations

Countries of recruitment
Netherlands

Study participating centre
Recruitment takes place via social media advertisements
Netherlands
-

Sponsor information

Organisation
Netherlands Organisation for Health Research and Development

ROR
https://ror.org/01yaj9a77

Funder(s)

Funder type
Research organisation

Funder Name
ZonMw

Alternative Name(s)
Netherlands Organisation for Health Research and Development

Funding Body Type
Private sector organisation

Funding Body Subtype
Other non-profit organizations

Location
Netherlands

Results and Publications

Individual participant data (IPD) sharing plan
The anonymized datasets analysed during the current study will be stored in the Dutch repository Data Archiving and Networked Services (DANS) after the completion of the Active4Life (A4L) project. Access will be possible with the prior consent of the researchers. Preconditions (e.g. by what criteria the data will be shared with whom, for what types of analyses, and by what mechanism) will be determined in consultation with the user that requests permission to access the datasets.

IPD sharing plan summary
Stored in publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		26/06/2024	06/08/2024	Yes	No
Results article		16/09/2024	15/11/2024	Yes	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes