

## Digital interventions to promote self-management in people with osteoarthritis: systematic review and meta-analysis

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### Review question

What is the most effective digital intervention to promote self-management in people with osteoarthritis?

### Searches

Studies will be identified through searching online data bases (such as MEDLINE, PubMed, CENTRAL, EMBASE, CINAHL, PEDro, and PsycINFO) and grey literature databases (Dissertation Abstracts International World Cat, Greylit.org, and OpenGrey) using both Medical Subject Headings and free text keywords relating to arthritis, internet-based self-management interventions and outcomes such as pain, disability, function and quality of life, and cost and health service usage (where reported). Forward citation searches and the search of the reference list of the previous review papers and included studies will also be conducted.

### Types of study to be included

Randomised control trials of any design including parallel group, crossover and cluster-randomised trials.

### Condition or domain being studied

Osteoarthritis - the most common type of arthritis. It is a progressive, degenerative joint disease resulting from biochemical changes and bio mechanical stresses affecting articular cartilage.

### Participants/population

Adults (>18 years old) with osteoarthritis.

### Intervention(s), exposure(s)

Interventions will be defined as self-management programmes; delivered via digital technologies (e.g., websites, mobile applications, social networking tools, online games and animation). The structured self-management education programmes for arthritis as defined by Lorig and Holman (Lorig and Holman, 2003) and Osborne et al (Osborne et al., 2004) will be included.

### Comparator(s)/control

Waiting list, treatment as usual or minimal interventions, other digital interventions.

### Context

Interventions delivered outside the health care system.

### Primary outcome(s)

We will include any psychometrically sound unidimensional or multidimensional measures as well as the relevant subscales relating to the following outcomes:

- i) Pain; Visual Analogue Discomfort Questionnaire, Brief Pain Inventory
- ii) Disability; Visual Analogue Disability, Questionnaire Pain Scale, Brief Disability Questionnaire
- iii) Function; Patient Specific Physical Function, physical function subscale of Arthritis Impact Measurement Scale or Short form -36.

## PROSPERO

### International prospective register of systematic reviews

#### *Timing and effect measures*

Data relating to the pre and post intervention, and any follow-up time points will be considered as well as the change-from-baseline data.

#### Secondary outcome(s)

i) Quality of life e.g. European Quality of Life-5dimensions, Short form -36, World Health Organisation Quality of Life –Brief

ii) Cost and resource use: we will extract the results of economics studies reported alongside the effectiveness studies, either full/partial economic evaluation or estimates of resource use and costs associated with interventions and comparators.

#### *Timing and effect measures*

Data relating to the pre and post intervention, and any follow-up time points will be considered as well as the change-from-baseline data.

#### Data extraction (selection and coding)

Two reviewers will independently screen abstracts and full text of the search results. Data will be extracted by one researcher and cross checked by the second researcher using a data extraction tool developed a priori based on the Cochrane Handbook recommendations. Furthermore, information about costing and service utilisation will also be extracted if reported in the papers. The data extraction form will be piloted on a sample of included papers prior to full data extraction. Disagreement between reviewers will be resolved by discussion with involvement of a third review author where necessary.

#### Risk of bias (quality) assessment

Risk of bias for all included studies will be assessed based on the Cochrane Handbook for Systematic Reviews of Risk of Bias tool (Higgins and Green, 2011). Quality of evidence for each outcome will also be assessed according to the five GRADE domains, including risk of bias, inconsistency, indirectness, imprecision and publication bias (Guyatt et al., 2008, Atkins et al., 2004).

#### Strategy for data synthesis

Outcomes will be expressed as Standardised Mean Difference (SMD) or risk ratio, and will be pooled in pairwise random effect model. The heterogeneity across pooled studies will be examined using  $I^2$  test. Where included studies are more than  $n=10$ , we will use funnel plot and Egger test to assess publication bias. Furthermore, a narrative synthesis of the studies will be conducted where there is insufficient data to pool studies in a meta analysis. The common study characteristics tables will be supplemented by risk of bias assessment, the effect estimates, and cost and resource data to further assist synthesis of information. The economic data (cost and resource use) will be synthesised narratively with full tabulation of the results of the included studies. Where practical and appropriate a cost model will be constructed to determine costs in a UK setting.

#### Analysis of subgroups or subsets

Exploratory analyses will be conducted to explore potential moderators informed by type of intervention and control condition and outcome. Sensitivity analysis will be conducted for risk of bias assessment.

#### Contact details for further information

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01 April 2018

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24 December 2018

### Funding sources/sponsors

NIHR CLAHRC - East Midlands

### Conflicts of interest

### Language

English

### Country

England

### Stage of review

Review\_Ongoing

### Subject index terms status

Subject indexing assigned by CRD

### Subject index terms

Humans; Osteoarthritis; Self Care; Self-Management

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11 May 2018

### Date of publication of this version

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### Details of any existing review of the same topic by the same authors

### Stage of review at time of this submission

<b>Stage</b>	<b>Started</b>	<b>Completed</b>
Preliminary searches	Yes	No
Piloting of the study selection process	No	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

### Versions

11 May 2018

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