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Can an app improve patients' knowledge of their medical condition and treatment options?

Submission date
30/04/2018

Recruitment status
No longer recruiting

Registration date
13/05/2018

Overall study status
Completed

Last Edited
02/04/2019

Condition category
Musculoskeletal Diseases

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

Plain English summary of protocol

Background and study aims
Modern healthcare focuses on shared decision making (SDM). SDM is the process in which both the doctor and the patient decide on the best treatment, taking into account medical factors as well as patients' preferences. In order to be able to participate in the process of SDM, patients need to have knowledge about the subjects they are discussing with their doctor. Currently patients are mainly educated about their illness and the available treatment options during the consultation with the doctor. Unfortunately, this has proven to be an ineffective way to improve their knowledge.
Factors that make it difficult for the patient to absorb information from the doctor include age, level of education of the patient, lack of time available, complex language from the doctor and above all, too much information in too little time.
This study aimed to investigate whether providing patients with 'bite-size', categorised and interactive content through an app for smartphone or tablet could increase their knowledge about their illness and treatment options.

Who can participate?
Patients with knee osteoarthritis, who were referred to the hospital by their general practitioner.

What does the study involve?
In the week before the consultation, patients in the app group received information on a daily basis. The information was about 5 important topics that would be addressed in the consultation with the orthopedic (joint) surgeon: about the knee and osteoarthritis, conservative (non-invasive) treatment, surgical treatment, rehabilitation and expectations. Patients were actively offered the information through push notifications. Each topic was available in text, images and a short video. Each topic had quiz-like questions to, on a day-to-day basis, measure (and reflect) on patients' knowledge about the topic.

What are the possible benefits and risks of participating?
There are no risks of participating. People in the app group might gain a better understanding of knee osteoarthritis and options for treatment.

Where is the study run from?
Several medical centres in the Netherlands

When is the study starting and how long is it expected to run for?
April 2017 to September 2017

Who is funding the study?
The maker of the app, Interactive Studios

Who is the main contact?
Thomas Timmers, thomas@interactivestudios.nl

Contact information

Type(s)
Public

Contact name
Mr Thomas Timmers

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
N16.130

Study information

Scientific Title
Assessing the efficacy of an educational smartphone or tablet app with subdivided and interactive content to increase patients' medical knowledge: A randomized controlled trial

Study objectives

Providing patients with medical information in a subdivided, categorized, and interactive manner via an educational app for smartphone or tablet increases the knowledge about their illness and the treatment options

Ethics approval required
Old ethics approval format

Ethics approval(s)
Medical Ethical Board Maxima MC (Eindhoven, The Netherlands), 18/10/2016, N16.130

Study design
Surgeon-blinded randomized controlled trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet
See additional files

Health condition(s) or problem(s) studied
Knee osteoarthritis

Interventions
A surgeon-blinded randomized controlled trial was conducted with 213 patients who were referred to one of the six Dutch hospitals by their general practitioner owing to knee complaints that were indicative of knee osteoarthritis (OA). The eligibility of patients was assessed during their first contact with the hospital to schedule their appointment with the orthopedic surgeon. One group of patients were randomly allocated to use an interactive app that, in addition to standard care, actively sends informative and pertinent content to patients about their illness on a daily basis by means of push notifications in the week prior to their consultation with the orthopedic surgeon. Patients received, on a daily base and by means of push notifications, information about one of the following topics: the knee and the origin of the complaints, conservative treatment, surgical treatment, risks, rehabilitation after discharge and expectations. Each day covered one topic. Video, images and text were used as modes of information. Quiz-like questions were asked after each video to provide direct feedback of patients' understanding of the information.
Patients in the control group did not receive the app. They had access to all the standard information (eg. website, brochure) that is normally offered to them in the period prior to the consultation.
After accepting participating in the study, patients were automatically online randomised. No blocks or clusters were used.

Intervention Type
Behavioural

Primary outcome measure
Patients' knowledge (perceived and actual) about their illness and the treatment options. Actual knowledge was measured 2 days prior to the consultation by a 12-item multiple choice questionnaire, with possible scores ranging from 0 to 36. Perceived knowledge was also measured 2 days before the consultation by a 5-item multiple choice questionnaire, with possible scores ranging from 0 to 25.

Secondary outcome measures
1. Satisfaction with information and patient knowledge was measured 2 days before the consultation by using NRS scores ranging from 0 to 10
2. Certainty of the treatment chosen was measured 1 day after the consultation using an NRS 0 to 10 scale.

Overall study start date
01/04/2017

Completion date
01/09/2017

Eligibility

Key inclusion criteria
1. Referred by GP to orthopedic surgeon for suspected knee osteoarthritis
2. Fluent in Dutch
3. Possess an email address and a smart phone or tablet
4. At least 10 days between scheduling the appointment and the hospital visit were required, to give patients in the app group the chance to experience the intervention

Participant type(s)
Patient

Age group
Adult

Sex
Both

Target number of participants
188

Key exclusion criteria
1. Not Dutch-speaking
2. Not in possession of smartphone or tablet

Date of first enrolment
01/04/2017

Date of final enrolment
01/08/2017

Locations

Countries of recruitment
Netherlands

Study participating centre
VieCuri Medical Centre,
Venlo
Netherlands
5912BL

Study participating centre
Kliniek ViaSana
Mill
Netherlands
5451AA

Study participating centre
Jeroen Bosch Ziekenhuis
Den Bosch
Netherlands
5223GZ

Study participating centre
Canisius-Wilhelmina Hospital
Nijmegen
Netherlands
6532SZ

Study participating centre
Sint Anna Ziekenhuis
Geldrop
Netherlands
5664EH

Study participating centre

Amphia Hospital
Breda
Netherlands
4818CK

Sponsor information

Organisation
Interactive Studios

Sponsor details
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Netherlands
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Sponsor type
Industry

Funder(s)

Funder type
Not defined

Funder Name
Interactive Studios

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer-reviewed journal

Intention to publish date
01/06/2018

Individual participant data (IPD) sharing plan
The data is available to the researchers from the participating hospitals upon request. They can request that data through the main investigator, Thomas Timmers. They can only access the data

from their own patients. Data is provided in an encrypted Excel or SPSS file. In the files (and the complete data collection system) only data is available from patients that gave their informed consent.

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	21/12/2018		Yes	No
Participant information sheet		11/05/2018	02/04/2019	No	Yes