

Fibroline.

A Smartphone App for the treatment of Juvenile Fibromyalgia Syndrome (JFS) and Chronic Widespread Pain (CWP)

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Purpose and functionality of Fibroline

This project involves the development of a Smartphone self-administered cognitive behavioral treatment (CBT) protocol, that is low cost, accessible and efficient, aimed towards preventing or reducing pain and other negative common symptoms in fibromyalgia and chronic widespread pain in adolescents and young adults.

The protocol will be undertaken and evaluated using a sequential process that includes three independent studies: (1) development of a self-administered CBT program via smartphone technology for the treatment of fibromyalgia (Fibroline), (2) usability testing for Fibroline by a group of end-users (i.e., adolescents and young adults) to refine the prototype, and (3) a pilot study to determine the viability and efficacy of the intervention in a sample of adolescents and young adults diagnosed with fibromyalgia (JFS) and chronic widespread pain (CWP).



Fibroline is designed to improve the quality of life of those with JFS and CWP. The treatment is condensed in 9 weeks, and the domains of interest (modules of treatment) that are included are the following: quality of sleep, anxiety management, pain coping, medication use, physical conditioning, mood regulation, problem solving, decision-making and relationships with others.

The treatment will be administered in full through the Smartphone. The user will be requested to set his or her preferences. The treatment content: educational material, tasks, self-report questionnaires, etc. will be unlocked while the user advances through the treatment (i.e., a new activity/information will not be available until the previous one has not been fully finished/attended to by the participant). The app itself will be guiding the user through the process. The number of pending tasks could be seen at the bottom of the screen if the app is on and some alerts would be displayed to the user if the app is off.

With patient consent, a health professional will be able to see the patient's performance data. In order to do so, the health professional can either access to a website and see the patient's evolution or collect data from the patients using the app.

Different tasks will be requested to complete the treatment modules. Tasks are divided into five sections

Multimedia

Readings, videos, and audios. They display the time needed to read, watch or listen to them, so the user can decide when it is better to do so. They will also display information about the covered area and the related activities.

Progress

Assessments

The user will be asked about: sleep quality, pain, mood, etc. These assessment assignments are easy and quick to complete. They will pop-up in the morning and evening, at any time set-up by the user. An alarm and a text on the screen will indicate that it is time to answer.

Notes

The users will be requested to write down some important things, like their treatment objectives. They will be able to read or edit the notes if needed.

Reminders

A list of "to do" tasks will be available at the bottom of the screen. These are the exercises or activities that must be completed by the user at that moment.

Usability and acceptability testing

METHODOLOGY

Usability has been defined as the effectiveness, efficiency and satisfaction with which specific users can achieve a specific set of tasks in a particular environment. The objectives for Fibroline are that the app is (1) easy to learn, (2) error-free, and (3) liked by the user.

A qualitative usability testing approach with a semi-structured interview will be conducted. The design is based on the concept of a "hermeneutical circle" which is an iterative process of implementing a design, learning and understanding from discussion and feedback, and making subsequent design refinements. Standardized instructions on the use of Fibroline were given to participants.

RESULTS

The sample was composed by 24 adolescents and young adults with ages between 12 and 24 years old (30% men, 70% women).

Use of technology. Participants in this study had an average experience of 7 years (1st cycle) and 6 years (2nd cycle) in using computers and 3 years in using Smartphones (80% had been using them for 1 year at least).

Most liked characteristics. What participants liked the most was that Fibroline has a multimedia content, audio recordings with relaxation techniques, simple and useful instructions and that it is flexible.

Cycle 1

Main problems
The users didn't know how to:
(1) set the alarm
(2) go to the "notes" section
(3) view the content on full screen
(4) notice that they could choose to see some of the content in text or video form

Suggested changes
They suggested:
(1) adding some instructions about the alarm settings
(2) making the design more colorful
(3) explaining how to quit the first PDF

Easiness of use
Most participants (85%) rated the App as "Easy to use"

Acceptance
Most participants (92%) would use the App if they needed it

Changes after cycle 1

ADDINGS

BEFORE

AFTER

¿Qué tengo que hacer?

- Ve al apartado "Notas"
- Sigue las instrucciones

Gira el iPhone/iPod si quieres ver los materiales a pantalla completa

Evolution

Cycle 2

Main problems
The users didn't know how to:
(1) find the button to access the chart showing their progress
(2) set the alarm
(3) some of them still didn't notice that they can choose to see some content in text or video form.

Suggested changes
They suggested:
(1) presenting the alarm instructions in a different way,
(2) explaining more clearly that they can choose to watch a video or to read a PDF
(3) making the "chart" button easier to find.

Easiness of use
All participants (100%) rated the App as "Easy to use"

Acceptance
All participants (100%) would use the App if they needed it

CONCLUSIONS

The main conclusions of this work are that:

- (1) An usability testing protocol is necessary to unveil all the problems that may arise when using an App.
- (2) The most preferred contents were multimedia ones.
- (3) Users do need some guidance to perform complex tasks (like setting an alarm).
- (4) Fibroline is an acceptable and easy-to-use App.

The pilot study will begin next September, we are looking for participants.

