MTHERAPY: a Mobile Based Therapy

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ABSTRACT
In this article we describe a new rehabilitation system performed through the mobile device, the mTherapy. The patient can be diagnosed, receive therapy, manage their sessions and be monitored using mobile technology and some of its functions, being in active contact with the therapist, through a cloud computing-based application. The cloud computing provides much of their services and features, such as information storage, information management, platform services and customizable user interface for the patient, according their needs. From the portability and customized access to rehabilitation, through the mobile device and cloud technology, we improve the communication with the therapist and we allow the patient to receive all along the care they need, with direct indications, via videoconference personal assistant or primary care at critical times of anxiety or stress.

Keywords
Mobile Therapy, Mobile Rehabilitation, Anxiety Therapy, Therapy Management, Cloud based application.

1. INTRODUCTION
Nowadays, people live in a world where instability and uncertainty govern aspects of labor, economic, political and social life. This uncertainty can sometimes cause, the person suffers a state of confusion in which the search for balance and stability become the priority. This uncertainty and confusion becomes a problem for the person when he feels overwhelmed by this situation in terms of resources, generating a physical response which is commonly known by the term anxiety. [1]
Anxiety is one of the most common disorders in the society where we live. Many people suffer from anxiety or stress without any knowledge of what their symptoms are or what its consequences might be. We know that anxiety can be related to stress, panic, eating disorders [2] or lead to depression. It mainly affects women [3] and children.
Usually it can be treated by specialists who are fully trained in mental health problems such as psychiatrists, psychologists or counselors who can give us some ideas of how to know manage anxiety disorders and its symptoms.

2. STATE OF ART
Psychological therapies are therapies are based on the study of behavior and mental activity and human behavior. These therapies typically explore such concepts as perception, attention, motivation, emotion, brain function, intelligence, personality, relationships, consciousness and the unconscious.

Today within psychological therapies we distinguish the following methods, depending on the mode in which they are realized:

2.1 Physical Therapy
The therapy where the psychologist serves his customers in his office, so that patients need to go there to be treated in the psychological cabinet. One of them is served in the office of a psychologist or therapy room, and the rest await their turn in a waiting room.
This is the most traditional form of psychological help [4]. In this format, the psychologist and patient are face to face, talk personally and review the material together, so that the psychologist delivery directs instructions personally. The proximity and contact is the predominant note in this mode.

2.2 Online Therapy
The online psychologist offers the same services like the traditional psychologist, but he does so in distance psychology. [5] The therapist and patient are not in the same location but they contact by electronic means, and relationship is established through this medium. Here, the distances and borders fall, but also makes the patient’s relation with the psychologist less warm and close.
According to communication and technology used, this therapy can be realized through: Email / Chat / Conferencing (Skype)

2.3 Virtual Reality
The use of simulation (numerical technique that conducts experiments by means of a digital computer) serves to create experiences similar to the reality [6], has previously established limits and presents many advantages. For example, in the "Technical Exposure ", the therapy is more personalized and helps to coordinate and control situations that could not be done in the real world, improving the space-time relationship.

2.4 Mobile Application
They are applications designed to provide basic information about anxiety and stress, which include meditation and breathing techniques as well as offline reading or graphic material that is accessible by the interested user. In some applications, the user can find out your stress level based on the results provided by an assistant. There is no interactivity and no real functional use, nor can we understand it as a process of rehabilitation, as it does not offer a professional therapy service.
3. MTherapy: 21th Century’s Therapy

How can we offer a professional online service, that not just approaches the doctor with his patient, but that it be able to assist the patient when he may need it, even whenever he could not contact with the therapist?

The solution we propose is a mobile application that has several features not available at present, and would try to make more extensive the use of technology in the process of psychological rehabilitation. First, its basic function is to assist people with stress or anxiety and that these users can evaluate through this application if they require professional assistance. In case they do not require professional assistance, the application would propose the right way to relax, with theoretical material and an practical assistant available for such purpose.

If professional help is needed, the application assists the user in searching a psychologist professional, in order to realize a mobile therapy (with the option to perform it through web navigation from another devices), which would help him in every step of rehabilitation and would serve actively in better diagnosis, monitoring and follow-up throughout the rehabilitation process.

It is a mobile platform easy to use, both the patient and the therapist.

The functions that characterizes and highlights the mobile application as mTherapy, from other current modalities, are provided by the innate properties of the mobile, such as portability, making it accessible from any location and position the user may be in, and other more specific, such as the use of GPS Mobile on the geographic location of the patient or the use of the camera as a means of visual contact in a live connection between patient and therapist. Also its nature as cloud-based application, allows it to provide a complete and customized rehabilitation, managed and located from the comfort and efficiency of the cloud computing technology.

The functions and sections of this application are:

3.1 Diagnosis

The application features a section through a support assistant wizard to detect levels of stress and anxiety. From certain levels, pre-programmed, that exceed normal levels, the software facilitates the user relaxation tools, with indications and techniques that reduce these levels of anxiety and stress.

If the result of the wizard, revealed high levels of anxiety or stress, the application automatically shows the user the possibility to opt for a professional service therapy.

However, the application not only gives the user the convenience of going to a therapist, but facilitates a practical and anonymous access to contact therapists.

For this, the patient can proceed to the basic registration of a series of concise data, and after that, the application by using the network or the mobile GPS function, suggests a number of therapists geographically nearby the user in case the user wants opt for a face to face therapy, blended (face to face and online), or therapists who offer their services exclusively online, regardless of their geographic location, explaining the benefits and convenience of an online therapy with respect to traditional therapy. For this purpose the mobile accesses a database of therapists who offer their services, as it stores in a database the users who choose a convenient and affordable way to access therapy.

The wizard diagnostic records observations and specific questions that obtain the maximum information possible regarding the type of anxiety disorder, which is provided to the therapist for assessment when attending the patient.

3.2 Therapy

Once the user has chosen the therapist via the mobile application, and after agreeing to undergo therapy in the short to medium term in order to solve his problems, sessions are conducted via mobile camcorder (with option to be performed by another device).

Once the session is initiated by the patient, the application gives him the option of starting the therapy session previously booked through appointment system, with which the patient and the psychologist may have direct contact, and establish a visual communication to provide it to therapist and the patient all the information possible to conduct therapy.[7]

In the therapy module, the therapist and the patient have for each session:

- Videoconferencing Section: establishing direct communication between patient and therapist, the first with the possibility of using a camera phone as video recording way and as optimization of resources available at mobile.

- Notes section: where therapeutic psychologist’s advices and patient’s concerns are collected.

- Files section: provided by the therapist, such as documentation, schedules or tasks in the process of therapy. They can be viewed and downloaded to the internal or external phone memory for later review of the patient.
3.3 Therapy Management

3.3.1 From the patient side
He disposes a history of sessions, wherein each session can be re-displayed video conferencing files, which gives it a very practical sense in rehabilitation because it allows the patient to remember where and how of the instructions of the therapist were made. Those video files are downloadable at mobile.

Also the patient can view therapeutic entries based on information received from him. Likewise, the patient may note any concerns, problems, reflections, experiences or thoughts, as a draft for the next query. Thus he has no need to write them manually in other support or remember them for later.

He can also access to attachments files uploaded to the cloud by the therapist, with the possibility to download them for later review.

Finally the system provides an internal messaging system for punctual communications between patient and therapist.

3.3.2 From the therapist side.
In addition to displaying the content (video, notes and attachments / documents / tasks) provided to the patient, the therapist has the history of the patient panic attacks or critical moments, both in frequency and intensity, both collected by the assistant for primary patient care, to conduct the patient in situations in which for any reason he cannot contact the therapist.

The information serves to monitor the patient during the rehabilitation process.

3.4 Monitoring
An important factor in mTherapy use is that at every moment the patient can not only take advantage of the information received from the therapist at any time and place, and revise it through his mobile, but in addition he can receive primary support and assistance in any situation.

For this purpose, the patient, even if he has not internet connection at the precise time, can access an assistant (downloadable and updatable cache from the cloud) in critical intensive anxiety or panic attacks.

This wizard provides interactive breathing patterns, which coordinates the patient breathing through the screen, in order for him to get calm. It also offers distraction techniques or therapy reminders, the therapist customized depending on the case and his knowledge of the patient, which the patient can use to overcome these critical situations. It is therefore a custom and not a general self-help information service.

Likewise, whenever the patient completes this primary care assistant, he is asked about the level of discomfort he has experienced, so this is reported to the therapist along with the frequency of these unpleasant situations that the patient goes through. This information is used by the system to show the therapist a visual graph of such incidents.

These notifications are sent as alerts to the therapist mobile platform, to allow him learning more about the patient’s problems, so he can contact him to supervise his condition in order to enable a progressive patient monitoring.

The therapist can also consult the patient about the usefulness of the advices he provided him in the assistant for patient primary care, and correct or modify them if necessary. Also the patient can transmit the support service, other needs that assistant and therapist would need to improve or introduce, and which serves as feedback for improving the application and its services.

For any change and modification of this wizard assistant, it is updated from the cloud and downloadable for offline use.

4. MTherapy: A CLOUD MOBILE APP
The application resources are constantly available to the user, regardless of time and location. [8] The documents are not physically in the mobile user but are retrieved through internet. All that is necessary is the mobile device or any other device being connected to internet. [9]

Features and rehabilitation services are provided in large part through the cloud technology, therefore does not require the patient or therapist being in a specific physical location, but may be at home, enjoying the convenience of a service that incorporates an improved quality of life.

Also the interface and content customization of the patient module are easily achievable, and this, as the location of the content is in the cloud, both therapist and patient do not have to worry about file management and storage. This custom service takes place without the need for significant economical or technological effort.

Regardless we are introducing the mTherapy, ie centered mobile device, as being a cloud based application, therapy may also be accessed from the computer through an enabled web browsing. [11]

Technical details of this cloud-based application, provides the following characteristics that make it an easy tool to use for rehabilitation purposes:

- The information (videos, database, users, and documents) is stored in a cloud.
- Data can be downloaded promptly (in this case the video of each session and material provided by the therapist) for offline access.
- Support for different user needs, for example, application cloud data backup with different characteristics such as data compression, security, and backup schedule. [12]
- You can use from your web browser [13] and / or its mobile version on applications installed on Internet-connected devices, such as desktop computer, mobile phones.
5. CONCLUSION
In this paper we have presented the concept of rehabilitation in a cloud-based mobile application, to improve the interconnectivity of the patient and the therapist in the field of psychological therapy in which communication, information sharing and maximum availability to the patient through the use of mobile, convert mTherapy a prime candidate for psychological and different scope therapies can be developed from the comfort and almost continuous patient care, who will always feel accompanied in the recovery process.

Internet and cloud-computing technology are key elements of this application, unlike other existing applications, not a self-help material but a full rehabilitation service, which uses mobile basic functions. The mobile device development will open new opportunities for rehabilitation.

Mobility, user interface and services may be improved in the future, as whatever resources are needed to meet the needs that arise during the use of the application by patients and therapists.

6. REFERENCES