Managing exposure therapy with the DoDoneGone web-service

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Abstract

DoDoneGone is a web- and mobile service for people with anxiety-problems. It teaches them to handle activities they are afraid off by a gradual exposure to the fear-provoking situations. Exercises are planned and monitored on a website and conducted in the field with guidance and support from the clients mobile phone. The DoDoneGone website makes it possible to share training programs and to conduct clinical trials.

Author Keywords

Anxiety, in-situ therapy, mobile, location-based services, occupational therapy

ACM Classification Keywords

H.3 INFORMATION STORAGE AND RETRIEVAL, H.3.5 On-line Information Services, Subjects: Web-based services

Introduction

DoDoneGone is a self-care service currently under development by researchers at the IT University of Copenhagen and Peking University, in close partnership with professional therapists. The service is meant to help people with anxiety-problems to handle the activities they are afraid off. As an example, this could be a young person who has become isolated at home in front of his computer anxious to be amongst other

people, suffering from "internet addiction", which, unfortunately, has become a serious problem in China [1] and many other countries. The service is broad in its scope, including, for instance, the possibility to plan and execute training programs for people struggling with fear of heights (i.e. Acrophobia) [2].

Those who seek treatment will be offered exposure therapy, commonly used within cognitive behavioral therapy [3] and occupational therapy [4]. It is based on the principle that we shall identify and change the dysfunctional thoughts and behaviors that trigger and maintain the anxiety. Part of treatment outside the clinic is to gradually seek out the unpleasant anxiety-provoking situations or places and learn to master them. A person struggling with for instance fear of heights may start the exercises being instructed to go to the first floor of a public building, and after e.g. 10 sessions this person will be asked to go to the top floor of the building. A number of studies have found exposure exercises to be the most effective element in the treatment of anxiety [e.g. 5 & 6].

The system
DoDoneGone is designed to support a collaborative planning of exercises between the therapist and the client. This may be done in the clinic or remotely via the Internet (See figure 1). The therapist is able to monitor the progress from the DoDoneGone webpage associated with a client. For instance, its possible to see how many exercises the client has taken and when the client has been at the target location.
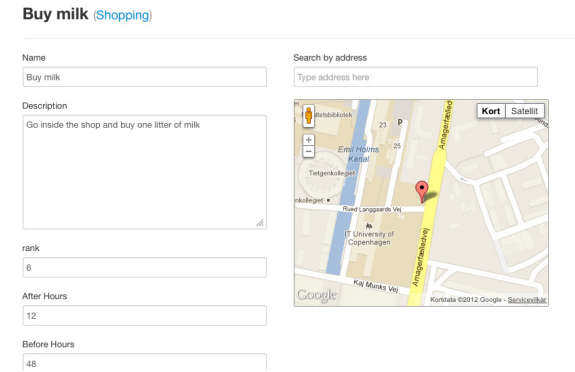

Figure 1: Planning an exercise on the DoDoneGone website by selecting a target location and scheduling the order of each exercise. This planning also configures the content of the mobile interface that the client will use when out in the field.

Once the client starts conducting the exercises that has been agreed upon, they will get instructions and support from their own mobile phone when out in the field. The client can earn a token at the location ("stars"), when answering a question on the mobile (e.g. "What is the color of the entrance to the shop?") or by entering a code (pin- or QR-) that has been placed in advance at the location.

The client will be asked to rate the current level of anxiety before and after the exercise. This information is meant to support a de-briefing dialog with the therapist and to evaluate the efficiency of the particular exercise, making sure that it was in fact challenging - but not overwhelming. If the client gets an anxiety
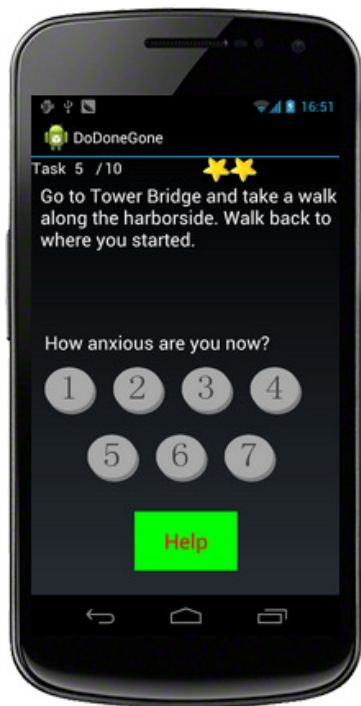
Figure 2 : The mobile interface supporting in situ training. This client has got two stars from previous tasks and is asked to rate the current level of anxiety before start. The "Help" button will launch a relaxation guide.

attack he or she may press the "help" button (c.f. Fig. 2). This will launch a guide to conduct simple exercises, for example relaxing by breathing slowly. Every time an exercise is done, the client will be asked to rate the current level of anxiety again. In case the rating is still high, the therapist will be announced by e-mail.

DoDoneGone has a special feature that you may decide to share a training program by making it public. Other users will then be able to copy and modify the exercises for their specific needs. If, for instance, a training program has found a set of good locations for gradually exposure to heights in your area, these locations and instructions may be reused. For each training program published we intent to display the number of clients that has started on this program and how many that has successfully completed it.

DoDoneGone is intended to be so simple to use that therapists without deep understanding of the web and mobile phones can use it. However, the client interface does require some knowledge about the working of mobile phones and the ability to read text. User trials - to be conducted in the near future - will show if this design goal has been reached.

Background
Anxiety is one of the most common psychiatric disorders. For instance, approximately 5% of the Danish population suffers from it. Only a few of these people will ever be offered treatment, partly because the capacity is insufficient and partly because people do not like to go through all the administrative procedures in the health care system.

Research within psychotherapy indicates that guided self-help programs offered on PC over the Internet have as good efficacy as-face-to face therapy [7]. There is a large and exponentially growing number of downloads of applications for physical and mental health (in the U.S. the estimated figure for 2012 is 247 million downloads) [8], but research has yet to come up with controlled studies of the treatment effect of these mobile applications. While few case studies shows promising results [9] there is a need for the systems to support large-scale controlled clinical trials. We intend to design DoDoneGone with this particular need in mind.

If the trials demonstrate a significant effect from mobile treatment, it is our hope that DoDoneGone may become a professional tool for occupational therapist. Occupational therapy seeks to promote peoples ability to carry out activities of daily living by matching the individuals current capacities with their social and physical condition. By carefully planning and monitoring anxiety-provoking activities that are manageable, the client is motivated towards further activities [4].

We do not, however, intent to limit the use of DoDoneGone to professionals. It will become a free and open service for everyone. Parents, who are desperate to get their teenager out among other people, may use it. Caregivers may help people with cognitive challenges practise activities of daily living, e.g. shopping. The feature that allows everyone to share their training programs opens for multiple applications developed by the community. Thus, it becomes an important challenge for us to ensure easy filtering of the training programs that may be relevant for a particular client or purpose.

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