**Strengthening Self-Management of Stress in**

**Older Workers through Advanced Technology Apps: The StayActive Project**

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Introduction

Nowadays, working environments are becoming more and more stressful. Especially older people chronically exposed to such environments become prone to burnout, lesser productivity and onset of various illnesses. Stress detection and the design of personalized batteries of interventions for helping the worker to better cope with stressors are under development. Advanced technology apps may be very useful in this respect. Their development as the second, non-human assistance segment of health systems is equally highly envisaged and challenging. Stress management is also highly challenging, due to the complexity of stressors and the large variability of the biological and psychological reactions to it. Moreover, identifying the concreete means by which the huge progress of smart technology may help to fight stress in the particular category of older workers, generally more vulnerable to stress but lesser prone to smart technologies, is also challenging [1,2,3,4].

The StayActive project

The project aims at supporting older workers to cope with various stressors at their workplace through creating a smart app running on a smart phone and a web portal. Grace to a set of biosensors, a personal agent installed on the phone and a clouding web portal, the StayActive app will be able to monitor user’s level of stress, signalize a critical stress level and recommend various, highly personalized means to break the action of the stressor, counteract its effects and thus, avoid the burnout. The general architecture of the StayActive system is shown in Fig.1 below.

The current phase of StayActive prototype development

The project was launched in April 2014. The target group includes older workers, males and females aged over 55, exposed to a stressful environment at their office or factory-like workplace, as well as 10 managers. The first critical points to create a true user-centered, highly efficient app was to establish the end-user’s profile and to identify his needs and preferences related to stress detection and counteraction. This was done with 39 voluntary end users and 10 managers recruited by the two pilot sites of the project (University of Geneva and Ana Aslan International Foundation in Bucharest). The obtained results allowed the researchers to specify four main services to be provided by the StayActive app, which are shown in Fig. 2.

Fig.1 – The architecture of the StayActive system.

Fig.2 – Services to be provided by the StayActive app

After user’s needs specification, the mock-up prototype was configured and tested together 40 end-users and 10 managers in Switzerland and Romania, based on a specific mock-up trial protocol elaborated by the consortium. Collected through standard questionnaires and then analyzed, user’s feedback (answers, comments and suggestions for prototype improvement) will contribute to the design of the first (fully functional) prototype, which will be tested within the two pilot sites during the next, first field trial in real settings. All the ethical and legal aspects related to working with voluntary human subjects, as well as the ethical control instruments at pilot sites and consortium level were assured [5].

Main results and lessons learned

First of all, end users’ feedback denoted that, irrespective of users’ tech literacy or level of knowledge about stress, a smart tech “companion” able to support them fight workplace stress (and not only) would be highly appreciated. Also, the questioned managers proved very open to such a smart app able to help them to balance their concern about employees’ health and improvement of work security norms with that about demands of performance at work and profit. In terms of usability, the main challenges are to design as much as possible friendly but highly intuitive interfaces, simple, time saving ways of accession to a given service, highly personalized content of recommendations and means to counteract stressful situations, depending on the individual’s profile, needs and preferences. A particular challenge proved to be that of biosensors holder shape. Wearable biosensors were proposed, but other shapes were alternatively suggested by the end users and will be considered for the first, fully functional version of the prototype. An additional challenge is that of motivating and keeping the end users to actively but voluntarily cooperate throughout the whole project running.

Envisaged impact of StayActive project

Beside the benefits for the older workers and their managers, the StayActive app can substantially provide economical benefits, through better controlling work environment, diversifying labor protection norms, improving the performance at work and reducing absenteeism etc. Also, by its philosophy and the solutions it provides, StayActive meets the requirements and actions promoted by The Strategic Implementation Plan of the European Innovation Partnership on Active and Healthy Aging, launched by the European Commission [6].

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