Stress at Work: Developing a Stress Management Program in a Web-Based Setting

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***Abstract*—Stress among employees is a public health issue in modern working life in developed countries. A lack of balance between job and demands in private life, and stressful situations in work life let people experience high levels of stress. Long-term sick leave and ill-health can be a consequence of high stress exposure during a long period of time. The objective of this interdisciplinary ongoing research program is to develop a platform providing multiple help online with evidence-based measures in a stress management program. The program is aimed to prevent stress-related dysfunctions and promote wellbeing and lower levels of stress among salaried employees in white collar jobs. The platform includes a web based system for asking experts, communities for peers and different health promotion measures which will be further described.**

Keywords-white collar workers; learning; relaxation exercise; coping; interdisciplinary research

I. INTRODUCTION

Stress is a public health issue in modern working life in developed countries. During the past years there have been substantial efforts on advancing information technology for effective health applications. These could be proactive, preventive and intervention measures to improve work life balance and occupational stress in the western economies. To address the challenge of health and wellbeing we need to include web-based empowering of patients and healthy individuals to enable them to play a substantial role in their own health and health promotion measures and increase knowledge for decision support.

This paper describes the development of an evidence-based online stress intervention which is still work-in-progress. It introduces a web-based stress management system that applies a holistic and communicative approach to prevention and intervention of negative stress exposures and reactions among white collar workers in a Swedish setting. The system is based on group interaction, information sharing, and integration of actors' knowledge.

II. STRESS AND STRESS MANAGEMENT

The concept of stress is complex, and can either be seen as an exposure, a stressor, acting on the human body and mind, or an effect, a stress response, of an event or thought in an individual. Stress reactions include physiological as well as psychological components. It is about how we perceive demands and what ability we have to cope with them. Stress among employees is a public health issue in modern work life. Intense lifestyles, with high demands in job and in private life, let people experience high levels of stress. Long-term sickness and absence from work can be a consequence of high stress exposure [1].

Stressors in occupational work, such as a frustrating work situation, locked-in positions, over commitment in work performance and work-family imbalance are often major causes of psychological and physiological strain. Overcommitted co-workers suffer from inappropriate perceptions of demands and not enough coping resources. It could be misconceptions preventing co-workers from properly estimate cost–gain relations and to set limits. Studies have shown that stress related dysfunctions are associated with a state of fatigue, sleep problems, lack of recovery, and also long term sickness absence [2] [3] [4] [5]. It is well-known that preventive measures and early interventions are beneficial in order to prevent people from stress-related dysfunctions, and risk of later illness and sickness absence.

III. THE WEB-BASED STRESS INTERVENTION

The Internet can serve as an interactive medium for information and communication, with accessibility and interactivity for almost everyone in the western world. It can include numerous of users, and gives users new knowledge and information as well as opportunities to communicate. It challenges traditional one-way information in health information, and can be used in developing interactive environments. Its main principles are in line with and suitable in health education and empowering processes. However, the function for many years was information search and retrieval, but the technology now makes it possible to use interactive applications. This makes it possible to integrate applications for shared experiences, recognition and support among users, which is characteristic of the web 2.0. To let users be not only consumers, but also producers and contribute to content is a valuable development [6]. Electronically accessed health services, such as web based communities for peer level support, and ask-the expert systems for more extensive medical information, offer answers and support. A benefit for

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the user could be reached if these two different health venues could be integrated [7].

The objective of this interdisciplinary research program is to develop a platform giving multiple help online with implemented evidence-based measures in a stress management program which is aimed to prevent stress-related dysfunctions and promote wellbeing and low levels of stress levels among salaried employees in white collar jobs. The platform includes a web based systems for asking experts, communities for peers and intervention programs offering health promotion measures.

IV. DESIGN AND MODEL

This new program is based on the bio-psychosocial model stating that biological, psychological and social factors are equally important in the development of disease or to promote and maintain good health and prevent ill health. The model is based in that health is a combination of biological, psychological, and social factors rather than solely biological or biomedical [8] [9]. In this project he model should be seen as a general framework to implementation and intervention of stress related exposures and reactions.

The core element of the intervention is a learning process in which the participants learn to approach solvable problems and issues connected to promotion, prevention or reduction of stress. The project will be an ongoing process with the multiple help system on line that is set up and designed in the project. The system is a combination of self-help, groups, support and expert help online. Thus the program aims to enable people to gain better control over health determinants. Health promootion in work life is the combined efforts of employers, employees and society to improve the health and well-being of people at work. In this study the focus is on promoting active participation and encouraging personal development.

The base of all intervention measures in this project is the empowering processes of the individuals. The educational approach to health promotion is concerned to enabling people to make informed choices, which is well in line with the design of this study. The promotive and preventive approach targets behavior changes in individuals, such as: internal locus of control as a key factor in efforts to create empowered environments and empowered individuals [10] [11].

V. THE INTERVENTION PROGRAM

People who will be included in the project are more or less exposed to stress, which has to be considered when designing the web based system. Relaxation exercises, access to relevant information and interaction with other users and health professionals, helpful on-demand for upcoming stressful situations as well as long-term strategies for learning a new behavior and coping with stressful situations are parts of the system. The aim is to let the users become more empowered in their daily lives.

The techniques used in the stress management system are utilized in cognitive therapy, stress management and in body-oriented therapies. Relaxation exercises can ease stress reactions and prevent more chronic stress related dysfunctions. The exercises include techniques for improving breathing, relaxation, body awareness, sleep, cognitive reframing, emotional control, self-efficacy and self-esteem.

The relaxation exercises, such as progressive muscle relaxation was originally designed by Jacobson to guide people through successive tensing and relaxation of the body muscle groups from toe to head to achieve body relaxation [12]. This is easy to learn and teach, safe, non-threatening and non-competitive. Since then it has been concluded that the effectiveness of the interventions varied according to the health-outcome measure used [13]. Cognitive-behavioural skills were found to be more effective for psychological outcomes, whereas muscle relaxation techniques were more effective for physiological outcomes. Using a combination of techniques; muscle relaxation and cognitive-behavioural skills seemed to be more effective across outcome measures than using a single technique [13] [14]. Deep diaphragmatic breathing is known to counteract the fight or flight response symptoms that are often associated with anxiety and negative reactions on stress exposure [15] [16]. Also meditation can be used to counteract stressful situations, as it is a technique to develop concentration and awareness to produce a calming effect. Here diaphragmatic breathing is central to any meditation practice [15] [16] [17]. It has been found that there could be a lowering of blood pressure during deep breathing [18], which is interesting to consider in stress management.

Figure 1. Components of the Web-Based Stress Management System.

Work coaching and counseling in stress management are a relatively new, but an increasingly sought after method for helping people to improve, develop, learn new skills, find personal resources, achieve aims and manage life change and personal challenges such as work-related stress and achieving work life balance. Occupational coaching might be effective for situations, whether in personal life, career, corporate or business life [19] [20]. It is well established among business and management executives, but has not been used much on a individual level among gainfully working men and women in the general population [21].

These work oriented programs have not been scientifically evaluated regarding primary or secondary prevention for stress related disorders or as a health promotion measure for gainfully working people. We will include these measures in the web program to evaluate both the general design and also how they can be implemented on the Internet as a dynamic

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tool in the communication process. There will also be an approach to focus the work-family balance.

VI. MEASUREMENTS AND OUTCOMES

There are different theoretical models including the stress concept. The demand-control-social support model is one of them. It a multidimensional model that examines the relationship between a person and the environment with particular focus of the interaction in employment settings. This model utilizes three dimensions which focus which can explain the development of stress reactions in working people. The individual, which is central in this model, has her or his perceptions of work experience. Factors connected to the psychosocial work environment, such as demand, control, and support are the core components of the model [22].

In this program electronically accessed health services, means stress management, which may offer the advantages of both expert knowledge as well as a social network where collaborative learning by means of social support is provided, and as understood to be a social network's provision of psychological and material resources intended to increase the individual's ability to cope with stress [23]. All the involved actors can benefit and the possibility of cross-fertilization to take place [7].

VII. CONCLUSIONS AND FUTURE WORK

Stress among working people is a public health issue. In order to outline preventive and intervention measures for stress reduction, information technology for effective health applications should be developed and implemented. This paper describes how a web-based system for stress management has been developed entailing self-help through information access and exercises, and also support and guidance from peers and medical professionals. The platform is ready for use and to be implemented.

The web-based stress management system presented in this paper has resulted from previous research studies of web-based solutions for learning new lifestyles, stress management and clinical trials. The next step is to make the system available to a group of employees who experience stressful lives. The focus will be on white-collar workers: office workers and in middle management positions. To evaluate the implementation stress levels will be measured using established questionnaires. levels will be measured using established questionnaires. In addition, there will be observations of systems usage and content and discourse analyses of the web-based communication [24] [25.

We will complement the web-based system by a mobile application. To add new technical features will be useful to increase the system flexibility for the users. This would make it easier for the users to get help in their everyday lives, whenever and wherever they need support from peers, experts and information contents.

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