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The effects of therapist support and treatment presentation on the clinical outcomes of an Internet based applied relaxation program

Sven Alfonsson [a,*], Erik Olsson [a], Timo Hursti [b]

[a] Department of Public Health and Caring Sciences, Uppsala University, Sweden
[b] Department of Psychology, Uppsala University, Sweden

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ABSTRACT

Symptoms of stress are common in the general population and associated with health risks and economic costs. Applied relaxation training has shown to be effective for reducing stress and worry both as a self-help treatment and as an internet-based intervention with therapist support. However, what factors may affect the outcome of internet based relaxation training is unclear. The aims of the present study were to investigate the effect of a brief internet based relaxation program for people with symptoms of stress or worry and to assess whether enhancing the quality of intervention presentation or therapist support had an impact on outcomes.

Participants were randomized in a full factorial design to either Normal or Enhanced treatment Presentation and either Normal or Enhanced therapist Support in a four-week online program with applied relaxation. The main outcome measures were self-report instruments of stress and worry.

A total of 162 participants were included in the study and 94 and 84 participants completed the post and follow-up measurements respectively. Participants in all conditions improved significantly on the main outcome measures, and the different levels of Presentation or therapist Support did not significantly affect treatment outcome. Registered number of completed exercises was a predictor of better treatment outcome, but this effect was independent of treatment condition. Enhancing internet based interventions by improving presentations and the quality of support may thus not be the best way to further improve the effect of internet based interventions. More specific knowledge of the mechanisms that affect outcomes in online psychotherapy is needed.

1. Introduction

Mild to moderate symptoms of stress and anxiety symptoms are common in the general population (Connor et al., 2007; Johansson et al., 2013; Löwe et al., 2008) and are associated with low quality of life and economic costs for the society (Achat et al., 1998; Andlin-Sobocki & Wittchen, 2005). While there are effective interventions for anxiety symptoms and stress there are never the less reasons to develop and investigate treatment modalities that can potentially deliver treatments on a large scale (Hedman et al., 2012). Stress is a non-specific physiological response to perceived threats or environmental demands such as high work load or social conflicts in a context of low subjective control (Häusser et al., 2010; Ursin & Eriksen, 2004). This means that chronic stress may be elicited by diverse factors such as chronic disease, working environment or economic pressures (Kivimäki et al., 2006; Melchior et al., 2007). The stress response is characterized by a sympathetic activation including increased muscle tension, blood pressure and proliferation of stress hormones that may over time lead to negative health consequences (Brotman et al., 2007; Lazarus & Folkman, 1984) and increased risk for several severe diseases such as coronary heart disease and depression (Cohen et al., 2007; Hammen, 2005). Further, stress often leads to harmful coping behaviors, such as smoking, or problems, such as insomnia, that may further increase the risk of disease (S. Cohen et al., 2007). Taken together, prolonged stress can be a harmful condition even at moderate levels, and it is important to find treatment approaches suitable for the general population.

Broadly, interventions for stress management may either target the primary stressor, e.g., at the environment or organization level, or the individual's perception or coping of the stressful environment. Interventions focusing on the organization level may be effective but are often difficult to implement. It may be more feasible with interventions that focus on the individual level and include teaching coping skills, problem-solving or other cognitive or physical exercises (Dewe et al., 2010). Several treatment models have shown to be effective for reducing stress symptoms, including Cognitive Behavioral Therapy (CBT), mindfulness-based interventions and relaxation training (Grossman et al., 2004; LaMontagne et al., 2007; Richardson & Rothstein, 2008; Zetterqvist et al., 2003).

* Corresponding author at: Department of Public Health and Caring Sciences, Box 564, 751 22 Uppsala, Uppsala University, Sweden.
E-mail address: sven.alfonsson@pubcare.uu.se (S. Alfonsson).

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Progressive relaxation training is one of the most frequently used interventions for stress, arguably due to its relative simplicity and general scope. It has previously shown to be effective in reducing stress and anxiety symptoms in non-clinical populations (Agee et al., 2009; Francesco et al., 2010). The relaxation treatment model is based on the fact that stressors elicit startle responses including muscle tension and in prolonged exposure to stressors, muscle tension develops into chronic tension and physiological hyperactivity (Barlow et al., 2007; E. Jacobson, 1938). By training muscle relaxation, this sympathetic activation is counteracted, the process can be reversed and the stress response ameliorated (Conrad & Roth, 2007). With sympathetic down-regulation, symptoms of anxiety and worry are also decreased (Manzoni et al., 2008).

Applied relaxation is a development from progressive relaxation that specifically aims at being easy to implement in everyday life in order to reduce anxiety symptoms (Öst, 1987). Applied relaxation has shown to be effective in reducing stress symptoms and ameliorate anxiety symptoms in patients with General anxiety disorder to a degree on par with that of CBT (Öst & Breitholtz, 2000). It is also effective in reducing symptoms in other anxiety disorders such as Panic disorder and Social phobia (Hayes-Skelton et al., 2013). One of the major benefits of applied relaxation is that it can be provided in a relatively condensed self-help format and has shown to be effective when delivered via the internet (Carlbring et al., 2007). Internet-based treatments are effective for a range of problems within behavioral medicine such as sleeping problems and chronic pain (Cuijpers et al., 2008). Sometimes relaxation training is an integral part of interventions, such as in tinnitus care, but it is seldom provided as a standalone treatment other than as a control condition.

Investigating and evaluating interventions that may alleviate stress and anxiety symptoms is important since, even though the impact on overall health may be small, it may be very important for the individual. Providing such interventions via the internet for the general population has the benefit of being cost effective (Hedman et al., 2012) and potentially having a wide reach (Bennett-Levy et al., 2010). How to deliver these internet based interventions in the most effective way is still largely unknown. Several studies have shown that therapist support has a positive effect on self-help treatment outcome, but this effect seems to be independent of therapist training or mode of delivery (Gellatly et al., 2007; Titov et al., 2009). Similarly, using presentation techniques that follow pedagogical and learning principles and incorporate multimedia content may also improve treatment effects though this is somewhat less clear (Danaher et al., 2006).

In a previous study focusing on improving adherence in internet based CBT, we saw that improving support increased treatment progress but not adherence to behavioral prescriptions (Alfonsson et al., 2015). There was no analog effect of improving treatment presentation on treatment progress or adherence. The aim of the present study was to build on these results and evaluate the possible treatment effects of enhanced presentation and support on the outcome of the same stress management intervention. The secondary aim was to investigate whether treatment effects were moderated by treatment adherence. The main outcome variables were self-report instruments of stress, anxiety symptoms and other psychiatric symptoms.

2. Method

2.1. Design

The study design and background has been described in more detail previously (Alfonsson et al., 2015) and is summarized below. The study comprised two independent variables (Presentation and Support) at two levels (Normal or Enhanced) in a full factorial design. The dependent variables comprised clinical self-report instruments and measurements of treatment adherence. Assuming moderate effect sizes and using a .05 significance level, an estimated total of 128 participants were needed to provide 80% power. To allow for drop out and missing data, a total of 160 participants were planned to be recruited for the study.

2.2. Participants and procedure

Participants were recruited by public and online advertisement targeting people with perceived symptoms of stress and anxiety. Advertisement on public bill boards as well as online advertisements through Facebook and the webpage www.studie.nu was conducted over a time period of seven months. The advertisements informed briefly about an ongoing study with online behavioral treatment for people with stress or anxiety symptoms and referred to a study webpage with further information and an online application form. People who showed interest in the study received information by mail and those who returned informed consent were included in the study. Being 18 years or older and having elevated symptom levels of stress and anxiety symptoms were the only inclusion criteria. All participants were asked to report current and recent medical and psychiatric conditions and treatments as part of the online screening process. Eligibility was assessed by a psychologist who monitored all screening data and contacted potential participants if needed. Having severe levels of depression (as indicated by the PHQ-9, see below) or reporting other medical or psychiatric conditions that warranted immediate care constituted exclusion criteria. Participants were also excluded if they were currently in psychological treatment but pharmacological treatment was not considered an exclusion criterion as long as medication had been stable for at least three months and did not change during the study period. Any participant who was suspected to fulfill any exclusion criteria during the study was contacted by telephone to assess eligibility. Participants were randomized to one of the four conditions directly after completing the baseline measurement. They were asked to fill out self-report questionnaires before treatment, after treatment end and at one month follow-up. All data was collected through the internet on a secure webpage. After randomization, participants immediately received access to the treatment webpage. The study protocol was approved by the Regional ethics committee in Uppsala, Sweden.

2.3. Intervention

The intervention consisted of a four-week program with applied relaxation adapted from a treatment protocol that has previously been empirically evaluated (Carlbring et al., 2007). The program consisted of four steps with separate themes. The first step included an introduction to applied relaxation, the second step introduced release-only relaxation, the third step continued with rapid relaxation and positive imagery while the fourth step focused on implementing everyday relaxation training and maintenance strategies. Each step included prescribed relaxation exercises at least twice a day, but the exact training schedule was individualized for each participant. The first two steps comprised psychoeducation about stress, worry and muscle tension. The third step included a simple exercise with positive imagery as a complement to muscle relaxation. No other treatment components were used in the program.

2.4. Conditions

To mimic previous internet based self-help treatments that are in use today, the Normal presentation meant that the intervention was presented as plain black-and-white texts with no use of enriched media. The Enhanced presentation was influenced by persuasive system design and e-learning (Clark & Mayer, 2011; Torning & Oinas-Kukkonen, 2009) and utilized full-color texts with images and figures to highlight important topics. Summaries, quizzes and case vignettes were further used to facilitate learning and increase engagement in the treatment. Each step in the Enhanced conditions was presented in