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# A randomized controlled trial on the role of support in Internet-based problem solving therapy for depression and anxiety



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#### ABSTRACT

Internet-based interventions can be effective treatments for anxiety and depression. Meta-analytic evidence suggests that they should be delivered with human support to reach optimal effects. These findings have not consistently been replicated in direct comparisons of supported and unsupported interventions, however. This study examined the role of support in Internet-based problem solving treatment (PST) for symptoms of anxiety and/or depression. Adults with mild to moderate symptoms of anxiety and/or depression were recruited from the general population and randomized to: (1) PST without support (n = 107), (2) PST with support on request (n = 108), (3) PST with weekly support (n = 106), (4) no Internet-based intervention but non-specific chat or email (n = 110), or (5) waitlist control (WLC; n = 106). Primary outcomes were symptoms of anxiety (HADS) and depression (CES-D) measured at baseline and 6 weeks later. Analyses were first based on the intention-to-treat principle (ITT) and repeated with intervention completers. Only participants who received PST with weekly support improved significantly more than WLC for depressive symptoms. Results for anxiety were less robust but in favor of the weekly support condition. The results underscore the importance of structural support in Internet-based interventions for depression and anxiety.

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#### 1. Introduction

Anxiety and depression are common mental disorders (Wang et al., 2007) which impair the quality of life of individuals and are associated with a substantial societal burden (Mathers & Loncar, 2006; Smit et al., 2006). There is no doubt that Internet-based self-help interventions can be effective in reducing symptoms of anxiety and depression (Andersson & Cuijpers, 2009; Richards & Richardson, 2012; Spek et al., 2007). An increasing number of randomized controlled trials have demonstrated its effectiveness for a range of psychotherapies such as Cognitive Behavioral Therapy (CBT: Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010), Problem Solving Therapy (PST: Van Straten, Cuijpers, & Smits, 2008;

Warmerdam, van Straten, Twisk, Riper, & Cuijpers, 2008), Interpersonal Therapy (IPT: Donker et al., 2013), and Psychodynamic Psychotherapy (PDT: Johansson et al., 2012). Internet-based interventions gradually find their way to routine practice (Andersson & Titov, 2014) and may be a cost-efficient, accessible, and less stigmatizing alternative to traditional face-to-face treatments delivered in mental health settings (Andrews et al., 2010; Warmerdam, Smit, van Straten, Riper, & Cuijpers, 2010).

One important issue for the implementation of Internet-based interventions is whether they should be provided with or without support by a coach or therapist. Several meta-analyses have demonstrated that Internet-based interventions delivered with support (i.e. guided interventions) result in moderate to high effects sizes comparable to face-to-face interventions (Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014) whereas unguided interventions (i.e. interventions that people work through on their own) generally show small effects (Andersson & Cuijpers, 2009; Richards & Richardson, 2012; Spek et al., 2007). These results have not consistently been replicated in studies that directly compared guided and unguided interventions, however. Three studies on depression

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showed no significant differences (Berger, Hammerli, Gubser, Andersson, & Caspar, 2011a; Farrer, Christensen, Griffiths, & Mackinnon, 2011; Mohr et al., 2013) although moderate effect sizes in favor of the guided intervention were found in the study by Berger and colleagues. One study on social phobia showed no significant difference (Berger et al., 2011b) while the other study demonstrated superior effects of the guided Internet-based intervention compared to the unguided Internet-based intervention (Titov, Andrews, Choi, Schwencke, & Mahoney, 2008). More research is needed as sample sizes in these studies were relatively small and results may have been confounded by, for example, intensive screening at study entrance (Berger et al., 2011a).

One explanation for the different outcomes in guided versus unguided Internet-based interventions is that human support may increase treatment adherence through accountability to a coach or therapist (Mohr, Cuijpers, & Lehman, 2011). It is well-known that treatment adherence is lower in unguided interventions than guided ones (Christensen, Griffiths, & Farrer, 2009; Waller & Gilbody, 2009) with rates being reported of 26% in unguided and 72% in guided interventions (Richards & Richardson, 2012), and higher adherence to treatment has shown to result in better patient outcomes (Donkin et al., 2011). Additionally, if support would be necessary to achieve higher adherence rates and optimal effects, it is not clear what level of support should be provided. For example, if the presence of a coach is an important factor, it would not matter so much how frequently support would be provided, and minimal and more intensive support may be equally effective. However, support may also include more structural aspects such as motivating the patient to continue with the treatment and helping the patient work with the program and understand the treatment, which require higher levels of support.

To be able to achieve optimal effects of Internet-based interventions, it is important to gain more insight into the role of support. Unguided interventions are much easier to implement than guided interventions as they do not need an infrastructure of professionals and there is virtually no limit on the number of clients that can enter the program as no therapist time is involved (Andersson & Titov, 2014). Additionally, if support is needed, it is important to know what level of support is minimally required to reduce therapist time and thereby costs of delivery. The aim of this study was to examine the effectiveness of Internet-based problem solving treatment (PST) delivered with different levels of support in individuals with mild to moderate symptoms of anxiety and/or depression. We compared respondents taking part in four types of treatment: (1) Internet-based PST without support, (2) Internetbased PST with support on request, (3) Internet-based PST with weekly support, (4) no Internet-based intervention but nonspecific support delivered via chat or email, with a waitlist control group (WLC) that received online psycho-education only (condition 5). The fourth condition was included to examine if support alone, without receiving actual treatment, was sufficient to reach a clinical effect. Compared to WLC, we expected that participants would benefit most from the Internet-based intervention provided with weekly support, followed by the support on request condition, and the non-specific support and the without support conditions. Additional aims were to determine differences in treatment adherence and satisfaction with the treatment.

#### 2. Methods

#### 2.1. Design

This study is a randomized controlled trial with five conditions: (1) Internet-based PST without support, (2) Internet-based PST with support on request, (3) Internet-based PST with weekly

support, (4) no Internet-based treatment but non-specific support by chat or email, and (5) waitlist control group (WLC) receiving online information only. Follow-up assessments were at post-treatment (6 weeks after baseline) in all conditions. Respondents in the WLC condition were offered the Internet-based intervention with support after the post-treatment assessment. More detailed information about the study design is provided in the treatment protocol (Donker, van Straten, et al., 2009).

#### 2.2. Participants

The study was carried out at the department of Clinical Psychology of the VU University in Amsterdam, the Netherlands. Participants were recruited from the general Dutch population between June 2009 and November 2011 through banners on internet web-sites and advertisements in local newspapers which referred to the study website for more information.

Inclusion criteria were: 1) being aged 18 years or older, 2) mild to moderate symptoms of depression and/or anxiety as defined by a score of 16 or higher and 39 or less on the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) and 8 or higher and less than 15 on the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS; Snaith & Zigmond, 1986). Individuals were excluded when they: 1) had insufficient knowledge of the Dutch language, 2) reported active suicidal plans (based on a 4-item self-report screening question (SQ) (Gega, Kenwright, Mataix-Cols, Cameron, & Marks, 2005), 3) received treatment by a mental health specialist at the time of recruitment. We allowed the use of prescribed medication for anxiety and depressive disorders when the dosage was stable (for at least a month).

#### 2.3. Procedure

The study protocol was approved by the Medical Ethical Committee of the VU University Medical Centre (VUMC; nr 2008-011) and is registered at the Netherlands Trial Register (NTR: nr TC1355). Individuals who were interested in taking part could request more information by entering their name and email address on the study website. Next, they received an information leaflet, an informed consent form, and a link to a screening questionnaire via email. This questionnaire was used as baseline assessment in those who were eligible to take part. Respondents who met the inclusion criteria were randomized into one of the five conditions and informed of the outcome by email in the week prior to the start of the intervention. Individuals who were not eligible for taking part received an email with the reason for exclusion. If the reason for exclusion was symptom severity (a high HADS or CESD score) or suicidal plans, they were advised to contact their GP. All assessments were completed online. In all five conditions, two automated emails were sent to participants reminding them of when to expect the post-treatment assessment to increase adherence to the program (Nordin, Carlbring, Cuijpers, & Andersson, 2010).

#### 2.4. Randomization

Random allocation took place at the individual level by an independent researcher who was not involved in the study. The allocation schedule was derived by computer using a random number generator. Block randomization was applied with variable block sizes containing 6, 8, 10, or 12 allocations with each participant having an equal probability of being assigned to one of the five groups.

#### 2.5. Sample size calculation

The sample size calculation was based on the primary outcomes,

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