

# Guided and unguided Acceptance and Commitment Therapy for social anxiety disorder and/or panic disorder provided via the Internet and a smartphone application: A randomized controlled trial



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## ABSTRACT

Acceptance and Commitment Therapy (ACT) can be effective in treating anxiety disorders, yet there has been no study on Internet-delivered ACT for social anxiety disorder (SAD) and panic disorder (PD), nor any study investigating whether therapist guidance is superior to unguided self-help when supplemented with a smartphone application. In the current trial,  $n = 152$  participants diagnosed with SAD and/or PD were randomized to therapist-guided or unguided treatment, or a waiting-list control group. Both treatment groups used an Internet-delivered ACT-based treatment program and a smartphone application. Outcome measures were self-rated general and social anxiety and panic symptoms. Treatment groups saw reduced general ( $d = 0.39$ ) and social anxiety ( $d = 0.70$ ), but not panic symptoms ( $d = 0.05$ ) compared to the waiting-list group, yet no differences in outcomes were observed between guided and unguided interventions. We conclude that Internet-delivered ACT is appropriate for treating SAD and potentially PD. Smartphone applications may partially compensate for lack of therapist support.

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## 1. Background

Acceptance and commitment therapy (ACT) is part of the third wave of cognitive behavioral therapy (CBT), and focuses on the context and function of the psychological phenomena (Hayes, 2004; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Studies have shown that ACT can lead to a significant reduction of symptoms in individuals with anxiety disorders (Craske et al., 2014; Roemer, Orsillo, & Salters-Pedneault, 2008; Swain, Hancock, Hainsworth, & Bowman, 2013), even among certain treatment-resistant patients (Gloster et al., 2015). Additionally, ACT can be as effective as traditional CBT (Arch et al., 2012; Bluett, Homan, Morrison, Levin, & Twohig, 2014; Niles et al., 2014). However, ACT studies have often been

criticized for having a number of important methodological problems and a small overall effect size (Ost, 2014). Internet-delivered CBT (ICBT) (Andersson, 2009) is a well-established treatment for anxiety disorders, with an efficacy comparable to traditional face-to-face CBT (Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014; Andersson, Hesser et al., 2013) even when the treatment program is transdiagnostic (Dear et al., 2016; Fogliati et al., 2016). Less is known about the effectiveness of Internet-delivered ACT (IACT), nevertheless prior research on depression (Carlbring et al., 2013; Lappalainen et al., 2015), generalized anxiety disorder (Dahlin et al., 2016), fibromyalgia (Ljótsson et al., 2013), chronic pain (Buhrman et al., 2013), tinnitus (Hesser et al., 2012), and smoking cessation (Bricker, Wyszynski, Comstock, & Heffner, 2013) suggests that ACT can be translated into efficacious Internet interventions, but there has been no study on either social anxiety disorder (SAD) or panic disorder (PD).

In general, therapist-guided ICBT programs lead to higher symptom reduction than unguided programs (Baumeister, Reichler, Munzinger, & Lin, 2014; Cuijpers et al., 2009; Newman, Szokodny, Llera, & Przeworski, 2011; Webb, Joseph, Yardley, & Michie, 2010). When compared to unguided self-help treatments, guided ICBT is

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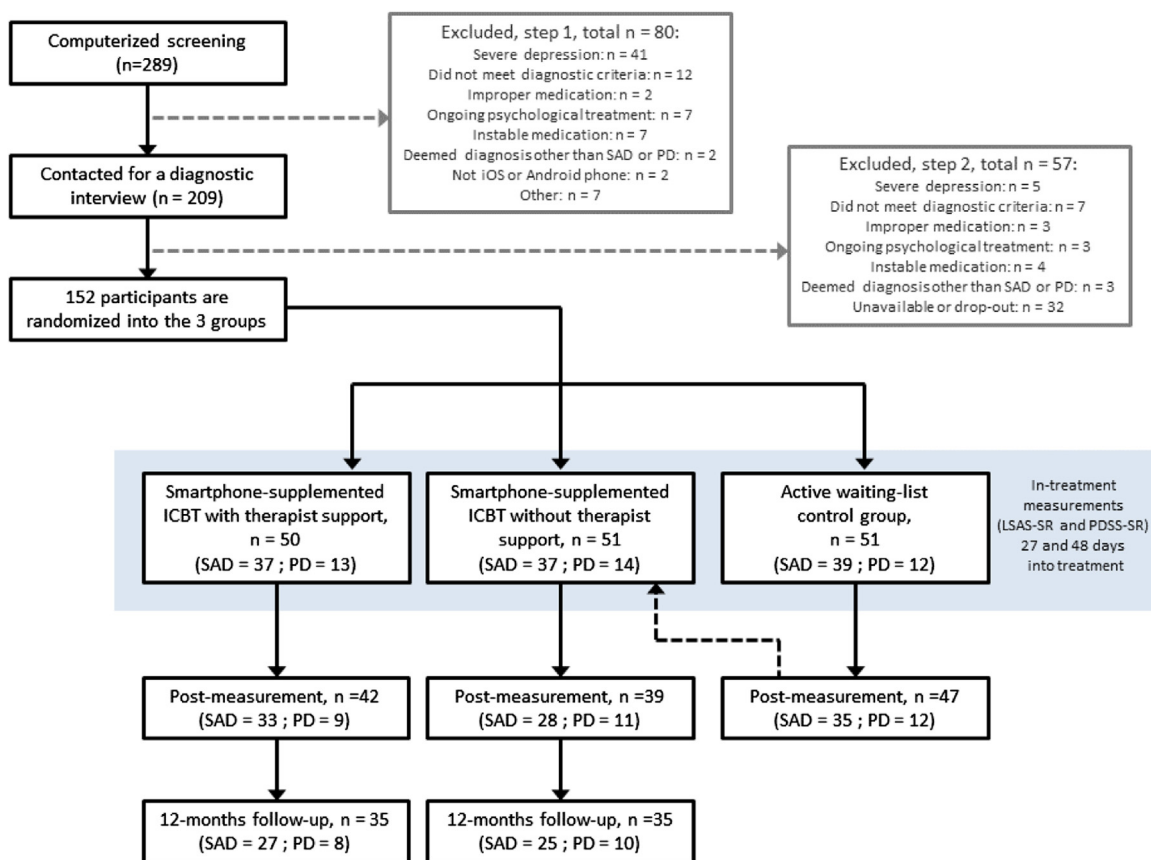


Fig. 1. Flowchart of the recruitment and treatment process. LSAS-SR – Liebowitz Social Anxiety Scale-Self Report, PDSS-SR – Panic Disorder Severity Scale-Self Report.

usually associated with better adherence and compliance, as well as lower attrition (Christensen, Griffiths, & Farrer, 2009; Newman et al., 2011). Treatment programs featuring so called minimum therapist contact (approximately 15 min per week) have a tendency to reduce symptoms more effectively than pure self-help treatments (Andersson & Cuijpers, 2009; Newman et al., 2011; Spek et al., 2007). However, according to one study, the addition of automatic feedback messages to self-help treatment didn't seem to contribute to the treatment outcome in the long run when analyzing a sample with distinct symptoms of anxiety and depression (Titov et al., 2014). Increasing the amount of therapist support beyond minimum contact is not clearly beneficial for the outcome (Andersson, Carlbring et al., 2013; Klein et al., 2009), suggesting a non-linear relationship between amount of support and treatment effectiveness.

Supplementing Internet interventions with smartphone applications may decrease the need for therapist guidance (Miloff, Marklund, & Carlbring, 2015). Smartphone applications (apps) appeared on the consumer market at the end of the last decade, and their abundance and rate of use has been increasing ever since. Apps aimed at behavioral change represent approximately 16% of the total supply (Donker et al., 2013). However, the quality of these applications is often poor (Van Singer, Chatton, & Khazaal, 2015). Within behavioral medicine, smartphone-technology has already been used to provide interventions aimed at stress reduction (Ly, Asplund et al., 2014), smoking cessation (Whittaker et al., 2012), increasing physical activity (Fanning, Mullen, & McAuley, 2012), and weight loss (Carter, Burley, Nykjaer, & Cade, 2013). There has also been some evidence that apps can be used to deliver depression treatment programs (Ly, Trüschel et al., 2014; Watts et al., 2013). The primary advantage of providing mental health interventions through apps is the ability to create opportunities for behavioral

training in everyday life, as well as for real-time self-monitoring (Yuen, Goetter, Herbert, & Forman, 2012). Smartphone applications may also be used to provide timed, automatic and tailored feedback (Heron & Smyth, 2010). Mental health apps may additionally reduce stigma around mental illness (Torous & Powell, 2015), and in some cases, lead to an increased sense of privacy and comfort (Yuen et al., 2012). With regards to computer and smartphone-supported ICBT, the impact of additional therapist guidance has never been studied. Unlike automated feedback provided on an Internet platform, smartphone applications can provide feedback in near real-time, as soon as a behavior is registered during an exercise. This more closely resembles the traditional therapeutic setting wherein the client performs a task together with a therapist, allowing immediate feedback and support. This type of automated feedback may therefore render additional therapist guidance less important in Internet interventions.

The current paper reports the results of a randomized controlled trial designed to investigate the efficacy of an Internet-delivered ACT-based treatment program for SAD and PD, delivered via computer and smartphone application in either a guided or unguided treatment format. The treatment program was expected to yield greater symptom reduction compared to a waiting list control group. In accordance with previous studies, the guided treatment was hypothesized to be superior to the unguided one.

## 2. Method

The current randomized controlled trial was approved by the Regional Ethical Review Board (Regionala Etikprövningsnämnden) in Stockholm, Sweden (Dnr 2013/880-31/5) and preregistered in Clinicaltrials.gov (NCT01963806). See Lindner, Ivanova et al. (2013)

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