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Cognitive behavior therapy versus interpersonal psychotherapy for social anxiety disorder delivered via smartphone and computer: A randomized controlled trial

Jesper Dagöö[a], Robert Persson Asplund[a], Helene Andersson Bsenko[b], Sofia Hjerling[c], Anna Holmberg[d], Susanne Westh[d], Louise Öberg[e], Brjánn Ljótsson[f], Per Carlbring[g], Tomas Furmark[c], Gerhard Andersson[a,h,*]

[a] Department of Behavioural Sciences and Learning, Linköping University, Linköping, Sweden
[b] Department of Psychology, Umeå University, Umeå, Sweden
[c] Department of Psychology, Uppsala University, Uppsala, Sweden
[d] Department of Social Sciences, Division of Psychology, Mid Sweden University, Östersund, Sweden
[e] Department of Psychology, Lund University, Lund, Sweden
[f] Department of Clinical Neuroscience, Division of Psychology, Karolinska Institute, Stockholm, Sweden
[g] Department of Psychology, Stockholm University, Stockholm, Sweden
[h] Department of Clinical Neuroscience, Section of Psychiatry, Karolinska Institute, Stockholm, Sweden

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ABSTRACT

In this study, a previously evaluated guided Internet-based cognitive behavior therapy for social anxiety disorder (SAD) was adapted for mobile phone administration (mCBT). The treatment was compared with a guided self-help treatment based on interpersonal psychotherapy (mIPT). The treatment platform could be accessed through smartphones, tablet computers, and standard computers. A total of 52 participants were diagnosed with SAD and randomized to either mCBT ($n = 27$) or mIPT ($n = 25$). Measures were collected at pre-treatment, during the treatment, post-treatment and 3-month follow-up. On the primary outcome measure, the Liebowitz Social Anxiety Scale – self-rated, both groups showed statistically significant improvements. However, mCBT performed significantly better than mIPT (between group Cohen's $d = 0.64$ in favor of mCBT). A larger proportion of the mCBT group was classified as responders at post-treatment (55.6% versus 8.0% in the mIPT group). We conclude that CBT for SAD can be delivered using modern information technology. IPT delivered as a guided self-help treatment may be less effective in this format.

1. Introduction

Social anxiety disorder (SAD) is characterized by a fear of being scrutinized and negatively evaluated by others and is associated with a substantial impairment in quality of life (American Psychiatric Association, 2000). It is a costly disorder for society at large in terms of direct costs in the form of pharmacotherapy and psychotherapy and indirect costs in terms of productivity loss (Acarturk, Cuijpers, van Straten, & de Graaf, 2009; Smit et al., 2006). SAD is a highly prevalent condition, although prevalence estimates differ between countries (Furmark, 2002). Several treatments have been investigated for SAD, and the two major evidence-based treatments are cognitive behavior therapy (CBT) (Ponniah & Hollon, 2008) and pharmacotherapy (Stein, Ipser, & Balkom, 2004).

Since the late 1990s guided Internet-delivered cognitive behavior therapy (ICBT) has been developed and evaluated (Andersson, 2009), and has been found to have large effect sizes for a range of psychiatric and health-related problems such as depression, anxiety disorders, severe health anxiety, irritable bowel syndrome, eating disorders, and pathological gambling (Hedman, Ljótsson, & Lindefors, 2012). ICBT for SAD has been evaluated in several studies by independent research groups with studies from Sweden (Andersson et al., 2006; Carlbring et al., 2007), Australia (Titov, Andrews, Schwencke, Drobny, & Einstein, 2008; Titov et al., 2010), Switzerland (Berger et al., 2011; Berger, Hohl, & Caspar, 2009), and Spain (Botella et al., 2010). In addition, the research has been summarized in reviews (Andersson, Carlbring, & Furmark,

* Corresponding author at: Department of Behavioural Sciences and Learning, Linköping University, Linköping, Sweden. Tel.: +46 013 28 58 40.
E-mail address: gerhard.andersson@liu.se (G. Andersson).

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2014; Tulbure, 2011). Guided ICBT has also been found to be cost-effective (Hedman, Andersson, Ljótsson, Andersson, Rück, & Lindefors, 2011), and to be as effective as group-based CBT (Hedman, Andersson, Ljótsson, Andersson, Rück, Mörtberg, et al., 2011). The common elements of ICBT for SAD have been a structured self-help CBT program combined with therapist guidance from an online therapist (Andersson, 2009). The ICBT treatment manual that has been used in the Swedish studies on ICBT for SAD (Furmark, Holmström, Sparthan, Carlbring, & Andersson, 2013) is inspired by Clark and Well's cognitive model of SAD (Clark & Wells, 1995).

Interpersonal psychotherapy (IPT) was originally developed to provide an effective short-term treatment for depression (Klerman, Dimascio, Weissman, Prusoff, & Paykel, 1974), and is recommended by numerous practice guidelines as a treatment of choice for unipolar depressive disorder (Cuijpers et al., 2011). IPT for SAD has been studied less often, but has been compared with CBT in previous studies performed in clinical, residential, and academic outpatient treatment settings (Borge et al., 2008; Lipsitz, Markowitz, Cherry, & Fyer, 1999; Stangier, Schramm, Heidenreich, Berger, & Clark, 2011). As IPT focuses on how problems in interpersonal relations predispose, precipitate and perpetuate a patient's distress (Weissman, Markowitz, & Klerman, 2000) it is plausible to assume that it can be helpful for persons with SAD. Several theories have been considered influential in the development of IPT including attachment theory (Weissman et al., 2000). Lipsitz and Markowitz developed an IPT manual for SAD in the 1990s in which they incorporated content and techniques relevant for this disorder (Lipsitz et al., 1999). They argued that IPT had an intuitive appeal as a treatment for SAD because of the prominent interpersonal features of the condition (Lipsitz et al., 1999). The manual was tested in a 14-week open trial (Lipsitz et al., 1999). Seven out of nine participants were independently rated as much or very much improved on overall social phobia symptoms (Lipsitz et al., 1999). IPT was compared to CBT for SAD in a larger randomized trial conducted in a residential setting ($n = 80$) (Borge et al., 2008). Effect sizes for the IPT group were medium to large and no significant differences were found between the groups (Borge et al., 2008). More recently, Stangier et al. (2011) compared the efficacy of CBT ($n = 38$), IPT ($n = 38$), and a waiting-list control condition ($n = 41$) in two academic outpatient treatment sites. In this randomized controlled trial both treatments were superior to a waiting-list control condition. However, CBT performed significantly better than IPT.

Smartphone technology has the potential to make psychological and behavioral health interventions more accessible, efficient, and interactive for patients (Boschen & Casey, 2008). The smartphone is in essence a combined telephone and portable computer connected to the Internet and is increasingly used as a way to access information on the Internet (Klasnja & Pratt, 2012). Moreover, smartphone users tend to carry their phones with them everywhere (Klasnja & Pratt, 2012), and some features of a smartphone might prove useful and add new possibilities in psychological treatments. For example, the small smartphone programs or applications commonly referred to as "apps", might be used as a platform for in vivo exposure exercises, self-assessments, monitoring of progress in real time, visual feedback, and evaluation of treatment outcome (Ly, Dahl, Carlbring, & Andersson, 2012). In addition, psychoeducation can be presented via video and audio material, homework can be scheduled in the built-in calendar, and the camera can be used to record exposure sessions (Luxton, McCann, Bush, Mishkind, & Reger, 2011). However, there are few evidence-based behavioral and psychological smartphone applications and there is a need for controlled studies (Luxton et al., 2011).

In the present study, we adapted our previously tested guided Internet treatment for SAD to a mobile format (mCBT). mCBT can be seen as an expansion of the reach of our Internet treatments for SAD, since the principal contents were preserved even if the format was modified to better fit the screen size and interface of a smartphone. With the exception of applied relaxation (Furmark et al., 2009), guided ICBT has not been compared to an active psychological treatment. We developed a guided self-help treatment based on IPT, which we regarded as a credible control condition. This treatment shared many technical features of the mCBT program (e.g., administration over the Internet and a mainly text-based format), but was distinctly different in terms of contents. The reason for comparing mCBT against mIPT was that we wanted a control condition that was principally different from CBT while having been tested in previous controlled trials. We expected that the mCBT condition would lead to improvements in symptoms of SAD in line with previous ICBT studies. Based on the low number of studies of regular face-to-face IPT for SAD and the absence of any web-based studies of IPT for SAD, we did not formulate any hypothesis regarding the effects of mIPT. The novel aspects of this controlled trial are the administration format and that to our knowledge neither CBT nor IPT has been delivered via smartphone previously.

2. Method

2.1. Trial design

This was a randomized controlled trial within the context of a between groups repeated measures design.

2.2. Sample and recruitment

2.2.1. Inclusion criteria

To be eligible for inclusion potential participants had to meet the following criteria; (a) fulfilling the DSM-IV criteria for social anxiety disorder as assessed using the Structured Clinical Interview for DSM-IV axis I disorders (SCID-I) (First, Gibbon, Spitzer, & Williams, 1997), (b) being 18 years old or older, (c) having SAD as primary diagnosis (d) scoring <25 on the Montgomery Åsberg Depression Rating Scale-self report (MADRS-S) (Svanborg & Åsberg, 1994), (e) having a score of less than 4 of 6 on the suicide ideation item 9 on MADRS-S, (f) no ongoing alcohol abuse or dependence as measured by the self-report questionnaire Alcohol Use Disorder Identification Test (AUDIT) (Bergman & Källmen, 2002), (g) no history of psychosis or bipolar disorder, (h) not meeting criteria for any personality disorders within clusters A or B, (i) no ongoing other form of psychological treatment, (j) no history of CBT the preceding four years, (k) if on medication have constant dosage of any prescribed psychotropic medication three months prior to treatment, (l) not having a psychiatric problem where a treatment provided by psychiatric outpatient care would be more appropriate, (m) having access to smartphone and computer with Internet connection, and (n) being able to read and write in Swedish.

2.2.2. Recruitment

Recruitment for the study took place during 2011 and 2012. Participants were recruited nation-wide via the project's home page and advertisement in Swedish press, Google Adwords, and Facebook. Information about the study was presented on the project's homepage. After application, potential participants completed the following online electronic screening questionnaires; the Liebowitz Social Anxiety Scale–self-report (LSAS-SR) (Baker, Heinrichs, Kim, & Hofmann, 2002), the Social Interaction Anxiety Scale (SIAS) (Mattick & Clarke, 1998), the Social Phobia Scale (SPS) (Mattick & Clarke, 1998), the Beck Anxiety Inventory (BAI) (Beck, Epstein, Brown, & Steer, 1988), the MADRS-S (Svanborg & Åsberg, 1994), the Quality Of Life Inventory (QOLI) (Frisch, Cornell, Villanueva, & Retzlaff, 1992), and the AUDIT (Bergman & Källmen,