Invited Essay

Using the Internet to provide cognitive behaviour therapy

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A B S T R A C T

A new treatment form has emerged that merges cognitive behaviour therapy with the Internet. By delivering treatment components, mainly in the form of texts presented via web pages, and provide ongoing support using e-mail promising outcomes can be achieved. The literature on this novel form of treatment has grown rapidly over recent years with several controlled trials in the field of anxiety disorders, mood disorders and behavioural medicine. For some of the conditions for which Internet-delivered CBT has been tested, independent replications have shown large effect sizes, for example in the treatment of social anxiety disorder. In some studies, Internet-delivered treatment can achieve similar outcomes as in face-to-face CBT, but the literature thus far is restricted mainly to efficacy trials. This article provides a brief summary of the evidence, comments on the role of the therapist and for which patient and therapist this is suitable. Areas of future research and exploration are identified.

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Introduction

Defining Internet-delivered interventions can be problematic as there are different conceptualisations and viewpoints. A first distinction relates to the Internet itself, as it can be a way to communicate with a physical person on the other side of the connection (e.g., e-mail), a way to present information in a more or less one way direction (information web pages), or a platform for more interactive programs which do not require any input from a clinician. Finally, Internet interventions can be a little bit of all this. In some ways this resembles the problems when trying to define psychotherapy, even within cognitive behaviour therapy (CBT), as we are dealing with different techniques and delivery approaches. All of these may have an impact on the manner in which the therapy works. For example, the differences between individual and group CBT can be substantial, and different change processes could be involved (Morrison, 2001). In our research program in Sweden we have developed an approach to Internet-delivered CBT which is distinct in the sense that it involves therapist contact, albeit minimised, and that it is not heavily computerised in terms of interactive programmes requiring no therapist input. According to Marks, Cavanagh, and Gega (2007), computerised interventions should delegate at least some therapy decisions to the computer, but in the approach I will present in this paper this is not necessarily the case as the Internet very well can be used without any automatic, computer generated decision making. When describing our approach Marks et al. referred to the Swedish model as "Net-bibliosystem CBT", but that does not fully catch the essence of the approach. In a paper by our group we instead proposed the following definition of guided Internet-delivered treatment:

> … a therapy that is based on self-help books, guided by an identified therapist which gives feedback and answers to questions, with a scheduling that mirrors face-to-face treatment, and which also can include interactive online features such as queries to obtain passwords in order to get access to treatment modules (Andersson, Bergström et al., 2008 p. 164)

As seen from this definition we used the term self-help, which may cause some confusion. In research it is often the case that self-help refers to treatments that are delivered with minimal input from a clinician (Watkins & Clum, 2008). That approach is different from purely self-administered self-help. Guided Internet-delivered treatment is an approach which combines the advantages of structured self-help materials, presented in an accessible fashion via the Internet, with the important role played by an identified therapist who provide support, encouragement and occasionally direct therapeutic activities via e-mail (Postel, de Haan, & De Jong, 2008). As will be seen in this review there are strong reasons to assume that it is premature to leave out the therapist when moving to the new format of Internet-delivered CBT. For example, if Internet delivery is regarded as mainly one way to decrease therapist time, this follows a long-standing tradition in CBT when

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treatments are shortened without compromising the efficacy (e.g., Clark et al., 1999; Öst, 1997).

The present review will describe and comment on how CBT has the potential to reach more people by using the Internet. The focus will not be to describe all studies that have now been conducted (see Barak, Hen, Boniel-Nissim, & Shapira, 2008), but rather to give examples of trials and consider questions regarding therapist factors and dissemination issues. Indeed, systematic reviews of the literature on Internet-delivered CBT show that moderate to strong effects are observed at posttreatment (e.g., Cuijpers, van Straten, & Andersson, 2008a; Spek, Cuijpers et al., 2007).

Anxiety disorders

Among the first conditions to be systematically studied in self-help research and later on in research on Internet-delivered CBT are the anxiety disorders. Many people never seek help or do it after years of suffering (Clark, 1999).

Panic disorder

More or less simultaneously, two independent research groups began to investigate if CBT for panic disorder could be delivered via the Internet. Typically, treatment consists of text materials like in bibliotherapy, but presented via the Internet and with some interactive features. Treatment is supported by a therapist with e-mail or telephone and duration of treatment is often up to 10 weeks. A few smaller trials by the Australian research group showed promising outcomes (Klein & Richards, 2001; Richards & Alvarenga, 2002). Later research by the same group, but with larger samples and improved programs confirmed the early findings (Klein, Richards & Austin, 2006; Richards, Klein, & Austin, 2006), and also extended the application by including other providers of treatment (Shandley et al., 2008). In a recent trial they compared Internet-delivered and face-to-face treatment and found equivalent outcomes (Kiropoulos et al., 2008). In this latter study, participants with a primary diagnosis of panic disorder were randomly assigned to either guided Internet-delivered CBT or to best practice face-to-face CBT. In other words this was an equivalence trial (Piaggio, Elbourne, Altman, Pocock, & Evans, 2006), as the authors expected and powered their study assuming equal outcome. The authors found that 30.4% (14/46) of their panic online treatment participants reached the criteria of high end-state functioning, with the corresponding figure in the face-to-face group being 27.5% (11/40). High end-state was defined as being free of panic and having a panic disorder clinician severity rating of less than 2 (on a 0–8 scale).

Our Swedish group has independently conducted similar research with three controlled trials all showing positive outcomes (Carlbring, Westling, Ljungstrand, Ekselius, & Andersson, 2001, Carlbring, Ekselius, & Andersson 2003; Carlbring et al., 2006), and a direct comparison between face-to-face and Internet-delivered CBT (Carlbring et al., 2005). In the Carlbring et al. (2003) study two active online treatments were compared (CBT versus applied relaxation), showing small differences in outcome. While this could be viewed as an argument for placebo effects in online CBT, we hesitated to draw that conclusion as applied relaxation following the protocol of Öst (1987) has been found to generate good outcome in Swedish panic trials (e.g., Öst & Westling, 1995). In terms of effect sizes we have generally found high standardised effect sizes, both for primary panic-related outcomes and secondary outcomes. For example, in the trial in which we added brief weekly supportive telephone calls (Carlbring et al., 2006), the mean between group effect size across all measures was $d = 1.00$, and outcomes were sustained at 9-month follow-up.

A third research group has independently tested Internet-delivered CBT for panic disorder, again showing that the treatment concept appears to hold (Schneider, Mataix-Cols, Marks, & Bachofen, 2005). The trial by that group differs in many respects from the trials conducted by the Australian and Swedish research groups, as in the outcome measures used. Overall, however the three independent replications by different research groups all point in a similar direction. A problem is that most trials have been small and there are few effectiveness studies showing that the treatment works in regular health care settings. A recent exception was an open uncontrolled Swedish trial in which we found that the results from the efficacy trials were replicated in a psychiatric setting (Bergström et al., 2009).

With all these trials we still need to be cautious as policy makers and some clinicians immediately infer that Internet delivery is close to free once the costs for programming have been covered. This is not the case. For example, the role of support was indirectly showed by Farvolden et al. (2005) who had a poor outcome and a huge dropout rate when no guidance was provided and the Internet program was made freely available.

Social anxiety disorder

Our research group inevitably came across social anxiety disorder (SAD)/social phobia in our research on panic as we had to exclude people who did not fulfil the criteria for panic disorder and mainly had their panic attacks in social situations. At the outset we first believed that it could not be enough to use a mainly text-based treatment (albeit with instructions on how self-exposure should be conducted), and hence we added two live group exposure sessions in our first study (Andersson, Carlbring et al., 2006). In the following trial we omitted the live exposures (Carlbring et al., 2007), which did not affect the outcome. Further trials from our group corroborate these preliminary findings (e.g., Tillfors et al., 2008), and between group effect sizes against no treatment controls ranging between $d = .73$ to $d = .98$ for the Liebowitz Social Anxiety Scale self-report version (Baker, Heinrichs, Kim, & Hofmann, 2002) have been reported. Two other research groups have found similar effects. Titov and coworkers in Australia reported two trials (Titov, Andrews, Schwencke, Drobny, & Einstein, 2008; Titov, Andrews, & Schwencke, 2008), with between group effect sizes above $d = .80$. Berger, Hohl, and Caspar (2008) in Switzerland have replicated the findings as well, with the common elements being a structured CBT program and guidance via Internet.

It is not obvious that Internet-delivered CBT should work for patients with SAD. It could be argued that we instead reinforce their avoidance of contact with people. Indeed it has been found that persons with severe social anxiety disorder do use the Internet extensively (Erwina, Turk, Heimberg, Frescoa, & Hantula, 2004). On the other hand, the "safe" environment in front of the computer might facilitate the necessary learning phase in CBT, in which the principles of treatment are described (e.g., rationale). Exposure and modification of behaviours such as safety behaviours in real life will however be needed, and are parts of the effective programs. Our experience so far is that many persons with social anxiety manage to go out and seek exposure with the guidance of a self-help programme and an online support person.

Post-traumatic stress disorder

Post-traumatic stress disorder (PTSD) is a debilitating condition with marked symptoms of avoidance and intrusions that can have a significant negative impact on the quality of life (Keane & Barlow, 2002). As with other anxiety disorders shame is often involved and hence, the prospect of receiving treatment from