Internet Interventions 1 (2014) 33–40

Contents lists available at ScienceDirect

Internet Interventions

journal homepage: www.invent-journal.com/

Guided internet-delivered cognitive behavior therapy for post-traumatic stress disorder: A randomized controlled trial

David Ivarsson [a,1], Marie Blom [a,b,1], Hugo Hesser [a], Per Carlbring [c], Pia Enderby [a], Rebecca Nordberg [a], Gerhard Andersson [a,d,*]

[a] Department of Behavioural Sciences and Learning, Linköping University, 581 83 Linköping, Sweden
[b] Rehabilitation Medicine, Department of Medical and Health Sciences, Division of Community Medicine, Linköping University, Pain and Rehabilitation Centre, County Council of Östergötland, Linköping, Sweden
[c] Department of Psychology, Stockholm University, Stockholm, Sweden
[d] Department of Clinical Neuroscience, Karolinska Institute, Stockholm, Sweden

ARTICLE INFO

Article history:
Received 25 March 2014
Received in revised form 25 March 2014
Accepted 25 March 2014
Available online 13 April 2014

Keywords:
PTSD
Treatment
Cognitive behavior therapy
Internet-based treatment
Self-help
Randomized controlled trial

ABSTRACT

The aim of this randomized controlled trial was to investigate the effects of guided internet-based cognitive behavior therapy (ICBT) for posttraumatic stress disorder (PTSD). Sixty-two participants with chronic PTSD, as assessed by the Clinician-administered PTSD Scale, were recruited via nationwide advertising and randomized to either treatment ($n = 31$) or delayed treatment attention control ($n = 31$). The ICBT treatment consisted of 8 weekly text-based modules containing psychoeducation, breathing retraining, imaginal and in vivo exposure, cognitive restructuring, and relapse prevention. Therapist support and feedback on homework assignment were given weekly via an online contact handling system. Assessments were made at baseline, post-treatment, and at 1-year follow-up. Main outcome measures were the Impact of Events Scale — Revised (IES-R) and the Post-traumatic Stress Diagnostic Scale (PDS). Results showed significant reductions of PTSD symptoms (between group effect on the IES-R Cohen's $d = 1.25$, and $d = 1.24$ for the PDS) compared to the control group. There were also effects on depression symptoms, anxiety symptoms, and quality of life. The results at one-year follow-up showed that treatment gains were maintained. In sum, these results suggest that ICBT with therapist support can reduce PTSD symptoms significantly.

1. Introduction

Lifetime prevalence of posttraumatic stress disorder (PTSD) in the general population has been estimated to range from 5.6% to 8.3% (Frans et al., 2005; Kessler et al., 1995), indicating that PTSD is a common problem after experiencing traumatic events. While there are effective treatments for PTSD, like cognitive behavior therapy (CBT; Bisson et al., 2007), a substantial proportion of individuals with PTSD do not seek professional help or do not have access to effective help (Gavrilovic et al., 2005). Internet-based CBT (ICBT) could be a possible way to increase access to psychological treatment (Andersson, 2009; Andrews et al., 2010). Several studies have investigated the efficacy of therapist-guided ICBT for PTSD symptoms (Hirai and Clum, 2005; Knaevelsrud and Maercker, 2007; Lange et al., 2003), as well as for persons diagnosed with PTSD (Klein et al., 2009; Litz et al., 2007; Spence et al., 2011; for a review see Amstadter et al., 2009). There is also a related literature on the broader concept of telehealth interventions (Sloan et al., 2011).

Lange et al. from The Netherlands were probably the first to develop and test a therapist-guided internet-based treatment protocol for PTSD symptoms in controlled studies (Lange et al., 2001, 2003). They named their protocol Interapy, and the program has since then been translated and tested in studies conducted in Germany (Knaevelsrud and Maercker, 2007), and Iraq (Wagner et al., 2012). Knaevelsrud and Maercker (2007) found that Interapy resulted in large effect sizes and sustained treatment effects over three months, and in an uncontrolled study by Wagner et al. (2012) a similar result was found. In addition, Interapy has been found to work in a large effectiveness study (Ruwaard et al., 2012).

Most trials on PTSD have involved some form of therapist guidance. Guidance typically means that a therapist provides support and encouragement and consequently the contact with patients can be regarded as minimal. Unguided automated programs with no therapist contact generally lead to smaller effects and larger dropout rates (Spek et al., 2007),

* Corresponding author at: Department of Behavioural Sciences and Learning, Linköping University, 581 83 Linköping, Sweden. Tel.: +46 13 28 58 40; fax: +46 13 28 21 45.
E-mail address: gerhard.andersson@liu.se (G. Andersson).
[1] These authors contributed equally to the study and share first authorship.

http://dx.doi.org/10.1016/j.invent.2014.03.002

but can be useful in prevention (Andersson, in press). Few trials have been conducted on guided ICBT for persons with diagnosed PTSD. Litz et al. (2007) compared two therapist-supported internet-based interventions; ICBT and supportive online counseling (not based on CBT). They focused on military personnel who served during the attack on the Pentagon in 2001 and the following Iraq war, and all participants were diagnosed with PTSD. This proof-of-concept trial showed that dropout rate from ICBT was the same as in face-to-face CBT. Moreover, ICBT was better than supportive counseling and had greater effects than counseling on symptoms of PTSD, depression, and anxiety at 6 months follow-up (Litz et al., 2007). Klein et al. (2009) included patients with a confirmed PTSD diagnosis (American Psychiatric Association, 2000) and conducted an open trial over the course of ten weeks. The results indicated a clinical reduction of PTSD symptoms, and high ratings of therapeutic alliance, but there were no effects on other more general psychological problems (Klein et al., 2009). The most recent controlled study conducted within this field, is that of Spence et al. (2011) who included individuals with an established primary diagnosis of PTSD. This trial showed large pre-to-post-treatment effect sizes for the treatment group on both PTSD symptoms, depression, anxiety and disability. However, the between group effects were small as the waiting list control group showed a moderate improvement. Collectively, these trials indicate that ICBT is a promising treatment method for PTSD that has the potential to increase access to CBT for persons with PTSD. The studies also suggest that ICBT might be a suitable method for different clinical groups, including persons with sub-clinical PTSD as well as those with a confirmed primary diagnosis of PTSD.

The current study focused on individuals with an established diagnosis of PTSD as measured by the Clinician-administered PTSD Scale (CAPS; Blake et al, 1990). The aim of the study was to investigate the effects of guided ICBT on measures of PTSD symptoms, depression, and other anxiety symptoms, as well as quality of life against a control group. Instead of using a pure waiting list group we included weekly minimal support via the internet in the control condition. We expected moderate to large between group effects in favor of the active treatment.

2. Method

2.1. Participants and procedure

We recruited participants from the general population through advertisements in national and local newspapers. It was stated in the advertisements that the treatment would be provided over the internet. A screening webpage was set up, and individuals interested in the trial were asked to register and to complete seven online self-report measures as well as to complete questions regarding demographics and current and past treatments. Self-report measures were administered via the internet which generally has been found to generate acceptable psychometric properties (Buchanan, 2003; Carlbring et al., 2007).

The inclusion criteria were: to be a resident of Sweden; to be at least 18 years of age; to have access to a computer and internet; to able to read and understand the Swedish language; to be on a current stable dose of medication (for at least the last 3 months) or medication-free; to fulfill the DSM-IV diagnostic criteria for a primary diagnosis of chronic PTSD according to the screening questionnaires.

The following exclusion criteria were used: imminent suicide risk as assessed by item 9 on the Beck Depression Inventory (BDI-II; Beck et al., 1996), followed by a telephone interview regarding suicidal ideation; concurrent psychological treatment; presence of alcohol abuse (scoring 19 or higher on Alcohol Use Disorders Identification Test, AUDIT; Saunders et al., 1993), on-going trauma or trauma of more recent origin than 3 months. Individuals who reported symptoms following childhood abuse as their main reason for participating were also excluded. No other restrictions were made concerning type of trauma experienced, as long as the DSM-IV criterion A was fulfilled.

To assess chronic PTSD as the primary diagnosis, individuals who met initial inclusion criteria were administered the CAPS (Blake et al., 1990) via telephone. Additional questions regarding depressive symptoms were also administered to further rule out suicidal ideation. Interviews were made by five clinically trained psychology students under supervision of experienced licensed psychologists, and lasted between 30 and 90 min. Since this was a new procedure and interviews were not audiotaped for ethical reasons, the CAPS was not regarded as being suitable as a primary outcome measure in the trial and the instrument was only used as a marker of diagnostic status. In addition, different time frames were used for the assessments making it less suitable as a measure of change.

Randomization was conducted by an individual who was not otherwise involved in the research project, using an online true random-number service (www.random.org). The post-treatment interviewers were blind to participant status (i.e. treatment or control). The control group participants were offered the treatment after post-treatment measures had been collected. A 1-year follow-up was conducted, consisting of self-report questionnaires and a telephone interview. This assessment only included participants in the treatment group. Blinding was not possible at the 1-year follow-up due to the lack of a control condition. Questions regarding change in medication and/or engagement in additional treatment were asked both at post-treatment and at 1-year follow-up.

The local ethics committee approved the study protocol, and written informed consent was obtained from all participants. The individuals excluded from the study were sent an e-mail stating the main reason for exclusion along with advice on how to seek health care if needed. Individuals who reported suicidal ideation were contacted by telephone with no delay. An experienced psychiatrist trained in CBT was available for acute situations, but never needed to intervene.

2.2. Measures

2.2.1. Primary outcome measures

Impact of Event Scale Revised (IES-R; Weiss and Marmar, 1997) is a frequently used self-report measure consisting of 22 trauma-related statements, not strictly following DSM-IV criteria. The measure consists of three subscales: avoidance, intrusion, and hyperarousal. A cut-off score of 33 has been used for indicating a PTSD diagnosis. The IES-R has demonstrated high internal consistency (Cronbach's $\alpha = .96$) for the total scale as well as for the subscales (intrusion $\alpha = .94$; avoidance $\alpha = .87$; and hyperarousal $\alpha = .91$) (Creamer et al., 2003). Depending on time since trauma and other factors, test–retest correlation coefficients ranging from $r = .51$ to .89 have been reported for the avoidance subscale, from .57 to .94 for the intrusion subscale, and from .59 to .92 for the hyperarousal subscale (Weiss and Marmar, 1997).

Post-traumatic Stress Diagnostic Scale (PDS; Foa et al., 1997) was used as primary outcome measure and as a screening instrument for PTSD diagnosis. PDS is a self-report measure following the DSM-IV diagnosis criteria for PTSD. It includes a checklist over traumatic events along with questions about diagnosis criteria A and B, followed by a symptom checklist assessing criteria C, D and E. PDS also assesses the onset and duration of symptoms, as well as their impact on valued life areas. The measure has been found to have adequate psychometric properties, with an internal consistency of Cronbach's $\alpha = .92$, and a test–retest reliability of $r = .83$ (Foa et al., 1997).

2.2.2. Secondary outcome measures

Beck Depression Inventory-II (BDI-II; Beck et al., 1996) is a widely used 21 item self-report measure for assessing depression. Studies have reported that the measure has good internal consistency (Cronbach's $\alpha = .93$) and a test–retest reliability of $r = .91$.

Beck Anxiety Inventory (BAI; Beck et al., 1988) is a 21 item self-report measure of anxiety symptoms. Test–retest reliability ($r = .75$), and internal consistency (Cronbach's $\alpha = .92$) are adequate.