EFFECTS OF BIBLIOTHERAPY WITHOUT THERAPIST CONTACT

- a randomized trial of self-help treatment for panic disorder

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Abstract

Panic disorder with or without agoraphobia is one of the most prevalent anxiety disorders and is characterised by recurrent, unexpected panic attacks. There is a great need to increase the accessibility and affordability of appropriate treatments for panic disorder. Self-help treatment provides access to help for those limited by for example finances, geographic or agoraphobic isolation.

The aim of this study was to investigate the effect of a self-help program in the nature of bibliotherapy with no therapist contact provided. The participants were recruited from a pre-existing database of people who had already registered their interest in taking part in a self-help program for panic disorder. The results are based on data collected from 40 participants who were screened by a telephone interview and with the administration of the Panic Disorder Severity Scale to confirm a diagnosis of panic disorder. These were randomized into treatment or a waitlist control group. Participants in the treatment group were sent a self-help book, consisting of 10 modules based on empirically tested cognitive behavioural strategies for the treatment of panic disorder. After 10 weeks all participants were contacted for a telephone interview and an online self-assessment. The dependent variables consisted of self-assessment test scores on instruments measuring fear of bodily sensations associated with panic, maladaptive cognitions associated to panic and agoraphobic situations, agoraphobic avoidance, depression, general anxiety and quality of life. A follow-up was carried through three months after treatment was terminated to see whether treatment gains were maintained.

All participants in the study were diagnosed with panic disorder with or without agoraphobia prior to the treatment. After the treatment was terminated, 80% of the treatment group did no longer fulfil the criteria for panic disorder. Results indicated that the treatment group had, in comparison to the control group, improved on all outcome measures. The conclusion drawn from these results is that pure bibliotherapy is considered an effective treatment method for people suffering from panic disorder.

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Introduction

Description of panic disorder

According to Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association [APA], 2000) panic disorder is diagnosed as an anxiety disorder and is characterised by recurrent, unexpected panic attacks. A panic attack is not a codable disorder but a feature that occur in the context of several anxiety disorders (for example social phobia, specific phobia, posttraumatic stress disorder and general anxiety disorder) as well as other mental disorders and some general medical conditions. A panic attack is defined as a discrete period of intense fear or discomfort in the absence of real danger that is accompanied by at least four of 13 somatic or cognitive symptoms developed abruptly and reaching a peak within 10 minutes (APA, 2000). Attacks that have fewer than four somatic or cognitive symptoms are referred to as limited-symptom attacks. Symptoms include for example sweating, palpitations, trembling, feeling of choking, nausea, dizziness, depersonalisation, fear of losing control and fear of dying. According to a study by Carlbring, Gustafsson, Ekselius and Andersson (2002) the most common symptoms for panic disorder are palpitations, pounding heart or accelerated heart rate (87%), fear of losing control or going crazy (82%) and nausea or abdominal distress (55%). The occurrence of recurrent, unexpected panic attacks is required for a diagnosis of panic disorder (with or without agoraphobia; APA, 2000). Apart from this, the attacks are followed by at least one month of persistent concern about having another attack and/or worry about the possible implications or consequences of the attacks and/or significant behavioural change related to the attacks. The frequency and severity of the panic attacks vary among individuals suffering from panic disorder. Some individuals have moderately frequent attacks (e.g., once a week) that occur regularly for months at a time whereas others report short bursts of more frequent attacks (e.g., daily for a week) separated by weeks or months without any attacks or with less frequent attacks (e.g., two each month) over many years.

Agoraphobia usually develops as a consequence of full or subclinical panic disorder. Agoraphobia is not a codable disorder but is coded with the specific disorder in which it occurs (APA, 2000). According to DSM-IV-TR

(APA, 2000), the essential feature of agoraphobia is the anxiety about being in places or situations from which escape might be difficult or in which help may not be available in the event of having an unexpected or situationally predisposed panic attack or panic-like symptoms. People with agoraphobia tend to fear and avoid a range of situations or places such as being alone outside the home, crowds, travelling by car, bus, train or plane (Taylor, 2000). Some individuals do exposure themselves to the feared situations but endure these experiences with a high level of anxiety and many become increasingly dependant on significant others as they are better off to confront a feared situation when accompanied with a companion.

One can experience a panic attack without developing panic disorder; Clark and Ehlers (1993) refer to surveys that suggest that 7-28% of the normal population will experience an occasional unexpected panic attack and only develop the condition of repeated panic attacks and panic disorder if they develop a tendency to interpret the perceived autonomic events in a catastrophic fashion.

Comorbidity with other anxiety disorders is common among individuals with panic disorder with or without agoraphobia (Taylor, 2000). The most commonly comorbid disorders are social phobia (occurring in 15-30% of people diagnosed with panic disorder), obsessive-compulsive disorder (8-10%), specific phobia (10-20%) and general anxiety disorder (25%). According to Taylor, around 50-65% of people who develop panic disorder will also develop major depression at some point in their lives. Also substance abuse frequently co-occurs with panic disorder (Zvolensky, Bernstein, Marshall, & Feldner, 2006). Axis-II disorders, such as avoidant, dependent and histrionic personality disorders, are suggested to be met by about 25-65% of patients with panic disorder (White & Barlow, 2002).

Prevalence

Panic disorder is a rather common and prevalent disorder with a life-time prevalence of 1.5-3.5%, making it one of the most common psychiatric disorders (Taylor, 2000). According to a study by Carlbring et al. (2002) the 12-month prevalence of panic disorder with or without agoraphobia in the Swedish population was estimated at 2.2%. Data was obtained through a postal survey administered to 1000 randomily selected adults. The findings are consistent with results from other studies on the prevalence of panic disorder. The 12-month prevalence of panic disorder ranges from a high of 2.3% in one U.S.A. study (Kessler et al., 1994) and 2.4% for Australia

(Andrews, Hall, Teeson, & Henderson, 1999) to a low of 0.2% in Taiwan (Weissman et al., 1997). The Swedish study showed a female-male ratio of 5.6 to 1, confirming that being female is associated with higher prevalence of panic disorder. No differences on the age structure of panic disorder were revealed in this study. The age of onset for panic disorder is typically between late adolescence and the mid-thirties (APA, 2000). It is suggested that there may be a bimodal distribution, with one peak in late adolescence and a second smaller peak around age 35. Ballenger and Fyer (1996) found onset between ages 15-19 and 25-30 years. Not all people with panic disorder develop agoraphobia, but for those who do also develop agoraphobia, this usually occurs within the first year of the recurrent panic attacks (APA, 2000). According to DSM-IV-TR (2000), approximately one-third to one-half of individuals diagnosed with panic disorder also has agoraphobia.

Theories of development and maintenance of panic disorder

Panic disorder should be looked at as a psychobiological disorder, where both biological and psychological factors may contribute to the triggering of an attack. With biological vulnerability means that panic patients might have a more sensitive autonomic nerve system, thus experiencing more, or more intense, benign fluctuations in body state than others (Clark, 1986). The psychological vulnerability includes the tendency to perceive non-harmful bodily and mental sensations as more harmful than they really are. Strong beliefs in the dangerousness of arousal-related sensations is considered a specific cognitive factor for panic disorder, whereas individual differences in cognitive processing is considered a more general cognitive mechanism in the etiology and maintenance of panic disorder (Taylor, 2000). The two dominating treatment models within CBT for panic disorder with or without agoraphobia are Clark's cognitive model and Barlow's biopsychosocial model. Both models stress that panic attacks are the result of a combination of biological and psychological vulnerability factors, stress and arousal, hyperventilation, conditioning processes and avoidance behaviours. The two models could be seen as variations of the same model emphasising different components.

Clark's cognitive model

The cognitive model of panic attacks was presented by Clark in 1986 and has since then been the leading model on explaining the maintenance of panic disorder. Within this model panic attacks are said to result from the catastrophic misinterpretation of certain bodily sensations (Clark, 1986). The

catastrophic misinterpretation involves perceiving the sensations as more dangerous than they really are. The sensations which are misinterpreted are mainly those involved in normal anxiety responses, such as breathlessness, palpitations and dizziness. Examples of catastrophic misinterpretations would be perceiving palpitations as evidence of an impending heart attack or perceiving a shaky feeling as evidence of impending loss of control and insanity.

A range of stimuli appear to provoke panic attacks, these could be external (such as a shopping centre for an agoraphobic person who has previously had an attack in a supermarket), but are more often internal (such as body sensation, thought or image) (Clark, 1986). If the stimuli are perceived as a threat, a state of mild apprehension results. This state is accompanied by a wide range of body sensations, which are interpreted in a catastrophic manner and thus lead to a further increase in apprehension. This produces a further increase in body sensations and so on. In this vicious circle the interpretations feed the anxiety which gives rise to more physiological symptoms and eventually culminate in a panic attack (see figure 1).

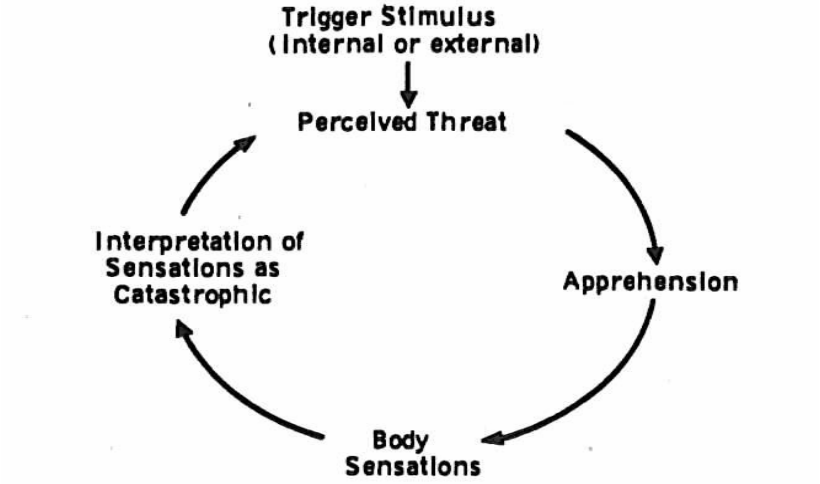

Figure 1. Clark's cognitive model of panic attacks (Clark, 1986).

There are three types of panic attacks; unexpected or spontaneous panic attacks, situationally bound and situationally predisposed panic attacks (APA, 2000). Unexpected attacks are perceived as occurring "out of the blue" and situationally bound panic attacks occur immediately on exposure to, or in anticipation of, a stimuli. Situationally predisposed panic attacks share similarities with situationally bound panic attacks but are not invariably associated with the cue and do not necessarily occur immediately after the exposure. The occurrence of unexpected panic attacks is required for a diagnosis of panic disorder. The other two types of panic attacks are frequent in panic disorder but also occur in other anxiety disorders and mental disorders. For example, situationally bound panic attacks are experienced by a majority of individuals with social phobia or specific phobia. Clark's cognitive model deals both with panic attacks which are preceded by a period of heightened anxiety and those which appear to come "out of the blue". In the first case, the heightened anxiety which precedes the attack is concerned with the anticipation of an attack (Clark, 1986). This is what happens when agoraphobics experience an attack in a given situation where they have previously panicked. When entering the situation they tend to become anxious in anticipation of a further attack, then selectively scan their body, notice an unpleasant body sensation, interpret this as an evidence of an impending attack and thereby activate the vicious circle which produces an attack. In the case of panic attacks that are not preceded by a period of heightened anxiety, the trigger of an attack often seems to be the perception of physical sensations which are caused by a different emotional state or by some quite harmless event such as suddenly getting up from a sitting position, exercise or drinking coffee. Once perceived the body sensations are interpreted in a catastrophic fashion and a panic attack results. According to the cognitive model, it is hypothesised that the misinterpretation of bodily symptoms of anxiety is always involved in the vicious circle which culminates in a panic attack. However, sensations that arise from the perception of mental processes can also contribute to the vicious circle which culminates in a panic attack, for example the belief that one is about to get mad, based on moments when one's mind suddenly goes blank.

The tendency to interpret certain bodily sensations in a catastrophic fashion is maintained by two processes; selective attention and avoidance and safety behaviours (Clark & Ehlers, 1993). Because the patient is frightened of certain sensations, he/she becomes hypervigilant and repeatedly scans his/her body for signs of danger. This internal focus of attention would allow

him/her to notice sensations that many other people would not be aware of. Once noticed, these sensations could be taken as evidence of the presence of any physical or mental disorder. Often the patient tries to avoid situations where the likelihood of eliciting these symptoms is heightened (Carlbring, 2004). The person often engages in different safety behaviours in order to minimise the risk of a bad outcome. This seems to be the case not only for patients with agoraphobia but also for patients without severe situational avoidance (Clark & Ehlers, 1993). According to Salkovskis (1991) safety behaviours are used to avoid feared outcomes and prevent catastrophic beliefs from being disconfirmed. Examples of safety behaviour would be not to engage in demanding physical exercise due to the fear of palpitation as the evidence of an impending heart attack or seeking reassurance from doctors and other health professionals that the heart is normal.

Barlow's biopsychosocial model

Barlow (in White and Barlow, 2002) stresses the biological vulnerability in his model of panic disorder, suggesting that people who develop panic disorder have a generalised biological vulnerability to experience emotionality or negative affect. The false alarms, that consist of autonomic activity, which may occur more easily as a function of stressful life events in biologically vulnerable individuals, are not implicated in a disorder unless some psychological vulnerability exists. Individuals who go on to develop panic disorder manifest a tendency to focus anxiety on somatic events that are perceived to be unpredictable and dangerous. Individuals with panic disorder tend to develop two types of avoidance behaviour to the feared sensations; agoraphobic avoidance and interoceptive avoidance, with the latter having the purpose of avoiding activity that produces somatic cues.

Treatment of panic disorder

Panic disorder tends to be chronic if not treated and shows only low remission rates in its natural course (Kessler et al., 1994). If treated satisfactory, the prognosis is good. However, only about 25% of the sufferers of panic disorder tend to seek professional help for their problems (Lidren et al., 1994). A limited amount of qualified therapists, long waiting periods and high costs restrict the opportunity to receive accurate help (National Institute of health, 1991). Several studies have found that patients with panic disorder are among the highest users of medical services and therefore are an enormous economic burden for the health care system (Mitte, 2005). Taking the above into consideration, there is a great interest to increase the accessibility and affordability of appropriate treatments for

panic disorder. Several clinical trials have shown that treatment for panic disorder, based on cognitive behavioural principles, enable 75-95% of patients to be panic-free following treatment and that the improvements are maintained for at least two years (Klein, Richards, & Austin, 2006).

A report from The Swedish Council on Technology Assessment in Health Care, published in 2005, presents the recommended treatments for panic disorder. The strength of evidence for the treatments are presented according to a scale from one to three with strong to limited evidence based support. According to the report, panic disorder is best treated with either cognitive behavioural therapy (CBT) or medicine. Psychological treatment and pharmacological treatment have similar effects on panic attacks and the best documented psychological treatment for panic disorder with or without agoraphobia is cognitive behaviour therapy which includes exposure. This treatment is rated at level one and shows a strong evidence based support. A meta-analysis by Mitte (2005) suggests that cognitive behavioural therapy is at least as effective as pharmacotherapy and the combination of CBT and pharmacotherapy was slightly more effective than CBT alone. Since CBT teaches clients self-help strategies for future use it is believed that CBT has a more long-term protective effect compared to medications (Carlbring, 2004).

Pharmacological treatment

In regards to pharmacotherapy of panic disorder, tricyclic antidepressants (TCA), selective serotonin reuptake inhibitors (SSRIs) and irreversible monoamine oxidase inhibitors (MAOIs) have been proven to be effective in treating panic disorder (Bakker, van Balkom, & van Dyck, 2000). High-potency benzodiazepines and antidepressants are the best studied pharmacological treatment for panic disorder (Bakker, van Balkom, & Stein, 2005). However, withdrawal problems with benzodiazepines favour the use of antidepressants. No differences in efficacy have been demonstrated between the two groups of antidepressants that are used most frequently (SSRI and TCAs), but the side-effects of TCAs have led to a preference for SSRIs over TCAs. SSRIs plus psychological treatment in a CBT nature appear more effective than SSRIs alone. Westling (1998) reports a relapse risk at 54-74% of patients treated pharmacologically.

Psychological treatment

Cognitive Behavioural Therapy (CBT). Cognitive behavioural therapy can be defined as an active and short-term treatment during which the therapist teaches the client various behavioural and cognitive techniques.

In the end of the treatment, focus is also on relapse prevention in order to maintain treatment gains after treatment is terminated. The treatment generally requires 12-15 sessions (Richards, Klein, & Carlbring, 2003). A CBT treatment for panic disorder consists of several components, the most common are psychoeducation, relaxation or breathing retraining, cognitive restructuring, interoceptive exposure, in vivo exposure and relapse prevention (Carlbring, Westling, & Andersson, 2000). These techniques are briefly described below:

Common components in CBT. *Psychoeducation* refers to the initial and educational part of the therapy which provides the information and rational for the treatment (Dannon, Iancu, & Grunhaus, 2002). The client is taught the physiology of fear and anxiety, and panic and anxiety are normalised (Carlbring, 2004). The client is also taught that a panic attack is a response to physiological, cognitive and behavioural components and that the goal is to change the catastrophic view through cognitive and behavioural methods.

Breathing retraining basically instructs patients in slow diaphragmatic breathing (Taylor, 2000). The technique derives from early versions of CBT when it was widely used, because it was assumed that hyperventilation played a major role in many panic attacks (Taylor, 2001). As hyperventilation is not as important as previously thought it is recommended that breathing retraining should be reserved for the minority of panic patients who suffer of chronic hyperventilation or have a tendancy to episodically hyperventilate. Training in diaphragmatic breathing is used to slow respiration rate and thereby eliminating hyperventilation and to replace the habit of chest breathing with breathing from the diaphragm. Breathing retraining may be counterproductive if patients use it as a safety behaviour to avoid or escape feared sensations (Schmidt et al., 2000).

Cognitive restructuring refers to modify the client's catastrophic misinterpretations of the bodily sensations produced by anxiety and panic (Carlbring, 2004). By learning how to access corrective and helpful information patients evaluate their catastrophic beliefs with more noncatastrophic alternatives and thereby decrease rather than increase anxiety symptoms. The cognitive changes are achieved via behavioural experiments and verbal challenges. Techniques consist of for example statements of noncatastrophic beliefs and short lists of evidence for and against particular beliefs (Taylor, 2000).

Interoceptive exposure refers to exercises designed to induce arousal-related body sensations that are often feared by the client (Taylor, 2000). Exposure exercises are often carried out as behavioural experiments to test the patient's beliefs about consequences of arousal-related sensations and the exposure exercises can be seen as a way of providing the patient with corrective information. The goal of exposure is not only to reduce anxiety or panic reactions but also to produce tests of catstrophic beliefs, help patients discover the likely noncatastrophic causes of their feared sensations and test whether patients safety behaviours increase or decrease their problems. The feared sensations are elicited through specific physical exercises carried out several times until the person habitutes to the sensations. Examples of exercises are running up and down stairs, holding the breath and breathing through a straw. The exercises are first carried out in a familiar setting, sometimes together with a trusted companion and later generalised to other environments.

In vivo exposure is used primarily for reducing agoraphobia (Taylor, 2000). In this situational exposure the patient repeatedly encounters feared external stimuli (usually objects or places) in order to challenge maladaptive beliefs about the situations. In vivo exposure differs to interoceptive exposure in that they emphasise encounters with situations that are feared or avoided regardless of whether the situations induce intense sensations. In vivo exposure tends to be more effective when clients are encouraged to refrain from using safety behaviours. In vivo exposure exercises could also be used to test the patient's beliefs about the usefulness of safety signals and safety behaviours.

Relapse prevention and the set up of a maintenance program are strategies used to increase the odds that the beneficial effects of treatment will continue after therapy formally ends (Taylor, 2000). The thought behind these strategies is to help patients function as their own therapists to continue to work on any remaining problems and to deal with any difficulties that may arise. Even when panic disorder is successfully treated strategic planning for setbacks, recurrence and relapse is an important part of the treatment. Patients are taught that a lapse is not a relapse and to analyse the situation and practice the exercises used in therapy. If the planned strategies do not work the patient is encouraged to contact the therapist for one or more telephone calls or booster sessions.

CBT via self-help. Self-help treatment can take various forms with varying levels of therapist contact. Newman, Erickson, Przeworski and Dzus (2003) differentiate between self-administered therapy (usually therapist contact for assessment), predominantly self-help (often therapist contact for providing the initial therapeutic rationale), minimal-contact therapy (active involvement of a therapist but to a lesser degree than traditional therapy) and pre-dominantly therapist-administered treatment (clients have regular contact with a therapist). The therapist-contact, if there is any, is usually administered via e-mails or telephone. Common forms of self-help include books (bibliotherapy), audiotapes, computer-assisted programs, Internet, videotapes or some combination (Hirai & Clum, 2006). Self-help treatment has developed over the years and is considered a good alternative to traditional therapy when such is not available due to geographical distance or a shortage of trained CBT therapists (Richards et al., 2003). Self-help treatments are also more cost-effective than traditional therapies. Such treatments therefore increase the accessibility and affordability of evidence-based psychological treatments (Carlbring, 2004).

A meta-analysis of Gould and Clum (1993) found support for self-help treatment for various disorders such as anxiety, depression and insomnia. No significant differences were found between self-help treatments and therapist-administered treatment individually or in group. A recent meta-analytic study of self-help interventions for anxiety problems found treatment effects for self-help interventions in the moderate range, with an effect size of 0.56 at post-treatment and 0.53 at follow-up for panic disorder (Hirai & Clum, 2006). When compared with therapist-directed interventions for panic problems, self-help interventions demonstrated comparable effectiveness.

Bibliotherapy. Bibliotherapy refers to the use of written instructional materials, often in the form of a self-help book or manual, to guide the patient through the course of treatment (Taylor, 2000). Previous studies have shown that bibliotherapy for panic disorder is an effective treatment when it is delivered with minimal therapist contact (Gould, Clum, & Shapiro, 1993; Gould & Clum, 1995; Hecker, Losee, Fritzler, & Fink, 1996; Hecker, Losee, Roberson-Nay, & Maki, 2004; Lidren et al., 1994). Carlbring et al. (2000) suggest that bibliotherapy for panic disorder can be effective, with a moderate to large effect size (d=0.5-1.5). Bibliotherapy may not be sufficient for individuals with severe panic disorder and co-morbidity and is also unsuited for individuals with limited reading abilities or lack of

motivation to follow a self-directed program (Taylor, 2000). Rosen (1987; 1993) claims a high dropout rate for self-help treatments and expresses concerns about self-help books to be validated and to meet professional standards.

In a study by Gould et al. (1993) bibliotherapy was compared to individual therapy and to a waitlist control group. A number of 33 patients diagnosed with panic disorder were allocated to one of the three groups. Participants receiving individual therapy met with a therapist for one hour twice a week during the 4 weeks of treatment. The treatment was based on the content of the self-help book that was sent to the group receiving self-help. Participants in the bibliotherapy condition were asked to read the self-help book *Coping with Panic* (Clum, 1990) at their own pace and to apply the strategies described in the book. The participants in this group had telephone contact for about 10 minutes on two occasions (week 2 and 4) during the course of the treatment. The self-help book consisted of psychoeducation about panic disorder, cognitive and behavioural strategies (such as relaxation, breathing retraining, cognitive restructuring, exposure exercises) and application of the material. The results from the study indicate that participants in the bibliotherapy group, in general, showed significantly more improvement than participants in the waitlist, and were not significantly different from those in the individual therapy group. Seventy-three percent of the patients in the bibliotherapy condition, 56% in the individual therapy condition and 36% in the waitlist condition were panic-free at post-treatment assessment. The over-all effect size was d=1.5 for bibliotherapy compared to the waitlist.

In a replication and extension of the original study, Gould and Clum (1995) compared a 4 week self-help treatment to a waitlist control. The self-help book utilised in the study was *Coping with Panic* which the participants were encouraged to read at their own pace. Apart from this primary intervention the participants were also given an informational videotape and a relaxation audiotape. The videotape explained the etiology of panic disorder, the spiralling and circular relationship between panic symptoms and cognitions and modelled diaphragmatic breathing. The audiotape consisted of instructions on progressive muscle relaxation. Of the 25 participants 84% met the criteria for panic disorder with agoraphobia and the remaining met the criteria for panic disorder without agoraphobia. The proportions of panic-free subjects were 46% for the self-help treatment group and 25% for the waitlist at post-treatment and 69% and 25%

respectively at the 2-month follow-up. The study strongly supports the effectiveness of self-help relative to waitlist condition both post-treatment and at a 2-month follow-up. The study showed a medium effect size (d=0.5) at post-treatment and a large effect size (d=0.8) at the follow-up.

In another study Lidren et al. (1994) compared an 8 week bibliotherapy treatment and group therapy to a waitlist control. The participants in both treatment groups were given the book *Coping with Panic* and the subjects in the self-help group were contacted over the telephone at weeks 2, 5 and 8 to determine if subjects were reading, comprehending and using the strategies described. Participants receiving group therapy met weekly for 90 minutes with a therapist in groups of six to process and practice material covered in the text. Results indicated that both bibliotherapy and group treatment were more effective than the waitlist condition in reducing frequency of panic attacks, severity of physical panic symptoms, catastrophic cognitions, agoraphobic avoidance and depression and also more effective in increasing self-efficacy. Before treatment commenced 30 participants out of 36 met the criteria for panic disorder with agoraphobia and the remaining met the criteria for panic disorder without agoraphobia. The proportions of panic-free patients at post-treatment and 6-month follow-up were 83% (75%) for bibliotherapy, 83% (92%) for group therapy and 25% for the waitlist. Both interventions maintained their effects throughout the follow-up periods at 3 and 6 months and produced clinically significant levels of change. A post-test comparison between the bibliotherapy and the waitlist conditions across all dependant measures revealed a large effect size (d=1.5).

In a study by Hecker et al. (1996) self-directed and therapist-directed CBT for panic disorder were compared. All the 16 participants were provided with Barlow and Craske's (1989) *Mastery of your anxiety and panic*. Subjects in the therapist-directed groups met with a therapist for 12 weekly sessions, during which material in the book was discussed and worked through. Therapists also met with the self-directed group, but only three times over 12 weeks to assign readings and answer questions. The book used in the study consisted of material covering basic information about panic, anxiety and panic disorder from a CBT perspective, muscle relaxation training and breathing retraining, common cognitive distortions associated with panic and instructions for monitoring and challenging irrational thinking. Interoceptive and in vivo exposure exercises were other areas that were presented in the book. In both conditions participants improved with treatment and maintained their gains at a 6-month follow-up. There were no

differences between the two treatment conditions on the outcome measures. The proportions of panic-free self-directed patients at post-treatment and at 6-month follow-up were 60% (80%) and the proportions of panic-free therapist-directed patients at post-treatment and at 6-month follow-up were 63% (71%). The average within-group effect size for the self-help condition was *d*=1.1 at post-treatment and *d*=1.0 at 6-month follow-up.

In another study by Hecker et al. (2004) four sessions of CBT group therapy (Group) or one meeting with a therapist plus three telephone calls (Telephone) contacts were compared. Forty eight participants worked with *Mastery of your anxiety and panic* during ten weeks. The participants who received group therapy met at weeks 1, 3, 5 and 7 and during the group meetings the therapist assigned readings, provided an overview of the information to be covered in the readings and answered participants' questions. In the other group participants met alone with the therapist who provided them with a copy of the book and instructed them to read the first four chapters. Therapists then telephoned participants at three different occasions to assess the compliance and the comprehension with the reading. The proportions of panic-free patients at post-treatment were 16% for Group and 57% for Telephone and 24% for Group and 36% for Telephone at the 6-month follow-up assessment. The results from the study revealed significant improvement over the course of treatment and maintenance of gains over the follow-up period and the study indicates that self-help treatment with brief therapist contact is a viable treatment for panic disorder.

There is one published study where pure self-help is looked at; Febbraro, Clum, Roodman and Wright (1999) compared bibliotherapy with no therapist contact, bibliotherapy plus daily self-monitoring and self-administered feed-back to daily self-monitoring and self-administered feed-back and waitlist controls. In this study 63 individuals participated and there was no contact with the researchers at pre-treatment assessment unless the pre-treatment measures, where participants assessed themselves, were not received by the experimenter within 7 days of their mailing. Participants who met the inclusion criteria of being at least 18 years of age and having experienced at least one defined full-blown or limited-symptom panic attack within the 2 week period prior to beginning treatment, where randomized to one of the four groups. It was not necessary for participants to meet criteria for panic disorder to be included in the study, but the majority of participants (n=47) met criteria for panic disorder. The treatment phase was 8 weeks in duration and the treatment differed between the groups, where subjects in

the bibliotherapy alone group were instructed to read *Coping with panic*, participants in the bibliotherapy group plus monitoring also used a Daily Monitoring Log (DML) for self-monitoring and also tracked their progress by graphing their performance on a weekly basis. Subjects in the monitoring alone group were only sent the DML along with brief instructions for its use. All participants had approximately one hour of telephone or in-person contact during the post-treatment assessment where a clinical interview was conducted. In regards to panic-free status at post-treatment, 64.7% in the bibliotherapy-alone condition, 53.5% in the bibliotherapy-plus-monitoring condition and 69.2% in the monitoring-alone condition and 38.9% in the waitlist condition were panic-free at post-treatment. No significant differences between the groups existed at post-treatment. All groups revealed significant reductions from pre- to post-treatment for full-blown panic attacks, avoidance, panic cognitions and panic symptoms. The average effect size for the last three variables was d=-0.12. The researchers of the study doubt the efficacy of bibliotherapy and self-monitoring interventions when utilised in absent from contact with a clinician who conducts the assessments and monitors treatment compliance.

A previous master thesis in psychology, *Panikprojektet 6* (Maurin & Nilsson, 2004) conducted at Uppsala University, investigated the effects of bibliotherapy in conjunction with telephone calls for panic disorder. Participants in *Panikprojeket 6* received the same self-help material as in this study. Twenty eight individuals diagnosed with panic disorder with or without agoraphobia were randomized to two treatment groups; one group received all self-help material at one occasion at the start of the treatment and the other group received the self-help material module by module delivered weekly by mail. The duration of the treatment was ten weeks with a 20-minute telephone call from a therapist on a weekly basis. The telephone calls were of a structured format and involved questions about what had happened during the week, the homework assignments and other questions regarding the particular module worked on. No significant differences existed between the two treatment groups at post-treatment, suggesting that the way the material was delivered did not affect the outcome. One month after treatment was terminated, 75% of the participants did not longer meet the diagnostic criteria for panic disorder. Maurin and Nilsson report an average within effect size of d=1.25. There has been a one-year and a two-year follow-up of this project, which shows that the treatment gains were maintained with a Cohen's d=1.14 at one-year follow-up and d=1.06 at two-

year follow-up (Carlbring, 2006). Two years after treatment was terminated, 93% of the participants did no longer meet the criteria for panic disorder.

Self-help via Internet. Self-help via Internet has been looked at in several studies and has shown to be an effective treatment for various disorders. Several studies about self-help via Internet for a range of problems have been carried out in Sweden, such as for recurrent headache (Ström, Pettersson, & Andersson, 2000), stress (Zetterqvist, Maanmies, Ström, & Andersson, 2003), tinnitus (Andersson, Strömgren, Ström, & Lyttkens, 2002), insomnia (Ström, Petterson, & Andersson, 2004), chronic back pain (Buhrman, Fältenhag, Ström, & Andersson, 2003), social phobia (Andersson et al., 2006; Carlbring et al., 2007), depression (Andersson et al., 2005), panic disorder (Carlbring, Westling, Ljungstrand, Ekselius, & Andersson, 2001) and bulimia nervosa and binge eating disorder (Ljótsson, Mitsell, Lundin, Carlbring, & Ghaderi, 2007).

Randomized controlled trials such as Carlbring et al. (2006); Carlbring et al. (2001) and Klein, Richards and Austin (2006) have looked at cost-efficient and accessible treatment for panic disorder through the distribution of treatment material over the Internet with minimal therapist contact. The studies show that the group receiving treatment via Internet improved on dependant measures compared to the control group. The Internet media has several positive aspects, but may shut out individuals of the population who do not have access to Internet or a computer or are not familiar with working with computers.

The study´s aim

There is evidence that using bibliotherapy as a self-help treatment may be as effective as face-to-face individual therapy for panic disorder. Hence, studies have found that participants in bibliotherapy-based conditions were significantly more improved than waitlist control conditions and comparable to other treatment conditions investigated. However, previous studies varied in the amount of therapist contact delivered and it has been suggested that some minimal level of therapist contact may be necessary.

The purpose of the present study was to investigate the effect of a self-help program in the nature of bibliotherapy with total absence of therapist contact. The study addresses the following problems: Is there an existing treatment effect, and if so, is this effect remaining at a follow-up three months past treatment is terminated?

The treatment effect is measured in regards to agoraphobic avoidance, maladaptive cognitions associated to panic and agoraphobic situations, fear of bodily sensations associated with panic, depression and anxiety. It is hypothesised that subjects in the treatment group after the treatment was terminated would exhibit greater improvement than subjects in the waitlist control condition. In comparison with the waitlist control group the treatment group was expected to experience less fear of bodily sensations associated with panic, less maladaptive cognitions associated to panic and agoraphobic situations, less agoraphobic avoidance, less depression, less general anxiety and experience greater quality of life. It is also hypothesised that these changes will be maintained at a 3-month follow-up. The number of participants in the treatment group diagnosed with panic disorder is expected to have decreased at post-treatment assessment compared to pre-treatment assessment.

Method

Participants

Recruitment

Participants were recruited from a pre-existing database of people who had already registered their interest in taking part in the self-help program for panic disorder called *Panikprojektet* (located at www.panikprojektet.nu) conducted by Linköping University. Participants were not provided with monetarily incentive nor charged for participation in the study. The only possible cost for taking part in the study was for the participants' Internet connections.

Two hundred of the people who had registered their interest were contacted via e-mail and asked if they were still interested in taking part of the study. One hundred and twenty six potential participants expressed their continued interest and replied by e-mail in which they answered questions about their panic problems and their past, current and future treatment plans (psychological and/or medical). Following this initial screening, 57 participants were excluded due to not meeting the selection criteria. The remaining 69 were contacted for a telephone interview and the Panic Disorder Severity Scale (PDSS) was administered to confirm the diagnosis of panic disorder. Forty of the 69 participants fulfilled the criteria for panic disorder with or without agoraphobia. These 40 participants were then randomly allocated into either the treatment or control group. See figure 2 for reasons of exclusion. Those who applied too late and potential participants who were not included in the study received information via e-mail on reasons why not included and were given recommendations on self-help books and information on where to seek professional help from a CBT-therapist.

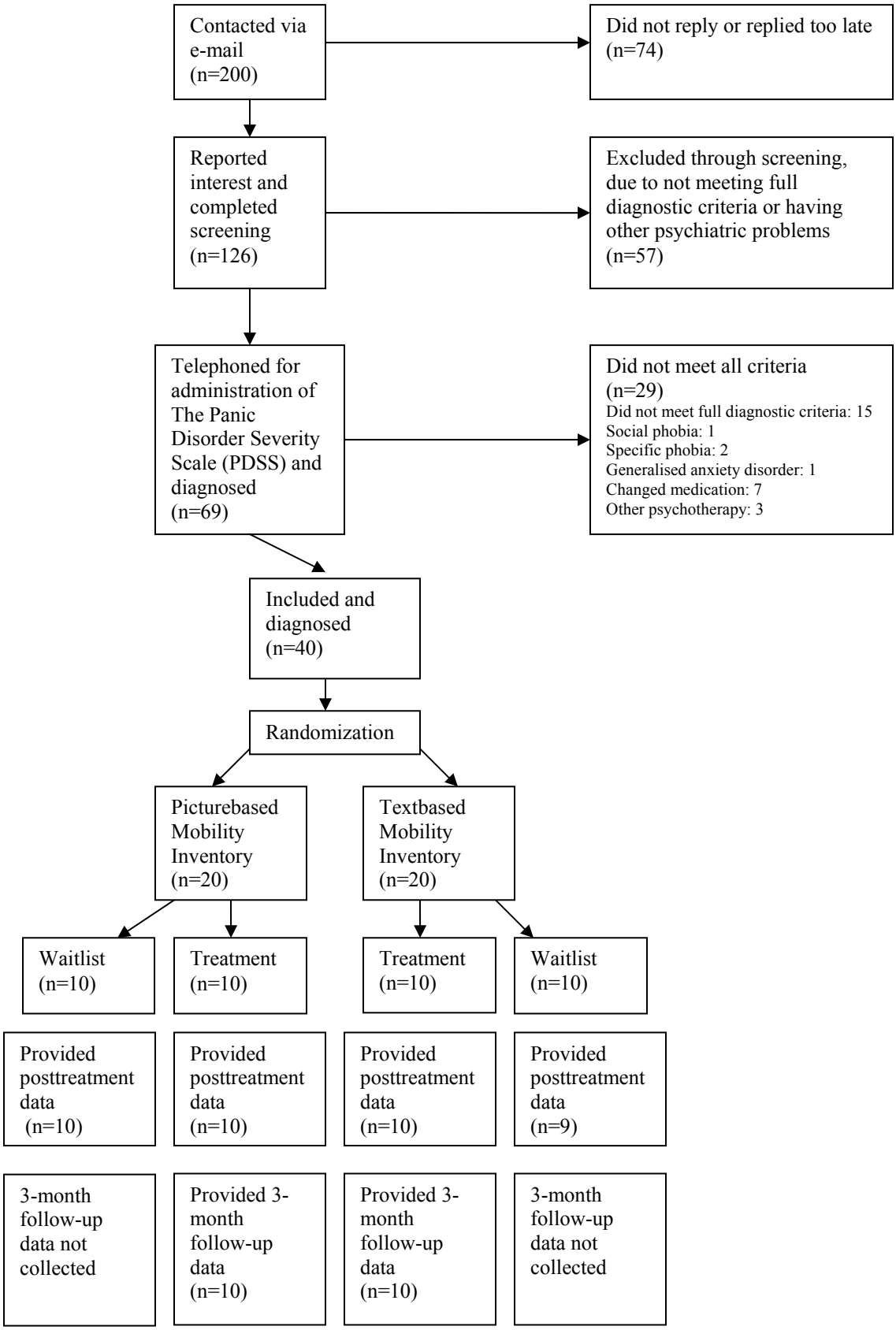

Figure 2. Consort flowchart with procedure of the study, exclusions and attrition.

Demographical data

Of the 40 participants, 29 were women and 11 were men. The mean age was 37.7 (SD=9.8) years. The treatment group consisted of 13 women and seven men and the control group of 16 women and four men. Demographical data is presented in table 1.

Table 1
Demographical data

		Total (N=40)
Gender	Male	11 (27.5%)
	Female	29 (72.5%)
Age	Mean (SD)	37.7 (9.8)
	Range	24-60
Number of children	4	2 (5.0%)
	3	7 (17.5%)
	2	14 (35.0%)
	1	9 (22.5%)
	0	8 (20.0%)
Educational level	University (completed)	14 (35.0%)
	University (not completed)	3 (7.5%)
	Community College	2 (5.0%)
	High School (completed)	17 (42.5%)
	High School (not completed)	1 (2.5%)
	Upper secondary school (completed)	3 (7.5%)
Occupation	Management	1 (2.5%)
	Work requiring shorter university education or equivalent	9 (22.5%)
	Clerk or Customer services	6 (15%)
	Health services and selling	14 (35%)
	Operator and transportation	5 (12.5%)
	Work without required vocational training	3 (7.5%)
	Full-time student	2 (5.0%)
City size	≥200.000	8 (20.0%)
	150.000-199.999	0 (0.0%)
	100.000-149.999	4 (10.0%)
	75.000-99.999	2 (5.0%)
	50.000-74.999	7 (17.5%)
	25.000-49.999	8 (20.0%)
	12.500-24.999	5 (12.5%)
	<12.500	6 (15.0%)

Selection of participants

In order to be included in the study participants were required to:

1) Fulfil the DSM-IV-TR criteria for panic disorder with or without agoraphobia measured with the Panic Disorder Severity Scale (PDSS; Shear et al., 1992). Panic disorder was the primary problem.
2) Not diagnosed with other psychiatric disorder/s that requires further treatment.
3) Must have had a full-scale panic attack in the previous month (a full-scale panic attack is a discrete period of intense fear or discomfort in which four or more symptoms develop abruptly and reach a peak with 10 minutes; DSM-IV-TR, 2000).
4) Do not suffer from certain somatic complaints (i.e., epilepsy, kidney problem, stroke, organic heart syndrome, emphysema, heart attack or hypertension) which may account for panic disorder.
5) Be on a stable medication regime. The dose of medication was stable for three months prior to commencing the self-help treatment. Participants in the treatment group should not increase the dosage during the study.
6) If participating in any kind of psychological therapy during participation in the current project, this should not be of a cognitive behavioural nature.
7) Be at least 18 years of age.
8) Live in Sweden.

Attrition

All participants were encouraged to answer the post-treatment and follow-up assessments. Only one individual, belonging to the waitlist group, dropped out of the study at the post-treatment phase. This participant failed to complete the online self-report instruments and was not reachable for the telephone interview. Intention-to-treat analysis was used for this single case (Newell, 1992). In this procedure the participant's pre-assessment scores are carried forward and used as the post-assessment scores.

Material

In this study, the applicants answered the same seven self-report instruments at pre-treatment, post-treatment and follow-up. All self-report measures used in the study were answered over the Internet and were transformed from a paper version to an Internet version. A study by Carlbring, Brunt et al. (2007) showed that the Internet versions and the paper versions revealed

similar internal consistency, which was considered good; and all measures had an internal consistency of Cronbach's alpha above .80. A value above .70 is considered good according to Clark-Carter (2004). The instructions and the questions of all instruments were allocated on a password protected website, only accessible to the participants and the researchers. Only one question was presented at a time and had to be completed before the next question was presented, although it was possible to go back and edit a previous answer. Apart from the seven self-report instruments, a clinician administered scale (PDSS; the Panic Disorder Severity Scale) was also used as a diagnostic instrument.

Mobility Inventory for agoraphobia (MI)

For this study, two versions of the Mobility Inventory were used, here referred to as MI picture and MI text. The picture-based version, developed by the author for another research study (not yet published), is a modified version of the original MI. The Mobility Inventory is a self-assessment instrument created by Chambless (1985) and designed to measure the avoidance of agoraphobic situations. The original version consists of 25 questions covering three different areas: 1) Places, for example theatre, lift or shopping centre, 2) to travel by for example train, bus or boat, 3) other situations such as crossing a bridge, standing in a line or social gatherings. Respondents are asked to rate how often they avoid these situations because of anxiety or discomfort on a five-point scale ranging from 1 (never avoid) to 5 (always avoid). The original version assesses agoraphobic avoidance when alone and when accompanied by a trusted companion. The modified version does not include the two separate scales and does therefore not differentiate between agoraphobic avoidance when alone and when accompanied. Also, in the modified version, the following items were removed: "Walking on the street", "staying at home alone" and "being far away from home". The two items "travelling by car anywhere" and "travelling by car on a highway" were replaced by one item "travelling in a car on a highway". The following items were added to the modified version: Crowd, library and dentist. The modified version consists of 25 items and was in this study used both in a text-based version and in a picture-based version. In MI text the subject gets presented with the word theatre where as in MI picture the subject is presented with a picture of a theatre. The original version of the Mobility Inventory has an internal consistency of Cronbach's alpha of .91-.97 (Chambless, Caputo, Jasin, Gracely, & Williams, 1985). The test-retest reliability for one month is r=.75-.86 for the accompanied scale and r=.89-.90 for the alone scale.

Body Sensations Questionnaire (BSQ)

The Body Sensations Questionnaire consists of 17 questions that measure fears associated with physical symptoms of arousal that are commonly experienced during anxiety (Chambless, Caputo, Bright, & Gallagher, 1984). Each item is rated on a five-point scale ranging from 1 (not at all) to 5 (extremely). Examples of body sensations to be rated are numbness in arms or legs, sweating, difficulty in breathing and blurred vision. The test-retest reliability is high (r=.79) and the BSQ has good internal consistency (Cronbach's α=.89; Arrindell, 1993).

Agoraphobic Cognitions Questionnaire (ACQ)

The ACQ is a 14-item questionnaire in which respondents rate how often threat-related thoughts occur when the person is feeling anxious (Chambless et al., 1984). Examples include thoughts regarding physical threat (e.g. "I must have a brain tumor") and thoughts regarding social threat (e.g. "I'm going to act foolish"). Each item is rated according to a five-point scale ranging from 1 (thought never occurs) to 5 (thought always occurs when I am nervous). The ACQ has a good internal consistency (Cronbach's α=.80) and the test-retest reliability for one week is r=.86 (Bouchard, Pelletier, Gauthier, Côté, & Laberge, 1997).

Beck Depression Inventory (BDI)

BDI is a commonly used self-report questionnaire for assessment of depression (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). It constitutes of 21 questions covering different symptoms and attitudes. Each item is rated on a four-point scale, with higher scores indicating a higher degree of depression. The internal consistency is good; according to the manual, Cronbach's alpha is reported to .86-.88 in American studies and .86-.91 in Swedish studies (Psykologiförlaget AB, 1996). The test-retest reliability for two weeks is reported to r=.90 and r=.64 for one week in normal population in Sweden.

Beck Anxiety Inventory (BAI)

BAI is a self-report instrument with the purpose of measuring 21 general anxiety symptoms on a Likert scale ranging from 0 to 3 (Beck, Epstein, Brown, & Steer, 1988). The instrument is considered to discriminate anxiety disorders from depression. BAI has an internal consistency of α=.92 (Creamer, Foran, & Bell, 1995) and the test-retest reliability for one week is r=.75 (Beck et al., 1988).

Quality of Life Inventory (QOLI)

The Quality of Life Inventory was created by Frisch, Cornell, Villanueva and Retzlaff (1992) with the purpose of measuring individuals' subjective view of how they judge the quality of their lives in 16 different areas; for example health, leisure, work, creativity and love. Each area is followed by two questions where the respondent rates how important the particular area is to him or her and also how satisfied he or she is with this part of his/her life. The first question is rated on a three-point scale from 0 to 2 and the second question is rated on a six-point scale from -3 to +3. A higher score means greater satisfaction with life. The instrument's internal consistency is high, α=.77-.89 and the one month test-retest reliability lies between r=.80-.89.

Montgomery Åsberg Depression Rating Scale (MADRS)

MADRS was created by Montgomery and Åsberg (1979) and is designed to be sensitive to changes in degree of depression. The instrument consists of nine items purposed to measure symptoms of depression. The instrument measures the following symptoms: Mood changes, anxiety, changes in sleeping patterns, appetite, ability to concentrate, initiative taking, emotional engagement, pessimism and attitude to life. According to Montgomery and Åsberg (1979), the instrument is reliable and also shows high correlations (from r=.80-.94) between expert ratings and self-reports (Svanborg & Åsberg, 1994).

Panic Disorder Severity Scale (PDSS)

The PDSS is a clinician administered scale and based on the clinician ratings on the subject's answers to the questions (Shear et al., 1992). It is a seven-item scale where items are rated on a five-point Likert scale ranging from 0 (none or not present) to 4 (extreme). Ratings for each item are made for the past month and the areas assessed include panic attack frequency, distress during panic attacks, severity of anticipatory anxiety, fear and avoidance of agoraphobic situations, fear and avoidance of panic-related sensations, impairment in work functioning and in social functioning. The questions in the PDSS cover all DSM-IV-TR criteria for panic disorder and agoraphobia. Shear et al. (2001) refer to studies that have shown that the instrument discriminates panic disorder patients with and without suicidal ideation and panic/agoraphobic patients with and without co-morbid personality disorders. Inter-rater reliability is high, with an inter-rater reliability for individual items ranging from r=.73 to .87 and an intraclass correlation

coefficient of .88 (Shear et al., 1997). Internal consistency is high, with a Cronbachs's alpha of .88 (Shear et al., 2001).

Self-help material

The self-help book utilised in the study was a draft written by Carlbring and Hanell (2007). The text, consisting of 10 modules or 308 pages in total, is based on empirically tested cognitive behavioural strategies. At the end of each module, the reader is presented with a quiz to test the level of knowledge gained after the completion of that particular module. For each module, the reader is also given homework assignments, which usually consist of some type of practical exercise.

The first two modules consisted of psychoeducation about panic disorder. More specifically, the *first module* included information about panic disorder, the difference between panic attacks and panic disorder, the diagnostic criteria for panic disorder, information about agoraphobia and facts about anxiety and body reactions and an explanation to why some people develop panic disorder. Whereas *module two* provided information about cognitions and how cognitions influence our feelings and reactions. In addition, the development and maintenance of panic disorder was explained through a cognitive behavioural perspective and Clark's (1986) cognitive model was presented. In the *third module,* the facts about breathing and hyperventilation were given. The reader was also provided instructions on how to carry out a breathing exercise. Throughout the book the participant was encouraged to try the exercise provided before continuing with the next step. Module three also gave structured instructions on how to breathe with the diaphragm. *Module four* focused on working with negative thoughts. Information about negative automatic thoughts, specific thoughts associated with panic attacks and the difference between feelings and thoughts was given, as well as information about cognitive distortions and dysfunctional thoughts. Different strategies on how to handle the thoughts were presented and the participants were asked to work on identifying their own automatic thoughts and record this information on a specific work sheet. In *module five*, the participants continued working on the material from the previous module (i.e., challenging their negative automatic thoughts identified previously). This was done with the help of a work sheet, where a particular situation and/or physical reaction and the associated thought were recorded, as well as the evidence for and against that particular thought. The reader was also encouraged to come up with an alternative thought/s. It was suggested that the participants find a "personal coach" if they found it hard

to complete the exercises on their own. The personal coach should be someone who is willing to read through the modules together with the participant and assist the participant in completing the exercises. *Module six* integrated the previous information on thoughts from module four and five with behaviour components. Interoceptive exposure was introduced in this module and the participants were instructed to carry out different exercises which cause different physical reactions that are common in panic disorder. These exercises included for example breathing through a straw, holding the breath, spinning in a chair for one minute and running up and down stairs. In the next module, *module seven*, the information provided focused on the exercises from the previous module which caused the participant the most discomfort and anxiety. More specifically, the participant was asked to try the exercise that they found difficult in a new setting. *Module eight* focused on in vivo exposure. The module covered information about agoraphobia, avoidance and how avoidance of situations affects the experience of panic disorder. The idea of safety behaviour was explained and how this is contraindicated to recovering from panic disorder. The homework assignment in this module consisted of creating individual sub-goals leading to the main goal(s) and developing a goal implementation strategy. Instructions on how to do this were presented in this module. The work with in vivo exposures continued in *module nine*, where the participant continued to work towards their personal goals. The module also included information about control and acceptance, and exercises in mindfulness and acceptance were presented. The final module, *module ten*, aimed at decreasing the risks for relapse and information on setbacks and how to handle them were given. Assertiveness skills were presented, such as self-statements, how to say "no" and where to draw the line. Strategies on how to handle stress and general anxiety were provided. Additional information was also given about exercise, diet and sleep.

Procedure

Design

An experimental group (treatment/waitlist control) by time (pre-treatment/post-treatment) design was employed. The dependent variables consisted of self-assessment test scores on the following instruments; MI picture or MI text, BSQ, ACQ, BDI, BAI, QOLI, MADRS, and clinician ratings on PDSS.

Screening and pre-treatment measures

The first part of the screening process commenced with that contacted pre-registered people who were interested in taking part of the self-help study answered questions about their panic-related problems (based on the DSM-IV-TR criteria for panic disorder and agoraphobia) and other background information (e.g., name, contact details and previous/present psychological and medication details). This information was then forwarded back electronically to the clinical interviewer. Those who met the criteria for the study, after this first screening, were contacted by telephone for a clinical interview using the PDSS. This telephone interview took approximately ten minutes and the interviewer would also answer any questions raised by the participant. The PDSS was assessed in a semi-structured way, which gave the participant the possibility to give a detailed answer and further explanations to each question and the clinician rating was based on what came out of the interview as a whole.

The first 40 applicants who fulfilled the inclusion criteria of the study and the criteria for panic disorder with or without agoraphobia on the basis of the screening process were e-mailed a website address link where they completed seven self-report instruments. To access the web-page a unique code was required, which was also sent to each participant together with the link to the web address. These codes were used to identify the respondents. Those who were included in the study were randomly assigned to either complete the Mobility Inventory text- or picture-based version.

Randomization

The participants were either randomized into the treatment or control group by using an internet-based random number generator (http://www.random.org). Following randomization, participants were informed via e-mail of which group they had been allocated to. Participants were also provided with general information about the program.

Treatment procedure

The treatment group received the self-help material while the control group was on a waitlist, but was given access to the self-help material after the treatment group had completed the treatment and provided post-assessment data. After all the participants had completed the screening and pre-treatment measures the treatment group was sent the self-help material by mail to their home address. Along with the book, each participant was provided with written instructions on how to work through the book and was also given a panic diary (see appendix). Here, the participant is encouraged

to record the frequency, duration and symptoms experienced during their panic attacks. In the written letter the participants were also encouraged to contact the person responsible for the study if they had any further questions during the duration of the treatment. However, none of the participants made any contact with the investigators during the treatment.

During the 10 week self-help program, the participants were instructed to work on one module for one week before moving on to the next one. No therapist contact of any kind was provided during the treatment phase.

Post-treatment measures

Following the ten weeks of the self-help treatment, both the treatment group and the waitlist group were contacted via e-mail and asked to complete the same Internet administered self-report questionnaires that were used for pre-treatment measures. Those participants who did not meet the specified deadline were reminded via e-mail and telephone. Following the tenth week, both groups were also re-contacted for a second interview via telephone. Apart from confirming or disconfirming a diagnosis of panic disorder with or without agoraphobia, treatment outcomes were measured by the clinical global impression (CGI) and treated subjects were asked how many modules they had completed. These participants were also asked to give a brief overall evaluation of the program.

Follow-up measures

Three months post treatment, all the participants in the treatment group completed the same seven online self-report instruments to assess the durability of change since post-treatment. Those participants who did not meet the specified deadline were reminded via e-mail and telephone. Each participant in the treatment group was also re-contacted for an interview via telephone to administer the PDSS. Diagnosis of panic disorder with or without agoraphobia was based on this interview procedure. Additionally a clinical global impression was also assessed for each participant.

Statistical analyses

Significance testing of group differences on pre-treatment measures and clinical diagnosis at post-treatment were conducted using χ^2 and t-tests. Participants' pre- and post-treatment measures were analysed using two-way analysis of variance (ANOVA) with repeated measures. This was followed by t-tests with Bonferroni corrected p-values ($p= 0.0125$). The analyses were

conducted by using the statistical program SPSS, version 14.0 (SPSS Incorporated, 2005).

The effect sizes were calculated partially within and partially between groups and all calculations were based on the pooled standard deviation, Cohen's *d*. According to Cohen (1988), an effect of 0.20 is considered as small, 0.50 as medium and 0.80 as large.

Results

Self-report instruments

The table below presents the results of the study's dependent variables. Mean values, standard deviations, main effects, interaction effects and within- and between effect sizes (Cohen's *d*) at pre- and post-treatment for each group are presented in table 2. The result for each of the eight self-report instruments is presented separately. There were no significant differences between the two groups before the start of the treatment (t_{38}=0.14–1.60, p=.12–.89).

Table 2

Means (standard deviations), main and interaction effects and effect sizes (Cohen's d) for each group on the self-report instruments

Measures	Group	Pre	Post	Follow-up	Main effect		Interaction	Effect size	
		M (SD)	M (SD)	M (SD)	Time $F_{1.38}$	Group $F_{1.38}$	Time x Group $F_{1.38}$	Within	Between
Mobility Inventory	TX	83.5 (16.1)	55.7 (18.7)	52.6 (19.3)	59.4***	1.4	59.4***	1.6	1.0
	WL	76.8 (21.9)	76.8 (22.5)					0.0	
Body Sensations Questionnaire	TX	55.5 (12.5)	35.5 (13.0)	34.5 (14.8)	35.3***	9.3**	24.4***	1.6	1.6
	WL	56.9 (11.6)	55.0 (11.9)					0.2	
Agoraphobic Cognitions Questionnaire	TX	38.8 (7.8)	25.4 (8.5)	24.5 (8.6)	34.5***	5.7*	26.8***	1.7	1.5
	WL	38.3 (9.8)	37.5 (8.1)					0.1	
Beck Depression Inventory	TX	21.7 (8.2)	9.5 (9.7)	10.1 (10.0)	51.5***	13.1***	21.0***	1.4	1.6
	WL	25.5 (7.3)	22.8 (7.1)					0.4	
Beck Anxiety Inventory	TX	25.0 (10.2)	11.2 (10.7)	10.4 (10.6)	48.1***	4.5*	28.1***	1.3	1.4
	WL	24.6 (8.4)	22.8 (6.5)					0.3	
Quality of Life Inventory	TX	0.4 (1.3)	2.2 (1.7)	2.1 (1.6)	47.8***	5.6*	11.9***	1.2	1.0
	WL	-0.1 (1.7)	0.5 (1.6)					0.4	
Montgomery Åsberg Depression Rating Scale	TX	19.9 (6.8)	9.5 (8.9)	9.3 (7.4)	39.9***	7.2**	14.1***	1.3	1.2
	WL	21.2 (5.8)	18.6 (5.6)					0.5	
Panic Disorder Severity Scale	TX	16.1 (4.3)	6.0 (5.0)	4.9 (5.0)	47.1***	4.0*	27.4***	2.2	1.6
	WL	13.9 (4.4)	12.5 (3.4)					0.4	

NOTE: * p≤ .05; ** p≤ .01; *** p≤ .001; TX= Treatment; WL=Waitlist

Mobility Inventory (MI)

No significant differences were found between the groups at pre-treatment for agoraphobic avoidance. This was measured by using the Mobility Inventory as a text- or a picture-based version, with the "accompanied" scale not included. Analysis of variance (ANOVA) showed a significant main effect for time ($F_{1,38}$=59.4, p≤.001) but not for group. ANOVA revealed a significant group by time interaction ($F_{1,38}$=59.4, p≤.001).

According to post hoc tests, the treatment group had improved significantly between pre- and post-test measures (t_{19}=8.5, p≤.001) while the control group had not (t_{19}=0.0, p=1.00). A significant post-treatment difference existed between the groups (t_{38}=-3.2, p≤.01) such that treated subjects had lower scores than controls. Post hoc tests showed that the treatment group had improved significantly between pre-treatment and follow-up (t_{19}=7.8, p≤.001), but no significantly improvement was shown between post-treatment and follow-up (t_{19}=1.4, p=.17).

Body Sensations Questionnaire (BSQ)

No significant differences were found between the groups at pre-treatment regarding fear of bodily sensations. ANOVA showed a significant main effect for time ($F_{1,38}$=35.3, p≤.001) and for group ($F_{1,38}$=9.3, p≤.01) respectively. The ANOVA revealed a significant interaction effect with respect to group and time ($F_{1,38}$=24.4, p≤.001).

Post hoc tests suggested that the treatment group had improved significantly between pre- and post-test measures (t_{19}=6.1, p≤.001) while the control group had not (t_{19}=1.1, p=.27). Post hoc test also showed that treated subjects had lower levels of fear of bodily sensations at post-treatment compared to the waitlist group (t_{38}=-4.9, p≤.001). According to post hoc tests there was a significant improvement for the treatment group between pre-treatment and follow-up (t_{19}=5.7, p≤.001), but no further improvement between post-treatment and follow-up (t_{19}=0.6, p=.56).

Agoraphobic Cognitions Questionnaire (ACQ)

Degree of change regarding maladaptive cognitions was measured using the Agoraphobic Cognitions Questionnaire. No significant differences were found between the groups at pre-treatment. Analysis of variance (ANOVA) revealed a significant main effect for time ($F_{1,38}$=34.5, p≤.001) and a significant main effect for group ($F_{1,38}$=5.7, p≤.05). The ANOVA revealed a significant group by time interaction ($F_{1,38}$=26.8, p≤.001).

Follow-up t-tests with Bonferroni-corrected p-values suggested that the treatment group had improved significantly between pre- and post-test measures (t_{19}=6.2, p≤.001) while the control group had not (t_{19}=0.8, p=.46). The tests also revealed that a significant post-treatment difference existed between the groups (t_{38}=-4.6, p≤.001) such that treated subjects had lower values than controls. Post hoc test revealed a significant improvement for the treatment group between pre-treatment and follow-up (t_{19}=5.9, p≤.001). There was no significant improvement between post-treatment and follow-up for the treatment group (t_{19}=0.9, p=.40).

Beck Depression Inventory (BDI)

No significant differences were found between the groups at pre-treatment regarding degree of depression measured by using BDI. Analysis of variance (ANOVA) with repeated measures showed significant main effects for time ($F_{1,38}$=51.5, p≤.001) and for group ($F_{1,38}$=13.1, p≤.001). There was an existing significant time by group interaction ($F_{1,38}$=21.0, p≤.001).

The treatment group had improved significantly between pre- and post-test measures (t_{19}=7.3, p≤.001) and the waitlist group showed a slight improvement (t_{19}=2.2, p≤.05) according to post hoc tests. A significant post-treatment difference existed between the groups (t_{38}=-4.9, p<.001) such that treated subjects scored lower than controls. The treatment group had improved significantly between pre-treatment and follow-up (t_{19}=6.0, p≤.001). No significant improvements were found between post-treatment and follow-up (t_{19}=-0.7, p=.51).

Beck Anxiety Inventory (BAI)

Degree of change regarding anxiety was measured using the Beck anxiety inventory. No significant differences were found between the groups at pre-treatment. ANOVA with repeated measures revealed a significant main effect for group ($F_{1,38}$=4.5, p≤.05). ANOVA showed a significant main effect for time ($F_{1,38}$=48.1, p≤.001). The ANOVA also revealed a significant group by time interaction ($F_{1,38}$=28.1, p≤.001).

Post hoc tests suggested that the treatment group had improved significantly between pre- and post-test measures (t_{19}=7.7, p≤.001) while the control group had not (t_{19}=1.4, p=.19). The test also revealed that the treated group had lower post-treatment scores compared with control subjects (t_{38}=4.2, p≤.001). Post hoc tests showed that the treatment group improved

significantly between pre-treatment and follow-up (t_{19}=5.9, p≤.001) but not between post-treatment and follow-up (t_{19}=0.5, p=65).

Quality of Life Inventory (QOLI)

Subjective quality of life was measured with the QOLI and no significant differences were found between the groups at pre-treatment. Significant main effects for time ($F_{1,38}$=47.8, p≤.001) and for group ($F_{1,38}$=5.6, p≤.05) were obtained in the ANOVA. The ANOVA revealed a significant interaction effect with respect to time and group ($F_{1,38}$=11.9, p≤.001).

Post hoc t-tests with Bonferroni corrected p-values suggested that the treatment group (t_{19}=-7.0, p≤.001) and the waitlist group (t_{19}=-2.6, p≤.05) had improved significantly between pre- and post-test measures. However, a significant post-treatment difference existed between the groups (t_{38}=3.3, p≤.01) such that treated subjects scored higher than controls and experienced a greater quality of life post treatment. Post hoc test revealed a significant improvement for the treatment group between pre-treatment and follow-up (t_{19}=-5.6, p≤.001). Post hoc t-tests showed no significant improvement between post-test measures and follow-up (t_{19}=0.4, p=.67).

Montgomery Åsberg Depression Rating Scale (MADRS)

No significant differences were found between the groups at pre-treatment regarding symptoms of depression measured by MADRS. Analysis of variance (ANOVA) showed that there was a main effect for time ($F_{1,38}$=39.9, p≤.001) and for group ($F_{1,38}$=7.2, p≤.01). A significant group by time interaction ($F_{1,38}$=14.1, p≤.001) was obtained in the ANOVA.

The treatment group (t_{19}=6.0, p≤.001) and the control group (t_{19}=2.4, p≤.05) had improved significantly between pre- and post-test measures according to post hoc tests. However, the post hoc test showed a significant post-treatment difference between the groups (t_{38}=-3.8, p≤.001) such that treated subjects had lower levels of symptoms of depression at post-treatment. The treatment group had improved significantly between pre-treatment and follow-up (t_{19}=6.5, p≤.001). No significant improvements were found between post-treatment and follow-up (t_{19}=0.2, p=.85).

Panic Disorder Severity Scale (PDSS)

No significant differences were found between the groups at pre-treatment regarding severity of panic-related characteristics. The ANOVA revealed significant main effects with respect to time ($F_{1,38}$=47.1, p≤.001) and group

($F_{1,38}$=4.0, p≤.05). The ANOVA also revealed a significant group by time interaction ($F_{1,38}$=27.4, p≤.001).

Post hoc tests suggested that the treatment group had improved significantly between pre- and post-test measures (t_{19}=7.7, p≤.001) while the control group had not (t_{19}=1.3, p=.20). The test also showed a significant post-treatment difference between the groups (t_{38}=-4.8, p≤.001). Post hoc tests suggested that the treatment group had improved significantly between pre-treatment and follow-up (t_{19}=8.4, p≤.001) and post-treatment and follow-up (t_{19}=2.2, p≤.05).

Effect sizes

The effect sizes within the groups and between the groups were determined with Cohen's *d* (pooled SD). The within-group effect size was large for all self-report measures in the treatment group at post-treatment. Highest value was found on PDSS (Cohen's *d*=2.2) and lowest value was found for QOLI (Cohen's *d*=1.2). The overall within-group effect size was 1.5 at post-treatment and 1.6 at follow-up. On the contrary, for the waitlist group the within-group effect size was small, with an overall effect size of *d*=0.3. The between group effect size was large at post-treatment (average *d*=1.4; range MI: *d*=1.0 to BDI: *d*=1.6), showing a superior improvement for the treatment group.

Change in diagnosis

At post-treatment 80% of the treatment group no longer fulfilled the DSM-IV-TR criteria for panic disorder while the opposite was true for the waitlist group, where 95% filled these criteria according to the PDSS (see table 3). χ^2-test showed that there was a significant difference between the treatment group and the control group regarding the diagnose at post-treatment ($\chi^2_{(1)}$=23.02; p≤.001).

According to PDSS at follow-up, three months after treatment was terminated, four subjects in the treatment group met the criteria for panic disorder and agoraphobia. Before treatment commenced 14 participants in the treatment group fulfilled the DSM-IV-TR criteria for agoraphobia. When treatment was terminated five individuals in the treatment group met the criteria for agoraphobia. In the control group 10 participants fulfilled the DSM-IV-TR criteria for agoraphobia at pre-treatment. Post-treatment measures indicate that 13 participants in the control group filled the criteria for agoraphobia.

Table 3
Number of participants in the treatment group and the waitlist group meeting the criteria for panic disorder at post-treatment

Group	Not Panic disorder	Panic disorder
Treatment group	16 (80%)	4 (20%)
Waitlist group	1 (5%)	19 (95%)

Clinical Global Impression (CGI)

The Clinical Global Impression scale is a clinician-rated scale designed to assess change in the clinical condition over time and requires the clinician to rate how much the patient's illness has improved relative to a baseline state (Kant Jha, 2005). Rating is made according to a four-point scale ranging from 0 to 3; no change, minimally improved, much improved, very much improved ("Clinical Global Impression (CGI)", n.d.). Based on the clinical interview via telephone with all participants at post-treatment and at the 3 month follow-up a clinical global impression was assessed for each participant. Clinical global impression for post-treatment and follow-up for the two groups is presented in figure 3.

In regards to the CGI assessment the treatment group showed an improvement over time, such that treated subjects received higher scores on CGI at follow-up compared to post-treatment. In comparison to the control group, the treatment group was judged as more improved on CGI at post-treatment, suggesting a superior improvement for the treatment group based on a clinician rating.

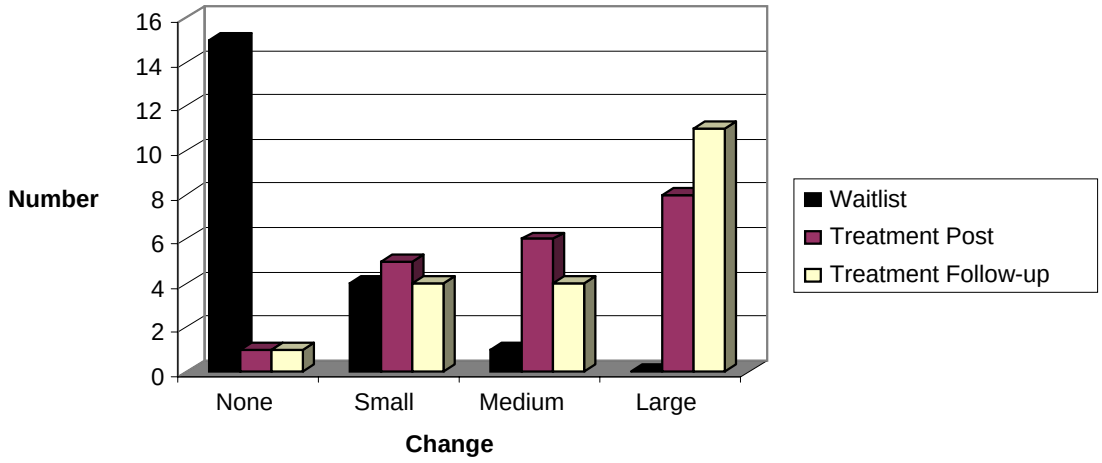

Figure 3. Clinical global impression for the treatment group at post-treatment and follow-up and for the waitlist group at post-treatment.

Number of modules completed and participants' opinions

The average number of modules completed by the participants in the treatment group at post-treatment was M=7.9 (SD=1.9). The number of modules completed after ten weeks varied from four to ten. Six participants out of twenty reported having completed all ten modules within ten weeks, as was encouraged before treatment commenced.

In general, the participants were very satisfied with the self-help book and thought it was really good. Some subjects commented on the importance of the material consisting of a book specifically, and not another type of medium, since the book format gives the users the opportunity to go back to specific modules if needed. The presentation of the self-help material in a book format makes it ideal for repetition when needed and the book is something which is easy to keep for future use if needed and was therefore described as something valued. As one participant described the book and the relation to it; "It's my bible…". A few participants described the book as being immense with lot of information and that it very quickly goes on with new information and exercises. At least two participants literally described that the time limit of ten weeks was too short to work through the entire book and one participant mentioned that the book requires self discipline from the user in order to succeed with the treatment.

What module or specific part of the book that helped each participant was different for each individual, with most participants not being able to give a specific answer to what particular part helped them. Something that seemed to have helped several participants was the breathing exercises. Two individuals mentioned that not all exercises were appropriate for them, this giving a disadvantage of the book format as it can not present a treatment that is tailor made for each particular client.

Discussion

Summary of the results

The aim of the study was to investigate the effect of a self-help program for panic disorder in the nature of bibliotherapy with complete absence of therapist contact. According to post-treatment measures, significant interaction effects between group and time were found for all measures, suggesting that the treatment group had, in comparison to the waitlist control group, improved on all outcome measures used in the study. They had, in other words, lower levels of panic attacks, less fear of bodily sensations associated with panic, less maladaptive cognitions associated with panic and agoraphobic situations, less agoraphobic avoidance, less general anxiety and were less depressed and reported a higher quality of life. All self-report measures for the treatment group showed significant improvements both at pre-treatment vs. post-treatment and at pre-treatment vs. follow-up, suggesting that the treatment effect remained after the treatment was terminated. There were no differences between post-treatment and follow-up for the treatment group, except for PDSS which indicated on some further improvement regarding panic attacks and panic related symptoms. For the waitlist group the opposite was true; there were no significant improvements at pre-treatment vs. post-treatment on the measures, except a slightly improvement for BDI, QOLI and MADRS. Post-hoc tests showed significant differences between the two groups at post-treatment ($p \leq .001$), hence the treatment group had improved significantly more than the waitlist group at post-treatment. The within-group effect size was large for all self-report measures in the treatment group, with an overall within-group effect size of Cohen's d=1.5 at post-treatment and d=1.6 at follow-up. For the waitlist group the within-group effect size was small, with an overall effect size of d=0.3. The between effect size was large at post-treatment (average d=1.4).

The results revealed that 80% of the treatment group no longer fulfilled the criteria for panic disorder whereas 95% of the waitlist control group fulfilled these. A clinical global impression assessment confirmed these findings, suggesting a greater improvement for the group that received the self-help book.

Discussion of the method

The design of this study was experimental which means that a number of variables have been controlled for. Strengths and limitations regarding external and internal validity of the study are discussed below. According to

Clark-Carter (2004) external validity is referred to as "…the generalisability of the findings of a piece of research" (p. 39) and internal validity is referred to as "…the degree to which a design successfully demonstrates that changes in a dependant variable are caused by changes in an independent variable" (p. 41).

External validity

Clark-Carter (2004) suggests different threats to the external validity such as task, time and setting. A threat to the *task* could be that other aspects than what are controlled for in the study influence the results of the study, which would restrict the generalisability of the study. In this study there was no contact with a therapist during the self-help treatment, whose interactions with the clients could have affected the outcome and making it a threat to the task. It is hard to say if there are any existing aspects which could have been a threat to the task in this study. *Time* refers to the time of day or time in history in which a study was conducted and the threat of the generalisability to other times. Participants in this study had the freedom to work on the self-help material at any time of the day which suited them, thereby minimising this threat. Also, the inclusion of a control group minimises the threat of the time aspect. *Setting* refers to the extent to which results from a laboratory setting can be generalised to other circumstances. This study's participants were in their own natural setting, i.e. their homes and not in a psychologist's consulting room, throughout the entire study period, including assessment, treatment and follow-up. This minimises this threat and can be considered an advantage of the study.

An important threat to the external validity of a study is the aspects and *selection* of the participants, which deals with the generalisability from the particular participants studied to the group from which those participants come, i.e. the population (Clark-Carter, 2004). The participants in this study were self-recruited from advertisements, which could mean that the present study's participants were likely to be highly motivated, a factor that could possibly contribute to the groups not being representative of the population in question. Approximately one-third of the total sample of 40 was men, which is quite representative for the panic disorder population. Perhaps, women are slightly underrepresented in the present study. According to a prevalence study by Carlbring et al. (2002) the female-male ratio in Sweden is 5.6:1. The age range for the participants in this study was 24-60 years old and the mean age of the participants was 37.7 years, which should be considered a good representation of the panic disorder population. Also,

there were no geographical restrictions for participating in the study, which can be seen as beneficial for the study's external validity. The screening process for this study was based on the participants' self-report inventories and a clinical interview. The interview was based on PDSS, which is a validated and reliable measure for screening of panic disorder with or without agoraphobia. The PDSS instrument covers all the criteria for panic disorder and agoraphobia according to the DSM-IV-TR, which is an advantage of the instrument. However, the instrument's ability to discriminate panic disorder with other axis I diagnosis is unknown, suggesting that some participants may not have panic disorder as their primary diagnosis or have a co-morbidity with other anxiety disorders. A screening based on SCID (Structured Clinical Interview for DSM-IV Diagnosis; First, Gibbon, Spitzer, Williams, & Benjamin, 1999), which screens for a range of mental disorders as well as suicidability, would have improved the screening procedure. The clinical judgement was based on all information that derived from the interview, where PDSS formed the basis. The use of a CGI assessment in this study is considered a strength since it is based on a clinician's rating of the subject's improvement throughout the treatment. Since the assessor did not meet with the participants for the clinical assessment, also individuals with severe agoraphobia, so called "housebound agoraphobics", could be assessed and included in this study. Hence, leading to a greater generalisability.

Clark-Carter (2004) claims that replication of the study is an important way to improve external validity. Replications conducted with as many of the original conditions as possible will help to see whether the original findings were unique and not just a result of chance. Replications that vary an aspect of the original study are said to improve the external validity further according to Clark-Carter. A replication of this study is recommended for future research and by doing so it will help to improve the self-help tool used in the study.

Internal validity

Threats to the internal validity regarding *selection* of participants have in the present study been controlled for through the use of an untreated waitlist control group and through the randomization of participants into the two conditions. Another threat to the internal validity is the phenomenon of the *regression to the mean* (Clark-Carter, 2004). As the subjects were randomized to the two groups regardless of their results at pre-assessment the risk of committing this type of threat is considered to be low. The threat

of *maturation*, that involves spontaneous recovery over time which would affect the results, was controlled for by the use of a waitlist, not receiving treatment until the treatment group had terminated their treatment. It should be noticed that panic disorder is considered a chronic disorder and spontaneous recovery is rare. However, one participant in the control group in this study did not longer meet the criteria for panic disorder at post-treatment assessment, suggesting that some spontaneous recovery took place. The receiving of any other treatment or therapy during the on-going treatment was another subject of control for this study which lessens the risk of maturation. Also the threat of *testing* was controlled for by the use of a waitlist group in the study. This threat deals with the issue that participants' responses to the same measure may change with time. The same self-report measures were used at the different assessment phases and they were administered in exactly the same way and order which correct for the so called *instrumentation* threat. *Imitation* and *compensatory rivalry* seem unlikely threats in this study since the groups did not have contact with each other, did not undergo treatment simultaneously and received the same type of treatment.

The involvement of a control group, where the participants do not receive any treatment while they are on a waitlist, could be considered a threat to the internal validity. The results of the study do not consider which components are effective for the outcome. Hypothetically, the effects of this study could be placebo effects. This can not be entirely ruled out since a comparison is made with a waitlist control group and not a placebo. To solve this problem the treatment condition could have been compared to a placebo of psychoeducative art or information only. In order to investigate which components are effective in the bibliotherapy treatment one could perform dismantling studies where various components systematically are removed and thereafter the effects are to be compared.

Reliability

Reliability refers to the degree to which an instrument would produce the same result from one occasion to another, i.e. its consistency (Clark-Carter, 2004). One form of reliability has to do with measures that involve a certain amount of judgement by the researchers; intra-rater reliability refers to how consistent one person is in classifying the same behaviour on two occasions whereas inter-rater reliability refers to whether two or more raters are classifying the same behaviour in the same way. In this study only intra-rater reliability is of interest, since only one researcher was involved in the

clinical assessment at all stages throughout the study. A threat towards the reliability in this study is that the intra-rater reliability was not controlled for in the assessment of the PDSS. An advantage of the study is that the researcher was not involved with the participants at any stage during their treatment and all ratings were therefore solely based on the clinician ratings at the particular time of assessment.

Discussion of the results

The aim of this study was to investigate the effect of a self-help program for panic disorder in the nature of bibliotherapy without any therapist contact provided during the treatment phase. It was hypothesised that the treatment group would experience less symptoms associated with panic disorder and greater quality of life compared to a waitlist control group. It was also hypothesised that these changes would be maintained at a 3-month follow-up. The results of the study show that the treatment group had improved on all measures used in the study and therefore all hypothesis were fulfilled. Eighty percent of the treatment group did not longer meet the criteria for panic disorder after treatment. The results of the study also suggest that the participants in the treatment group continued to improve and that treatment gains were maintained at a 3-month follow-up, according to what was hypothesised. The clinical global impression, which is based on the clinician's rating of the participants improvement over time, indicates that 40% of the treated subjects were rated "very much improved" from pre-treatment to post-treatment compared to 0% in the untreated group. One participant in the treatment group was rated "no change" from pre- to post-treatment compared to 15 of the untreated subjects.

The present study shows that pure bibliotherapy seems to be an effective treatment for people diagnosed with panic disorder. Previous research suggest that bibliotherapy with minimal therapist contact has shown to be effective in treating panic disorder with or without agoraphobia. However, it has been suggested that some type of therapist contact is needed for the best outcome. This study shows promising results for bibliotherapy treatment with total absence of therapist contact, which contradicts earlier assumptions about the effects of bibliotherapy without any therapist contact. As far as the researcher is aware of, no other study of this type has been conducted before.

The average effect sizes for the present study were large with an average between effect size of d=1.4. This is consistent with other studies; Gould et al. (1993) reported an effect size of d=1.5, Gould and Clum (1995) reported

an effect size of *d*=0.5 and Lidren et al. (1994) reported a between effect size of *d*=1.5. The previous studies all used the self-help book *Coping with panic* (Clum, 1990), on which the book used in this study partly is based, and the duration of treatment in the previous studies ranged from 4-8 weeks. Compared to a waitlist control group or individual or group CBT the outcomes of studies using bibliotherapy as a self-help treatment are superior to waitlist and comparable to individual or group therapy. In the previous studies there was some type of therapist contact delivered besides the bibliotherapy itself. In the present study no such contact was delivered and it still revealed similar or larger effect sizes than previous studies. The sample size in this study was somewhat larger than those in the previous studies, but still below Chambless and Hollon's (1998) recommended criteria of 25-30 participants per condition for establishing empirically supported treatments. However, as the power level at post-assessment and follow-up was adequate, the issue of the sample size does not appear to be a concern for this study, but could explain that any differences between the conditions in previous studies were not detected due to low power. Factors such as the material used and the duration of the treatment could be likely to affect the outcome of the study and explain the differences between studies; one could speculate that a short-term treatment of 4 weeks is effective thanks to the involvement of some therapist contact and a treatment without therapist contact, but with a longer duration, will reveal a similar effect. The results of this study do not indicate when treated subjects started to improve, for example it is not known how participants were doing after 4 weeks. There is a possibility of an early sudden gain, which is not known of since the participants were not assessed half way through the treatment.

Another master thesis in psychology (Maurin & Nilsson, 2004) investigated the effects of bibliotherapy in conjunction with telephone calls from a therapist on a weekly basis. The self-help material used in the study was the same as in this particular study. The findings in this study, where the material was distributed without any contact with a therapist, found similar or larger within-group effect sizes than the study with limited therapist contact. These findings suggest that the addition of weekly telephone calls do not contribute to a greater outcome when treating panic disorder with bibliotherapy and that the reading material in itself is considered helpful. In the study where only bibliotherapy was used, 80% of the treatment group no longer fulfilled the DSM-IV-TR (APA, 2000) criteria for panic disorder compared to 75% of participants treated with bibliotherapy and weekly telephone calls. Hence, the removal of the weekly telephone calls from a

therapist did not affect the treatment outcome in regards of less panic free individuals post treatment.

It would be of interest to compare the findings in this study to similar studies where bibliotherapy is used without any interaction of a therapist. Febbraro et al. (1999) conducted a study where individuals with panic attacks (note; not panic disorder) responded to study announcements and were sent a self-help book. Participants assessed themselves and mailed questionnaire measures to the researchers but did not have any contact with the researchers until post treatment. No significant differences were found between the treatment conditions in the study and based on these findings Febbraro and coworkers suggest that bibliotherapy itself may not be enough and that some form of regular therapist contact will facilitate treatment outcome and may be important for motivation and compliance with treatment. The findings in the present study are opposite to Febbraro's assumptions regarding bibliotherapy. However, the participants in the present study were assessed by the author prior to treatment as well as post treatment and at a 3-month follow-up. Even though there was no active therapist contact during the treatment all of the participants have had telephone contact with the researcher prior to treatment when they were assessed, selected as being eligible for the study and given information about the study. They were also informed that they could contact the researcher in case of emergency at any time during the treatment. This screening process, with a therapist assessment and a detailed self-assessment, may make the difference which revealed superior treatment results compared to the study by Febbraro. This procedure might have left the participants with the experience of not being on their own and they may have felt some support even if they did not have any contact with a therapist during the treatment itself. However, that does not explain why the waitlist did not improve since the same amount of therapist contact was delivered to both the treatment group and the waitlist group. The treatment outcome may depend on this feeling of support and the selection which was delivered in the present study and which has been delivered in previous studies together with some therapist contact and thus explaining the similar outcomes between self-administered therapy used in this study and predominantly self-help or minimal-contact therapy used in previous studies. Febbraro on the other hand, did not reveal any significant treatment effects when using pure bibliotherapy. One could argue that the absence of any contact with a therapist or researcher prior to the treatment could have affected the outcome of the study, suggesting that the setting is important for the treatment outcome. The setting includes for example

appropriate assessment prior to treatment. However, the result in this study is of great value in the discussion about how much therapist contact, and the nature of it, is needed. The result suggests that less contact than what was previously thought is needed for a positive treatment effect. It is likely that the effectiveness of treatment for panic disorder is due more to the techniques used and that the value of the alliance between the client and the therapist is less important for treatment outcome.

Rosen (1987; 1993) has raised his concerns about commercialisation of self-help and lack of validated and reliable self-help books. He also refers to studies showing a high dropout rate for self-help treatments. The attrition rate in this study contradicts the assumptions of a high drop-out in bibliotherapy treatments. In this study only one person, belonging to the waitlist group, dropped out of the study. The fact that there was only one drop-out suggests a highly motivated sample. Participants in this study may be more motivated than the panic disorder population in general; they have searched for relevant treatment for panic disorder and signed up for the project and showed interest in taking part of the study. Thus, concerns for the generalisability arise since participants were self-recruited and may differ from the panic disorder population in terms of motivation, which could have affected the outcome of this study. Knowing that they participated in a research project may have led subjects in the study to read, study and practice intervention techniques more than they normally would. The low attrition rate could also indicate that the participants liked the form of the treatment and felt satisfied with the book and the work with it. This research trial has shown that the self-help material used in this study works well in a research setting and that 80% of the subjects no longer were diagnosed with panic disorder with or without agoraphobia after treatment. This information, together with findings from other studies where the same material was used (Maurin & Nilsson, 2004), are the basis of the launch of this self-help book on the public market. That particular published self-help book for panic disorder with or without agoraphobia, based on the outcome of this study and *Panikprojektet 6* (Maurin & Nilsson, 2004), should be considered being validated and meeting the professional standards. To avoid the misuse of self-help books available on the market the user is encouraged to seek professional assessment before going in to treatment. The good treatment outcome in this study may be associated with the clinical assessment made prior to the treatment, thus the participants have been assessed to have the particular problem the self-help book is aimed at.

Taylor (2000) suggests that bibliotherapy is not sufficient for people with severe panic disorder and/or co-morbidity and does not work well for individuals with limited reading abilities or lack of motivation. The researcher's opinion supports the idea that bibliotherapy works best for individuals with relevant literacy. The clinical impression from this study is that participants whose first language is not Swedish did not perform as well as participants having Swedish as their first language, suggesting a correlation between Swedish as first language and treatment outcome. The paperback book used in this study consisted of 308 pages (size A4) of text, which can be hard to comprehend during a total of ten weeks. The immensity of the material was also something that participants expressed their concerns about when asked about their general impression of the book. Only 30% of the participants completed all ten modules during a time of ten weeks. Regarding the severity of panic disorder with or without agoraphobia, the researcher's overall impression of this research study is that the severity of the disorder does not correlate with treatment outcome. The participants treated in this study showed different levels of severity and had suffered from panic disorder for various lengths of time. Individuals with co-morbid psychopathology and panic disorder as a secondary diagnose were excluded from the study, therefore it is not known how well a sample from this population will respond to the treatment offered in this study. It is most likely that bibliotherapy without any therapist contact is not suited for everyone for various reasons and there is also the possibility that this intervention may be helpful at certain stage during the treatment for some individuals. Therefore, pure self-help such as bibliotherapy may be a suitable tool in a stepped-care model approach, where it is delivered as one of several interventions or at different stages in the treatment process. Suggestible, as a first part of a treatment while on a waitlist to receive face-to-face therapy. The problems in Sweden with a shortage of trained CBT therapists and long waitlists may not be overcome by the introduction of bibliotherapy in the clinical setting, but the existing obstacles to affordability and accessibility may be easier to handle with such a compliment to the more traditional forms of treatment.

Future research

The findings in this study suggest that bibliotherapy could be an effective treatment for panic disorder. However, it is uncertain how much therapist contact is needed for the best outcome. Findings in this study suggest that bibliotherapy with total absence of therapist contact is effective and show similar results to bibliotherapy with minimal therapist contact, delivered via

e-mail or telephone. Still, there was some therapist input in the present study for assessments before treatment commenced and after it was terminated. It is uncertain if, and how, this contact could have affected the outcome of the study in any way. It is therefore of interest to further investigate what role the amount and nature of therapist input plays in regards to self-help treatments in general and to the setting of the treatment in particular. It is suggested that appropriate assessment prior to treatment facilitates positive treatment outcome. Research that focuses on different amount of therapist contact and its nature and its affect on treatment outcome is currently being undertaken in Australia (B. Klein, personal communication, 7 February, 2007). This research is also aimed at investigate what types of patients with panic disorder are best suitable for the various forms of self-administered therapy, predominantly self-help and minimal-contact therapy respectively. Predictors of outcome are another important issue for future research. For example, what personal characteristics predict a good treatment outcome and long-term treatment effects in the use of bibliotherapy? In order to investigate such issues, one can include measurements in the assessment phases for factors such as locus of control and stages of change.

Future research which investigates the efficacy of pure bibliotherapy is needed and replications of this study are recommended to see if they reveal similar results. The study could also be replicated but changed slightly, for example by using self-assessment only or change the conditions of the control group with a placebo or other. There are some existing difficulties with exploring the efficacy of pure bibliotherapy with self-assessment only in a research setting since the removal of the clinical assessment, which forms the basis of a controlled research study, would lead to a less controlled study. However, it is of interest to further investigate to what degree the settings of a treatment influences the outcome. Besides replications of this particular study, a 1- and/or 2-year follow-up of this study is recommended to see whether treatment gains are still maintained and if participants in the study continued to improve after treatment was terminated.

The particular self-help material used in this study could be further improved by performing studies in which the self-help material is slightly changed. For example, extending the permitted time for the completion of each module or shortening the modules could prove beneficial for the effectiveness. To find out what components in particular are most effective, future research could focus on various dismantling studies, where certain

components in the treatment material are removed and the effects are then compared.

Final conclusions

The present study has provided evidence supporting the hypothesis that self-help in terms of bibliotherapy with total absence of therapist contact is an effective method for the treatment of panic disorder with or without agoraphobia. Taken together with the results from previous studies on the effectiveness of bibliotherapy, it is concluded that this type of treatment shows superior outcome compared to a waitlist control group and equivalent or better outcome than individual or group cognitive behavioural therapy. This particular study shows that the removal of any type of therapist contact during the treatment does not reduce the effectiveness of the treatment program.

Panic disorder is a disorder which causes significant disability and distress to the sufferer and the condition generates large health care costs for the individual and the community. A limited amount of qualified therapists, long waiting periods and high costs restrict the sufferers to receive accurate help. The self-help method of bibliotherapy in treating panic disorder would contribute to a greater accessibility and affordability of treatments and could also functions as a good compliment to more traditional treatments. People living in remote areas where the mental health services are scarce are particularly advantaged by other ways to deliver appropriate treatments.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders*, Fourth Edition, Text Revision. Washington D.C.: American Psychiatric Association.

Andersson, G., Strömgren, T., Ström, L., & Lyttkens, L. (2002). Randomized controlled trial of Internet-based cognitive behavior therapy for distress associated with tinnitus. *Psychosomatic Medicine, 64*, 810-816.

Andersson, G., Bergström, J., Holländare, F., Carlbring, P., Kaldo, V., & Ekselius, L. (2005). Internet-based self-help for depression: Randomised controlled trial. *British Journal of Psychiatry, 187*, 456-461.

Andersson, G., Carlbring, P., Holmström, A., Sparthan, E., Furmark, T., Nilsson-Ihrfelt, E., Buhrman, M., & Ekselius, L. (2006). Internet-based self-help with therapist feedback and in vivo group exposure for social phobia: A randomized controlled trial. *Journal of Consulting & Clinical Psychology, 74*, 677-686.

Andrews G., Hall, W., Teeson, M., & Henderson, S. (1999). *The mental health of Australians.* Mental Health Branch, The Australian Commonwealth Department of Health and Aged Care.

Arrindell, W. A. (1993). The fear of fear concept: Stability, retest artefact and predictive power. *Behaviour Research and Therapy, 31*, 139-148.

Bakker, A., van Balkom, A. J. L. M., & van Dyck, R. (2000). Selective serotonin reuptake inhibitors in the treatment of panic disorder and agoraphobia. *International Clinical Psychopharmacology, 15*, 25-30.

Bakker, A., van Balkom, A. J. L. M., & Stein, D. J. (2005). Evidence-based pharmocotherapy of panic disorder. *International Journal of Neuropsychopharmacology, 8*, 473-482.

Ballenger, J. C., & Fyer, A. J. (1996). Panic disorder and agoraphobia. In T. A. Widiger, A. J. Frances, H. A. Pincu, R. Ross, M. B. First, W. W. Davis (Eds.), *DSM-IV sourcebook*, (pp. 411-471). Washington D.C.: American Psychiatric Association.

Barlow, D. H., & Craske, M. G. (1989*). Mastery of your anxiety and panic*. San Antonio: The Psychological Corporation.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893-897.

Bouchard, S., Pelletier, M. H., Gauthier, J. G., Côté, G., & Laberge, B. (1997). The assessment of panic using self-report: A comprehensive survey of validated instruments. *Journal of Anxiety Disorders, 11*, 89-111.

Buhrman, M., Fältenhag, S., Ström, L., & Andersson, G. (2004). Controlled trial of Internet-based treatment with telephone support for chronic back pain. *Pain, 111*, 368-377.

Carlbring, P. (2004). *Panic! Its prevalence, diagnosis and treatment via the Internet.* Doktorsavhandling, Uppsala Universitet, Uppsala.

Carlbring, P. (2006). *Kort och långtidseffekter av biblioterapi vid paniksyndrom - ett sektionssymposie vid sektionen för psykiatri.* In Svenska Läkaresällskapets Rikstämma 29 november-1 december 2006, (p. 30). Svenska Mässan Göteborg: Svenska Läkaresällskapets handlingar. Hygiea.

Carlbring, P., Westling, B. E., & Andersson, G. (2000). A review of published selfhelp books for panic disorder. *Scandinavian Journal of Behaviour Therapy, 29*, 5-13.

Carlbring, P., Westling, B. E., Ljungstrand, P., Ekselius, L., & Andersson, G. (2001). Treatment of panic disorder via the Internet: A randomized trial of a self-help program. *Behavior Therapy, 32*, 751-764.

Carlbring, P., Gustafsson, H., Ekselius, L., & Andersson, G. (2002). 12-month prevalence of panic disorder with or without agoraphobia in the Swedish general population. *Social Psychiatry and Psychiatric Epidemiology, 5*, 207-211.

Carlbring, P., Bohman, S., Brunt, S., Buhrman, M., Westling, B. E., Ekselius, L., & Andersson, G. (2006). Remote treatment of panic disorder: A randomized trial of Internet-based cognitive behavior therapy supplemented with telephone calls. *American Journal of Psychiatry, 163*, 2119-2125.

Carlbring, P., Brunt, S., Bohman, S., Austin, D., Richards, J., Öst, L.-G., & Andersson, G. (2007). Internet vs. paper and pencil administration of questionnaires commonly used in panic/agoraphobia research. *Computers in Human Behavior, 23*, 1421-1434.

Carlbring, P., Gunnarsdóttir, M., Hedensjö, L., Andersson, G., Ekselius, L., & Furmark, T. (2007). Treatment of social phobia from a distance: A randomized trial of Internet delivered cognitive behavior therapy (CBT) and telephone support. *British Journal of Psychiatry, 190*, 123-128.

Carlbring, P., & Hanell, Å. (2007). *Ingen panik: Fri från panik- och ångestattacker i 10 steg med kognitiv beteendeterapi.* Stockholm: Natur och Kultur.

Chambless, D. L., Caputo, G. C., Bright, P., & Gallagher, R. (1984). Assessment of fear in agoraphobics: The Body Sensations Questionnaire and the Agoraphobic Cognitions Questionnaire. *Journal of Consulting and Clinical Psychology, 52*, 1090-1097.

Chambless, D. L., Caputo, G. C., Jasin, S. E., Gracely, E. J., & Williams, C. (1985). The mobility inventory for agoraphobia. *Behaviour Research and Therapy, 23*, 35-44.

Chambless, D. L., & Hollon, S. D. (1998). Defining empirically supported therapies. *Journal of Consulting & Clinical Psychology, 66*, 7-18.

Clark, D. (1986). A cognitive approach to panic. *Behaviour Research and Therapy, 24*, 461-470.

Clark, D. M., & Ehlers, A. (1993). An overview of the cognitive theory and treatment of panic disorder. *Applied & Preventive Psychology, 2*, 131-139.

Clark-Carter, D. (2004). *Quantitative psychological research: A student's handbook.* East Sussex: Psychology Press.

Clinical Global Impression (CGI). (n.d.). Retrieved February 15, 2007, from http://www.seroquel.info/AssessmentTool/Clinical-Global-Impression CGI.aspx?l1=&l2=

Clum, G. A. (1990). *Coping with panic*. Pacific Grove: Brooks/Cole Publishing.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* Hillsdale: Lawrence Erlbaum Associates.

Creamer, M., Foran, J., & Bell, R. (1995). The Beck Anxiety Inventory in a non-clinical sample. *Behaviour Research and Therapy, 33*, 477-485.

Dannon, P. N., Iancu, I., & Grunhaus, L. (2002). Psychoeducation in panic disorder patients: Effect of a self-information booklet in a randomized, masked-rater study. *Depression and Anxiety, 16,* 71-76.

Eysenbach G. (2005). The law of attrition. *Journal of Medical Internet Research, 7*, e11.

Febbraro, G. A. R., Clum, G. A., Roodman, A. A., & Wright, J. H. (1999). The limits of bibliotherapy: The study of self-administered interventions in individuals with panic attacks. *Behaviour Therapy, 30*, 209-222.

First, M. B., Gibbon, M., Spitzer, R. L., Williams, J. B., & Benjamin, L. S. (1999). Translated by Herlofson, J. *Handbok SCID-I och SCID-II för DSM-IV*. Pilgrim Press.

Frisch, M. B., Cornell, J., Villanueva, M., & Retzlaff, P. J. (1992). Clinical validation of the quality of life inventory: A measure of life satisfaction for use in treatment planning and outcome assessment. *Psychological Assessment, 4*, 92-101.

Gould, R. A., & Clum, G. A. (1993). A meta-analysis of self-help treatment approaches. *Clinical Psychology Review, 13,* 169-186.

Gould, R. A., Clum, G. A., & Shapiro, D. (1993). The use of bibliotherapy in the treatment of panic disorder: A preliminary investigation. *Behaviour Therapy, 24*, *241-252*.

Gould, R. A., & Clum, G. A. (1995). Self-help plus minimal therapist contact in the treatment of panic disorder: A replication and extension. *Behaviour Therapy, 26*, 533-546.

Hecker, J. E., Losee, M. C., Fritzler, B. K., & Fink, C. M. (1996). Self-directed versus therapist-directed cognitive behavioural treatment for panic disorder. *Journal of Anxiety Disorders, 10*, 253-265.

Hecker, J. E., Losee, M. C., Roberson-Nay, R., & Maki, K. (2004). Mastery of Your Anxiety and Panic and brief therapist contact in the treatment of panic disorder. *Anxiety Disorders, 18*, 111-126.

Hirai, M., & Clum, G. A. (2006). A meta-analytic study of self-help interventions for anxiety problems. *Behavior Therapy, 37*, 99-111.

Kant Jha, S. (2005). *Clinical Global Impression scale.* Retrieved February 15, 2007, from http://www.cnsforum.com/clinicalresources/ratingscales/ratingpsychiatry/global_clinical_impression/

Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eskleman, S., Wittchen, H.-U., & Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. *Archives of General Psychiatry, 51*, 8-19.

Klein, B., Richards, J. C., & Austin, D. W. (2006). Efficacy of internet therapy for panic disorder. *Journal of Behaviour Therapy and Experimental Psychiatry, 37*, 213-238.

Lidren, D. M., Watkins, P. L., Gould, R. A., Clum, G. A., Asterino, M., & Tulloch, H. L. (1994). A comparison of bibliotherapy and group therapy in the treatment of panic disorder. *Journal of Consulting and Clinical Psychology, 62*, 865-869.

Ljótsson, B., Mitsell, K., Lundin, C., Carlbring, P., & Ghaderi, A. (2007). Remote treatment of bulimia nervosa and binge eating disorder: A randomized trial of Internet-based cognitive behavioral therapy. *Behavior research and therapy, 45*, 649-661.

Maurin, T., & Nilsson, J. (2004). *Panikprojektet 6: Biblioterapi i kombination med telefonsamtal vid behandling av paniksyndrom.* Psykologexamensuppsats, 20 p, Uppsala Universitet, Uppsala.

Mitte, K. (2005). A meta-analysis of the efficacy of psycho- and pharmacotherapy in panic disorder with and without agoraphobia. *Journal of Affective Disorders, 88*, 27-45.

Montgomery, S. A., & Åsberg, M. (1979). A new depression scale designed to be sensitive to change. *British Journal of Psychiatry*, *134*, 382-384.

National Institute of Health. (1991). *Treatment of panic disorder.* Paper presented at the NIH Consensus development conference consensus statement (Volume 9).

Newell, D. J. (1992). Intention-to-treat analysis: Implications for quantitative and qualitative research. *International Journal of Epidemiology, 21*, 837-841.

Newman, M. G., Erickson, T., Przeworski, A., & Dzus, E. (2003). Self-help and minimal-contact therapies for anxiety disorders: Is human contact necessary for therapeutic efficacy? *Journal of Clinical Psychology, 59*, 251-274.

Psykologiförlaget AB. (1996). *Psykologiska tester. Klinisk verksamhet.* Stockholm.

Richards, J. C., Klein, B., & Carlbring, P. (2003). Internet-based treatment for panic disorder. *Cognitive Behaviour Therapy, 32*, 125–135.

Rosen, G. M. (1987). Self-help treatment books and the commercialization of psychotherapy. *American Psychologist, 42*, 46-51.

Rosen, G. M. (1993). Self-help or hype? Comments on psychology's failure to advance self-care. *Professional Psychology: Research and Practice, 24*, 340-345.

Salkovskis, P. M. (1991). The importance of behaviour in the maintenance of panic and anxiety: A cognitive account. *Behavioural Psychotherapy, 19*, 6-19.

Schmidt, N. B., Woolaway Bickel, K., Trakowski, J., Santiago, H., Storey, J., Koselka, M., & Cook, J. (2000). Dismantling cognitive-behavioral treatment for panic disorder: Questioning the utility of breathing retraining. *Journal of Consulting and Clinical Psychology, 68*, 417-424

Shear, K. M., Brown, T. A., Sholomskas, D. E., Barlow, D. H., Gorman, J. M., Woods, S. W., & Cloitre, M. (1992). *The panic disorder severity scale (PDSS)*. Department of Psychiatry, University of Pittsburgh School of Medicine.

Shear, K. M., Brown, T. A., Barlow, D. H., Money, R., Sholomskas, D. E., Woods, S. W., Gorman, J. M., & Papp, L. A. (1997). Multicenter collaborative panic disorder severity scale. *American Journal of Psychiatry, 154*, 1571-1575.

Shear, K. M., Rucci, P., Williams, J., Frank, E., Grochocinski, V., Vander Bilt, J., Houck, P., & Wang, T. (2001). Reliability and validity of the Panic Disorder Severity Scale: Replication and extension. *Journal of Psychiatric Research, 35*, 293-296.

SPSS Incorporated (2005). *SPSS for Windows: Release 14.0.* (Standard version copyright).

Statens beredning för medicinsk utvärdering [The Swedish Council on Technology Assessment in Health Care]. (2005). *Behandling av ångestsyndrom* (SBU:171/1+2). Mölnlycke: Elanders Infologistics Väst AB.

Ström, L., Pettersson, R., & Andersson, G. (2000). A controlled trial of self-help treatment of recurrent headache conducted via the Internet. *Journal of Consulting and Clinical Psychology, 68*, 722-727.

Ström, L., Pettersson, R., & Andersson, G. (2004). Internet-based treatment for insomnia: A controlled evaluation. *Journal of Consulting and Clinical Psychology, 72*, 113-120.

Svanborg, P., & Åsberg, M. (1994). A new self-rating scale for depression and anxiety states based on the comprehensive psychopathological rating scale. *Acta Psychiatrica Scandinavica, 89*, 21-28.

Taylor, S. (2000). *Understanding and treating panic disorder. Cognitive-Behavioural approaches.* Chichester: Wiley & Sons Ltd.

Taylor, S. (2001). Breathing retraining in the treatment of panic disorder: Efficacy, caveats and indications. *Scandinavian Journal of Behaviour Therapy, 30*, 49-56.

Weissman, M. M., Bland, R. C., Canino, G. J., Faravelli, C., Greenvald, S., Hwu, H.-G., Joyce, P. R., Karam, E. G., Lee, C.-K., Lellouch, J., Lepine, J.-P., Newman, S. C., Oakley-Brown, M. A., Rubio-Stipec, M., Wells, J. E., Wickramaratne, P. J., Wittchen, H.-U., & Yeh, E.-K. (1997). The cross-national epidemiology of panic disorder. *Archives of General Psychiatry, 54*, 305-309.

Westling, B. E. (1998). Empiriskt stöd för kognitiv beteendeterapi. In T. Persson (Ed.), *Paniksyndromet: Diagnos, samsjuklighet och behandling* (pp. 121-135). Täby: Pfizer AB.

White, K. S., & Barlow, D. H. (2002). Panic disorder and agoraphobia. In D. H. Barlow (Ed.), *Anxiety and its disorders: The nature and treatment of anxiety and panic* (pp. 328-379). New York: The Guilford Press.

Zetterqvist, K., Maanmies, J., Ström, L., & Andersson, G. (2003). Randomized controlled trial of Internet-based stress management. *Cognitive Behaviour Therapy, 32*, 151-160.

Zvolensky, M. J., Bernstein, A., Marshall, E. C., & Feldner, M. T. (2006). Panic attacks, panic disorder, and agoraphobia: Associations with substance use, abuse, and dependence. *Current Psychiatry Reports, 8*, 279-285.