MSc in Clinical Psychology

Short Term Panic Intervention, A Pilot Study

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Foreword and Acknowledgements

The Short Term Panic Intervention (STPI) is a brief treatment program at Landspitalinn-The National University Hospital of Iceland, for those who have experienced panic attacks. The Short Term Panic Intervention: A Pilot Study was a part of a Masters Degree in Clinical Psychology at the Reykjavík University (RU).

The study was conducted at the Mental Health Division at Landspitalinn from March 2016 to May 2017. Supervisors were Guðrún Ágústa Eyjólfsdóttir, psychologist at the Emergency Ward, Professor Jón Friðrik Sigurðsson at Reykjavík University and University of Iceland and Sævar Már Gústavsson, psychologist. The STPI program had been available for two and a half years at the hospital when the study was conducted, yet no evaluation had been carried out.

During the second semester of the MSc program a research proposal was written and submitted to supervisors, which included a literature review. An ethical application was submitted to the hospitals ethical committee during the second semester, as well as an application to the Director of Medicine and the Director of the Mental Health Division, the Head Psychologist and the Manager of the Emergency Ward.

Different forms of cognitive behavioural therapy for Panic Disorder (CBT for PD) have been developed, including shortened versions. Research has shown that abbreviating CBT for PD can be as effective as traditional full length treatment versions. Shorter CBT treatment forms have advantages such as increasing accessibility to treatment, shortening waitlists, not to mention economical advantages for the health-care provider.

Data collection began during the third semester of the MSc program, which consisted of scheduling and conducting diagnostic interviews with all consenting participants of the study. Treatment sessions were held weekly. Psychological scales were administered in each

session for the whole duration of the study. Ten weeks after starting treatment, post-treatment interviews were conducted with each participant.

During the third semester, the Method's part of the thesis was written and submitted to supervisors.

During the fourth and final semester, the data collection was still ongoing. The last post-treatment interviews were conducted in the beginning of May 2017. Writing the thesis and working on statistical analysis was carried out during the final semester. Preliminary results were introduced at the MSc Science Day at the Reykjavík University in April 2017.

I would like to thank Guðrún Ágústa Eyjólfsdóttir for her dedication to the study, for being such an involved supervisor who always had time for me no matter what day or hour it was. I want to thank Jón Friðrik Sigurðsson and Sævar Már Gústavsson for their expert advice and all their support on matters big and small. I want to thank my mother Borghildur for all the proofreading she has done through the years. And lastly I thank my husband Hjálmar for his constant support during the past two years.

Abstract

Panic Disorder (PD) is an anxiety disorder characterized by sudden and unexpected panic attacks. Research has shown that cognitive behavioural therapy (CBT) is an effective treatment for PD. A brief treatment program called Short Term Panic Intervention (STPI) is offered at the Emergency Ward of the Mental Health Division at Landspitalinn-The National University Hospital of Iceland. The STPI consists of four 60-minute treatment sessions. The treatment utilizes the main treatment methods of CBT for PD such as cognitive restructuring, minimizing safety-seeking behaviours, behavioural experiments and correcting misinterpretations of physical symptoms. Participants were consenting patients who came to the Emergency Ward and were referred to the treatment by health-care professionals. The treatment consisted of a psychoeducation session followed by up to three discussion sessions. The aim of the study was to test if the treatment lead to reduced frequency of panic attacks and decreased anxiety symptoms in general. Participants were 19 adults between the age of 18 and 55, of whom 79% were women. Nearly half of the participants (47%) had no panic attacks during the week before post-treatment assessment. Results show a statistically significant decrease on all measures used in the study. Results also show that 32 – 47 % of the participants experienced reliable improvement on anxiety and depressive symptoms post-treatment. Results indicate that there are some improvements for those who suffer from panic attacks after participating in the STPI treatment. Complete experimental control was not possible, therefore determining whether the STPI was the main cause of change is difficult to say.

Keywords: panic disorder, cognitive behavioural therapy, brief treatment, group treatment

Short Term Panic Intervention, A Pilot Study

Panic Disorder (PD) is an anxiety disorder characterized by sudden and unexpected panic attacks. In a panic attack the physical reaction that accompanies anxiety is misinterpreted in a catastrophic way causing the person to think that his mental or physical state is threatened (Clark, 1989).

Misinterpretation of physical symptoms can cause PD sufferers to be quite costly for the health-care system. In the Netherlands, sufferers of PD were the costliest of all sufferers of psychiatric illnesses. Each PD patient cost the health-care system up to €10,269 per year. Those with sub-clinical PD cost up to €6384 per year (Batelaan et al., 2007).

According to clinical guidelines on Panic Disorder from the National Institute of Health and Care Excellence (NICE) in England, the recommended treatment is cognitive behavioural therapy (CBT) (National Institute for Health and Care Excellence, 2016). The second-best treatment is considered to be selective serotonin reuptake inhibitor (SSRI) medication. In the NICE guidelines it is stated that treatment should be available promptly.

CBT for PD is traditionally carried out in a form of 12-15 sessions with each session lasting 50-60 minutes (Clark et al., 1999). CBT for PD helps the patient identify the catastrophic misinterpretations of his physical symptoms and generate alternative non-threatening interpretations. The new interpretations are then tested through discussion and behavioural experiments (Clark & Salkovskis, 2005). In CBT for PD the physical symptoms that can cause misinterpretations are explained. The goal in treatment is not only to identify those misinterpretations but to correct them in a logical way. This is done with cognitive restructuring. The misinterpretations in a panic attack are maintained by safety-seeking behaviour which are actions that the PD sufferer engages in to prevent a panic attack (Salkovskis, 2007). A person that believes he is in danger will seek safety and whatever that person does to avoid the perceived danger will be credited for saving him from the imminent

catastrophe. The PD sufferer himself has not been able to confirm this due to the safety-seeking behaviour he engages in every time he feels anxiety (Salkovskis, 2007).

CBT for PD has been studied thoroughly and compared with other treatments, for example dugs (Imipramine) (Barlow, Gorman, Shear & Woods, 2000), relaxation technique (Clark et al., 1994) and a no treatment (waitlist) control group (Clark et al., 1999). Results show that CBT is always better than no-treatment. CBT and drugs have a better outcome than relaxation and CBT has the best long-term results. Research shows that drugs (Imipramine) are as effective as CBT in the first phases of treatment but in long-term follow-up when drugs have been tapered out, results for the drug group drop below CBT (Clark et al., 1994).

Different forms of CBT have been developed for Panic Disorder to see if the treatment can be administered in a shorter time or fewer sessions without decreasing effectiveness. This will increase accessibility to treatment for patients (Deacon & Abramowitz, 2006) and may have great economical advantages for the health-care provider (Roberge, Marchand, Reinharz & Savard, 2008). Research showed that a 6.5 hour PD treatment was as effective as the 12-15 hour treatment it was compared with. No significant differences were found between the two treatment forms post-treatment (Clark et al., 1999). Individual sessions lasting 14 weeks, 14-week group sessions and seven-hour individual sessions were compared in another study. Here the results showed that there was a significant reduction in anxiety levels in all groups post-treatment but no significant differences were found in the outcome between the groups (Roberge et al., 2008). These results suggest that offering shorter PD treatment in groups is a viable option.

At Landspitali there is a short-term treatment program for Panic Disorder called Short Term Panic Intervention (STPI). The treatment is built on methods of CBT and is carried out at the Emergency Ward of the Mental Health Division of the hospital. The treatment is administered by an experienced psychologist and it is brief, or up to four 60-minute sessions

in a group format of six people at the most. The STPI treatment is available immediately as clinical guidelines suggest.

The aim of this pilot study was to evaluate the STPI and its outcome. The hypotheses for the study were twofold, that the STPI leads to reduced frequency of panic attacks and that the STPI leads to reduction in general anxiety symptoms.

Method

Participants

A total of 44 participants agreed to participate in the study, some did not attend or did not finish their scheduled diagnostic interview pre-treatment. Out of the 30 participants who started treatment, 11 participants (37%) did not show up for repeatedly scheduled post-treatment measurements and will not be represented in the results as the information needed regarding those participants is missing. There were no statistically significant differences in the pre-treatment measurements of those who did and did not finish post-treatment measurements as can be seen in Table 1. Therefore the group which did not finish was not included in the final sample.

Table 1

Independent samples t-test for those who finished all measurements and those who did not

	Finished post measures	Did not finish post measures			
	Mean (SD)	Mean (SD)	*df*	*P*-value	Cohen´s *d*
Beck´s Anxiety Inventory (BAI)	36.72 (14.66)	37.91 (10.36)	27	.816*	0.09
Panic Disorder Weekly Summary Scale (PDWSS)	12.44 (5.22)	11.09 (4.81)	27	.491*	0.27
Panic Disorder Severity Scale (PDSS)	17.24 (5.44)	14.22 (4.68)	24	.173*	0.60
Clinical Outcomes in Routine Evaluation (CORE, 18 questions)	40.12 (14.33)	40.60 (7.96)	25	.911*	0.04
General Anxiety Disorder-7 (GAD-7)	14.83 (4.20)	14.78 (4.21)	25	.974*	0.01
Patient Health Questionnaire-9 (PHQ-9)	14.83 (7.25)	17.11 (4.26)	24	.315*	0.38
Age	32.47 (11.77)	27.73 (9.32)	28	.263*	0.45
Timespan of panic attacks	26.79 (13.08)	21.45 (15.23)	28	.319*	0.38
Number of diagnosis in diagnostic interview	3.16 (1.68)	3.00 (1.26)	28	.789*	0.11

*$P > .05$

Participants in the final sample were 19 adults who were referred to the Short Term Panic Intervention (STPI) program by health-care professionals at Landspitali and finished the study. Their average age was 32.5 years (*SD* 11.77), ranging from 18 to 55. Women were 79% of the participants. The participants‘ characteristics and results from the diagnostic interview can bee seen in Table 2 and Figure 1 shows a consort diagram of the referral process and the final participant sample.

Table 2

The participants´ diagnoses according to the MINI International Neuropsychiatric Interview (MINI), duration of panic attacks and medication

	N (%)
Diagnosis made at pre-treatment diagnostic interview	
Panic Disorder	17 (89%)
-with Agoraphobia	9 (53%)
Social Phobia	11 (58%)
Major Depressive Disorder	10 (53%)
General Anxiety Disorder	4 (21%)
Hypochondriasis	3 (16%)
Post-Traumatic Stress Disorder	3 (16%)
Dysthymia	2 (11%)
Obsessive Compulsive Disorder	1 (5%)
Average number of diagnoses per participant	$M = 3.16$ ($SD = 1.68$)
Duration of panic attacks	
Less than one year (12 months or less)	4 (21%)
One to three years (12 months to 36 months)	4 (21%)
Three years or more (36 months or more)	11 (58%)
Anxiety medication	
No medication at pre-treatment interview	4 (21%)
Medication taken for under one year	6 (32%)
Medication taken for over one year	7 (37%)
Missing information regarding medication	2 (10%)

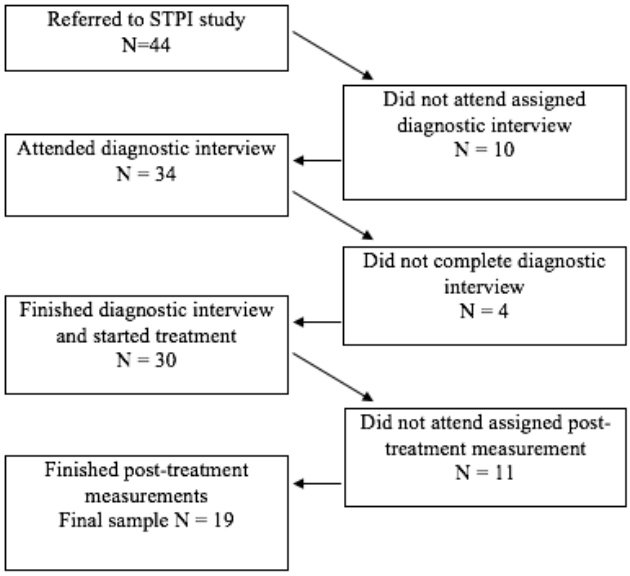

Figure 1. A consort diagram of the sample of participants, from referral to completion of the treatment

Panic Disorder is not always the primary problem or the most distressing diagnosis for those who turn to the Emergency Ward for help. To get a better sense of the group of patients in the final STPI sample, previous International Classification of Diseases, 10th Revision (ICD-10) (World Health Organization, 2016) diagnoses were gathered for the 19 participants from hospital records. In addition to depressive and anxiety disorders reviewed in the diagnostic interview, 11 participants (58%) had other former diagnoses in the hospital records. Eight participants had previous diagnoses of mental disorders due to substance abuse and four of personality disorders. Four had previous diagnoses of behavioural and emotional disorders with onset in childhood or adolescence (ADHD, conduct disorder etc.). Further three participants had previous diagnoses of bipolar or manic episodes, two had been diagnosed with mental retardation, two with eating disorders and one participant had a previous diagnosis of schizoaffective disorder. Some of the participants had many comorbid diagnoses. It should, however, be noted that these diagnoses were made by different health

care providers at different points in time, and they were not made by anybody associated with this study.

Intervention

The STPI is a brief treatment program, from one to four sessions, in as many weeks. The treatment was designed by an experienced psychologist at the Emergency Ward at Landspitali and was built on Clark´s (1986) cognitive model of Panic Disorder as presented by Wells (2013). The main treatment methods used are education of the nature of panic attacks, cognitive misinterpretations and restructuring and safety seeking behaviours. The treatment was administered by the same experienced psychologist. In the first session, which is a psychoeducation session, the body´s natural reflex to fear is discussed and how the fight or flight response is activated in anxiety. This sort of education is very important in PD treatment (Clark & Salkovskis, 2005, Roberge et al., 2008). In the first session, cognitive misinterpretations are also discussed as well as safety-seeking behaviours. After the psychoeducation session, clients can attend up to three weekly discussion-sessions (total of four sessions). Attendance in the discussion sessions was encouraged by the treatment administrator, but was entirely up to the participants. The discussion-sessions consist of discussions of the PD case conceptualizations of each of the participants and how each of them can re-evaluate the danger or threat he or she is experiencing during the panic attack. The maintaining behavioural factors are discussed and each person´s safety-seeking behaviours are identified. Between sessions clients are encouraged to try behavioural experiments, in which they let go of their safety-seeking behaviours if and when they experience a panic attack. After the first psychoeducation session, clients receive a booklet with all the information that was covered in that session. The booklet also includes assignments such as a record forms for panic attacks, avoidance, and safety-seeking

behaviour, a model of a panic attack and a record form for re-evaluation of physical symptoms.

Measures

Seven different psychological measurements were used in the study, both self-report measures and a diagnostic interview. Demographic and background information were gathered as well as follow-up information of the treatment.

MINI International Neuropsychiatric Interview (MINI; Sheehan et al.,1998), fifth version in Icelandic, uses the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV), diagnostic criteria. Validity and reliability were found to be good for diagnosing depressive and anxiety disorders in an Icelandic population (Sigurðsson, 2008). In this study, only the anxiety and depressive disorders were used from the MINI interview. The interview therefore included Major Depressive Disorder (current and recurrent), Dysthymia, Panic Disorder, Agoraphobia, Social Phobia, Obsessive-Compulsive Disorder, Post-Traumatic Stress Disorder, Generalized Anxiety Disorder and Hypochondriasis which was added from an extended version of MINI, the MINI Plus.

Demographic and background information was gathered, including age, gender, how long each person had had panic attacks, if and then for how long they had been taking medication because of anxiety.

Beck Anxiety Inventory (BAI; Beck, Epstein, Brown & Steers, 1988) is a self-report measure of anxiety symptoms. Psychometric properties in an Icelandic sample were good for both validity and reliability and recommended cut-off score is 12 (Sæmundsson et al., 2011).

Patient Health Questionnaire 9 (PHQ-9; Kroenke, Spitzer & Williams, 2001) is a nine item self-report measure of the severity of depression symptoms. In a study on an Icelandic population, both validity and reliability were found to be good (Jónsdóttir & Sigurðardóttir,

2016). Recommended cut-off score is 10 (Kroenke et al., 2001). The reason for including the PHQ-9 in the study was the high number of co-morbidities among the participants.

General Anxiety Disorder 7 (GAD-7; Spitzer, Kroenke, Williams & Löwe, 2006) is a seven-item self-report measure of general anxiety symptoms and the severity of anxiety symptoms. Psychometric properties in an Icelandic sample were determined good for both validity and reliability and recommended cut-off score is 7 for patients with any anxiety disorder (Ingólfsdóttir, 2014).

In the present study the participants were asked about their depressive or anxiety symptoms for the past week, both on the PHQ-9 and the GAD-7 scales, so the original instructions were changed.

Clinical Outcomes in Routine Evaluation (CORE, 18 questions; Barkham et al., 1998) is a self-report instrument used to determine the level of service needed in regard to mental health-care. The scale measures four domains; well-being, problems or symptoms, life functioning and risk to self and others. A study using an Icelandic sample showed good psychometric properties (Kristjánsdóttir et al., 2015). Recommended cut-off score is 10 (Connell et al., 2007).

Panic Disorder Severity Scale (PDSS; Shear et al., 1997) is a self-report scale that measures the severity of panic attacks. The original study from the United States found good psychometric properties for those suffering from Panic Disorder with at the most mild agoraphobia. Recommended cut-off score is 8 (Shear et al., 2001). The PDSS was translated from English into Icelandic for the STPI study. Three people, all experienced in both the Icelandic and English language, as well as the field of psychology, were asked to translate the scale from English into Icelandic. Where there was a disagreement in translation the best translation was chosen by the three translators.

The Panic Disorder Weekly Summary Scale (PDWSS; Clark & Salkovskis, 2005) was also used in the study. This is a three-question self-report scale that asks about the number of panic attacks during the past week (Likert Scale from 0-4 points), how serious the panic attacks were for the patient (Likert Scale from 0-8 points) and how many times the patient avoided situations or places in fear of having a panic attack (Likert Scale from 0-8 points). Total scoring is up to 20 points. No psychometric properties are needed for such questions. This self-report scale was used to monitor reductions of symptoms during the course of treatment.

The post-treatment session also included five questions about how participants experienced the treatment, if they found it helpful, how many sessions they attended and if they wanted to comment on the program (an open question). This was used as an evaluation for future developments of the program.

Procedure

The STPI is offered to all patients that come to the Emergency Ward and report having had a panic attack. All the patients who were referred to the Short-Term Panic Intervention (STPI) from September 2016 through March 2017 were asked if they would like to participate in the study. Patients for the study were mostly referred through the Emergency Ward in the Mental Health Division of Landspitali, but a few from other wards of the hospital. Inclusion criteria in the study was having had a panic attack and being referred to the program by health-care professionals at Landspitali and an exclusion criteria was being referred to the program yet not having finished the diagnostic interview pre-treatment. Mental retardation is often an exclusion criteria in CBT studies. In this study no such exclusion was made for two reasons, the diagnostic interview only covered depressive and anxiety disorders and mental retardation diagnosis was not made by the researchers. Also, the study was carried out on all the individuals that turned up at the Emergency Ward experiencing panic attacks, irrelevant of

the complexity of their problems. Consenting patients were given an appointment within a week to attend the diagnostic interview before they attended the first treatment session. During the diagnostic interview the participants signed a consent form. Then the altered MINI diagnostic interview was administered and the participants answered the demographic background questions, the BAI and the PDWSS. The PDSS, CORE (18 questions), GAD-7 and PHQ-9 were administered in every treatment session. On average 10.7 weeks (*SD* = 1.66 weeks) after starting the treatment, the participants were phoned and asked to attend a post-treatment or follow-up session. Up to four different phone calls were made to book the post-treatment session with each participant before he or she was considered a drop-out. If a scheduled post-treatment session was missed, up to three more were scheduled until the participant was considered a drop-out. In the post-treatment session, participants received the results from the diagnostic interview and were asked to answer post-treatment measurements, which included the BAI, the PDWSS, the PDSS, the GAD-7, the PHQ-9 and the CORE (18 questions) as well as follow-up questions evaluating the treatment program.

Statistical analysis

Statistical analysis such as independent-samples t-tests, paired-samples t-tests, means, standard deviations, count and other methods were examined by using IBM SPSS Statistics, Version 24 and Excel from Microsoft, Version 15.17.

Statistically significant results are not always the only measure for evaluating treatment progress. Reaching statistical significance does not mean that measures are clinically meaningful. By calculating the Reliable Change Index (RCI) introduced by Jacobson & Truax (1991), assessments can be made regarding each participant and whether his or her change from pre- to post-treatment can be considered statistically reliable or not and not due to measurement error. The RCI was used to see if the difference between pre- and post-treatment scores were great enough to represent such a reliable change. Test-retest

reliability was used, as suggested by Jacobson and Truax (1991), when available, and internal reliability in other cases. To be able to report on clinically significant change, cut-off scores needed to be established from an Icelandic sample which were not always available for the measurements used in this study. Reliable change will however be reported in the categories of reliable decline, no reliable change and reliable improvement. This type of reliable change is often used in studies where cut-off scores or norms are not available (Eisen, Ranganathan, Seal & Spiro, 2007).

Effect size is another method used to assess the magnitude of treatment effect. Effect sizes are not dependent upon the sample size like significance tests are (Eisen et al., 2007). That is why effect sizes are optimal to assess change in this study. Cohen´s *d* is a commonly used effect size which uses the following guide in interpreting the strength of the association between means. Cohen´s *d* considers 0.2 to be a small effect size, 0.5 to be a medium effect size and 0.8 and above is considered a large effect size (Pallant, 2013). Research suggest that medium effect size between two measurements can be indicative of clinically meaningful change (Norman, Sloan & Wyrwich, 2003).

The study was granted research permission by the ethics committee of Landspítali (Nr. 26/2016) as well as permission by the director of the Mental Health Division, the head psychologist of Landspitali and the manager of the Emergency Ward of the Mental Health Division.

Results

Nineteen participants finished both pre- and post-treatment measurements. After the first psychoeducation session, which all 19 participants attended, 12 participants (63%) attended one discussion session. Six participants (32%) attended two discussion sessions and one (5%) participant attended three discussion sessions.

The results of the psychological scales can be seen in Table 3. It shows a statistically significant decrease in mean scores for each scale used between pre- and post-treatment measurements. Effect sizes and recommended cut-off scores are presented. Not all cut-off scores are, however, from psychometric studies using an Icelandic sample. In those cases, foreign cut-off scores are used.

Table 3

Means, standard deviations, paired samples t-test, effect sizes and cut-off scores for all the scales pre- and post-treatment

Measurement	Mean (*SD*)	*P*-value	Cohen´s *d* effect size	Recommended cut-off score
BAI pre	36.72 (14.66)			
BAI post	24.84 (16.23)	.008*	0.76	12
PDWSS pre	12.44 (5.22)			
PDWSS post	7.68 (6.22)	.003*	0.83	N/A
PDSS pre	17.24 (5.44)			
PDSS post	9.56 (7.5)	.000**	1.17	8***
CORE pre	40.12 (14.33)			
CORE post	28.21 (15.97)	.000**	0.78	10***
GAD-7 pre	14.83 (4.2)			
GAD-7 post	10.16 (5.67)	.000**	1.11	7
PHQ-9 pre	14.83 (7,25)			
PHQ-9 post	10.79 (7.03)	.000**	0.57	10***

*$P < 0.01$ **$P < 0.001$ ***Cut-off scores are not from an Icelandic sample.

A Reliable Change Index (RCI) was calculated to get a more accurate sense of improvement for each participant. The RCI could be calculated for four of the scales (the BAI, the CORE (total score), the GAD-7 and the PHQ-9), which have psychometric norms available for an Icelandic sample. Reliable Change scores are described in Table 4.

Table 4

Proportion of Reliable Change after treatment on the four of the psychological scales

Measurement	No reliable change (%)	Reliable Improvement (%)	Reliable Decline (%)
BAI	10 (53%)	8 (42%)	1 (5%)
CORE (total)	13 (68%)	6 (32%)	0
GAD-7	12 (63%)	7 (37%)	0
PHQ-9	10 (53%)	9 (47%)	0

The best way to determine if the frequency of panic attacks had reduced was to examine the first question on the PDWSS. This question asks about the frequency of panic attacks in the past week. Pre-treatment, none of the 19 participants were panic-free the week before. Post-treatment measurements showed nine out of 19 (47%) reported no panic attack. There was a statistically significant decrease in average scores for that question for the whole group from pre-treatment ($M = 2.44$, $SD = 1.15$) to post-treatment ($M = 1.21$, $SD = 1.40$), $t(17) = 3.335$, $p < .004$. The magnitude of Cohen´s d differences between the means was 0.96.

When examined further, as shown in Table 5, there were some differences between the participants who reported not having had any panic attacks the week before post-treatment measurements and those who experienced panic attacks. The group that did not experience panic attacks reached reliable change on anxiety and depressive measurements (the BAI, the GAD-7, the PHQ-9 and the CORE(total)) more often than those who experienced panic attacks. They had statistically lower total scores on post-treatment measurements on both the PDWSS and the PDSS. They had significantly fewer diagnoses on the pre-treatment diagnostic interview and had also dealt with panic attacks for a shorter period of time although that difference was not statistically significant. The effect sizes for the average difference between the two groups are reported.

Table 5

Independent samples t-test for PDWSS and PDSS scores, RCI, diagnosis and timespan between those who reported no panic attacks the week before post-treatment measurements and those who reported panic attacks

	Participants with no panic at post-treatment	Participants with panic at post-treatment		
	Mean (SD)	Mean (SD)	*P*-value	Cohen´s *d*
Reliable Change (count)	2.22 (1.20)	1.00 (1.25)	.045*	0.99
PDWSS (total score)	3.88 (4.53)	11.1 (5.62)	.007**	1.41
PDSS (total score)	4.77 (2.63)	14.33 (7.82)	.006**	1.63
Diagnosis (count)	2.33 (1.73)	3.9 (1.29)	.043*	1.02
Timespan (months)	21.8 (15.9)	31.2 (8.39)	.143	0.73

*$P < .05$, **$P < .01$

Out of the nine participants who reported no panic attacks the week before post-treatment, five of them (56%) had only a diagnosis of Panic Disorder (with or without Depression or Agoraphobia), but no other anxiety comorbidities. All of the participants who reported no panic attacks the week before post-treatment had post scores below the recommended cut-off score on the PDSS.

Discussion

This pilot study was conducted to evaluate the Short Term Panic Intervention at Landspitali. The PDWSS and the PDSS show statistically reduced frequency of panic attacks post-treatment for the whole group as well as half of the group reporting no panic attacks the week before the post-treatment session. The BAI, the CORE (total), the GAD-7 and the PHQ-9 show statistically significant decrease in anxiety and depressive symptoms in general after the brief treatment, yet post-treatment scores are higher than recommended cut-off scores suggest.

Nearly half (47%) of the participants reported having no panic attacks the week before post-treatment measurements, i.e. on average ten weeks after starting the treatment.

Those who reported no panic attacks seemed to have better post-treatment scores with lower panic scores (on the PDWSS and the PDSS) and more reliable change than those who reported having panic attacks the week before. The no panic group had fewer diagnoses of anxiety and depression with 56% of them only having PD out of all the anxiety disorders in DSM-IV. The no panic group also had a shorter time span of panic attacks although not statistically different from those who reported panic attacks. This might suggest that the treatment is more effective for less complex anxiety cases and shorter duration of Panic Disorder.

The most important measurements of a Panic Disorder treatment are the panic measurements (the PDWSS and the PDSS), which both showed statistically significant decrease from pre- to post-treatment measures, large effect sizes and indicate a marked decrease in panic symptoms in general. The average post-treatment scores on the PDWSS and the PDSS for the whole group were still above recommended cut-off scores. There are, however, no psychometric studies available for any panic measurement using an Icelandic sample. To be able to give a more reliable account for participants who decreased their score on panic measures, such psychometric information is needed. Therefore, the Reliable Change could not be calculated for the PDWSS or the PDSS.

The Reliable Change Index showed that 32 – 47% of the participants reached reliable change between pre- and post-treatment on the anxiety and depression measurements (the BAI, the CORE, the GAD-7 and the PHQ-9). It should be noted that the Reliable Change was calculated for the four measurements that are not direct panic measures. Still there are improvements on these measurements post-treatment.

The results show improvements on the PDWSS, the PDSS, the BAI, the GAD-7, the PHQ-9 and the CORE (18 questions) which seems to be in accordance with previous

research. Shorter versions of PD programs have been shown to be as effective as traditional 12-15 session programs (Clark et al., 1999; Roberge et al., 2008).

The bottom line question is whether after the STPI there was a decrease in panic attacks and general anxiety for the participants. The hypotheses were both supported. The first one was supported by significant decrease in number of panic attacks as shown on the PDWSS with almost half of the participants reporting not having panic attacks the week before they came in for their post-treatment session, which suggests positive treatment outcome. These results are in accordance with previous research on brief CBT for PD (Clark et al.,1999) that found significantly reduced number of panic attacks after both a brief and full length treatment. It should be kept in mind that none of the STPI participants were without panic attacks the week before treatment started. All of the participants who reported being without panic the week before the post-treatment session, scored under the recommended cut-off score on the post-treatment PDSS scale. This should be considered with caution since the PDSS is a self-report measurement that has not been studied in an Icelandic sample and the cut-off scores used are from a research carried out in the United States. The main aim of the STPI is however to treat Panic Disorder and the best way to measure its outcome is using PD instruments.

The second hypotheses was also supported by the statistically significant decrease in average scores on all the measurements (the PDWSS, the PDSS, the BAI, the GAD-7, the PHQ-9 and the CORE (18 questions)) used and the medium to large effect sizes between pre- and post-treatment scores. According to Norman et al. (2003), medium effect sizes between two measurements can be interpreted as a clinically meaningful difference. Therefore, the difference between pre-and post-treatment measures for this study are indicative of a meaningful difference.

Other general findings indicate that treatment participation was not good, as about half of the participants attended only two out of four treatment sessions. The comorbidity of complex diagnoses gathered from hospital records was quite high, which may be expected from a group of patients referred from the Emergency Ward of the Mental Health Division. Perhaps the treatment is too brief for the participants in this study, they have complex comorbid diagnoses which complicate the recovery of PD. One unexpected result of the study was to see that most of the participants had been dealing with panic attacks for years without finding appropriate help.

As with other studies, this one has some limitations. Participants were few and treatment adherence was poor. There was no control group or a full length PD treatment to compare to this brief treatment. The author of this thesis, a Masters student in psychology, not an experienced psychologist, conducted the diagnostic interviews pre-treatment. Experimental control was not great in the study. Therefore, it is difficult to determine if the STPI was the main cause of change between pre- and post-treatment measurements or if other factors contributed.

Further research should include psychometric studies for Panic Disorder instruments since none are available using an Icelandic sample. Some further research on the STPI treatment evaluation is needed with a large sample of participants, a control group as well as comparison to a full length PD treatment.

References:

Barkham, M., Evans, C., Margison, F., McGrath, G., Mellor-Clark, J., Milne, D., & Connell, J. (1998). The rationale for developing and implementing core outcome batteries for routine use in service. Journal of Mental Health, 7(1), 35.

Barlow, D. H., Gorman, J. M., Shear, M. K., & Woods, S. W. (2000). Cognitive-behavioral therapy, Imipramine, or their combination for panic disorder: A randomized controlled trial. *Jama*, *283*(19), 2529-2536.

Batelaan, N., Smit, F., de Graf, R., van Balkom, A., Vollebergh, W., & Beekman, A. (2007). Economic cost of full-blown and subthreshold panic disorder. *Journal of Affective Disorders, 104,* 127-136.

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*(6), 893.

Clark, D. M. (1989). Anxiety states: Panic and generalized anxiety. In: Hawton, K. E., Salkovskis, P. M., Kirk, J. E., & Clark, D. M. (Eds). *Cognitive behaviour therapy for psychiatric problems: A practical guide*. Oxford: Oxford University Press.

Clark, D. M., Salkovskis, P. M., Hackmann, A., Middleton, H., Anastasiades, P., & Gelder, M. (1994). A comparison of cognitive therapy, applied relaxation and Imipramine in the treatment of panic disorder. *The British Journal of Psychiatry*, *164*(6), 759-769.

Clark, D. M., Salkovskis, P. M., Hackmann, A., Wells, A., Ludgate, J., & Gelder, M. (1999). Brief cognitive therapy for panic disorder: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, *67*(4), 583.

Clark, D. M. & Salkovskis, P. M. (2005). Panic Disorder. (Unpublished manuscript.) To appear in: Hawton, K., Salkovskis, P.M., Kirk, J., & Clark, D.M. (Eds). *Cognitive behaviour therapy: A practical guide (2. Edition).* Oxford: Oxford University Press.

Connell, J., Barkham, M., Stiles, W. B., Twigg, E., Singleton, N., Evans, O., & Miles, J. N. (2007). Distribution of CORE–OM scores in a general population, clinical cut-off points and comparison with the CIS–R. *The British Journal of Psychiatry*, *190*(1), 69-74.

Deacon, B., & Abramowitz, J. (2006). A pilot study of two-day cognitive-behavioral therapy for panic disorder. *Behaviour Research and Therapy*, *44*(6), 807-817.

Eisen, S. V., Ranganathan, G., Seal, P., & Spiro, A. (2007). Measuring clinically meaningful change following mental health treatment. *The Journal of Behavioral Health Services & Research*, *34*(3), 272-289.

Ingólfsdóttir, R. (2014). *Psychometric properties of the Icelandic version of the Generalized Anxiety Disorder-7* (unpublished BSc. thesis). Reykjavík University, Department of Business, Reykjavík.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, *59*(1), 12.

Jónsdóttir, K. & Sigurðardóttir, S. (2016). *Próffræðilegir eiginleikar íslenskra þýðinga á Sheehan Disability Scale, Quality of Life Scale og The Patient Health Questionnaire* (unpublished BSc. thesis). University of Iceland, Department of Health Sciences, Reykjavík.

Kristjánsdóttir, H., Sigurðsson, B. H., Salkovskis, P., Ólason, D., Sigurdsson, E., Evans, C., Gylfadóttir, E. D. and Sigurðsson, J. F. (2015). Evaluation of the psychometric properties of the Icelandic version of the clinical outcomes in routine evaluation-outcome measure, its transdiagnostic utility and cross-cultural validation. *Clinical Psychology & Psychotherapy*, 22(1). pp. 64-74. ISSN 1063-3995

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The Phq-9. *Journal of General Internal Medicine*, *16*(9), 606-613.

National Institute for Health and Care Excellence (2016). *Panic Disorder Overview*. Retrieved 9.4.2017 from https://www.nice.org.uk/guidance/cg113/chapter/1-Guidance#principles-of-care-for-people-with-panic-disorder

Norman, G. R., Sloan, J. A., & Wyrwich, K. W. (2003). Interpretation of changes in health-related quality of life: The remarkable universality of half a standard deviation. *Medical Care*, *41*(5), 582-592.

Pallant, J. (2013). *SPSS Survival Manual*. UK: McGraw-Hill Education.

Roberge, P., Marchand, A., Reinharz, D., & Savard, P. (2008). Cognitive-Behavioral Treatment for Panic Disorder with Agoraphobia. A randomized, controlled trial and cost-effectiveness analysis. *Behavior Modification*, *32*(3), 333-351.

Salkovskis, P.M. (2007). Cognitive-behavioral treatment for panic. *Psychiatry*, *6*(5), 193-197.

Shear, M. K., Brown, T. A., Barlow, D. H., Money, R., Sholomskas, D. E., Woods, S. W., ... & Papp, L. A. (1997). Multicenter collaborative panic disorder severity scale. *American Journal of Psychiatry*, *154*(11), 1571-1575.
Shear, M. K., Brown, T. A., Barlow, D. H., Money, R., Sholomskas, D. E., Woods, S. W., ... & Papp, L. A. (1997). Multicenter collaborative panic disorder severity scale. *American Journal of Psychiatry*, *154*(11), 1571-1575.
Shear, M. K., Rucci, P., Williams, J., Frank, E., Grochocinski, V., Vander Bilt, J., ... & Wang, T. (2001). Reliability and validity of the Panic Disorder Severity Scale: Replication and extension. *Journal of Psychiatric Research*, *35*(5), 293-296.

Sheehan, D., Lecrubier, Y., Sheehan, K. H., Sheehan, K., Amorim, P., Janavs, J., ... & Dunbar, G. (1998). Diagnostic Psychiatric Interview for DSM-IV and ICD-10. *Journal of Clinical Psychiatry*, *59*, 22-33.

Sigurðsson, B. H. (2008). *Samanburður á tveimur stöðluðum geðgreiningarviðtölum og tveimur sjálfsmatskvörðum: MINI, CIDI, PHQ og DASS* (unpublished Cand.Psych. thesis). University of Iceland, Department of Social Sciences, Reykjavík.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, *166*(10), 1092-1097.

Sæmundsson, B. R., Þórsdóttir, F., Kristjánsdóttir, H., Ólason, D. Þ., Smári, J., & Sigurðsson, J. F. (2011). Psychometric properties of the Icelandic version of the Beck Anxiety Inventory in a clinical and a student population. *European Journal of Psychological Assessment*, *27*(2), 133-141.

World Health Organization (2016). International Classification of Diseases (10th Revision). Retrieved 19.4.2017 from http://apps.who.int/classifications/icd10/browse/2016/en#/V

Wells, A. (2013). *Cognitive therapy of anxiety disorders: A practice manual and conceptual guide*. Chichester: John Wiley & Sons.