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Effects of a Brief Transdiagnostic Cognitive Behavioural Group Therapy on Disorder Specific Symptoms

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Background: In recent years, cognitive behavioural group therapies (CBGT) have been increasingly deployed as a strategy to increase the efficiency and cost-effectiveness in treatment of common mental health problems. The vast majority of these therapies are disorder specific, but in the last few years there has been growing interest in transdiagnostic CBGT. **Aims:** The aim of this study was twofold: to evaluate the treatment effects of transdiagnostic CBGT on

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disorder specific symptoms and what (if any) differences would be observed in the treatment effects with regard to general as opposed to disorder specific symptoms measured pre- and post-treatment. **Method:** The participants were 233 adult patients diagnosed with depression and/or anxiety disorders. They underwent a 6-week transdiagnostic CBGT. To compare treatment effects on general and disorder specific symptoms, raw scores on all measures were converted to standardized scores. **Results:** Pre–post differences were significant and there was no evidence that treatment was differentially effective for general and disorder specific symptoms. Effect sizes ranged from medium to large. **Conclusion:** The 6-week transdiagnostic CBGT is feasible for a wide range of mood and anxiety disorders. The results indicate that low-intensity transdiagnostic group therapies may have similar effects on both general and disorder specific symptoms.

Keywords: depression, anxiety, transdiagnostic cognitive behavioural therapy, disorder specific symptoms

Introduction

While efficacy studies have shown that disorder specific CBTs (cognitive behavioural therapies) are efficacious for a wide range of common mental health problems (e.g. Butler et al., 2006; Sighvatsson et al., 2011), it is also apparent that these treatments share many common features (e.g. Beck, 2005; Harvey et al., 2004). Based on these similarities, transdiagnostic CBT (TCBT) has been increasingly deployed. Such approaches typically use similar principles for CBT treatment to those identified in disorder specific treatment manuals (Barlow et al., 2011; Harvey et al., 2004; McEvoy et al., 2009) in ways that allows them to be deployed across a range of diagnostic groups.

Most TCBT efficacy studies have focused on a relatively narrow range of diagnoses, such as eating disorders (e.g. Fairburn et al., 2009) and group therapy for various anxiety disorders (e.g. Arch et al., 2013; Norton, 2012). Reported results have been promising (e.g. Arch et al., 2013; Fairburn et al., 2009; Norton and Philipp, 2008; Norton and Barrera, 2012; Schmidt et al., 2012; Riccardi et al., 2017; Schröder et al., 2017). TCBT across depression and the range of anxiety disorders is less widely described. To our knowledge results from a few transdiagnostic treatment programmes *including both anxiety and depression* have been reported (e.g. Barlow et al., 2011; Farchione et al., 2012; Manning et al., 1994; Hook and Page, 2002; McEvoy and Nathan, 2007; Wuthrich and Rapee, 2013; Ejeby et al., 2014; Kristjansdóttir et al., 2016; Gros et al., 2017).

Although studies indicate that such TCBTs reduce generic symptoms (Kristjánsdóttir et al., 2016; McEvoy et al., 2009), impact on disorder specific symptoms is not usually reported. Typically, TCBT studies use generic instruments to measure treatment outcomes, but these do not necessarily mirror significant changes in disorder specific measures. It may be that such treatments reduce reported levels of general distress, but not disorder specific symptoms. Therefore, the real test of efficacy of TCBT across diagnoses is whether disorder specific symptoms decrease following treatment, i.e. rituals in obsessive compulsive disorder (OCD), or panic attacks in panic disorder (PD), in line with more general measures of distress. If general distress decreases following treatment, but disorder specific symptoms show lesser decrease, this may well indicate a need for further treatment focused on disorder specific factors.

Norton and Barrera (2012), who examined specific effects of transdiagnostic treatment, randomized patients with PD, generalized anxiety disorder (GAD) and social phobia (SP) to

either transdiagnostic group therapy for anxiety disorders or disorders specific CBT group treatment. Symptom specific measurements showed that the effects of the transdiagnostic treatment and the disorder specific treatment were similar using non-inferiority methodology (Norton and Barrera, 2012). However, there is a problem in the design; the authors compared the specific measures regardless of diagnosis; that is, patients who did not have panic disorder completed specific panic measures. This means that the study was not a fair test of the effects of the transdiagnostic treatment on symptom characteristic of the specific disorders. The numbers for each specific diagnosis across the two treatments were too small to allow the more appropriate comparisons to be carried out. Farchione et al. (2012) on the other hand directly examined the effects of transdiagnostic *individual* treatment on disorder specific symptoms. The patients were diagnosed with GAD, SP, PD and OCD. Effect sizes for general and disorder specific symptoms were similar (very large) with the exception of SP symptoms. It should be noted that there were only seven to eight patients in each diagnostic group and the results may reflect type II error due to lack of statistical power. Titov et al. (2010) also directly examined the effects of an *internet* TCBT programme for anxiety disorders on disorder specific symptoms. Not all diagnostic groups showed improvement on disorder specific measures, but significant differences appeared between the treatment group and waitlist controls for patients with PD at post-treatment. Treatment group participants, with a main diagnosis of SP and GAD, did not show significant reductions in their disorder specific scores relative to controls. Despite these discouraging results, effect sizes for disorder specific symptoms in the treatment group were in the medium range on GAD and SP symptoms and in the large range for PD symptoms. Again, sample size issues may have confounded the results.

Titov et al. (2015) studied the outcome of internet TCBT for major depressive disorder (MDD) and found significant improvements in symptoms of MDD, measured with the PHQ-9 post-treatment. Ito et al. (2016) examined the effects of individual TCBT on depressive symptoms among participants with MDD as principal diagnosis. There was no significant change in depression symptoms pre- and post-treatment measured with the GRID – Hamilton Depression Rating Scale. Only nine participants were diagnosed with MDD as a principal diagnosis so the results may reflect type II error due to lack of statistical power.

The present study was designed to evaluate the outcome of a TCBGT previously found to be effective on both general and disorder specific symptom measures across a range of diagnoses including both anxiety and depressive disorders. An important feature of the study was that we analysed specific symptoms only in those patients who were diagnosed with that particular disorder.

Method

Design

For patients with a range of common mental health problems, measures of general psychopathology and disorder specific symptoms were used before and after the TGCBT; the measures were standardized, allowing for comparisons across diagnostic groups on both types of measures.

Participants and setting

In total, 233 participants attended the treatment during the research period: 192 women (82.4%) and 41 men (17.6%). The mean age was 37.4 years ($SD = 13.29$, range 18–77 years).

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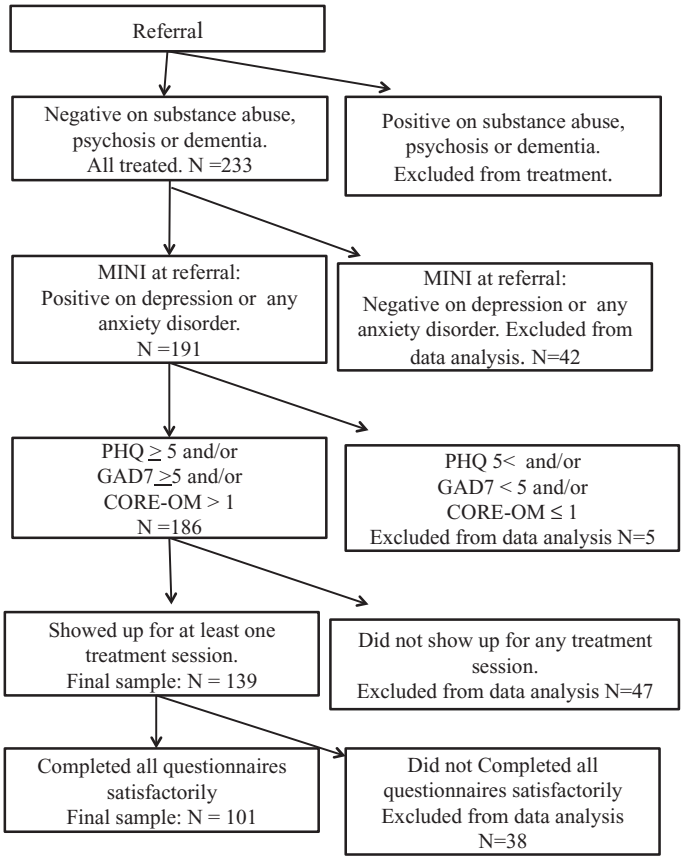

Figure 1. Flow chart describing the sample studied. PHQ-9, Patient Health Questionnaire-9; GAD-7, Generalized Anxiety Disorder-7; CORE-OM, Clinical Outcomes in Routine Evaluation-Outcome Measure; MINI, MINI-International Neuropsychiatric Interview; N, number.

To be included in the study, participants had to meet diagnostic criteria for one or more depression and/or anxiety disorders according to the MINI-International Neuropsychiatric Interview (MINI; Sheehan et al., 1998) (see description below) and to have scores above cut-off on at least one of the following instruments: The Patient Health Questionnaire-9 (cut-off: $\geq$5) (PHQ-9; Pálsdóttir, 2007; Spitzer et al., 2001), Generalized Anxiety Disorder -7 (cut-off: >5) (GAD-7; Ingólfsdóttir, Kristjánsdóttir, Sigurðsson and Sigurðsson, manuscript in preparation; Spitzer et al., 2006), and the Clinical Outcomes in Routine Evaluation-Outcome Measure (cut-off: >1) (CORE-OM; Evans et al., 2002; Kristjánsdóttir et al., 2015). In total, 186 participants met the inclusion criteria and of those 139 (75%) attended at least one treatment session and 101 filled out all the questionnaires. All subsequent intention-to-treat analyses were based on this number (Fig. 1). Of these 101 patients, 86 were women (85.1%) and 15 were men (14.9%). The mean age of the 101 participants was 38.6 years (SD = 11.0, range 18–69 years), for men 38.8 years (SD = 12.2) and for women 38.6 years (SD = 12.0). The majority, or 57.3%,

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were receiving psychotropic drugs. Over half (60%; $n = 61$) of the participants met diagnostic criteria for depression, 20 for PD, 37 for SP and 58 for GAD. Most of the participants had GAD as a main diagnosis (42), depression was the main diagnosis for 37 participants, PD for 12 and SP for 10 participants. Participants with OCD and PTSD as main diagnoses were not targeted in this study because of low numbers in the sample ($n < 10$). The average number of diagnoses per participant was 2.6 disorders ($SD = 1.4$, range 1–7 disorders).

Measures

The participants were diagnosed with the MINI (Sheehan et al., 1998), a short structured diagnostic interview of mental disorders that employs the diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders*-fourth edition (DSM-IV) and the *International Statistical Classification of Diseases and Health Related Problems*-10th revision (ICD-10). The Icelandic version of the MINI has not yet been extensively studied although one preliminary study gives some support to its validity (Sigurðsson, 2008), but the English version has shown good psychometrics properties (Lecrubier et al., 1997).

Two primary outcome measures were pre-defined to test changes in general psychopathology, PHQ-9 (Pálsdóttir, 2007; Spitzer et al., 2001) and the GAD-7 (Ingólfsdóttir, Kristjánsdóttir, Sigurðsson and Sigurðsson, manuscript in preparation; Spitzer et al., 2006). PHQ-9 and the GAD-7 were administered to all participants during an intake interview and in all therapy sessions. Five specific outcome measures were pre-defined to test changes in disorder specific symptoms. Each of these five measures were administered according to the patients' main diagnosis. The Panic Rating Scale (PRS; Clark et al., 1994) was administered to those who had PD as the main diagnosis, the Penn State Worry Questionnaire (PSWQ; Jónsdóttir and Smári, 2000; Meyer et al., 1990) for participants with GAD as the main diagnosis, and the Liebowitz Social Phobia Scale (LSPS; Liebowitz, 1987) for patients with SP as the main diagnosis. The PHQ-9 was used as a disorder specific measure for participants with depression as the main diagnosis.

All the measures used in this study have acceptable or good psychometric properties (Clark et al., 1994; Evans et al., 2002; Liebowitz, 1987; Meyer et al., 1990; Spitzer et al., 2001, 2006), including the the Icelandic versions of the PHQ-9, the GAD -7, the PSWQ and the CORE-OM (PHQ-9: Pálsdóttir, 2007; GAD-7: Ingólfsdóttir, Kristjánsdóttir, Sigurðsson and Sigurðsson, manuscript in preparation; CORE-OM: Kristjánsdóttir et al., 2015; PSWQ: Jónsdóttir and Smári, 2000). Cronbach's alpha in this study ranged from .82 to .93. The psychometric properties of the Icelandic versions of the PRS and the LSPS are not known.

Procedure

Transdiagnostic cognitive behavioural group therapy (TCBGT) was offered at nine primary health care centres in the Capital area of Iceland. All referrals came from general practitioners (GPs). As this was an effectiveness study, criteria for referral were kept very practical: patients being over 18 years of age and showing signs of emotional problems (especially depression and anxiety) based on the GP's clinical evaluation. Exclusion criteria for admission to treatment, as evaluated by a GP or a clinical psychologist administering the MINI, were the following: (1) obvious signs of dementia or another generalized cognitive impairment, (2) presence of psychotic symptoms, and (3) current self-reported substance abuse.

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All the patients referred to the therapy groups were thoroughly assessed by a clinical psychologist at an intake interview, with the MINI and the psychological scales administered. If a patient fulfilled the MINI criteria for more than two mental disorders the interviewer gave him/her a main diagnosis based on two pre-defined questions, and if needed, a further clinical evaluation.

Permission for the study was obtained from the National Bioethics Committee in Iceland (VSNb2005090003/03-15) and it was approved by the Icelandic Data Protection Authority (S2602/2005).

Intervention

The main goal in the development of the Icelandic TBCGT was to include components that the range of disorder specific treatment protocols had in common. These components included psycho-education to help patients to understand the processes involved in maintaining their problems, the relationship between thoughts and emotions as well as cognitive restructuring within session work, supplemented by specific homework assignments. Therapy sessions lasted two hours once a week for 6 weeks in a group format.

The treatment, described in Table 1, was co-delivered by two qualified clinical psychologists in each primary care setting. They received training in delivering the treatment and were supervised by the authors of the treatment and the first author of this paper on a peer group basis once a week to ensure treatment fidelity. Mean group size was 10.2 patients ($SD = 3.5$, range 7–18). The group sizes were mainly dependent on the facilities of each primary care setting.

Statistical analysis

Overview: The main (primary) analysis involved the calculation of transformed (standardized) data to ensure that they were comparable across different measures; these data were then analysed in an Omnibus mixed model ANOVA, divided into general and specific measures. Secondary analyses examining theoretically derived subsets of the data were also carried out as detailed below. In order to see if comorbidity and group size ($\geq$10 *vs* $<$10) affected the results the primary analysis was carried out with these varibles included as between subject factors. These variables had no impact on the pattern of results (all relevant interaction effects were non-significant) and were therefore excluded from the final analysis reported in this paper.

In order to evaluate treatment effects on disorder specific symptoms, effect sizes were calculated for all raw scores for the various diagnoses. Effect sizes were calculated with the formula $d = (M_{\text{pre}} - M_{\text{post}})/\sigma_{\text{pooled.}}$

To compare the treatment effects on general and disorder specific symptoms raw scores on all measures were converted to *Z*-scores. Six analyses were carried out using a mixed model ANOVA. The first analysis was 4×2×3 repeated measures intention-to-treat (ITT) ANOVA to assess changes in disorder specific and general symptoms as measured by the GAD-7, the PHQ-9 and the specific measures combined. Diagnostic group based on main diagnostic (depression, GAD, PD and SP) was the grouping variable, general symptoms (PHQ-9 and GAD-7) and disorder specific symptoms (specific measures combined) were the first within-subjects' factor (in order to find out if patients responded differently on general and

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Table 1. The treatment's main objectives and homework assignments

Session	Main objectives	Homework
1	Induction to group rules. Psycho-education about mental health problems. Introduction to the relationship between negative automatic thoughts, emotions and behaviour.	Three levels thought chart. Aim: to identify distorted and negative automatic thoughts.
2	Review of the previous week's homework. Introduction to cognitive distortions and the concept of alternative thoughts.	Thought chart. Aim: to identify distorted thoughts and generate alternative thoughts.
3	Review of previous week's homework for 2–3 participants. Introduction to major depressive disorder, depressed mood and behavioural activation.	Thought chart. Aim: to identify distorted thoughts and generate alternative thoughts. Behavioural activation assignments, e.g. behavioural time table.
4	Review of previous week's homework for 2–3 participants. Introduction to anxiety disorders, fears and anxious states behaviour as maintaining factor in anxiety disorders and the vicious flower.	Thought chart. Aim: to identify distorted thoughts and generate alternative thoughts. Behavioural experiments Thought chart.
5	Review of previous week's homework for 2–3 participants. Introduction to underlying assumptions and core beliefs.	Aim: to identify distorted thoughts and generate alternative thoughts. Find and challenge underlying assumptions and core beliefs.*
6	Review of previous week's homework for 2–3 participants. Review the techniques that have been introduced. Address barriers to the application of the techniques. Goal setting. Relapse prevention.	

*Core beliefs and assumptions are not dealt with in depth, but the concept was introduced in order to provide the participants with basic understanding of why they have their problems.

specific measures) and the pre–post comparison the second within-subjects factor. The second analysis was 4×2 repeated measures ITT ANOVA to assess the efficacy of specific measures of individual disorders. Diagnostic group (depression, GAD, PD and SP) was the grouping variable and the pre–post comparison was the within-subjects factor. Standardized scores on generic and disorder specific measures were pooled to form a single variable. Analyses three to six were 2×3 repeated measures ITT ANOVAs to assess the specific and generic treatment effects, where each group defined by their main diagnosis was analysed separately. The pre–post comparison was the first within-subjects factor and the general symptoms (PHQ-9 and GAD-7) and the relevant specific measure were the second within-subjects' factor.

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Results

Outcome measures

Table 2 shows descriptive statistics (raw scores) and effect sizes for the general and the disorder specific measures for the corresponding main diagnoses. The diagnostic groups scored significantly lower on all measures after treatment than before.

General measures

As can been seen in Table 2, participants who were diagnosed with depression as a main diagnosis scored higher on the PHQ-9 pre-treatment (12.56) than those who were diagnosed with anxiety disorder as a main diagnosis (PD: 7.33; GAD: 11.23; SP: 11.60). Participants who were diagnosed with GAD as a main diagnosis scored higher on the GAD-7 pre-treatment (11.17) than those who were diagnosed with other disorders as a main diagnosis (PD: 9.92; depression: 8.51; SP: 9.00). Participants who were diagnosed with SP as main diagnosis scored lowest on the GAD-7 post-treatment, but those who were diagnosed with PD as main diagnosis scored lowest on the PHQ-9 at post-treatment.

Effect sizes

As shown in Table 2, effect sizes (ES) for the GAD-7 in the diagnostic groups ranged from 0.47 (PD) to 0.89 (SP) (mean ES: 0.68) and for the PHQ-9 from 0.58 (PD) to 0.94 (depression) (mean ES: 0.74). Effect sizes for the disorder specific measures ranged from 0.48 (SP) to 0.94 (depression). Overall mean of effect sizes was 0.71.

Standardized change: comparison between disorder specific measures

Table 3 shows standardized changes in the combined disorder specific measures compared with the general measures, the PHQ-9 and the GAD-7 (PHQ-9 was not included in the disorder specific measures to ensure independence of the group comparison).

As shown in Table 3, changes between generic (PHQ-9 and GAD-7) and specific measures combined are similar (0.60–0.77). The main effects of time (F [1,97] = 41.54, $p < 0.05$) are significant and the treatment seems to work equally for general symptoms and disorder symptoms, as seen by non-significant interaction of time and measure (F [1,63] = 1.85, $p =$ 0.17). The third-order interaction was not significant (F [6,194] = 1.83, $p = 0.1$), indicating that the standardized change scores did not differ in any of the diagnostic groups.

We acknowledge that the GAD-7 was designed to be a disorder specific measure of generalized anxiety disorder and may therefore be problematic as a generic measure for anxiety. Still, it has been used elsewhere as a generic measure (e.g. Clark et al., 2009). However, to make sure that it is a generic measure and the PSWQ not redundant as a disorder specific measure, Pearson correlations between the GAD-7 and the disorder specific anxiety measures were calculated. The GAD-7 correlated more strongly to the PRS (.73) than to the PSWQ (.57), but less strongly to the LSPS (.32), giving some support for its use as a generic measure.

In Table 4, the individual groups that have the main diagnosis of depression, SP, PD and GAD, as measured with the corresponding disorder specific measures, are compared.

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Table 2. Descriptive statistics and effect sizes in each diagnostic group

	Mean (*SD*)	Effect size
Panic ($n = 12$)		
Panic Rating Scale		
Pre	9.75 (4.81)	0.82
Post	5.42 (5.70)	
PHQ-9		
Pre	7.33 (4.16)	0.58
Post	4.99 (3.95)	
GAD-7		
Pre	9.92 (5.35)	0.47
Post	7.42 (5.33)	
GAD ($n = 42$)		
PSWQ		
Pre	60.74 (10.50)	0.58
Post	53.80 (13.23)	
PHQ-9		
Pre	11.23 (4.03)	0.78
Post	7.55 (5.38)	
GAD-7		
Pre	11.17 (4.59)	0.79
Post	7.50 (4.68)	
Social phobia ($n = 10$)		
LSPS		
Pre	91.66 (25.52)	0.48
Post	79.10 (26.90)	
PHQ-9		
Pre	11.60 (5.85)	0.86
Post	6.90 (5.11)	
GAD-7		
Pre	9.00 (5.40)	0.89
Post	5.30 (2.91)	
Depression ($n = 37$)		
PHQ-9		
Pre	12.56 (4.68)	0.94
Post	8.16 (4.67)	
GAD-7		
Pre	8.51 (3.98)	0.57
Post	6.17 (4.23)	

PHQ-9, Patient Health Questionnaire-9; GAD-7, Generalized Anxiety Disorder-7; GAD, Generalized Anxiety Disorder; PSWQ, Penn State Worry Questionnaire; LSPS, Liebowitz Social Phobia Scale; *n*, number; *SD*, standard deviation.

Table 4 indicates that the effects for the specific anxiety symptoms may be somewhat smaller than for specific depressive symptoms, although the anxiety groups seem to respond similarly to each other. The effect of time is significant (F [1,97]=30.1, $p < 0.001$) and the interaction between time and measure do not achieve significance (F [3,97] = 2.33, $p = 0.08$).

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Table 3. Standardized change: comparison between measures

	Post	
All participants (n =101)	Mean	*SD*
PHQ-9	–0.77	1.04
GAD-7	–0.60	0.98
Specific measure combined	–0.70	1.15

PHQ-9, Patient Health Questionnaire-9; GAD-7, Generalized Anxiety Disorder-7; n, number; *SD*, standard deviation.

Table 4. Standardized change: comparison between pre- and post-treatment scores on the specific measures

	Post	
All specific measures	Mean	*SD*
PHQ-9 (depression) ($n = 37$)	–1.03	1.06
PRS (panic disorder) ($n = 12$)	–0.61	1.33
PSWQ (GAD) ($n = 42$)	–0.52	1.16
LSPS (social phobia) ($n = 10$)	–0.39	1.13

PHQ-9, Patient Health Questionnaire-9; PRS, Panic Rating Scale; PSWQ, Penn State Worry Questionnaire; LSPS, Liebowitz Social Phobia Scale; n, number; *SD*, standard deviation.

Table 5 shows the effects of the treatment for the different measures on participants with different main diagnoses.

Panic disorder

Descriptive statistics indicate that depressive symptoms and symptoms specific to PD changed somewhat more than the general anxiety symptoms. However, the main effect of time was not significant (F [1,11] = 4.53, $p = 0.06$).

Social phobia

The main effect of time was significant (F [1,9] = 12.27, $p < 0.01$) indicating positive responding to treatment. The interaction between measure and repeats was not significant (F [2,18] = 1.99, $p = 0.11$).

General anxiety disorder

Table 5 shows that participants with GAD as the main diagnosis responded equally well on all the measures, suggesting both specific and general treatment effects. The main effect of time was significant (F [1,41] = 35.42, $p < 0.01$) while the interaction between measure and time was not (F [2,1,71] = 0.37, $p = 0.69$).

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Table 5. Standardized change: different measures on participants with different main diagnosis

	Post	
	Mean	*SD*
Panic patients ($n = 12$)		
PHQ-9	–0.56	0.95
GAD-7	–0.23	1.08
PRS	–0.61	1.33
GAD patients ($n = 42$)		
PHQ-9	–0.60	1.07
GAD-7	–0.60	0.89
PSWQ	–0.52	1.16
Social phobic patients ($n = 10$)		
PHQ-9	–0.76	0.85
GAD-7	–0.72	0.65
LSPS	–0.39	1.13
Depressive patients ($n = 37$)		
PHQ-9	–1.03	1.06
GAD-7	–0.69	1.11

PHQ-9, Patient Health Questionnaire-9; GAD-7, Generalized Anxiety Disorder-7; PRS, Panic Rating Scale; PSWQ, Penn State Worry Questionnaire; LSPS, Liebowitz Social Phobia Scale; *n*, number; *SD*, standard deviation.

Depression

Table 5 shows that participants with depression as main diagnosis responded well on both measures (the general measure for depression was the same as the disorder specific measure). The main effect of time was significant (F [1,36] = 25.41, $p < 0.001$), but the interaction between the depression measure and time failed to reach significance (F [1,1,36] = 3.43, $p = 0.07$).

Discussion

The present study aimed to test the effects of transdiagnostic group CBT on disorder specific as well as general symptoms among patients experiencing PD, SP and GAD. In line with previous studies (e.g. Hook and Page, 2002; Manning et al., 1994; McEvoy and Nathan, 2007), there was evidence of improvements in general measures, and we were able to demonstrate that the treatment also significantly reduced disorder specific symptoms and that these changes were not different from those observed in general symptoms. Although we consider the results to show both general and disorder specific changes, the use of the PHQ-9 as a measure of general psychopathology as well as a specific depression measure could be regarded problematic. This being so, a more cautious interpretation would be that for those with PD, SP and GAD as main diagnoses, we have clearly shown disorder specific changes, as well as changes in depressive symptoms. For those with primary diagnosis of MDD, we have clearly shown disorder specific changes in depressive symptoms, as well as changes in worries. This is mostly

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in line with Farchione et al. (2012), who found no difference between general and disorder specific treatment change in patients diagnosed with GAD, PD and OCD, although SP fared somewhat worse on disorder specific outcome measures. In contrast, Titov et al. (2010) found that patients with SP and GAD improved no better than controls. It is important to consider that Farchione et al. (2012) and Titov et al. (2010) did not use the same treatment manual as the one used in this study, so their findings cannot be directly compared with the findings described in this paper.

Indirect comparison with disorder specific CBT

Sighvatsson et al. (2011) reviewed efficacy studies of CBT and found out that effect sizes for depression range from 0.82 to 0.89, compared with 0.94 in the current study. Anxiety disorders in the current study fare somewhat worse in this comparison and are generally close to the lower end of the ranges in Sighvatsson et al. (0.82 compared with a range from 0.57 to 1.44 in PD, 0.48 compared with 0.29–2.30 in SP, and 0.58 compared with 0.29–3.29 in GAD). These comparisons indicate, as with previous findings, that this treatment protocol generally works better and more reliably for depressive symptoms than for anxiety symptoms (Kristjánsdóttir et al., 2016).

However, interpretations of these comparisons are not straightforward as the studies cited in Sighvatson et al. vary with respect to a number of factors, e.g. measures used and their sensitivity to change, inclusion (exclusion) criteria for participation, length of intervention and whether the effect sizes are standardized or unstandardized. It is also worth noting that all the studies cited in Sighvatsson et al. were on disorder specific individually delivered treatments, and some of them showed lower effect sizes than the current psycho-educational transdiagnostic group therapy, that included only six 2-h sessions. Ecological validity is furthermore apparent from the natural settings in primary care and the fairly open intake criteria. The treatment seems to work in real clinical settings and for a heterogenous group of patients, i.e. outside strict experimental control in laboratory settings.

General implications of the results are both practical and theoretical. The practical implications concern the feasibility of using the same protocols to treat a wide range of emotional disorders and the limits of its applicability may not have been reached. Further studies should examine if diagnosis specific symptoms of other disorders are equally responsive to the transdiagnostic approach. To clarify, given the evidence that this transdiagnostic treatment seems to be similarly effective across disorders, the results could have theoretical implications not addressed in this paper, namely that similar CBT treatment mechanisms could be the active ingredients for various mood and anxiety disorders and even fears stemming from delusional beliefs in psychosis, a research field that is highly understudied (Kazdin, 2007). This research group has started this work and results concerning the matter will hopefully be published in the future. These findings also raise theoretical questions regarding the validity of strict diagnostic categories. If many or all emotional disorders respond to the same type of treatment, it may indicate that they are not as separate as the diagnostic manuals (DSM and ICD) assume.

There are several limitations to the current study, particularly the low statistical power in two of the diagnostic groups; only 10 of the participants were in the SP group and only 12 in the PD group. In addition, OCD and PTSD were not targeted in this study because of low prevalence in the sample ($n < 10$). The psychometric properties of the Icelandic versions of the PRS and the LSPS are not known, but both measures were translated according to approved standards. It

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should also be noted that significant gender imbalance was present, as 83% of the participants were women. Such gender imbalance is typical in studies of effectiveness of CBT in primary care, e.g. Ejeby et al. (2014) (81%) and Serfaty et al. (2009) (80%). Future research should therefore aim at replicating the current study, but increase the power of the disorder groups as well as targeting less prevalent diagnostic groups such as OCD or PTSD, and study the effects of TCBGT on disorder specific symptoms in those groups using non-inferior design.

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Ethical statements: The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, and its most recent revision.

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