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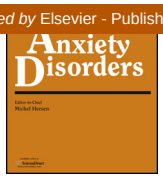

Transdiagnostic versus disorder-specific and clinician-guided versus self-guided internet-delivered treatment for Social Anxiety Disorder and comorbid disorders: A randomized controlled trial

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ABSTRACT

Disorder-specific (DS-CBT) and transdiagnostic (TD-CBT) cognitive behaviour therapy have both been used to treat social anxiety disorder (SAD). This study compared internet-delivered DS-CBT and TD-CBT for SAD across clinician-guided (CG-CBT) and self-guided (SG-CBT) formats. Participants with SAD (n = 233) were randomly allocated to receive internet-delivered TD-CBT or DS-CBT and CG-CBT or SG-CBT. Large reductions in symptoms of SAD (Cohen's $d \geq 1.01$; avg. reduction $\geq 30\%$) and moderate-to-large reductions in symptoms of comorbid depression (Cohen's $d \geq 1.25$; avg. reduction $\geq 39\%$), generalised anxiety disorder (Cohen's $d \geq 0.86$; avg. reduction $\geq 36\%$) and panic disorder (Cohen's $d \geq 0.53$; avg. reduction $\geq 25\%$) were found immediately post-treatment and were maintained or further improved to 24-month follow-up. No marked differences were observed between TD-CBT and DS-CBT or CG-CBT and SG-CBT highlighting the potential of each for the treatment of SAD and comorbid disorders.

1. Introduction

Social Anxiety Disorder (SAD) is a common anxiety disorder characterized by an excessive fear of being embarrassed or humiliated in social situations (American Psychiatric Association, 2013). The 12-month prevalence of SAD is 4.4% in Australia and has an estimated lifetime prevalence of 7.2% (McEvoy, Grove, & Slade, 2011). Both clinical and subthreshold SAD cause significant functional impairment and are highly comorbid with other anxiety disorders and depression (Fehm, Beesdo, Jacobi, & Fiedler, 2008).

Cognitive behavioural therapy (CBT) has demonstrated efficacy in treating SAD and can be administered face-to-face (Butler, Chapman, Forman, & Beck, 2006; Stewart & Chambless 2009; Hoffman, Asnaani, Vonk, Sawyer, & Fang, 2012; Acarturk, Cuijpers, van Straten, & de Graaf, 2009) and via the internet (Andersson et al., 2006; Titov et al., 2009; Andersson & Titov 2014a,b; El Alaoui et al., 2015). Reflecting this, recent meta-analyses of studies directly comparing face-to-face and clinician-guided internet-delivered CBT for common anxiety and depressive disorders, including SAD, indicate that both methods of delivery are associated with similar clinical outcomes (Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014). CBT for SAD aims to treat symptoms by addressing maladaptive cognitions and behaviours, which maintain SAD, and teaches skills designed to reduce unhelpful patterns of thought and behaviour (Clark & Wells 1995).

CBT interventions traditionally target symptoms of one disorder at a time; this approach is sometimes referred to as disorder-specific (McEvoy, Nathan, & Norton, 2009;McManus, Shafran, & Cooper, 2010; Titov, Dear, Johnston, & Terides, 2012a,b). An alternative approach is to simultaneously treat both principal and comorbid anxiety and depressive disorders by targeting common symptoms and underlying psychological processes; this approach

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is known as transdiagnostic (Barlow, Allen, & Choate, 2004; McEvoy et al., 2009; McHugh, Murray, & Barlow, 2009;Titov et al., 2012a,b). If efficacious and acceptable, the transdiagnostic approach offers potential pragmatic advantages over disorder-specific treatments, including simplified treatment planning and provision by having one treatment that is suitable for a large number of patients irrespective of their principal and comorbid disorders (McHugh et al., 2009; Titov et al., 2012a,b). These advantages are particularly significant in the context of recent calls for innovation in psychological treatment (e.g., Kazdin and Blasé, 2011; Kazdin, 2015) and large-scale initiatives to increase access to treatment for common mental health conditions, such as SAD (e.g., Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Richards and Suckling, 2009).

Results from several clinical trials indicate that transdiagnostic CBT is clinically effective for SAD (Newby, McKinnon, Kuyken, Gilbody, & Dalgleish, 2015) as well as generalised anxiety disorder (GAD) (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015), major depressive disorder (MDD) (Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015) and panic disorder (PD) (Fogliati, Dear et al., 2016). To date, however, few studies have directly compared the clinical efficacy and acceptability of transdiagnostic and disorder-specific CBT treatments for SAD. A recent study (n = 46) randomly allocated participants to receive either a single transdiagnostic CBT treatment or to one of three disorder-specific treatments for SAD, GAD, and PD with allocation determined by the participant's principal disorder. In this study non-inferiority analyses failed to demonstrate significant differences between the two approaches in outcome (Norton & Barrera 2012).

The present study is one of a series of four large randomized controlled trials (RCTs) that explore the relative clinical efficacy and acceptability of internet-delivered transdiagnostic CBT and disorder-specific CBT, when provided in both clinician-guided and self-guided formats. The other three RCTs allocated participants with principal MDD (n = 290), principal GAD (n = 338) and principal PD (n = 145) to receive either transdiagnostic or disorder-specific treatment and to receive treatment with or without clinician guidance (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Fogliati, Dear et al., 2016). Participants in these trials reported significant reductions in symptoms of MDD, GAD, SAD and PD, which were maintained at 24-month follow-up. No marked differences were observed between participants receiving disorder-specific or transdiagnostic treatment at post-treatment, 3-, 12- and 24-month follow-up. Similarly, no differences were found between the types of guidance. These findings provide further evidence for the efficacy of a transdiagnostic approach and the potential of carefully-designed self-guided treatments.

The present study employed the same design as the other three trials and specifically sought to examine the relative clinical efficacy and acceptability of transdiagnostic (TD-CBT) and disorder-specific (DS-CBT) for principal SAD, when provided in both clinician-guided (CG-CBT) and self-guided (SG-CBT) formats. It was hypothesised that both TD-CBT and DS-CBT would result in similarly significant reductions in symptoms of SAD. However, by virtue of being designed to target the symptoms of multiple disorders, it was hypothesised that TD-CBT would be superior at reducing symptoms of comorbid depression, generalised anxiety and panic disorder at each time point. It was also hypothesised that CG-CBT would be superior to SG-CBT at every time point for both symptoms of SAD and comorbid depression, generalised anxiety, and panic symptoms.

2. Method

2.1. Participants

The study was approved by the Human Research Ethics Committee (HREC) of Macquarie University, Sydney, Australia, and the trial was registered on the Australian and New Zealand Clinical Trials Registry (ANZCTR) as ACTRN12612000430831. The study was promoted via advertisements in major newspapers across Australia and via unpaid general advertisements by a broad range of non-governmental organisations providing services to people with mental health difficulties. This study was advertised alongside three other studies with the same design, with each RCT targeting people with one of four principal diagnoses; that is, MDD, GAD, SAD and PD. Participants read about the study and applied to participate via the website of the eCentreClinic (www.ecentreclinic.org), which is a specialist research unit offering the opportunity to receive free psychological treatment via the internet. Interested individuals were invited to submit an online application to participate in the trial, which involved completing several symptom questionnaires, and providing basic demographic information and contact details.

The inclusion criteria for the study were: (i) resident of Australia aged 18–64 years of age; (ii) principal symptoms consistent with Social Anxiety Disorder; (iii) total score $\geq$6 on the Mini-Social Phobia Inventory (MINI-SPIN) (Kroenke, Spitzer, & Williams, 2001a,b); and (iv) if taking medication for anxiety or depression, being on a stable dose for at least one month. The exclusion criteria were: (i) experiencing an unmanaged psychotic illness; (ii) experiencing very severe symptoms of depression i.e., defined as a total score >22 or endorsing a score >2 to item 9 of the Patient Health Questionnaire 9-item (PHQ9); (iii) having a history of self-harm or suicide attempts within the last 12 months; or (iv) currently participating in CBT.

The CONSORT flowchart for this trial is shown in Fig. 1. A total of 370 people applied to participate in the trial and indicated that symptoms of SAD were their principal difficulty during the online application process. Of these, 293 met the initial inclusion criteria, which were assessed via the online application, and then participated in a telephone interview during which the Mini International Neuropsychiatric Interview Version 5 (MINI) (Lecrubier et al., 1997) was administered and the inclusion criteria re-assessed. A further 23 applicants initially indicated principal difficulties of MDD, GAD, or PD, during the online application but, upon interview, indicated SAD was their principal difficulty. A total of 233 applicants met all inclusion criteria following the telephone interview. Demographic and diagnostic characteristics of the resultant sample are shown in Table 1.

2.2. Design and measures

The study employed a CONSORT-revised compliant RCT in which participants were randomized to receive one of two treatment approaches (Treatment Approach: TD-CBT vs DS-CBT) and one of two support formats (Support Format: CG-CBT vs SG-CBT). All participants completed questionnaires at initial assessment, pre-treatment, post-treatment and at 3, 12, and 24-month follow-up. The primary and secondary measures were administered at each time point with the exception of the PDSS-SR, which due to an administrative error was not administered at initial assessment but was administered at all other time-points. In addition, the PHQ-9 was also administered weekly during treatment. To reduce burden on participants, the tertiary outcomes were not administered at initial assessment and the K-10 and NEO-FF-N were not administered at 24-month follow-up. All analyses, except those for the PDSS-SR and the tertiary measures, used the initial assessment scores as

Table 1
Demographic characteristics of the participants.

		Treatment Approach			Support Format		
	Overall (n = 220)	TD-CBT (n = 105)	DS-CBT (n = 115)	Significance	CG-CBT (n = 112)	SG-CBT (n = 108)	Significance
Gender							
Male	92 (42%)	47 (45%)	45 (39%)	*Wald's* χ^2 = 0.72, p = 0.397	42 (38%)	50 (46%)	*Wald's* χ^2 = 1.76, p = 0.184
Female	128 (58%)	58 (55%)	70 (61%)		70 (63%)	58 (54%)	
Age (years)							
Mean (SD)	41.57 (10.89)	41.48 (11.04)	41.65 (10.80)	*Wald's* χ^2 = 0.01, p = 0.904	41.22 (9.56)	41.93 (12.15)	*Wald's* χ^2 = 0.23, p = 0.631
Range	19 to 64	19 to 64	19 to 64		20 to 62	19 to 64	
Marital Status							
Single/Never Married	78 (36%)	39 (37%)	39 (34%)	*Wald's* χ^2 = 0.65, p = 0.419	41 (37%)	37 (34%)	*Wald's* χ^2 = 0.14, p = 0.712
Married/De Facto	128 (58%)	61 (58%)	67 (58%)		61 (55%)	67 (62%)	
Separated/Divorced/Widowed	14 (6%)	5 (5%)	9 (8%)		10 (9%)	4 (4%)	
Education							
High School or less	32 (15%)	10 (10%)	22 (19%)	*Wald's* χ^2 = 1.45, p = 0.228	15 (13%)	17 (16%)	*Wald's* χ^2 = 0.84, p = 0.360
Trade/Technical Certificate	44 (20%)	25 (24%)	19 (17%)		20 (18%)	24 (22%)	
Diploma/Degree	144 (66%)	70 (67%)	74 (64%)		77 (69%)	67 (82%)	
Employment							
Full-time/Part-time	32 (15%)	10 (10%)	22 (19%)	*Wald's* χ^2 =0.11, p = 0.738	83 (74%)	74 (69%)	*Wald's* χ^2 = 0.82, p = 0.364
Student	44 (20%)	25 (24%)	19 (17%)		8 (7%)	9 (8%)	
Unemployed, retired or disabled	144 (66%)	70 (68%)	74 (64%)		21 (19%)	25 (23%)	
Previous Mental Health Treatment	143 (65%)	68 (65%)	75 (65%)	*Wald's* χ^2 =0.01, p = 0.944	70 (63%)	73 (68%)	*Wald's* χ^2 =0.63, p = 0.428
Currently Taking Medication	62 (28%)	33 (31%)	29 (25%)	*Wald's* χ^2 = 1.05, p = 0.305	36 (32%)	26 (24%)	*Wald's* χ^2 = 1.78, p = 0.182

Note. TD = transdiagnostic, DS = disorder-specific, CG = clinician-guided, SG = self-guided, CBT = cognitive behaviour therapy.

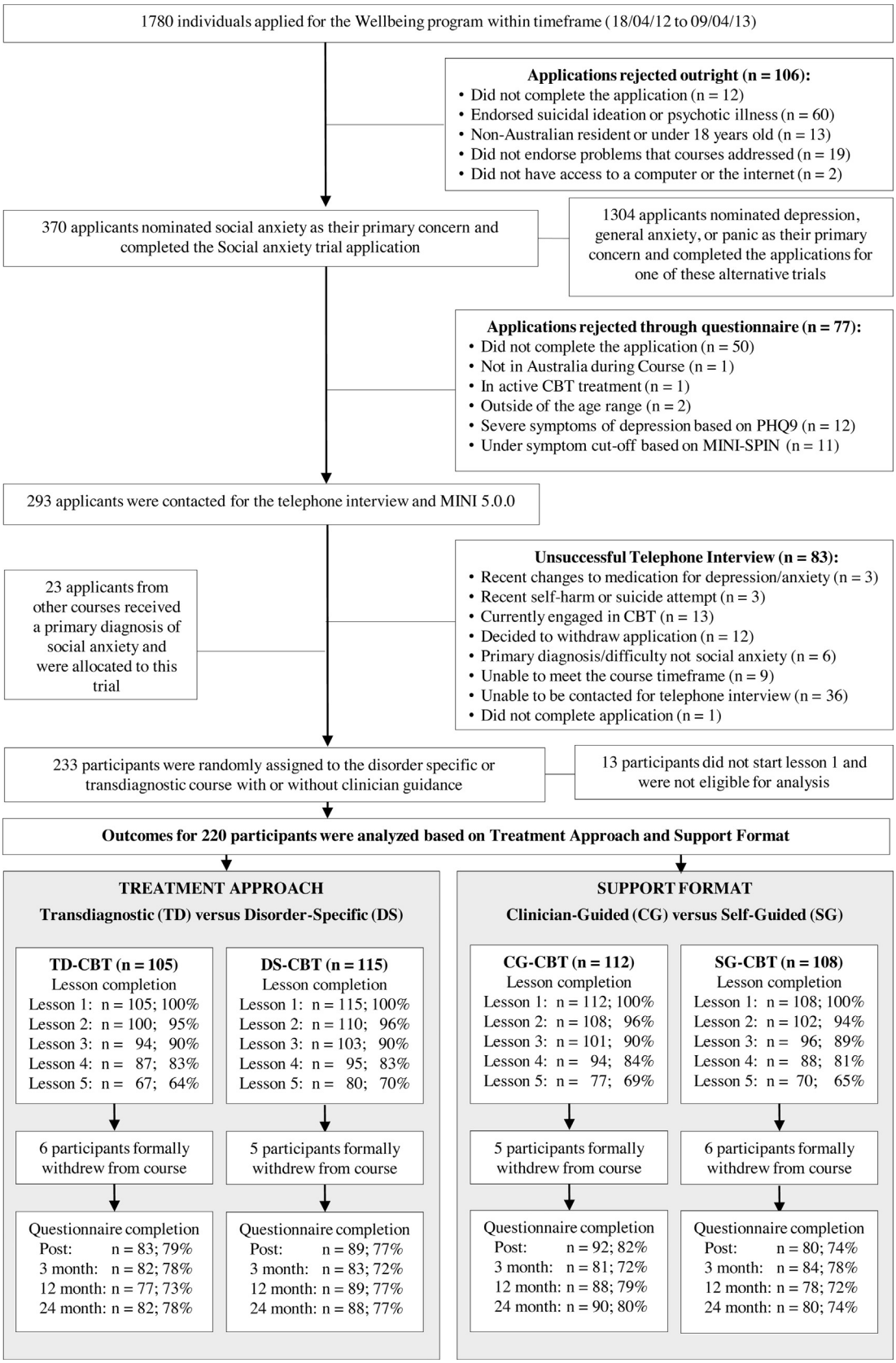

Fig. 1. Participant flow from application to 24-month follow-up.

baseline. Unblinded MINI diagnostic assessments were conducted via telephone at initial assessment and again at 3-month follow-up. The study was powered for comparisons between the two treatment approaches and between the two delivery formats. The researchers sought to recruit at least 102 participants for each comparison arm (i.e., TD-CBT vs DS-CBT and CG-CBT vs SG-CBT) which,

with alpha set at 0.05 and power set at 0.80, would enable the detection of small-to-moderate effect size differences between the arms (i.e., Cohen's *ds* > 0.35). However, more participants were recruited to address both expected treatment withdrawal and questionnaire non-response at post-treatment time points.

2.2.1. Primary measure

2.2.1.1. Mini-social phobia inventory (Mini-SPIN) (Connor, Kobak, Churchill, Katzelnick, & Davidson, 2001). The MINI-SPIN is a brief, 3-item, measure of social anxiety symptoms based on DSM-IV criteria for SAD (Connor et al., 2001; Weeks, Spokas, & Heimberg, 2007; Osorio, Crippa, & Loureiro, 2010). The MINI-SPIN has strong internal consistency and adequate convergent validity with other longer measures of social anxiety symptoms, including the Liebowitz Social Anxiety Scale (Liebowitz 1987) and Social Interaction Anxiety Scale (Mattick & Clarke 1998), as well as clinician administered diagnostic assessments (Weeks et al., 2007; Fogliati et al., in press). The MINI-SPIN was selected over longer measures in order to reduce burden on participants across the study. Scores range from 0 to 12 and Cronbach's α in this study was 0.75.

2.2.2. Secondary measures

2.2.2.1. Generalized anxiety disorder 7-item scale (GAD-7) (Spitzer, Kroenke, Williams, & Löwe, 2006).). The GAD-7 is a 7-item measure of the symptoms and severity of general anxiety, which is based on the DSM-IV diagnostic criteria for GAD (Löwe et al., 2008). The GAD-7 has good internal consistency and good convergent and divergent validity with other anxiety and disability scales (Kroenke, Spitzer, & Williams, 2010a,b; Dear et al., 2011). Scores range from 0 to 21 and Cronbach's α in the current study was 0.86.

2.2.2.2. Patient health questionnaire-9 item (PHQ-9) (Kroenke et al., 2001a,b). The PHQ-9 is a 9-item measure of symptoms of depression based on the DSM-IV diagnostic criteria for major depressive disorder (Kroenke et al., 2001a,b). The PHQ-9 has good internal consistency (Titov et al., 2011) and is sensitive to change (Kroenke et al., 2010a,b). Scores range from 0 to 27 and Cronbach's α in this study was 0.83.

2.2.2.3. Panic disorder severity scale – self report (PDSS-SR) (Houck, Spiegel, Shear, & Rucci, 2002). The PDSS-SR is a 7-item measure of panic disorder symptoms. Psychometric evaluations suggest that it has high internal consistency, good test-retest reliability and is sensitive to treatment-related change (Houck et al., 2002). Scores range from 0 to 28 and Cronbach's α in the current study was 0.94

2.2.3. Tertiary measures

2.2.3.1. Kessler 10-item scale (K-10) (Kessler et al., 2002). The K-10 is a ten-item measure of general psychological distress with total scores ≥ 22 associated with a diagnosis of anxiety and depressive disorders (Andrews and Slade 2001). Scores range from 0 to 50 and Cronbach's α in the current study was 0.89.

2.2.3.2. Sheehan disability scale (SDS) (Sheehan 1983). The SDS is a 3-item measure of disability with high internal consistency (Leon, Olfson, Portera, Farber, & Sheehan, 1997). Scores range from 0 to 30 and Cronbach's α in the present study was 0.79.

2.2.3.3. NEO-Five factor inventory – neuroticism subscale (NEO-FFI-) (Costa and McCrae, 1985). The Neuroticism subscale of the NEO is a 12-item measure of a general tendency to experience negative emotional states and sensitivity to stress (Clark, Watson, & Mineka, 1994; Griffith et al., 2010), which is considered a higher-order risk factor for anxiety and depression (Cuijpers, van Straten, & Donker, 2005; Spinhoven, de Rooij, Heiser, Smit, & Penninx, 2009). Scores range from 0 to 48 and Cronbach's α in the current study was 0.77.

2.2.4. Other measures

2.2.4.1. Mini international neuropsychiatric interview version 5.0.0 (MINI) (Lecrubier et al., 1997). The MINI is a brief diagnostic interview developed to determine the presence of current Axis-I disorders using DSM-IV diagnostic criteria. It has excellent inter-rater reliability and adequate concurrent validity with the Composite International Diagnostic Interview (World Health Organization, 1990). All clinicians were trained and supervised to competence in the administration of the MINI for the current study.

2.2.4.2. Treatment satisfaction and acceptability. Consistent with previous research (Titov et al., 2013a,b; Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015), treatment satisfaction and acceptability were assessed at post-treatment via two questions: (1) 'Would you feel confident in recommending this treatment to a friend?' and (2) 'Was it worth your time doing the Course?'. Participants responded to these questions with a 'Yes' or 'No' response.

2.3. Interventions

All participants received access to either a DS-CBT course for SAD, the *Social Confidence Course*, or a TD-CBT course, the *Wellbeing Course*. The *Social Confidence Course* was developed specifically for this trial and the Wellbeing Course has been previously demonstrated as clinically efficacious in treating symptoms of anxiety and depression (Titov et al., 2012a,b; Titov et al., 2013a,b; Titov et al., 2014a,b). Consistent with the previous trials in this series of studies (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015), the two courses comprised a similar structure and similar amounts and forms of content to facilitate comparisons. Both include five lessons delivered online over eight weeks, lesson summaries and homework assignments for each lesson, a similar number of detailed case stories, and a similar number of additional resources targeting symptoms such as sleep problems and communication skills. Based on the content and previous results (Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015), it is expected that reading the first four lessons of each course would provide an adequate therapeutic dose. Each lesson is presented in a slide format combining text and images, with approximately 60 slides per lesson and 50 words per slide. Participants are instructed to read lessons in order over 8 weeks. Lessons 1, 2, 3, 4, and 5 are available at the beginning of weeks 1, 2, 4, 5, and 7, respectively. This timetable provides participants with additional time for the most complex components of the intervention; namely skills for managing cognitive and behavioural symptoms.

Consistent with standard definitions (McEvoy et al., 2009) and the other trials in this series of trials (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Fogliati, Dear et al., 2016), the TD-CBT intervention was the same for all participants and was not designed to treat any specific psychological disorder. Rather it aimed to present a broad range of therapeutic information and skills relevant to the cognitive, physical and behavioural symptoms of psychological distress generally. Reflecting this, the TD-CBT intervention did not mention specific diagnoses and all vignettes, examples and case stories were presented to cover a broad range of situations and types of psychological distress (e.g., excessive worry, low mood, social anxieties and panic and strong physical sensations). In contrast, the DS-CBT treatment was specifically designed to target symptoms of SAD

Table 2
Therapeutic content and skills included within the Transdiagnostic Wellbeing Course and Disorder-Specific Social Confidence Course.

Lesson	Transdiagnostic Wellbeing Course			Disorder-Specific Social Confidence Course		
	Lesson Content	Primary Skills Taught	Additional Resources	Lesson Content	Primary Skills Taught	Additional Resources
1	Education about the general prevalence and symptoms of anxiety and low mood without mention of specific disorders. Introduction of a CBT model and explanation of the functional relationship between physical, thought and behavioural symptoms in psychological distress. Instructions for identifying their own symptoms and how their symptoms interact. Transdiagnostic vignettes and examples of anxiety and low mood symptoms provided.	– Symptom identification – Symptom formulation	– Sleep management – What to do in a mental health emergency – Transdiagnostic Case Stories	Education about the prevalence and symptoms of SAD. Introduction of a CBT model and explanation of the functional relationship between physical, thought and behavioural symptoms in SAD. Instructions for identifying their own symptoms and how their symptoms interact. SAD specific vignettes and examples of SAD symptoms provided.	– Symptom identification – Symptom formulation	– Sleep management – What to do in a mental health emergency – SAD Case Stories
2	Introduction to the basic principles of cognitive therapy and importance of managing thoughts to manage anxiety and low mood. Instructions for monitoring and challenging thoughts related to anxiety and low mood. Transdiagnostic vignettes and examples of thoughts provided.	– Thought monitoring – Thought challenging	– Structured problem solving – Worry Time – Challenging beliefs – Transdiagnostic Case Stories	Introduction to the basic principles of cognitive therapy and importance of managing thoughts to manage SAD. Instructions for monitoring and challenging thoughts. SAD specific vignettes and examples of thoughts provided.	– Thought monitoring – Thought challenging	– Structured problem solving – Challenging beliefs – SAD Case Stories
3	Introduction to the physical symptoms of hyper-arousal and hypo-arousal and their relationship to anxiety and low mood. Instructions about controlling physical symptoms using de-arousal strategies such as controlled breathing and scheduling pleasant activities. Transdiagnostic vignettes and examples of physical symptoms provided.	– Controlled breathing – Pleasant activity scheduling	– Risk Calculation, Coping Calculation and Shifting Attention – 100 pleasant things to do – Transdiagnostic Case Stories	Introduction to the physical symptoms of hyper-arousal and their relationship to SAD. Instructions about controlling physical symptoms by using controlled breathing. SAD specific vignettes and examples of physical symptoms provided.	– Controlled breathing	– Risk Calculation, Coping Calculation and Shifting Attention – Communication Skills – SAD Case Stories
4	Introduction to the behavioural symptoms of anxiety and low mood. Explanation of avoidance and safety behaviours and their relationship to ongoing distress. Instructions for graded exposure for safely confronting fears and increasing activity levels. Transdiagnostic vignettes and examples of graded exposure provided.	– Graded exposure – Behavioural activation	– Assertive communication – Transdiagnostic Case Stories	Introduction to the behavioural symptoms of SAD. Explanation of avoidance and safety behaviours for SAD. Instructions for graded exposure for safely confronting fears and increasing social engagement. SAD specific vignettes and examples of graded exposure provided.	– Graded exposure	– Assertive communication – SAD Case Stories
5	Information about the occurrence of lapses and the process of recovery from anxiety and low mood. Information about the signs of relapse and managing lapses. Instructions for creating a relapse prevention plan. Transdiagnostic vignettes and examples of lapses and lapse management provided.	– Relapse prevention	– Transdiagnostic Case Stories	Information about the occurrence of lapses and the process of recovery from SAD. Information about the signs of relapse and managing lapses. Instructions for creating a relapse prevention plan. SAD specific vignettes and examples of lapses and lapse management provided.	– Relapse prevention	– SAD Case Stories

Note. The transdiagnostic course was designed in such a way that no specific anxiety or depressive disorder was mentioned throughout the materials, vignettes, examples and case stories. The disorder specific course made specific mention of SAD and the materials, vignettes, examples and case stories all focussed on SAD.

and presented all therapeutic information and skills in the context of SAD and reducing SAD symptoms. Consequently, all vignettes, examples and case stories focussed on SAD and the management of associated symptoms and no specific mention of other diagnoses or the broader application of therapeutic skills was made. The content and differences between the TD-CBT and DS-CBT interventions are summarised in Table 2.

As with the other trials in this series of studies, participants in the clinician-guided condition (CG-CBT) received weekly contact from a psychologist using telephone or a secure email messaging system. Four accredited and nationally registered psychologists and one provisional psychologist provided treatment. Based on the findings of previous studies (Craske et al., 2009; Johnston, Titov, Spence, Andrews, & Dear, 2011) and to minimise therapist drift (Waller 2009), the nature of the contact was protocolised and key aims included (1) reinforcing the main messages of each lesson, (2) answering questions, (3) reinforcing progress and skills practice, (4) problem solving skills usage, (5) normalising the challenges of recovery, and (6) obtaining feedback about the participant's perception and engagement with the course. Each contact was designed to take $\leq$ 10 min, but more time was provided when clinically indicated. The psychologists received training in online interventions via the training program at the eCentreClinic and received supervision from BFD and NT during weekly individual and group supervision sessions. Participants in the self-guided condition did not receive weekly contact, but their progress and symptoms were monitored throughout treatment by the clinicians and were able to contact the clinic if technical assistance was required or if they were experiencing a mental health crisis. A research assistant provided technical support for all participants in the trial.

All participants received an email at the start of the intervention with guidelines about the course and a recommended timetable for working through the materials. Consistent with previous research (Titov et al., 2013a,b; Titov et al., 2014a,b), all participants also received automated emails at the beginning of each week to inform them about additional resources and to recommend activities for that week. All participants also received automatic emails that reinforced their progress, congratulated them on the completion of lessons, and reminded them about the availability of new materials when they had not viewed them within a week of them becoming available.

2.4. Statistical analyses

The same analytic approach was employed in this trial as in the other published trials in this series of studies (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015). All analyses were conducted using SPSS version 21. Group differences in demographic variables and diagnostic variables were analysed using binomial and multinomial logistic regression and general linear models analyses. The alpha significance level for the preliminary analyses was adjusted from 0.05 to 0.01 as a partial control for the large number of analyses conducted. Participants who did not start the interventions were not included in any analyses.

The generalised estimation equation (GEE) modelling technique was employed to examine changes in symptom measures over time. GEE emphasizes the modelling of change in an average group effect over time while accounting for within-subject variance with the specification of a working correlation structure. Rather than creating conditional interpretation with the use of individual intercepts or random slopes, as in traditional mixed linear models, the primary emphasis in GEE is to directly model the average group-related change over time (Hubbard et al., 2010). An exchangeable working correlation structure and maximum likelihood estimation were selected, coupled with a robust error estimation for the purposes of model parsimony, for all GEE analyses. All GEE models also specified a gamma distribution with a log link response scale to address positive skewness in the dependent variable distributions. Importantly, in the GEE analyses, the model coefficients represent multiplicative change in the dependent variable from baseline; these coefficients result in a change factor (i.e., $\exp(\beta)$), which can be used to calculate the average percentage change of symptoms from baseline. Consistent with the principles of intention-to-treat analyses, separate GEE models utilising random intercepts were employed to impute missing data. The same approach was used for imputing missing binary diagnostic values. Specifically, probability values were imputed based on an individual's initial diagnostic status combined with time by treatment condition estimates and cases demonstrating higher cumulative probability than the baseline value being imputed as having a diagnosis.

To maximise power and the interpretability of results, the two Treatment Approaches and the two Support Formats were analysed separately; however, to ensure these analyses did not obscure important patterns within the data, all higher order interactions were explored first. Following these initial explorations, a systematic series of analyses were employed to comprehensively compare the two treatment approaches (TD-CBT vs. DS-CBT) and the two support formats (CG-CBT vs. SG-CBT). First, to explore efficacy across symptom domains, GEE analyses were conducted on the primary and secondary outcome variables from baseline to 24-month follow-up focussed on the four symptom domains (i.e., depression, generalised anxiety, social anxiety and panic) among those meeting MINI diagnostic criteria for the related disorder (i.e., MDD, GAD, SAD and PD) at assessment. Second, to explore efficacy in terms of general psychological distress, disability and neuroticism, GEE analyses were conducted on the tertiary outcomes from baseline to 24-month follow-up using the overall sample data. Third, for the binary outcome variable of diagnostic status, GEE analyses were conducted using a binary scale and logit link function implementing quasi-likelihood probability estimates at each time point between groups. Fourth, to examine the overall cumulative reduction in comorbid diagnoses, the average count of comorbid diagnoses was analysed over time and between groups with a negative binomial probability distribution and a log link function. Finally, to explore acceptability and satisfaction, one-way factorial ANOVAs and chi-square analyses were conducted on the lesson completion and treatment satisfaction data. For comparison and benchmarking purposes, Cohen's *d* effect sizes and 95% confidence intervals were calculated for the within-group and between-group effects based on the estimated marginal means derived from the GEE models. The average percentage change across time was also calculated from the GEE analyses for each of the outcome variables with 95% confidence intervals. Importantly, to accurately reflect percentage change, a constant of 10 was subtracted from K10 scores when calculating percentage change scores.

3. Results

3.1. Preliminary analyses

3.1.1. Baseline differences

Demographic and diagnostic characteristics of the sample are shown in Table 1. Specific details of participant flow, treatment attrition, lesson completion and questionnaire response are shown in Fig. 1. There were no significant differences between the TD-CBT and DS-CBT groups or the CG-CBT and SG-CBT groups at baseline ($ps \geq 0.05$). There were no differences between participants completing and not completing the questionnaires at post-treatment,

for any of the demographic variables reported in Table 1 or in baseline outcome measure scores ($ps \geq 0.05$).

3.1.2. Clinician time

There were significant differences in clinician contact time between CG-CBT and SG-CBT groups ($F_{1,217} = 280.99$, $p < 0.001$). The mean clinician time per participant in CG-CBT group was 36.54 min ($SD = 22.16$), which comprised answering and making calls (total calls = 734; range = 0 to 21 calls; mean time = 23.39; $SD = 22.01$), as well as reading, sending and responding to secure emails (total emails = 712; range = 0 to 29 emails; mean time = 13.15; $SD = 9.62$). The mean total clinician time per participant for SG-CBT was 0.64 min ($SD = 2.12$), which comprised answering and making calls (total calls = 4; range = 0 to 2 calls; mean time = 0.07; $SD = 0.49$), as well as reading, sending and responding to secure emails (total emails = 23; range = 0 to 3 emails; mean time = 0.56; $SD = 2.02$). This contact was focused on assessing and managing mental health crises rather than providing treatment or course-related clinical support. No significant differences were found between the TD-CBT and DS-CBT in the amount of clinician time required ($F_{1,217} < 0.01$, $p = 0.994$).

3.1.3. Preliminary test for higher order interactions

The GEE analyses revealed non-significant treatment approach by support format by Time interactions for all outcomes (MINI-SPIN: *Wald's* $\chi^2 = 0.672$, $p = 0.995$; GAD-7: *Wald's* $\chi^2 = 3.45$, $p = 0.485$; PHQ-9: *Wald's* $\chi^2 = 1.74$, $p = 0.782$; PDSS-SR: *Wald's* $\chi^2 = 4.24$, $p = 0.374$; K10: *Wald's* $\chi^2 = 5.03$, $p = 0.169$; SDS: *Wald's* $\chi^2 = 2.47$, $p = 0.649$; NEO-FFI-N: *Wald's* $\chi^2 = 4.64$, $p = 0.199$).

3.2. Transdiagnostic CBT (TD-CBT) versus disorder-specific CBT (DS-CBT)

The means, percentage reductions and effect sizes for the TD-CBT and DS-CBT groups are shown in Table 3.

3.2.1. Outcomes across the diagnoses

3.2.1.1. Social anxiety disorder. Among those meeting diagnostic criteria for SAD (n = 206) the GEE analyses indicated a significant effect for Time (MINI-SPIN: *Wald's* $\chi^2 = 397.29$, $p < 0.001$) but no significant Time by Treatment Approach interaction for social anxiety symptoms (MINI-SPIN: *Wald's* $\chi^2 = 8.11$, $p = 0.087$). Pairwise comparisons indicated that participants improved from baseline to post-treatment ($p < 0.001$), from post-treatment to 3-month follow-up ($p = 0.002$), 3-month to 12-month follow-up ($p = 0.032$), but not 12-month to 24-month follow-up ($p = 0.250$).

3.2.1.2. Major depressive disorder. Among those meeting diagnostic criteria for MDD (n = 87) the GEE analyses indicated a significant effect for Time (PHQ-9: *Wald's* $\chi^2 = 246.31$, $p < 0.001$) but no significant Time by Treatment Approach interaction effect for depressive symptoms (PHQ-9: *Wald's* $\chi^2 = 7.99$, $p = 0.092$). Pairwise comparisons indicated that participants improved similarly from baseline to post-treatment ($p < 0.001$) and from post-treatment to 3-month follow-up ($p = 0.002$). No other significant changes were observed between the other time points.

3.2.1.3. Generalised anxiety disorder. Among those meeting diagnostic criteria for GAD (n = 102) the GEE analyses indicated a significant effect for Time (GAD-7: *Wald's* $\chi^2 = 177.32$, $p < 0.001$) but no significant Time by Treatment Approach interaction for GAD symptoms (GAD-7: *Wald's* $\chi^2 = 2.07$, $p = 0.723$). Pairwise comparisons indicated that participants improved similarly from baseline to post-treatment ($p < 0.001$) and no other significant changes between the other time points.

3.2.1.4. Panic disorder. Among those meeting diagnostic criteria for PD (n = 61) the GEE analyses indicated a significant effect for Time (PDSS-SR: *Wald's* $\chi^2 = 62.07$, $p < 0.001$) but no significant Time by Treatment Approach interaction for panic symptoms (PDSS-SR: *Wald's* $\chi^2 = 7.96$, $p = 0.093$). Pairwise comparisons indicated that participants improved similarly from baseline to post-treatment ($p < 0.001$) and from post-treatment to 3-month follow-up ($p = 0.002$). No other significant changes were observed between the other time points.

3.2.2. Outcomes for general psychological distress, disability, and neuroticism

Across the whole sample (n = 220) the GEE analyses indicated a significant effect for Time (K10: *Wald's* $\chi^2 = 297.61$, $p < 0.001$) but no significant Time by Treatment Approach interaction for general psychological distress (K10: *Wald's* $\chi^2 = 4.70$, $p = 0.195$). Pairwise comparisons indicated that participants improved similarly from baseline to post-treatment ($p < 0.001$) and from post-treatment to 3-month follow-up ($p < 0.001$). No other significant changes were observed between the other time points.

Across the whole sample (n = 220) there was a significant effect for Time (SDS: *Wald's* $\chi^2 = 280.36$, $p < 0.001$) but no significant Time by Treatment Approach interaction for disability (SDS: *Wald's* $\chi^2 = 1.40$, $p = 0.844$). Pairwise comparisons indicated that participants improved from baseline to post-treatment ($p < 0.001$), post-treatment to 3-month follow-up ($p < 0.001$), 3-month to 12-month follow-up ($p = 0.048$) and 12-month to 24-month follow-up ($p = 0.010$).

Across the whole sample (n = 220) there was a significant effect for Time (NEO-FFI-N: *Wald's* $\chi^2 = 205.49$, $p < 0.001$) but no significant Time by Treatment Approach interaction for neuroticism (NEO-FFI-N: *Wald's* $\chi^2 = 4.00$, $p = 0.261$). Pairwise comparisons indicated that participants improved from baseline to post-treatment ($p < 0.001$), post-treatment to 3-month follow-up ($p < 0.001$) and 3-month to 12-month follow-up ($p = 0.006$).

3.2.3. Changes in diagnostic status

The numbers and changes in the proportion of participants meeting formal diagnostic criteria at initial assessment and 3-month follow-up are shown in Table 5. The GEE analyses of diagnoses revealed a significant effect for Time across the diagnoses (SAD: *Wald's* $\chi^2 = 89.01$, $p < 0.001$; MDE; *Wald's* $\chi^2 = 68.50$, $p < 0.001$; GAD: *Wald's* $\chi^2 = 39.84$, $p < 0.001$; PD: *Wald's* $\chi^2 = 38.07$, $p < 0.001$). No significant Time by Treatment Approach interactions were observed for any diagnoses (SAD: *Wald's* $\chi^2 = 0.22$, $p = 0.635$; MDE: *Wald's* $\chi^2 = 0.88$, $p = 0.348$; GAD: *Wald's* $\chi^2 = 0.27$, $p = 0.602$; PD: *Wald's* $\chi^2 = 0.25$, $p = 0.612$) indicating that the proportion of participants meeting diagnostic criteria significantly reduced across time irrespective of Treatment Approach.

The GEE analyses focusing on average comorbid diagnoses revealed a significant Time effect (*Wald's* $\chi^2 = 197.76$, $p < 0.001$) but no Time by Treatment Approach interaction (*Wald's* $\chi^2 = 0.84$, $p = 0.358$). These analyses indicated significant reductions in comorbid diagnoses amongst both the TD-CBT and DS-CBT groups over time.

3.2.4. Treatment completion and satisfaction rates

There was no significant difference in the number of lessons read by the TD-CBT ($M = 4.31$; $SD = 1.13$) and DS-CBT groups ($M = 4.37$; $SD = 1.13$) at post-treatment ($F_{1,218} = 0.15$, $p = 0.696$). Of the participants that completed the evaluation questions at post-treatment, 94% (80/85) of the TD-CBT group and 95% (92/97) of the DS-CBT group, reported they *would recommend the course* to others. Moreover, 94% (79/84) of the TD-CBT group and 97% (94/97) of the DS-CBT group reported participating in the course was *worth their time*. There were no significant differences between the groups in

Table 3
Means, percentage change and effect sizes: transdiagnostic (TD-CBT) versus disorder specific (DS-CBT).

	Estimated Marginal Means					% Change from baseline				Within Group Cohen's *d* from baseline				Between Group Cohen's *d*			
	Baseline	Post	3mth	12mth	24mth	Post	3mth	12mth	24mth	Post	3mth	12mth	24mth	Post	3mth	12mth	24mth
PRINCIPAL OUTCOME																	
Social Anxiety Symptoms [a]																	
DS-CBT (n = 106)	9.53 (2.10) [9.14, 9.94]	6.18 (3.17) [5.60, 6.81]	5.52 (2.83) [5.01, 6.08]	5.62 (2.79) [5.11, 6.18]	5.37 (2.98) [4.84, 5.97]	35% [28%, 41%]	42% [36%, 47%]	41% [35%, 46%]	44% [37%, 49%]	1.25 [0.95, 1.54]	1.61 [1.29, 1.91]	1.58 [1.27, 1.89]	1.61 [1.30, 1.92]	−0.06 [−0.33, 0.22]	−0.15 [−0.43, 0.12]	0.18 [−0.10, 0.45]	0.13 [−0.14, 0.41]
TD-CBT (n = 100)	9.36 (2.10) [8.95, 9.79]	6.36 (3.20) [5.75, 7.02]	5.97 (3.00) [5.40, 6.59]	5.12 (2.90) [4.58, 5.71]	4.97 (3.00) [4.42, 5.59]	32% [25%, 39%]	36% [30%, 42%]	45% [39%, 51%]	47% [40%, 53%]	1.11 [0.81, 1.40]	1.31 [1.00, 1.61]	1.67 [1.35, 1.99]	1.70 [1.37, 2.01]				
SECONDARY OUTCOMES																	
Depression Symptoms [b]																	
DS-CBT (n = 49)	13.80 (3.71) [12.80, 14.87]	8.40 (4.83) [7.16, 9.87]	6.74 (4.76) [5.53, 8.22]	7.69 (4.83) [6.46, 9.16]	7.29 (4.62) [6.11, 8.70]	39% [28%, 48%]	51% [40%, 60%]	44% [34%, 53%]	47% [37%, 56%]	1.25 [0.81, 1.68]	1.65 [1.18, 2.10]	1.42 [0.97, 1.85]	1.55 [1.09, 1.99]	0.09 [−0.34, 0.51]	−0.22 [−0.64, 0.21]	0.10 [−0.32, 0.53]	−0.20 [−0.62, 0.23]
TD-CBT (n = 38)	14.53 (4.13) [13.27 15.90]	8.00 (4.25) [6.76, 9.46]	7.67 (3.64) [6.60, 8.92]	7.24 (3.70) [6.15, 8.52]	8.21 (4.56) [6.8,8 9.80]	45% [35%, 53%]	47% [39%, 55%]	50% [41%, 58%]	43% [33%, 53%]	1.56 [1.03, 2.05]	1.76 [1.22, 2.27]	1.86 [1.30, 2.38]	1.45 [0.93, 1.94]				
Generalised Anxiety Symptoms [c]																	
DS-CBT (n = 49)	11.47 (4.97) [10.16, 12.95]	7.02 (5.32) [5.67, 8.69]	6.35 (5.39) [5.01, 8.06]	5.33 (4.55) [4.20, 6.78]	5.54 (4.62) [4.38, 6.99]	39% [24%, 51%]	45% [30%, 56%]	54% [41%, 63%]	52% [39%, 62%]	0.86 [0.44, 1.27]	0.99 [0.56, 1.40]	1.29 [0.84, 1.71]	1.24 [0.79, 1.66]	−0.22 [−0.60, 0.18]	−0.18 [−0.57, 0.21]	−0.32 [−0.71, 0.07]	−0.06 [−0.45, 0.33]
TD-CBT (n = 53)	12.70 (4.30) [11.60, 13.91]	8.09 (4.59) [6.95, 9.43]	7.25 (4.66) [6.10, 8.62]	6.68 (3.79) [5.74, 7.77]	5.76 (3.86) [4.81, 6.88]	36% [26%, 45%]	43% [32%, 52%]	47% [39%, 55%]	55% [46%, 62%]	1.04 [0.62, 1.43]	1.22 [0.79, 1.62]	1.49 [1.04, 1.90]	1.70 [1.24, 2.13]				
Panic Symptoms [d]																	
DS-CBT (n = 33)	10.52 (5.57) [8.78, 12.59]	5.94 (4.02) [4.71, 7.47]	4.75 (4.19) [3.52, 6.41]	5.15 (4.19) [3.90, 6.78]	5.75 (5.69) [4.10, 8.05]	44% [29%, 55%]	55% [39%, 67%]	51% [35%, 63%]	45% [23%, 61%]	0.94 [0.42, 1.44]	1.17 [0.64, 1.68]	1.09 [0.56, 1.59]	0.85 [0.33, 1.34]	−0.76 [−1.27, −0.22]	−0.57 [−1.07, −0.05]	−0.41 [−0.91, 0.10]	−0.10 [−0.60, 0.40]
TD-CBT (n = 28)	13.29 (5.66) [11.34, 15.57]	9.99 (6.61) [7.82, 1277]	7.95 (6.98) [5.74, 10.99]	7.23 (5.93) [5.34, 9.80]	6.39 (7.04) [4.25, 9.62]	25% [4%, 41%]	40% [17%, 57%]	46% [26%, 60%]	52% [28%, 68%]	0.54 [0.0, 1.06]	0.84 [0.28, 1.37]	1.05 [0.47, 1.59]	1.08 [0.51, 1.62]				
TERTIARY OUTCOMES																	
Disability and Functioning (SDS)																	
DS-CBT (n = 115)	13.25 (7.29) [11.99, 14.64]	8.95 (7.61) [7.66, 10.46]	7.44 (6.76) [6.31, 8.78]	6.99 (6.22) [5.95, 8.22]	5.90 (6.22) [4.86, 7.16]	32% [21%, 42%]	44% [34%, 52%]	47% [38%, 55%]	56% [46%, 63%]	0.58 [0.31, 0.84]	0.83 [0.55, 1.09]	0.92 [0.65, 1.19]	1.08 [0.80, 1.36]	−0.15 [−0.42, 0.11]	−0.20 [−0.46, 0.07]	−0.11 [−0.37, 0.16]	−0.13 [−0.40, 0.13]
TD-CBT (n = 105)	14.21 (7.89) [12.77, 15.81]	10.11 (7.79) [8.72, 11.73]	8.85 (7.38) [7.54, 10.39]	7.71 (6.87) [6.50, 9.14]	6.74 (6.46) [5.61, 8.10]	29 [17%, 39%]	38 [27%, 47%]	46 [36%, 54%]	53 [43%, 61%]	0.52 [0.25, 0.80]	0.70 [.42, 0.98]	0.88 [0.59, 1.16]	1.04 [0.74, 1.32]				
Psychological Distress (K–10) [e]																	
DS-CBT (n = 115)	24.85 (7.43) [23.53, 26.25]	20.23 (7.03) [18.99, 21.56]	18.31 (6.08) [17.23, 19.45]	18.62 (6.43) [17.48, 19.84]	–	29% [20%, 39%]	36% [27%, 44%]	44% [37%, 52%]	–	0.64 [0.37, 0.90]	0.96 [0.69, 1.23]	0.90 [0.62, 1.16]	–	−0.04 [−0.30, 0.23]	−0.19 [−0.45, 0.08]	0.06 [−0.21, 0.32]	–
TD-CBT (n = 105)	24.90 (7.65) [23.47, 26.40]	20.51 (7.45) [19.14, 21.99]	19.53 (6.80) [18.27, 20.87]	18.28 (5.84) [17.20, 19.43]	–	31% [22%, 39%]	44% [36%, 51%]	42% [34%, 50%]	–	0.58 [0.30, 0.86]	0.74 [0.46, 1.02]	0.97 [0.68, 1.26]	–				
Neuroticism (NEO-FFI-N)																	
DS-CBT (n = 115)	32.73 (6.97) [31.48, 34.04]	29.19 (7.72) [27.80, 30.64]	26.83 (7.40) [25.52, 28.20]	26.47 (7.83) [25.09, 27.94]	–	11% [6%, 15%]	18% [14%, 22%]	19% [15%, 23%]	–	0.48 [0.22, 0.74]	0.82 [0.55, 1.09]	0.84 [0.57, 1.11]	–	−0.03 [−0.29, 0.24]	−0.10 [−0.36, 0.16]	0.07 [−0.19, 0.34]	–
TD-CBT (n = 105)	32.21 (6.87) [30.92, 33.56]	29.41 (7.48) [28.01, 30.88]	27.57 (7.38) [26.20, 29.00]	25.92 (6.87) [24.64, 27.26]	–	9% [4%, 13%]	14% [10%, 19%]	20% [15%, 24%]	–	0.39 [0.12, 0.66]	0.65 [0.37, 0.93]	0.92 [0.63, 1.20]	–				

Note. Standard deviations are shown in rounded parentheses for the means and 95% confidence intervals are shown in square parentheses. Percentage reductions derived from the model change factor (i.e., 1 − exp(β)) in the model.

Social anxiety, depression, generalised anxiety, and panic symptoms were measured with the MINI-SPIN, PHQ-9, GAD-7, and PDSS-SR, respectively.

[a] Analyses use the data of participants meeting diagnostic criteria for Social Anxiety Disorder at assessment.

[b] Analyses use the data of participants meeting diagnostic criteria for Major Depressive Disorder at assessment.

[c] Analyses use the data of participants meeting diagnostic criteria for Generalised Anxiety Disorder at assessment.

[d] Analyses use the data of participants meeting diagnostic criteria for Panic Disorder at assessment.

[e] To accurately reflect percentage change, a constant of 10 was subtracted from K10 scores when calculating percentage change scores.

the proportions of participants who reported they would recommend the course or reporting finding the course was worth their time (χ^2 range = 0.05 to 0.87; p range = 0.284 to 0.541).

3.3. Clinician-Guided CBT (CG-CBT) versus self-guided CBT (DS-CBT)

The means, standard deviations and effect sizes for the CG-CBT and SG-CBT groups are shown in Table 4.

3.3.1. Outcomes across the diagnoses

3.3.1.1. Social anxiety disorder. Among those meeting diagnostic criteria for SAD (n = 206) the GEE analyses indicated a significant effect for Time (MINI-SPIN: *Wald's* χ^2 = 406.78, $p < 0.001$) and a significant Time by Treatment Approach interaction for social anxiety symptoms (MINI-SPIN: *Wald's* χ^2 = 12.13, $p = 0.016$). Pairwise comparisons indicated that both groups improved similarly from baseline to post-treatment ($p < 0.001$) and that the CG-CBT group further improved from post-treatment to 3-month follow-up ($p < 0.001$) where the SG-CBT group improved significantly between 3-month and 12-month follow-up ($p < 0.001$). The only significant difference between the groups was found at 3-month follow-up ($p = 0.003$), where the CG-CBT group reported slightly fewer symptoms than the SG-CBT group. No other significant differences were found.

3.3.1.2. Major depressive disorder. Among those meeting diagnostic criteria for MDD (n = 87) the GEE analyses indicated a significant effect for Time (PHQ-9: *Wald's* χ^2 = 238.85, $p < 0.001$) but no significant Time by Treatment Approach interaction effect for depressive symptoms (PHQ-9: *Wald's* χ^2 = 0.370, $p = 0.985$). Pairwise comparisons indicated that participants improved similarly from baseline to post-treatment ($p < 0.001$) and from post-treatment to 3-month follow-up ($p = 0.002$). There were no other significant changes between the other time points.

3.3.1.3. Generalised anxiety disorder. Among those meeting diagnostic criteria for GAD (n = 102) the GEE analyses indicated a significant effect for Time (GAD-7: *Wald's* χ^2 = 200.74, $p < 0.001$) but no significant Time by Treatment Approach interaction for GAD symptoms (GAD-7: *Wald's* χ^2 = 3.81, $p = 0.432$). Pairwise comparisons indicated that participants improved similarly from baseline to post-treatment ($p < 0.001$) and from 3-month to 12-month follow-up ($p = 0.042$). There were no other significant changes between the other time points.

3.3.1.4. Panic disorder. Among those meeting diagnostic criteria for PD (n = 61) the GEE analyses indicated a significant effect for Time (PDSS-SR: *Wald's* χ^2 = 60.57, $p < 0.001$) but no significant Time by Treatment Approach interaction for panic symptoms (PDSS-SR: *Wald's* χ^2 = 2.69, $p = 0.611$). Pairwise comparisons indicated that participants improved similarly from baseline to post-treatment ($p < 0.001$) and from post-treatment to 3-month follow-up ($p = 0.001$). There were no other significant changes between the other time points.

3.3.2. Outcomes for general psychological distress, disability, and neuroticism

Across the whole sample (n = 220) the GEE analyses indicated a significant effect for Time (K10: *Wald's* χ^2 = 296.38, $p < 0.001$) but no significant Time by Treatment Approach interaction for general psychological distress (K10: *Wald's* χ^2 = 4.17, $p = 0.243$). Pairwise comparisons indicated that participants improved from baseline to post-treatment ($p < 0.001$) and from post-treatment to 3-month follow-up ($p < 0.002$).

Across the whole sample (n = 220) there was a significant effect for Time (SDS: *Wald's* χ^2 = 280.79, $p < 0.001$) but no significant Time by Treatment Approach interaction for disability (SDS: *Wald's* χ^2 = 6.78, $p = 0.147$). Pairwise comparisons indicated that participants improved from baseline to post-treatment ($p < 0.001$), post-treatment to 3-month follow-up ($p < 0.001$), 3-month to 12-month follow-up ($p = 0.049$) and 12-month to 24-month follow-up ($p = 0.009$).

Across the whole sample (n = 220) there was a significant effect for Time (NEO-FFI-N: *Wald's* χ^2 = 210.72, $p < 0.001$) but no significant Time by Treatment Approach interaction for neuroticism (NEO-FFI-N: *Wald's* χ^2 = 2.54, $p = 0.467$). Pairwise comparisons indicated that participants improved from baseline to post-treatment and from post-treatment to 3-month follow-up ($ps < 0.001$). Pairwise comparisons indicated that participants improved from baseline to post-treatment ($p < 0.001$), post-treatment to 3-month follow-up ($p < 0.001$) and 3-month to 12-month follow-up ($p = 0.008$).

3.3.3. Changes in diagnostic status

The numbers and changes in the proportion of participants meeting formal diagnostic criteria at initial assessment and 3-month follow-up are shown in Table 5. The GEE analyses of diagnoses revealed a significant effect for Time across the diagnoses (SAD: *Wald's* χ^2 = 89.14, $p < 0.001$; MDE; *Wald's* χ^2 = 68.64, $p < 0.001$; GAD: *Wald's* χ^2 = 39.33, $p < 0.001$; PD: *Wald's* χ^2 = 38.58, $p < 0.001$). No significant Time by Support Format interactions were observed for any diagnoses (SAD: *Wald's* χ^2 = 1.63, $p = 0.202$; MDE: *Wald's* χ^2 = 0.06, $p = 0.795$; GAD: *Wald's* χ^2 = 1.21, $p = 0.269$; PD: *Wald's* χ^2 = 2.54, $p = 0.111$) indicating that the proportion of participants meeting diagnostic criteria significantly reduced across time irrespective of Support Format.

The GEE analyses focused on average comorbid diagnoses revealed a significant Time effect (*Wald's* χ^2 = 197.65, $p < 0.001$) but no Time by Support Format interaction (*Wald's* χ^2 = 1.24, $p = 0.265$). These analyses indicated significant reductions in comorbid diagnoses amongst both the CG-CBT and SG-CBT groups over time.

3.3.4. Treatment completion and satisfaction rates

There was no difference in the number of lessons completed by the CG-CBT ($M = 4.39$; $SD = 1.09$) and SG-CBT ($M = 4.30$; $SD = 1.17$) groups at post-treatment ($F_{1,218} = 0.40$, $p = 0.526$). Of the participants who completed the evaluation questions at post-treatment, 96% (94/98) of the CG-CBT group, and 93% (78/84) of the SG-CBT group, reported they *would recommend the course* to others. Further, 96% (94/98) of the CG-CBT group and 95% (79/83) of the SG-CBT group reported the course was *worth their time*. There were no significant differences in the proportions of participants willing to recommend the course or finding the course was worth their time (χ^2 range: 0.06–.82; $p = 0.366$ to 0.810).

4. Discussion

The present study is one of a series of RCTs comparing the efficacy and acceptability of transdiagnostic and disorder-specific internet-delivered CBT when provided with and without clinician contact (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Fogliati, Dear et al., 2016). In the present trial, it was hypothesised that both TD-CBT and DS-CBT would result in significant improvements on principal symptoms of SAD, but that TD-CBT would be associated with superior improvements to DS-CBT on comorbid symptoms of depression, general anxiety and panic at each time point. It was also hypothesised that CG-CBT would be superior to SG-CBT on both principal and comorbid symptoms at each time point. These hypotheses were only

Table 4
Means, percentage change and effect sizes: clinician-guided (CG-CBT) versus self-guided (SG-CBT).

	Estimated Marginal Means					% Change from baseline				Within Group Cohen's *d* from baseline				Between Group Cohen's *d*			
	Baseline	Post	3mth	12mth	24mth	Post	3mth	12mth	24mth	Post	3mth	12mth	24mth	Post	3mth	12mth	24mth
PRINCIPAL OUTCOME																	
Social Anxiety Symptoms [a]																	
CG-CBT (n = 107)	9.44 (1.97) [9.07, 9.83]	5.96 (3.10) [5.40, 6.57]	5.16 (2.79) [4.66, 5.73]	5.25 (2.79) [4.74, 5.81]	5.08 (3.21) [4.51, 5.72]	37% [30%, 43%]	45% [39%, 51%]	44% [38%, 50%]	46% [39%, 52%]	1.34 [1.04, 1.63]	1.77 [1.45, 2.08]	1.73 [1.41, 2.04]	1.64 [1.32, 1.94]	−0.20 [−0.47, 0.07]	−0.42 [−0.69, −0.14]	−0.10 [−0.37, 0.18]	−0.07 [−0.34, 0.21]
SG-CBT (n = 99)	9.46 (2.29) [9.02, 9.91]	6.60 (3.28) [5.98, 7.28]	6.36 (2.98) [5.80, 6.96]	5.52 (2.89) [4.98, 6.11]	5.28 (2.79) [4.76, 5.85]	30% [23%, 37%]	33% [26%, 39%]	42% [35%, 47%]	44% [38%, 50%]	1.01 [.71, 1.30]	1.17 [.86, 1.46]	1.51 [1.19, 1.82]	1.64 [1.31, 1.95]				
SECONDARY OUTCOMES																	
Depression Symptoms [b]																	
CG-CBT (n = 44)	14.61 (3.85) [13.52, 15.80]	8.53 (4.51) [7.30, 9.98]	7.29 (4.18) [6.15, 8.64]	7.66 (4.97) [6.33, 9.28]	7.78 (4.71) [6.51, 9.31]	42% [32%, 50%]	50% [41%, 58%]	48% [36%, 57%]	47% [36%, 55%]	1.45 [0.97, 1.91]	1.82 [1.31, 2.30]	1.56 [1.07, 2.03]	1.59 [1.10, 2.05]	0.14 [−0.29, 0.56]	0.06 [−0.36, 0.48]	0.08 [−0.34, 0.50]	0.04 [−0.38, 0.46]
SG-CBT (n = 43)	13.61 (3.87) [12.49, 14.82]	7.91 (4.59) [6.65, 9.42],	7.01 (4.46) [5.79, 8.48]	7.32 (3.61) [6.32, 8.49]	7.60 (4.52) [6.37, 9.07]	42% [31%, 51%]	48% [38%, 57%]	46% [38%, 54%]	44% [33%, 53%]	1.34 [0.86, 1.80]	1.58 [1.08, 2.05]	1.68 [1.17, 2.16]	1.43 [0.94, 1.89]				
Generalised Anxiety Symptoms [c]																	
CG-CBT (n = 58)	12.14 (4.87) [10.95, 13.46]	7.44 (5.18) [6.23, 8.89]	6.32 (4.80) [5.20, 7.68]	6.15 (4.87) [5.02, 7.55]	5.42 (4.34) [4.41, 6.67]	39% [27%, 49%]	48% [37%, 57%]	49% [38%, 59%]	55% 45%, 64%]	0.93 [0.55, 1.31]	1.20 [0.80, 1.59]	1.23 [.83, 1.62]	1.46 [1.04, 1.86]	−0.06 [−0.45, 0.33]	−0.23 [−0.62, 0.16]	0.07 [−0.33, 0.46]	−0.13 [−0.52, 0.27]
SG-CBT (n = 44)	12.07 (4.38) [10.84, 13.44]	7.75 (4.78) [6.45, 9.31]	7.48 (5.31) [6.07, 9.21]	5.87 (3.12) [5.01, 6.87]	5.95 (4.05) [4.88, 7.27]	36% [23%, 47%]	38% [24%, 50%]	51% [43%, 58%]	51% [40%, 60%]	0.94 [0.49, 1.37]	0.94 [0.49, 1.37]	1.63 [1.13, 2.10]	1.45 [.97, 1.91]				
Panic Symptoms [d]																	
CG-CBT (n = 31)	12.13 (5.57) [10.18, 14.45]	7.30 (5.57) [5.48, 9.72]	5.54 (6.07) [3.86, 7.94]	5.45 (5.12) [3.90, 7.63]	5.41 (6.18) [3.54, 8.28]	40% [20%, 55%]	54% [35%, 68%]	55% [37%, 68%]	55% [32%, 71%]	0.87 [0.34, 1.38]	1.13 [0.58, 1.65]	1.25 [0.69, 1.78]	1.14 [0.59, 1.66]	−0.18 [−0.68, 0.33]	−0.24 [−0.74, 0.27]	−0.26 [−0.76, 0.25]	−0.20 [−0.71, 0.30]
SG-CBT (n = 30)	11.43 (5.92) [9.63, 13.58]	8.32 (5.86) [6.57, 10.53]	6.92 (5.59) [5.08, 9.42]	6.78 (5.09) [5.20, 8.83]	6.70 (6.41) [4.83, 9.28]	27% [8%, 43%]	40% [18%, 56%]	41% [23%, 55%]	41% [19%, 58%]	0.53 [0.01, 1.04]	0.78 [0.25, 1.30]	0.84 [0.30, 1.36]	0.77 [0.23, 1.28]				
TERTIARY OUTCOMES																	
Disability and Functioning (SDS)																	
CG-CBT (n = 112)	13.50 (7.51) 12.18, 14.96]	9.69 (7.83) [8.35, 11.25]	7.54 (6.67) [6.39, 8.89]	6.92 (6.56) [5.80, 8.25]	6.60 (6.88) [5.44, 8.01]	28% [17%, 38%]	44% [34%, 53%]	49% [39%, 57%]	51% [41%, 60%]	0.50 [0.23, 0.76]	0.84 [0.56, 1.11]	0.93 [0.65, 1.21]	0.96 [0.68, 1.23]	0.05 [−0.22, 0.31]	−0.17 [−0.43, 0.10]	−0.13 [−0.39, 0.13]	0.10 [−0.17, 0.36]
SG-CBT (n = 108)	13.93 (7.69) 12.55, 15.45]	9.31 (7.69) [7.96, 10.89]	8.72 (7.38) [7.42, 10.23]	7.77 (6.44) [6.64, 9.10]	5.98 (5.72) [4.99, 7.17]	33% [22%, 43%]	37% [27%, 47%]	44% [35%, 52%]	57% [49%, 64%]	0.60 [0.33, 0.87]	.69 [.41, 0.96]	0.87 [0.59, 1.14]	1.17 [0.88, 1.46]				
Psychological Distress (K−10) [e]																	
CG-CBT (n = 112)	25.50 (8.15) [24.04, 27.05]	20.95 (7.30) [19.64, 22.34]	18.76 (6.56) [17.57, 20.02]	18.79 (6.77) [17.58, 20.08]	–	31% [22%, 41%]	37% [28%, 45%]	45% [35%, 50%]	–	0.59 [0.32, 0.85]	0.91 [0.63, 1.18]	0.90 [0.62, 1.17]	–	0.16 [−0.10, 0.43]	−0.04 [−0.30, 0.22]	0.11 [−0.15, 0.38]	–
SG-CBT (n = 108)	24.22 (6.75) [22.98, 25.54]	19.77 (7.17) [18.46, 21.16]	19.02 (6.34) [17.87, 20.25]	18.12 (5.04) [17.13, 19.18]	–	29% [20%, 38%]	43% [35%, 51%]	43% [35%, 51%]	–	0.64 [0.36, 0.91]	0.79 [0.51, 1.07]	1.02 [0.74, 1.30]	–				
Neuroticism (NEO-FFI-N)																	
CG-CBT (n = 112)	32.87 (6.98) [31.60, 34.19]	30.18 (7.62) [28.78, 31.64]	27.62 (7.51) [26.30, 29.01]	26.51 (7.09) 25.12, 27.98]	–	8% [4%, 12%]	16% [12%, 20%]	19% [15%, 24%]	–	0.37 [.10, 0.63]	0.72 [0.45, 0.99]	0.90 [0.63, 1.18]	–	0.24 [−0.03, 0.50]	0.12 [−0.14, 0.39]	0.08 [−0.18, 0.35]	–
SG-CBT (n = 108)	32.08 (6.86) [30.81, 33.41]	28.37 (7.59) [27.00, 29.81	26.72 (7.17) [25.37, 28.14]	25.90 (7.59) 24.62, 27.24]	–	12% [7%, 16%]	17% [12%, 21%]	19% [15%, 23%]	–	0.51 [.24, 0.78]	0.76 [0.48, 1.04]	0.85 [0.57, 1.13]	–				

Note. Standard deviations are shown in rounded parentheses for the means and 95% confidence intervals are shown in square parentheses. Percentage reductions derived from the model change factor (i.e., 1 − exp(β)) in the model.

Social anxiety, depression, generalised anxiety, and panic symptoms were measured with the MINI-SPIN, PHQ-9, GAD-7, and PDSS-SR, respectively.

[a] Analyses use the data of participants meeting diagnostic criteria for Social Anxiety Disorder at assessment.

[b] Analyses use the data of participants meeting diagnostic criteria for Major Depressive Disorder at assessment.

[c] Analyses use the data of participants meeting diagnostic criteria for Generalised Anxiety Disorder at assessment.

[d] Analyses use the data of participants meeting diagnostic criteria for Panic Disorder at assessment.

[e] To accurately reflect percentage change, a constant of 10 was subtracted from K10 scores when calculating percentage change scores.

Table 5
Proportions meeting diagnostic criteria over time for each of the groups.

	TD-CBT versus DS-CBT						CG-CBT versus SG-CBT					
	Baseline		3mth		% Change from Baseline		Baseline		3mth		% Change from Baseline	
	TD-CBT	DS-CBT	TD-CBT	DS-CBT	TD-CBT	DS-CBT	CG-CBT	SG-CBT	CG-CBT	SG-CBT	CG-CBT	SG-CBT
DIAGNOSIS												
Social Anxiety Disorder	95% [89%,98%]	92% [86%,96%]	53% [44%,63%]	47% [38%,56%]	56% [46%,66%]	51% [41%,61%]	96% [90%,98%]	92% [85%,96%]	49% [40%,58%]	51% [42%,60%]	51% [42%,61%]	56% [45%,66%]
Generalised Anxiety Disorder	50% [41%,60%]	43% [34%,52%]	24% [16%,34%]	15% [9%,24%]	53% [32%,69%]	64% [43%,78%]	52% [43%,61%]	41% [32%,50%]	19% [12%,29%]	19% [12%,29%]	63% [44%,76%]	52% [29%,70%]
Major Depressive Disorder	36% [28%,46%]	43% [34%,52%]	7% [3%,13%]	5% [2%,11%]	82% [63%,91%]	88% [74%,94%]	39% [31%,49%]	40% [31%,49%]	6% [3%,13%]	6% [3%,12%]	84% [68%,92%]	86% [70%,94%]
Panic Disorder	27% [19%,36%]	29% [21%,38%]	11% [7%,19%]	9% [5%,16%]	32% [17%,59%]	39% [23%,64%]	28% [20%,37%]	28% [20%,37%]	7% [4%,14%]	13% [8%,21%]	26% [13%,49%]	47% [28%,75%]
COMORBID DIAGNOSES												
Average Frequency[a]	2.08	2.06	0.86	0.75	59% [50%,66%]	64% [56%,70%]	2.14	2.00	0.77	0.83	64% [56%,71%]	58% [50%,66%]
0	5% [2%,11%]	3% [1%,8%]	41% [32%,51%]	45% [36%,54%]	–	–	3% [1%,8%]	6% [3%,12%]	46% [37%,55%]	41% [32%,50%]	–	–
1	46% [36%,55%]	37% [28%,46%]	37% [28%,47%]	39% [31%,48%]	–	–	44% [35%,53%]	38% [29%,47%]	38% [29%,47%]	39% [30%,48%]	–	–
2	31% [23%,41%]	39% [31%,48%]	18% [12%,27%]	12% [7%,20%]	–	–	34% [26%,43%]	37% [28%,47%]	13% [8%,20%]	18% [12%,26%]	–	–
3	13% [8%,21%]	17% [11%,24%]	3% [1%,8%]	3% [1%,8%]	–	–	13% [8%,21%]	17% [11%,25%]	4% [0%,9%]	2% [1%,7%]	–	–

Note: 95% confidence intervals of estimates are shown in parentheses both for estimates of proportions of participants meeting diagnostic criteria and for percentage change.
[a] The frequency of comorbid diagnoses over time was estimated employing binary logistic regressions to provide estimates of frequency with 95% confidence intervals rather than simple raw counts.

partially supported. All conditions resulted in significant improvements across the outcome measures and these corresponded to significant reductions in the proportions of participants meeting diagnostic criteria. No marked or consistent differences were found between participants who received TD-CBT and DC-CBT or CG-CBT and SG-CBT either in terms of symptom scores or changes in diagnostic status. Treatment completion, as indicated by the proportion of participants across treatments groups who read four of the five lessons, was high amongst all groups, as was satisfaction with the interventions.

In the current trial TD-CBT and DS-CBT as well as CG-CBT and SG-CBT were all associated with similar levels of acceptability and reductions in symptoms of SAD and other common comorbid disorders. The magnitude of reductions in social anxiety symptoms (Cohen's $d \geq 1.01$; avg. reduction $\geq 30\%$) in the current trial were large across the conditions and consistent with those reported in face-to-face treatments (Butler et al., 2006; Stewart & Chambless 2009; Cuijpers et al., 2014) and internet-delivered treatments for SAD (Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010). There was also evidence of large reductions in symptoms of comorbid major depressive disorder (Cohen's $d \geq 1.25$; avg. reduction $\geq 39\%$) and generalised anxiety disorder (Cohen's $d \geq 0.86$; avg. reduction $\geq 36\%$), and moderate-to-large improvements in symptoms of panic disorder (Cohen's $d \geq 0.53$; avg. reduction $\geq 25\%$). It is also important to note that significant reductions in general psychological distress (Cohen's $d \geq 0.58$; avg. reduction $\geq 18\%$), disability (Cohen's $d \geq 0.50$; avg. reduction $\geq 28\%$) and neuroticism (Cohen's $d \geq 0.37$; avg. reduction $\geq 8\%$) were also observed across all conditions. Significant reductions were also observed in the proportions of participants meeting diagnostic criteria for each of the examined disorders (SAD $\geq 51\%$, MDD $\geq 82\%$, GAD $\geq 52\%$ and PD $\geq 26\%$), and the observed reductions in symptoms were maintained from post-treatment across the 3-month, 12-month and 24-month follow-up time points.

The findings of the present study are consistent with the few other studies to directly compare transdiagnostic and disorder-specific treatments for the four target disorders of DEP, GAD, PD, and SAD. This literature has found no marked or consistent differences between the two treatment approaches for principal DEP, GAD and PD (Norton & Barrera 2012; Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Fogliati, Dear et al., 2016). Thus, contrary to what might be expected and was hypothesised in this study, transdiagnostic CBT does not appear to be superior for comorbid DEP, GAD or PD. This further supports the observation (Norton and Barrera 2012; Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Fogliati, Dear et al., 2016) that the real benefit of the transdiagnostic approach may be more pragmatic than clinical. That is, while disorder-specific and transdiagnostic treatments may be similarly effective and acceptable, transdiagnostic treatments offer the opportunity to employ one treatment that addresses symptoms of multiple disorders rather than needing to deliver and have clinicians competent in numerous specific programs (McHugh et al., 2009). This is significant in the context of recent calls for innovation in psychological treatment (e.g., Kazdin and Blasé, 2011; Kazdin, 2015) and large-scale initiatives to increase access to treatment for common mental health conditions such as SAD (e.g., Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Richards and Suckling, 2009). There are also the additional potential benefits of transdiagnostic treatments reducing the need for complex differential diagnostic assessments (e.g., to determine principal diagnoses and the most appropriate disorder-specific treatment to be provided) and being easier to disseminate than multiple disorder-specific treatments (e.g., because of the reduced need for clinicians to be trained to competence in multiple disorder-specific treatment protocols) (McHugh et al., 2009).

This study also found similar clinical outcomes, treatment completion and satisfaction rates among participants with principal SAD and other comorbid disorders when internet-delivered CBT was delivered in both a clinician-guided and self-guided format. This is consistent with the findings of the other studies in this series of RCTs focused on principal MDD (Titov, Dear, Staples,

Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015), principal GAD (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015) and principal PD (Fogliati, Dear et al., 2016) and the few other recent studies to directly compare CG-CBT and SG-CBT (Berger, Caspar et al., 2011; Berger, Hämmerli, Gubser, & Caspar, 2011; Titov et al., 2013a,b; Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015). It is important to note that this finding of similar outcomes for CG-CBT and SG-CBT is inconsistent with the findings of meta-analyses comparing across studies of internet-delivered interventions (Andersson & Cuijpers 2009; Cuijpers et al., 2009; Andrews et al., 2010; Andersson & Titov 2014), which have found CG-CBT to be superior to SG-CBT. It is likely that at least two key differences exist between older self-guided internet-delivered interventions and newer, more efficacious, versions. First, these newer self-guided internet-delivered interventions employed telephone assessments that allow triage and evaluation of suitability, but also allow participants to ask questions about the treatment and allow clinicians to orient and prepare the participant for treatment. Second, many of these studies have also employed interventions that have been carefully designed to work in a self-guided format with, for example, all participants receiving carefully-designed automated emails to guide and reinforce their progression through the intervention (Titov et al., 2013a,b, 2014a,b). More research is needed to understand what features are important for effective and safe self-guided interventions, and for whom these interventions are most effective and appropriate. However, the findings of this and other recent studies highlight the potential of carefully designed self-guided interventions for increasing access to effective psychological treatment and reducing the burden of common mental health conditions (Kazdin and Blasé, 2011; Kazdin, 2015).

The present study has a number of important strengths and limitations that need to be noted and considered when interpreting its results. As with the other trials in this series of studies (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Fogliati, Dear et al., 2016), the main limitation of the current trial is the absence of a control group. While SAD symptoms are relatively unremitting and the clinical effects observed are unlikely to have occurred as a result of time and other non-specific factors alone, the absence of a control group means the impact of such effects cannot be ruled out or controlled for in the current study. Another main limitation of the current trial is that it was designed and conducted as a superiority trial rather than a non-inferiority trial. Consequently, as with the other trials (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Fogliati, Dear et al., 2016), caution is needed in concluding the absence or presence of any statistical findings as supporting the clinical equivalence of the different treatment appproaches and support formats. For example, there was some evidence of a small statistically significant difference favouring CG-CBT over SG-CBT for principal SAD symptoms at 3-month follow-up and, while differences were not evident at any other time points, non-inferiority trial designs with well-established margins of non-inferiority are needed to draw firm conclusions about the presence or absence of clinically meaningful differences. Other limitations include resource constraints that meant it was not possible to blind the diagnostic assessments, administer a broader range of standardised measures of social anxiety symptoms, or conduct a more exhaustive evaluation of treatment satisfaction and acceptability. Some caution is also needed in generalising the findings of the current trial. For example, the current study employed one particular disorder-specific treatment and one particular transdiagnostic treatment and it is not clear whether the current findings would generalise to other treatment protocols, especially delivered in traditional face-to-face formats. For example, the current disorder-specific treatment protocol included controlled breathing and assertive communication as skills, which are not common parts of some disorder-specific face-to-face CBT treatment protocols for SAD but do often appear in disorder-specific iCBT treatments for SAD. Moreover, gold-standard face-to-face CBT for SAD also often include additional components, such as video-feedback and imagery rescripting (Clarke et al., 2006; McEvoy, Erceg-Hurn, Saulsman, & Thibodeau, 2015), which were not included in the current study and are not routinely a part of iCBT for SAD. However, it is also important to note that there has been limited published agreement on what consistitutes a disorder-specific versus transdiagnostic treatment or the core therapeutic components of each, especially when delivered via the internet. The current study also employed interventions that were carefully designed and developed to function in a self-guided format and the amount of clinician guidance provided to those recieving CG-CBT was relatively limited. Thus, it is unclear whether the current findings would generalise to other self-guided interventions, and it is possible that superior outcomes could have been obtained among those recieving CG-CBT had more clinician guidance been provided. Importantly, despite these limitations, the noteable strengths of the current trial include the use of a large sample size, high retention rates, the long-term follow-up of participants, and the use of multiple outcomes to comprehensively evaluate the intervention.

The present trial found large clinical improvements and high levels of treatment satisfaction whether the treatment for SAD was transdiagnostic or disorder-specific and self-guided or clinician-guided. Clinical improvements in principal symptoms of SAD and comorbid symptoms were observed across a broad range of clinical domains and were maintained until 24-month follow-up. Reflecting this, large improvements in the proportions of participants meeting diagnostic criteria for SAD and comorbid MDD, GAD and PD were observed across the treatment approaches and support formats. Thus, consistent with the other trials in this series of studies (Dear, Gandy et al., 2015; Dear, Staples et al., 2015; Dear, Zou et al., 2015; Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015; Fogliati, Dear et al., 2016), the present study highlights the public health potential of carefully designed and delivered internet-delivered psychological treatments for a range of principal and comorbid common mental health disorders.

5. Declaration of interest

N Titov and B Dear are funded by the Australian Government to develop and provide the MindSpot Clinic, a national online assessment and treatment service for Australian adults with anxiety and depression. N Titov and B Dear are also authors of the treatment programs employed in the current research but derive no financial benefit from them.

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