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Preference trial of internet-delivered cognitive behaviour therapy comparing standard weekly versus optional weekly therapist support

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ABSTRACT

Emerging evidence from research trials suggests that Internet-delivered cognitive behaviour therapy (ICBT) produces similar symptom improvements whether patients receive weekly therapist support (*standard support*) or therapist support only when requested (*optional support*). It remains unknown, however, how many patients receiving ICBT as part of routine clinical care would prefer optional support compared to standard support and how outcomes compare when patients select their preferred treatment option. In this uncontrolled trial, we investigated patient preference and outcomes for standard versus optional support among patients with depression and or anxiety who were offered an 8-week transdiagnostic ICBT intervention in routine care. Of 401 patients accepted for ICBT, 22% selected optional support and 78% selected standard support. At assessment, patients who selected optional support had lower symptoms of anxiety and panic than patients who selected standard support. At post-treatment, both groups achieved similar large improvements in symptoms of anxiety and depression, with improvements sustained at 3-month follow-up. Patients receiving optional support sent and received fewer messages compared to patients receiving standard support. This study demonstrates the potential of optional therapist support to meet the needs and preferences of patients and to also reduce therapist costs in routine care.

1. Introduction

Internet-delivered cognitive behaviour therapy (ICBT) has been shown to be efficacious for improving anxiety and depression (e.g., Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014). ICBT typically consists of psychoeducation, cognitive and behavioural skill development, and relapse prevention offered via the Internet through a series of lessons and homework assignments. Commonly, therapist support is offered throughout the intervention (Andersson, 2016). Both disorder-specific and transdiagnostic treatment protocols that simultaneously address depression and anxiety are effective (e.g., Dear et al., 2016; Titov, Dear, Staples, Terides et al., 2015). Furthermore, ICBT results in similar effects as face-to-face cognitive behaviour therapy with the benefit of being more accessible and convenient for patients who may have difficulty accessing treatment (e.g., Andersson et al., 2014).

Although ICBT is an effective and practical intervention, research is lacking regarding the optimal degree of therapist support required. Previous reviews concluded that guided ICBT is more effective than self-directed ICBT (Baumeister, Reichler, Munzinger, & Lin, 2014). Some studies, however, have found no significant differences between self-directed and guided approaches (Dear et al., 2016; Titov, Dear, Staples, Terides et al., 2015). It is hypothesized that self-directed approaches can result in significant outcomes when patients are carefully pre-screened, ICBT content is well-developed and engaging, and automated messages guide patients through treatment (Dear, Gandy et al., 2015).

Recent studies have examined the effectiveness of optional compared to standard weekly therapist support. In traditional *standard support*, a therapist provides weekly support to patients through telephone or email. With *optional support*, a therapist does not regularly contact a patient, but patients are able to contact their therapist if needed. This approach is attractive as it reduces therapist time but ensures a layer of safety not available in self-directed ICBT. Research on optional support in ICBT is in its infancy but shows promising outcomes (Berger et al., 2011; Dear, Gandy et al., 2015).

Recently, we conducted a randomized controlled trial (RCT)

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comparing standard versus optional support in a clinic that routinely offers transdiagnostic ICBT for depression and anxiety (Hadjistavropoulos et al., 2017). Significant symptom improvements were observed with both standard and optional support and there were no differences in patient satisfaction. Those receiving optional support, however, were significantly less likely to complete all lessons (57% vs. 82%). The results suggest optional support could be sufficient for individuals who are not at risk of drop-out. Notably, therapists sent fewer emails and wrote fewer words to patients who received optional support, thus reducing therapist costs (Hadjistavropoulos et al., 2017).

In addition to addressing the issues of efficacy, it is also important to examine patient preferences for optional versus standard therapist support. The Preference Collaborative Review Group (Preference Collaborative Review Group, 2008) reported that patients' treatment preferences affect study enrollment, attrition, adherence, satisfaction, and outcomes. Non-enrollment rates due to fear of being randomized to a non-preferred treatment group range from 10 to 95%, which may affect the generalizability of the results (King et al., 2005). Furthermore, patients who receive their non-preferred treatment may be less motivated to adhere to treatment, which has negative consequences for outcomes (Torgerson, Klaber-Moffett, & Russell, 1996).

Consideration of patient preferences has also been suggested by the American Psychological Association (APA Presidential Task Force on Evidence-Based Practice, 2006). Evidence-based practice has been defined by APA as utilizing clinical knowledge and the best available research to provide treatment to patients, while also considering patient treatment preferences. The current study, therefore, aims to contribute to the literature by examining the extent to which patients in routine practice prefer optional versus standard weekly therapist support as well as factors that may distinguish patients who prefer optional support. We also examined completion rates and outcomes among patients selecting optional versus standard support. Due to limited past research, no hypotheses were made about the percentage of patients who would select optional support or how groups may differ at screening or in treatment outcomes. We hypothesized fewer emails would be sent to patients offered optional compared to standard support.

2. Method

2.1. Design and ethics

In this preference trial, patients in routine practice selected whether they wanted transdiagnostic ICBT with weekly (1) optional support; or (2) standard therapist support. The trial received institutional research ethics board approval and was registered (ISRCTN14230906).

2.2. Patient recruitment, screening, and group selection

All patients applied for transdiagnostic ICBT through the Online Therapy Unit (www.onlinetherapyuser.ca), which is a government-funded clinic that routinely offers ICBT in Saskatchewan, Canada. Access to ICBT is through self-referral followed by completion of an online consent form and questionnaires and a subsequent telephone screening. All patients (n = 595) who applied between December 2, 2016 and June 8, 2017 were included in the trial. Patients learned of treatment via medical professionals (n = 195; 52%), mental health professionals (n = 94; 25%), word of mouth (n = 52; 14%), online searches and email (n = 21; 6%), media (n = 9; 2%), and printed posters/cards (n = 3; 1%).

Screening began with applicants (n = 595) completing online questions assessing if patients were: (1) 18 years of age or older; (2) residents of Saskatchewan, Canada; (3) self-reporting symptoms of depression and or anxiety; (4) able to access and use computers and the Internet; (5) available for the 8-week treatment; and (6) willing to share a medical provider as emergency contact. If patients endorsed any of these criteria (n = 49), they were encouraged to contact their family physician. Patients who met initial inclusion criteria (n = 546) completed additional online questions described below.

Unless patients could not be reached (n = 57) or withdrew (n = 8), patients were contacted by staff by telephone to clarify responses. Patients were screened out and referred elsewhere if they were: (1) identified as high suicide risk (n = 36); (2) more appropriate for another mental health service (n = 10); (3) primarily having alcohol or drug problems (n = 8); (4) receiving or seeking face-to-face treatment (n = 7); or (5) subsequently identified as not meeting initial eligibility criteria (n = 7). Twelve patients were excluded from the study because one employee discontinued study procedures early and automatically assigned these patients to standard support without asking patients their preference. Patients did not require a diagnosis to participate as past research shows that those with subthreshold symptoms benefit from ICBT (Hadjistavropoulos et al., 2016).

During the initial online consent form and subsequent telephone call, all patients were informed that: 1) treatment would involve completing the *Wellbeing Course*, which is an 8-week internet-delivered treatment designed to treat both anxiety and depression; 2) the program involves reviewing educational materials online on a weekly basis and completing weekly assignments to facilitate learning skills; 3) they would be sent automated emails to remind them to complete the course and questionnaires at the beginning of each lesson, at the end of treatment and at 3-month follow-up; and 4) they could select between two forms of support. In standard support, they were informed that they would be encouraged to email their assigned therapist each week and that their therapist would automatically respond to their emails once a week. If they did not log in or email, they were informed that their therapist would call them. They were further informed that therapists typically spend ˜15 min emailing or phoning patients each week. In optional support, they were informed that therapist contact would be directed by the patient and that the patient could email and ask the therapist to email or call on a designated day. They were told that if the patient did not request this contact, the therapist would not contact them by email or phone. They were also informed, however, that if the therapist noticed the patient reported a sudden increase in symptoms or thoughts of death on the questionnaires, under these circumstances, the therapist would contact the patient even if support was not requested. 401 eligible patients selected their preference for standard (n = 312; 78%) or optional support (n = 89; 22%). 374 (293 standard; 81 optional) patients subsequently started lesson one and were eligible for analysis. See Fig. 1.

2.3. Intervention

Patients were given login credentials to a secure server that contained the course, outcome measures, and messaging system. The ICBT *Wellbeing Course* was developed by and licensed from the eCentreClinic at Macquarie University, in Sydney, Australia (Titov, Dear, Staples, Bennett-Levy et al., 2015; Titov, Dear, Staples, Terides et al., 2015). The course is for patients who self-report difficulties with depression and or anxiety and contains five lessons, released gradually over 8 weeks, covering: (1) the cognitive behavioural model and symptom identification; (2) thought monitoring and challenging; (3) de-arousal strategies and pleasant activity scheduling; (4) graduated exposure; and (5) relapse prevention. Patients can also download weekly lesson summaries, homework assignments, and patient stories. At any time, they can access additional resources (e.g., sleep, problem solving, communication).

2.4. Therapists

All patients who chose optional support were assigned to one of two registered social workers based on therapist availability (one treated 40 patients, the other treated 41) who worked in the Online Therapy Unit and were trained in delivering optional support during the previous

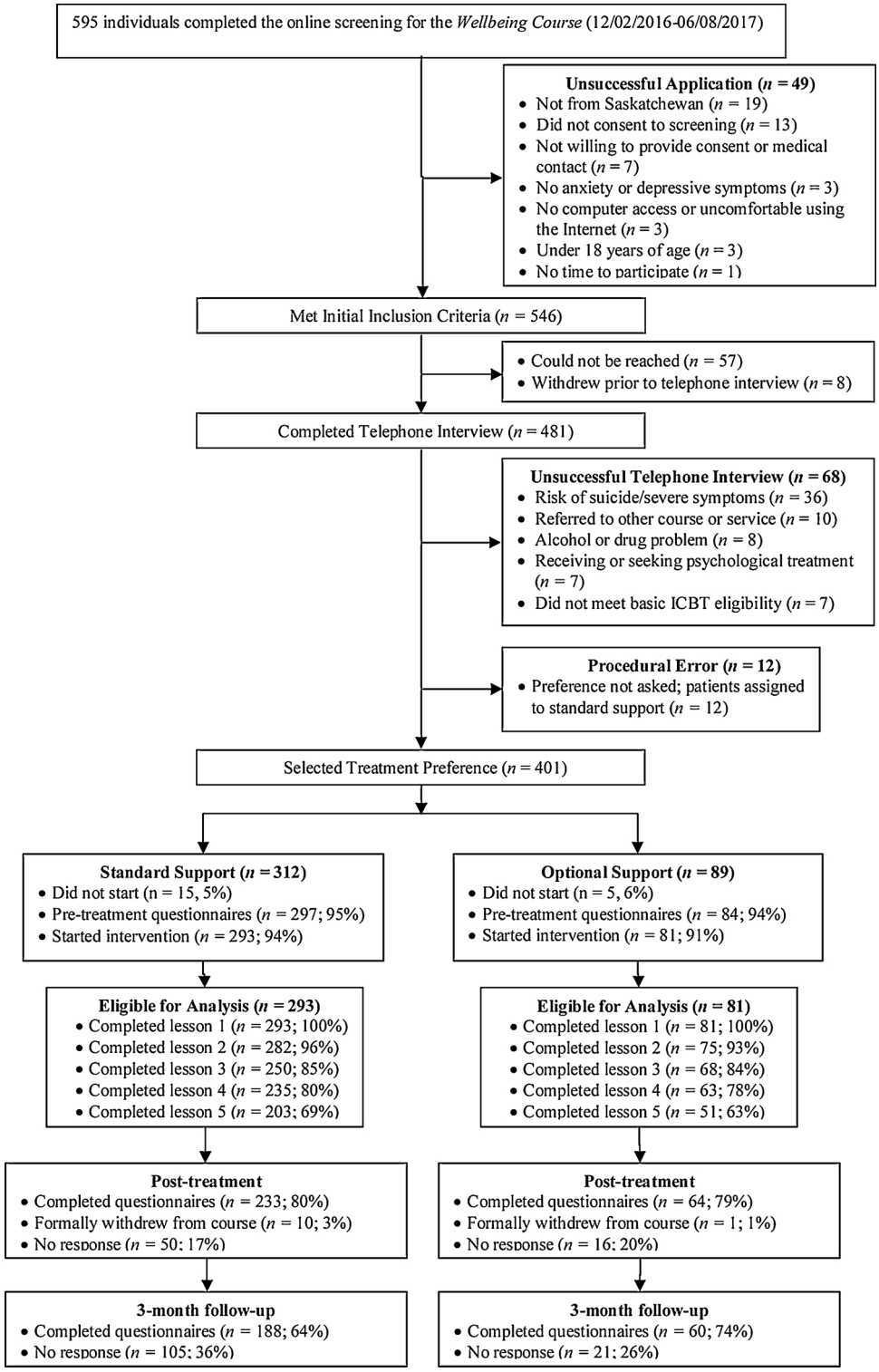

Fig. 1. Patient flow from screening to 3-month follow-up.

RCT (Hadjistavropoulos et al., 2017). Also based on therapist availability, patients who chose standard support were treated by therapists from the Online Therapy Unit (4 therapists and 5 graduate students under supervision treated 178 patients; $M = 19.78$; $SD = 28.88$; range: 1–75) or a therapist working in a community mental health clinic distributed across Saskatchewan (31 therapists treated 115 patients; $M = 3.71$; $SD = 2.58$; range: 1–11).

Therapists working in the Online Therapy Unit were registered social workers ($n = 3$), registered psychologists ($n = 1$), or supervised graduate students in social work ($n = 4$) or psychology ($n = 1$). Therapists working in the community mental health clinics were registered social workers ($n = 22$), registered psychologists ($n = 5$), addictions counsellors ($n = 3$), or registered nurses ($n = 1$). This approach to providing ICBT with standard weekly support is used on a routine basis since demand for services exceeds therapist availability in the Online Therapy Unit. Past research shows outcomes do not differ between therapists working in the Online Therapy Unit and those working in community clinics or between registered therapists and graduate

students (Hadjistavropoulos et al., 2016). All therapists were trained via a one-day workshop (Hadjistavropoulos, Thompson, Klein, & Austin, 2012) and were then supervised in delivering ICBT prior to treating patients.

2.5. Amount of support

In the case of standard support, once per week, on a set day, therapists reviewed patient questionnaires and emails from patients and then sent a tailored brief (˜15–20 min/week) email to patients. In the emails, therapists were instructed to: (1) show warmth and concern; (2) engage the patient by asking about their understanding of the material and need for help; (3) provide feedback on questionnaires; (4) highlight lesson content; (5) answer patient questions about lessons and assist with skills; (6) reinforce progress and practicing skills; (7) manage any risks (e.g., suicide); and (8) remind patients of course procedures. Therapists could make phone calls to patients if clinically indicated (e.g., patient had not logged in for a week, significant symptom increase). In optional support, therapists only emailed or phoned patients if patients requested contact, or, if, therapists were concerned about patient safety after reviewing patient weekly symptom questionnaires.

2.6. Measures

Patients completed outcome measures at pre-treatment, post-treatment, and at 3-months. Treatment satisfaction, negative effects and working alliance measures were completed at post-treatment. Patients also completed primary outcome measures prior to each lesson so that therapists could monitor symptoms needing telephone follow-up.

2.6.1. Primary outcome measures

2.6.1.1. Patient Health Questionnaire 9-item scale (PHQ-9; Kroenke, Spitzer, & Williams, 2001). On the PHQ-9, patients rated 9 symptoms of depression on a 0 (*not at all*) to 3 (*nearly every day*) scale. Scores of 5 or greater signify mild symptoms of depression (Kroenke et al., 2001) and scores of 10 or greater a likely diagnosis of major depression (Manea, Gilbody, & McMillan, 2012). The PHQ-9 has good psychometric properties (Kroenke, Spitzer, Williams, & Lowe, 2010). Cronbach's α for the study ranged from 0.88 to 0.90.

2.6.1.2. Generalized Anxiety Disorder 7-item scale (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006). On the GAD-7 patients rated 7 symptoms of anxiety experienced in the past 2 weeks on a 0 (*not at all*) to 3 (*nearly every day*) scale. Scores of 5 or greater signify mild symptoms and scores of 10 or greater a likely GAD diagnosis (Spitzer et al., 2006). Psychometric properties of the GAD-7 are strong (Spitzer et al., 2006). Cronbach's α for the study ranged from 0.88 to 0.92.

2.6.2. Secondary outcome measures

2.6.2.1. Kessler 10-item scale (K10; Kessler et al., 2002). The K10 uses 10-item to assess psychological distress over the past month on a 1-to-5 scale. The K10 has strong psychometric properties (Kessler et al., 2002). Cronbach's α for the study ranged from 0.90 to 0.93.

2.6.2.2. Sheehan Disability Scale (SDS; Sheehan, 1983). The SDS is a 3-item questionnaire of disruption to work/school, social life, and family/home responsibilities, with items rated on a 1-to-10 scale. Scores are responsive to ICBT (Titov, Dear, Staples, Terides et al., 2015). Cronbach's α in this study was 0.83–0.92.

2.6.2.3. Panic Disorder Severity Scale-Self Report (PDSS-SR; Houck, Spiegel, Shear, & Rucci, 2002). The PDSS-SR assesses symptoms of panic using 7 items rated 0 to 4. The scale has strong psychometric properties with scores of 8 or greater suggestive of panic disorder (Shear et al., 2001). Cronbach's α in this study ranged from 0.90 to 0.92.

2.6.2.4. Social Interaction Anxiety Scale and Social Phobia Scale-Short form (SIAS-6/SPS-6; Peters, Sunderland, Andrews, Rapee, & Mattick, 2012). The SIAS-6/SPS-6 measures symptoms of social anxiety on a 0 (*not at all*) to 4 (*extremely*) scale. The scale is reliable and valid, with scores ≥7 on the SIAS-6 and ≥2 on the SPS-6 associated with a social anxiety disorder diagnosis (Peters et al., 2012). Cronbach's α in this study ranged from 0.92 to 0.93.

2.7. Treatment satisfaction and negative effects

Patients indicated whether they would recommend ICBT to a friend and whether completing the course was worth their time using a yes/no scale (Titov, Dear, Staples, Terides et al., 2015). Patients also indicated whether they had experienced unwanted negative effects or events with ICBT (Rozental et al., 2014).

2.8. Therapeutic alliance

Therapeutic alliance was measured using the Working Alliance Inventory – Short Revised (WAI-SR; Munder, Wilmers, Leonhart, Linster, & Barth, 2010), with 12 items rated 1-to-5. Subscales assess: a) agreement between patient and therapist on treatment goals, b) agreement between patient and therapist on therapeutic tasks, and c) the affective bond between patient and therapist. Cronbach's α for the total score and subscales ranged from 0.86 to 0.94.

2.9. Intervention use

The web application tracked number of: 1) days patients used the application from first to last access, 2) lessons reviewed, 3) messages sent to and received from the therapist, and 4) phone calls between patient and therapist.

2.10. Analytic plan

SPSS version 23 was used to conduct all analyses using data from patients who started the first lesson. Descriptive statistics were used to describe patient characteristics, intervention use, treatment satisfaction, and working alliance. Group differences were assessed using binomial regressions and general linear models. The alpha significance level was set at 0.01 as a partial control for the number of analyses.

Consistent with previous research (Dear, Staples et al., 2015; Hadjistavropoulos et al., 2016), generalized estimation equation (GEE) models were used to examine symptom changes over time. GEE is a longitudinal technique which emphasizes the modeling of change over time while also using a working correlation model to account for within-subject variance (Hubbard et al., 2010). GEE analyses statistically test the average between and within-group change over time. For GEE analyses, an unstructured working correlation was selected along with robust error estimation. The distribution of each dependent variable was examined prior to analyses and each GEE model specified a gamma with log link response scale to address skewness within dependent variables.

To address missing values (21% post-treatment; 34% follow-up) and consistent with intention-to-treat principles (Hollis & Campbell, 1999), model-based imputation was used to generate replacement values for all dependent variables at post-treatment and 3-month follow-up (National Research Council, 2010). An exploration of demographic and symptom variables predicting missing values determined suitability of a missing at random assumption (MAR; Karin, Dear, Heller, Crane, & Titov, 2018; Little, Jorgensen, Lang, & Moore, 2014). Analyses identified lesson completion as a single large predictor of missing data at post-treatment (Wald's = 101.67, $p < 0.001$, Nagelkerke R Square = 60.4%), and follow-up (Wald's = 73.87, $p < 0.001$, Nagelkerke R Square = 36.2%). These outcomes imply that a MAR assumption would be suitable pending replacement of missing cases stratified by lesson

completion.

To compare the clinical outcomes of the standard and optional conditions, GEE analyses were conducted for the primary and secondary outcomes from pre-treatment to post-treatment and pre-treatment to follow-up. Pairwise comparisons explored statistically significant group differences observed in GEE analyses. The estimated marginal means from the GEE analyses were used to calculate the average percentage change across time for each outcome variable with 95% confidence intervals. Cohen's *d* effect sizes were also derived from the GEE models for within- and between-group effects.

The achieved statistical power of each model was estimated using dedicated software for longitudinal modelling (Donohue & Edland, 2016), taking into account the sample size, change over time, variance of symptom scores at each time point, and within-subject correlation associated with each model. As a secondary analysis, auxiliary sensitivity analyses were employed to identify confounding features of the between-groups test. Specifically, baseline features that differed between the groups related to self-selection into the conditions were tested as confounding variables (i.e., GAD-7, K10, PDSS-SR, and SDS scores) and used to adjust the estimate of the primary analyses. The impact of such adjustments on the between-groups test were compared side-by-side.

3. Results

3.1. Baseline information

The mean age of patients was 37.34 years ($SD = 12.94$), 88% ($n = 331$) were Caucasian, 76% ($n = 284$) were women, 64% ($n = 241$) were married or in a common-law relationship, 46% ($n = 172$) reported some university education, and 62% ($n = 231$) reported part- or full-time employment. Under half (40%; $n = 150$) reported living in a large city, 32% ($n = 120$) living in a small city, and 28% ($n = 104$) a rural location. A majority of patients used psychotropic medication (54%; $n = 203$) and 38% ($n = 141$) reported some form of infrequent mental health treatment (e.g., medication review) during screening. No statistically significant group differences were observed. Diagnostically, 64% ($n = 239$) of patients had a PHQ-9 score suggestive of a depressive disorder, 67% ($n = 249$) a GAD-7 score suggestive of GAD, 42% ($n = 158$) a PDSS-SR score suggestive of panic disorder, and 51% ($n = 192$) a SIAS-6/SPS-6 score suggestive of social anxiety disorder. Patients scored above clinical cut-offs on 2.24 ($SD = 1.40$) of these measures; 83% ($n = 312$) of patients scored above clinical cut-offs on one or more of the measures. A lower proportion of patients in the optional support group scored above clinical cut-offs on one or more of the symptom measures (73% vs 86%; Wald's $\chi^2 = 8.06$, $p < 0.01$, $OR = 2.36$). Specifically, fewer patients in the optional group had GAD-7 scores suggestive of GAD (48% vs 72%; Wald's $\chi^2 = 15.16$, $p < 0.001$, $OR = 2.73$), or PDSS-SR scores suggestive of panic disorder (25% vs 47%; Wald's $\chi^2 = 12.46$, $p < 0.001$, $OR = 2.72$). See Table 1.

3.2. Primary measures

The GEE analyses revealed statistically significant Time effects for the GAD-7 (Wald's $\chi^2 = 426.11$, $p < 0.001$) and PHQ-9 (Wald's $\chi^2 = 394.93$, $p < 0.001$). There were no statistically significant main effects for Group (P range: 0.08–0.73) or Time by Group interactions (P range: 0.34–0.47) on the primary measures. See Table 2.

3.3. Secondary measures

The GEE analyses revealed statistically significant Time effects for the K10 (Wald's $\chi^2 = 469.97$, $p < 0.001$), PDSS-SR (Wald's $\chi^2 = 49.64$, $p < 0.001$), SDS (Wald's $\chi^2 = 210.22$, $p < 0.001$), and SIAS-6/SPS-6 (Wald's $\chi^2 = 67.01$, $p < 0.001$). There was a statistically significant main effect for Treatment Group for the SDS (Wald's $\chi^2 = 4.63$, $p = 0.03$) and PDSS-SR (Wald's $\chi^2 = 10.55$, $p = 0.001$). No Time by Group interactions were found on secondary measures (P range: 0.17–0.55). To explore main effects, pairwise comparisons revealed statistically significant mean differences in SDS scores at pre-treatment (mean difference = 2.95; $p < 0.01$) and 3-months (mean difference = 2.36; $p = 0.02$), indicating that mean SDS scores were lower for patients in the optional compared to standard support group at these points. Similar differences were observed for the PDSS-SR, demonstrating lower mean scores for the optional compared to standard group at pre-treatment (mean difference = 2.73; $p < 0.001$), post-treatment (mean difference = 2.23; $p < 0.001$), and 3-months (mean difference = 1.56; $p = 0.03$).

3.4. Clinical significance

Significant improvements were observed from pre- to post-treatment for both the standard and optional support groups on the primary (range: 49%–53% and 44%–49%, respectively) and secondary measures (range: 23%–41% and 22%–35%, respectively). For both standard and optional groups, large within-group effect sizes were observed on the GAD-7, PHQ-9, and K10 (d range: 0.98–1.36 and 0.85–1.08, respectively). A large within-group effect was observed for the SDS in the standard group ($d = 0.91$), compared to a medium effect for the optional support group ($d = 0.67$). Small within-group effect sizes were observed on the PDSS-SR and SIAS-6/SPS-6 for both the standard and optional support groups (d range: 0.33–0.36 and 0.29–0.37, respectively). See Table 2.

3.5. Statistical power observed

The achieved statistical power for between group differences on all primary and secondary outcomes was low (β range: 0.10–0.68). This was expected given that the relative symptom reductions and symptom scores in the two conditions were similar and not significantly different. Given the optional group did not demonstrate clinical effects that differed by more than 20% from the standard group on any outcome, the clinical differences between groups were considered marginal. See Table 2.

3.6. Sensitivity analyses

Patients in the optional support group had lower scores on the GAD-7 (t (372) = 3.39, $p < .01$), K10 (t (372) = 2.26, $p = .02$), SDS (t (372) = 2.99, $p < .01$), and PDSS-SR (t (152.97) = 3.58, $p < .001$) at pre-treatment, representing a potential confound. The re-estimation of both the primary and secondary outcomes demonstrated overall comparable rates of symptom reductions for all measures with the exception of the PDSS-SR. Except for the PDSS-SR, the magnitude, direction, range and statistical significance of each of the clinical effects remained comparable to the primary analyses at pre-treatment (p range: 0.17–0.81 vs. 0.08–0.81) and 3-months (p range: 0.20–0.44 vs. 0.08–0.60). In contrast, the estimation of PDSS-SR scores after baseline adjustment demonstrated unstable variance and reduced estimates of change symptoms, which likely resulted from computational difficulties arising from estimating relatively small reductions in panic symptoms over time (< 25% in either condition or time points) and highly variable panic symptoms at baseline. Thus, it was not possible to determine if effect sizes were smaller in the optional compared to standard group on the PDSS-SR.

3.7. Intervention use and completion rates

Patients in the standard support group logged in statistically significantly more times ($M = 19.65$; $SD = 11.81$ vs. $M = 14.51$; $SD = 7.16$; *Wald's* $\chi^2 = 13.57$, $p < 0.001$) than the optional group. In the standard support group, 89% of patients sent at least one email to

Table 1
Patient characteristics and program engagement by intervention group.

Variable	All Participants (n = 374)		Standard Support (n = 293)		Optional Support (n = 81)		Statistical Significance
	n	%	n	%	n	%	
Participant Pre-Treatment Characteristics							
Age							
Mean (*SD*)	37.34 (12.94)	–	36.91 (12.79)	–	38.88 (13.43)	–	$F_{1,372} = 1.47$; $p = 0.23$
Range	18-86	–	18-86	–	19-73	–	
Gender							
Female	284	75.9	228	77.8	56	69.1	Wald's $\chi^2 = 3.14$; $p = 0.21$
Male	87	23.3	62	21.2	25	30.9	
Undisclosed	3	0.8	3	1.0	–	–	
Marital status							
Single/never married	84	22.5	67	22.9	17	21.0	Wald's $\chi^2 = 4.72$; $p = 0.10$
Married/common law	241	64.4	182	62.1	59	72.8	
Separated/divorced/widowed	49	13.1	44	15.0	5	6.2	
Education							
Less than high school	11	2.9	8	2.7	3	3.7	Wald's $\chi^2 = 0.47$; $p = 0.93$
High school diploma	67	17.9	54	18.4	13	16.0	
Post high school certificate/diploma	124	33.2	96	32.8	28	34.6	
University education	172	46.0	135	46.1	37	45.7	
Employment status							
Employed part-time/full time	231	61.8	183	62.5	48	59.3	Wald's $\chi^2 = 1.85$; $p = 0.61$
Unemployed	33	8.8	28	9.6	5	6.2	
Homemaker	24	6.4	18	6.1	6	7.4	
Student, retired, or disability	86	23.0	64	21.8	22	27.2	
Ethnicity							
Caucasian	331	88.5	260	88.7	71	87.7	Wald's $\chi^2 = 0.10$; $p = 0.95$
Indigenous	12	3.2	9	3.1	3	3.7	
Other	31	8.3	24	8.2	7	8.6	
Location							
Large city (over 200 000)	150	40.1	110	37.5	40	49.4	Wald's $\chi^2 = 5.26$; $p = 0.07$
Small city	120	32.1	102	34.8	18	22.2	
Small rural location	104	27.8	81	27.6	23	28.4	
Mental health characteristics							
Infrequent use of some form of mental health treatment	141	37.7	110	37.5	31	38.3	Wald's $\chi^2 = 0.04$; $p = 0.84$
Taking psychotropic medications	203	54.3	162	55.3	41	50.6	Wald's $\chi^2 = 0.41$; $p = 0.52$
Pre-treatment GAD-7 $\geq$ 10	249	66.6	210	71.7	39	48.1	Wald's $\chi^2 = 15.16$; $p < 0.001$
Pre-treatment PHQ-9 $\geq$ 10	239	63.9	191	65.2	48	59.3	Wald's $\chi^2 = 0.96$; $p = 0.33$
Pre-treatment PDSS-SR $\geq$ 8	158	42.2	138	47.1	20	24.7	Wald's $\chi^2 = 12.46$; $p < 0.001$
Pre-treatment SIAS-6 $\geq$ 7 and SPS-6 $\geq$ 2	192	51.3	151	51.5	41	50.6	Wald's $\chi^2 = 0.02$; $p = 0.88$
Above clinical cut-off on one of: GAD-7, PHQ-9, PDSS-SR, or SIAS-6/SPS-6	312	83.4	253	86.3	59	72.8	Wald's $\chi^2 = 8.06$; $p = 0.01$
Mean number of measures above cut-off (*SD*)	2.24 (1.40)	–	2.35 (1.36)	–	1.83 (1.47)	–	Wald's $\chi^2 = 8.86$; $p < 0.01$
Therapist background							
Registered social worker	324	86.6	243	82.9	81	100.0	–
Registered psychologist	31	8.3	31	10.6	–	–	
Other (nurse, counsellor, student)	19	5.1	19	6.5	–	–	
Engagement							
Completion of 4 Lessons	298	79.7	235	80.2	63	77.8	Wald's $\chi^2 = 0.23$; $p = 0.63$
Completion of 5 Lessons	254	67.9	203	69.3	51	63.0	Wald's $\chi^2 = 1.16$; $p = 0.28$
Completion of post-treatment questionnaires	297	79.4	233	79.5	64	79.0	Wald's $\chi^2 = 0.01$; $p = 0.92$
Completion of 3-month questionnaires	248	66.3	188	64.2	60	74.1	Wald's $\chi^2 = 2.76$; $p = 0.10$
Mean number of log-ins (*SD*)	18.53 (11.17)	–	19.65 (11.81)	–	14.51 (7.16)	–	Wald's $\chi^2 = 13.57$; $p < 0.001$
Mean days between first and last log-in (*SD*)	100.53 (52.76)	–	101.05 (52.58)	–	98.65 (53.72)	–	Wald's $\chi^2 = 0.13$; $p = 0.72$
Mean number of phone calls with therapist (*SD*)	0.61 (1.03)	–	0.71 (1.12)	–	0.27 (0.45)	–	Wald's $\chi^2 = 10.86$; $p = 0.001$
Mean written messages sent to therapist (*SD*)	3.43 (3.04)	–	3.90 (3.11)	–	1.70 (1.96)	–	Wald's $\chi^2 = 31.34$; $p < 0.001$
Mean written messages received from therapist (*SD*)	7.64 (2.75)	–	8.68 (1.94)	–	3.88 (1.77)	–	Wald's $\chi^2 = 82.69$; $p < 0.001$
Total words written to therapist	609.04 (815.56)	–	718.89 (869.90)	–	211.67 (367.51)	–	Wald's $\chi^2 = 22.77$; $p < 0.001$
Total words written to client	2443.47 (1137.27)	–	2779.81 (1021.90)	–	1226.84 (553.03)	–	Wald's $\chi^2 = 74.13$; $p < 0.001$
Working alliance							
Mean WAI-SR total score (*SD*)	3.76 (0.93)	–	3.85 (0.89)	–	3.56 (1.00)	–	Wald's $\chi^2 = 3.56$; $p = 0.06$

(*continued on next page*)

Table 1 (*continued*)

Variable	All Participants (n = 374)		Standard Support (n = 293)		Optional Support (n = 81)		Statistical Significance
	n	%	*n*	%	*n*	%	
Mean WAI-SR bond score (*SD*)	4.08 (1.02)	–	4.15 (0.98)	–	3.93 (1.13)	–	Wald's $\chi^2 = 1.74$; $p = 0.19$
Mean WAI-SR goal score (*SD*)	3.39 (1.30)	–	3.56 (1.22)	–	2.99 (1.41)	–	Wald's $\chi^2 = 6.97$; $p = 0.01$
Mean WAI-SR task score (*SD*)	3.82 (0.84)	–	3.85 (0.81)	–	3.77 (0.89)	–	Wald's $\chi^2 = 0.28$; $p = 0.60$

Note. GAD-7 = Generalized Anxiety Disorder-7; PHQ-9 = Patient Health Questionnaire-9; PDSS-SR= Panic Disorder Severity Scale-Self Report; SIAS-6/SPS-6 = Social Interaction Anxiety Scale-6 and Social Phobia Scale-6; WAI-SR = Working Alliance Inventory-Short Revised.

their therapist compared to 63% in the optional support group, which was statistically significant (Wald's $\chi^2 = 27.94$; $p < 0.001$). On average, standard support group patients sent more messages to their therapist ($M = 3.90$; $SD = 3.11$; range: 0–18 vs. $M = 1.70$; $SD = 1.96$; range: 0–8; *Wald's* $\chi^2 = 31.34$, $p < 0.001$) and received more messages from their therapist ($M = 8.68$; $SD = 1.94$; range: 2–15 vs. $M = 3.88$; $SD = 1.77$; range: 1–8; *Wald's* $\chi^2 = 82.69$, $p < 0.001$) than the optional support group. Standard support group patients also received more phone calls from their therapist ($M = 0.71$; $SD = 1.12$; range: 0–7 vs. $M = 0.27$; $SD = 0.45$; range: 0–1; *Wald's* $\chi^2 = 10.86$, $p = 0.001$). Patients in the standard support group wrote more words overall to their therapist than patients in the optional support group ($M = 718.89$; $SD = 869.90$; range: 0–6036 vs $M = 211.67$; $SD = 367.51$; range: 0–2420; Wald's $\chi^2 = 22.77$; $p < 0.001$). Similarly, more words were written from therapists to patients in the standard than the optional support group ($M = 2779.81$; $SD = 1021.90$; range: 651–6143 vs. $M = 1226.84$; $SD = 553.03$; range: 325–2801; Wald's $\chi^2 = 74.13$; $p < 0.001$). Statistically significant differences were not observed between the proportion of patients in the standard and optional support groups who completed four (80% vs 78%) or five lessons of the course (69% vs. 63%), or post-treatment (80% vs. 79%) and 3-month follow-up (64% vs. 74%) questionnaires.

3.8. Working alliance, treatment satisfaction and negative effects

Examining WAI-SR scores (See Table 1) revealed that only Goal scale ratings were statistically significantly higher for patients in the standard compared to optional support group ($M = 3.56$; $SD = 1.22$ vs. $M = 2.99$; $SD = 1.41$; *Wald's* $\chi^2 = 6.97$, $p = 0.01$). Of patients who completed post-treatment satisfaction measures in the standard (78%) and optional support groups (78%), a majority reported that the course was worth their time (95% vs. 98%) and that they would recommend it to others (97% vs. 98%). The majority of patients in both groups also reported no unwanted negative treatment effects (89% vs. 91%). Negative effects in the standard support group included a temporary symptom increase, feeling overwhelmed with the amount of coursework, and dissatisfaction with therapist communication. Negative effects in the optional support group included temporary symptom increases while working on the course. No statistically significant group differences were found on satisfaction or negative treatment effects (P range: 0.28–0.64).

4. Discussion

There is a growing body of research demonstrating the effectiveness of ICBT with optional therapist support (Hadjistavropoulos et al., 2017). Optional support is attractive within routine care as it is associated with reduced therapist time, and therefore costs, but also ensures the availability of therapist support if required. The current study explored the extent to which patients prefer optional support over standard support in routine practice, factors that distinguish patients who select optional support, and differences in completion rates and outcomes between optional and standard support. This research is critical as past research has indicated that treatment preferences impact enrollment, attrition, adherence, satisfaction, and outcomes (King et al., 2005).

In terms of preference, we found only 22% of patients selected optional therapist support. Several hypotheses can be generated to explain why patients more commonly selected standard over optional support. Given that those who selected standard support had a 2.7 times greater likelihood of having GAD or panic disorder and higher baseline disability scores, one hypothesis is that individuals with greater distress and disability were aware of their needs and, consequently, preferred a greater level of guidance available in standard support. Another hypothesis may be that more patients selected standard support as it was perceived to be more consistent with expectations of therapy based on knowledge of face-to-face therapy. This hypothesis is consistent with research showing that patients' knowledge, experience, and appraisal of treatment can impact preferences (Sidani et al., 2009). Another hypothesis, however, is that patients may have assumed that greater contact with a therapist would improve their treatment adherence and thus resulted in a preference for standard versus optional support. Of note, we did not identify demographic variables that differentiated between patients who selected optional over standard support. This may suggest that demographic variables are not relevant to patient preference for level of therapist support. Nevertheless, lower variance on some demographic variables may have contributed to lack of findings (e.g., 88% of the sample was Caucasian, 76% were female). Having greater diversity in the sample in terms of demographics (e.g., ethnicity) could reveal demographic differences in preferences for therapist support.

Of note, those receiving optional support showed large symptom improvements at post-treatment comparable to those receiving standard support on depression (within Cohen's $d = 0.99$–1.08; avg. % reduction ≥ 44–49), anxiety (within Cohen's $d = 1.08$–1.36; avg. % reduction ≥ 49–53), psychological distress (within Cohen's $d = 0.85$–0.98; avg. % reduction ≥ 24–27), and disability (within Cohen's $d = 0.67$–0.91; avg. % reduction ≥ 35–41). Both optional and standard support groups also showed similar small to moderate improvements in panic symptoms (within Cohen's $d = 0.37$–0.36; avg. % reduction ≥ 33–28) and social anxiety (within Cohen's $d = 0.29$–0.33; avg. % reduction ≥ 22–23). With the exception of panic symptoms where the effects were lower and there was more variance in scores, sensitivity analysis suggested that effect sizes were comparable between groups even though patients in the optional group had lower baseline scores on the PDSS-R, GAD-7, K10, and SDS.

Between the two groups, therapists had fewer interactions with patients in the optional compared to standard group, with fewer messages sent by patients to therapists (avg. 1.70 vs. 3.90 messages) and by therapist to patients (avg. 3.88 vs. 8.68 messages). Telephone calls to patients also differed between the optional and standard support groups (avg. 0.27 vs. 0.71 phone calls). The differences observed between groups are similar to a past RCT comparing standard versus optional support (i.e., Hadjistavropoulos et al., 2017). The differences highlight the potential of the optional format to reduce therapist costs, with half the amount of therapist contact needed per patient compared with standard support.

Both groups reported high levels of satisfaction with treatment and

Table 2
Means, standard deviations, and effect sizes (Cohen's d) for primary and secondary outcomes by group.

	Estimated marginal means			% changes from pre-treatment		Within-group effect sizes from pre-treatment		Between groups comparison of clinical efficacy		
	pre-treatment	post-treatment	3-month follow-up	to post-treatment	to 3-month follow-up	to post-treatment	to 3-month follow-up	Post-treatment between group effect size	Relative % differences in clinical efficacy	Post-treatment statistical power achieved
Primary Outcomes										
GAD-7										
Standard	12.52 (4.97)	5.93 (4.68)	5.64 (4.19)	53 [48–57]	55 [51–59]	1.36 [1.18–1.54]	1.50 [1.31–1.68]	−0.14 [−0.39–0.11]	7.5	35% (β = −0.39)
Optional	10.35 (5.15)	5.29 (4.19)	5.13 (4.20)	49 [39–57]	50 [40–59]	1.08 [0.75–1.41]	1.11 [0.78 – 1.44]			
PHQ-9										
Standard	12.48 (6.18)	6.33 (5.15)	6.23 (4.84)	49 [44–54]	50 [45–54]	1.08 [0.91–1.25]	1.13 [0.95 – 1.30]	0.01 [−0.23–0.26]	10.2	30% (β = −0.53)
Optional	11.43 (5.60)	6.40 (4.53)	6.23 (4.94)	44 [34–52]	46 [35–54]	0.99 [0.66–1.32]	0.99 [0.66 – 1.31]			
Secondary Outcomes										
K10										
Standard	28.61 (7.96)	20.91 (7.83)	19.76 (6.95)	27 [24–30]	31 [28–34]	0.98 [0.80–1.15]	1.18 [1.01 – 1.36]	−0.14 [−0.39–0.11]	11.1	25% (β = −0.68)
Optional	26.28 (8.29)	19.85 (6.79)	18.75 (7.13)	24 [18–30]	29 [22–35]	0.85 [0.53–1.17]	0.97 [0.65 – 1.30]			
PDSS-SR										
Standard	7.83 (6.22)	5.64 (6.02)	5.92 (6.78)	28 [18–36]	24 [14–34]	0.36 [0.19–0.52]	0.29 [0.13 – 0.46]	−0.39 [−0.64–0.15]	17.9	15% (β = −0.10)
Optional	5.10 (4.91)	3.41 (4.13)	4.36 (5.19)	33 [12–49]	15 [12–35]	0.37 [0.06–0.68]	0.15 [−0.16 – 0.45]			
SDS										
Standard	17.53 (7.66)	10.41 (7.96)	10.66 (8.49)	41 [35–46]	39 [33–45]	0.91 [0.74–1.08]	0.85 [0.68 – 1.02]	−0.11 [−0.36–0.13]	14.6	15% (β = −0.10)
Optional	14.58 (7.83)	9.53 (7.21)	8.29 (7.35)	35 [22–45]	43 [30–53]	0.67 [0.36–0.99]	0.83 [0.51 – 1.15]			
SIAS/SPS										
Standard	15.20 (11.24)	11.64 (10.54)	13.13 (11.95)	23 [15–31]	14 [4–22]	0.33 [0.16–0.49]	0.18 [0.02 – 0.34]	−0.10 [−0.34–0.15]	4.3	8% (β = −0.14)
Optional	13.68 (10.75)	10.64 (10.25)	10.80 (9.86)	22 [3–37]	21 [3–36]	0.29 [−0.02–0.60]	0.28 [−0.03–0.59]			

Note. GAD-7 = Generalized Anxiety Disorder-7; PHQ-9 = Patient Health Questionnaire-9; K10 = Kessler-10; PDSS-SR = Panic Disorder Severity Scale-Self Report; SDS = Sheehan Disability Scale; SIAS/SPS = Social Interaction Anxiety Scale and Social Phobia Scale-Short Form. Standard = standard support group; Optional = optional support group. Standard deviations are shown in rounded parentheses for the estimated means; 95% confidence intervals are shown in square parentheses for the percentage changes and effect sizes.

rarely reported unwanted negative treatment effects. Working alliance tended to be similar for both groups on the bond and task subscales; indicating that patients who prefer less contact still felt an alliance with their therapist. The only difference that emerged was a lower therapeutic goal score in the optional versus standard support group. This could be expected given that there was less therapist contact with optional support.

Of interest, patients in the optional and standard support groups did not differ in terms of completion rates (78% vs 80% lesson 4 completion; 63% vs 69% lesson 5 completion). The results are in contrast to our previous RCT, where completion rates differed between groups (Hadjistavropoulos et al., 2017). This finding provides insight into potential causes for non-completion of ICBT with optional support during the RCT. It was previously postulated that low therapist contact or a lack of perceived value in the final relapse prevention lesson resulted in higher attrition in optional compared to standard support (Hadjistavropoulos et al., 2017). Given that only 22% of patients preferred optional support in our study, an alternative hypothesis, however, is that patients in the RCT may have been dissatisfied with their randomized group and thus were less likely to engage in ICBT. Contrary to previous evidence, therefore, this study demonstrates that no differences exist in attrition rates between optional and standard support when treatment allocation is based on patient preferences.

With respect to study limitations, the generalizability of findings may be limited by missing data (21% post-treatment; 34% follow-up), although rates of completion are in-line with or greater than other ICBT trials (Ruwaard, Lange, Schrieken, Dolan, & Emmelkamp, 2012; Titov, Dear, Staples, Bennett-Levy et al., 2015). Due to lack of resources there was no follow-up beyond 3-months. Calculation of observed power suggested that the sample size did not allow for the detection of small differences in effect sizes between optional and standard support. Patients were allocated to treatment based on their preference at the beginning of the intervention; it is possible that patients changed preferences during treatment due to a change in needs or gaining a better understanding of treatment. All patients receiving optional support were treated by two therapists whereas standard support was delivered by a total of 38 different therapists. This could have created better results for optional care than if more therapists delivered optional care. We did not measure actual therapist time spent as it is difficult to accurately track minutes spent composing messages; unlike face-to-face therapy, it is common for therapists to be interrupted in their work. As diagnostic interviews were not conducted, we did not report on diagnostic changes based on treatment condition.

The present study has several strengths. This study extends a past RCT comparing standard versus optional support (Hadjistavropoulos et al., 2017) and is the first trial to use a preference design to explore interest in and effectiveness of ICBT with varying degrees of therapist support in routine care. This trial revealed important variables (e.g., symptom severity) which may have influenced group selection. Findings compare positively to recent research trials which found that optional support is efficacious and acceptable to patients receiving ICBT (Berger et al., 2011; Dear, Gandy et al., 2015). The findings replicate past research showing amount of support (e.g., therapist emails) sought by patients when optional support is provided. The findings suggest that program completion is not a drawback of optional therapist support when patients select this treatment option.

In the future, it would be valuable to identify factors that influence patients' interest in optional compared to standard support (e.g., expectations regarding therapy, perceived need). Furthermore, it would be helpful to explore what patients are requesting help with in optional support, which may allow for improvement of course materials. Study of longer-term outcomes of optional support beyond 3 months is also required. In general, more research is needed on how to improve completion rates beyond current rates whether patients are offered standard or optional support. It is possible that different strategies are needed depending on the reason for course non-completion (e.g., content dissatisfaction may require treatment changes, low motivation may require greater therapeutic support). Finally, replication in other clinical settings that offer ICBT would be valuable.

5. Conclusions

The results of the current study suggest that, consistent with APA guidelines for providing evidence-based care, it would be beneficial for clinicians to attend to patients' preferred level of support prior to offering ICBT. In this study, no evidence was found to suggest this reduces completion rates or outcomes and there was strong evidence to suggest that offering optional support reduces therapist time. Even though ICBT requires lower levels of therapist support than face-to-face therapy, therapist availability is a barrier to implementing ICBT in routine practice. Strategies that reduce therapist time may facilitate the implementation of ICBT in routine practice. The results from this trial suggest that optional support could be sufficient for individuals with this preference. Though a relatively small percentage of patients selected optional support, adoption of this lower level of support may help to reduce therapist burden.

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