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An online therapist-guided ultra-brief treatment for depression and anxiety: a randomized controlled trial

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Original Article

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Abstract

Background. There are many barriers to engaging in current psychological treatments, including time, cost, and availability. Ultra-brief treatments overcome some of these barriers by delivering therapeutic information and skills using significantly less time than standard-length treatments. We developed a therapist-guided online ultra-brief treatment for depression and anxiety and compared it to an existing 8-week, 5-lesson therapist-guided standard-length treatment and a waitlist control.

Methods. In a randomized controlled trial, adults with self-reported depression or anxiety were randomized (1:1:1) to the ultra-brief treatment, standard-length treatment, or waitlist control. The primary outcomes were depression symptoms and anxiety symptoms assessed at baseline, 5-weeks later, 9-weeks later (primary timepoint), and 3-months later. The trial was prospectively registered.

Results. Between 7 February 2022, and 16 August 2022, 242 participants were enrolled in the ultra-brief treatment ($n = 85$), standard-length treatment ($n = 80$), and waitlist control ($n = 77$). Participants were mostly women with an average age of 48.56 years. At 9-weeks post-baseline, participants in the ultra-brief treatment group reported significantly lower depression (between groups $d = 0.41$) and anxiety ($d = 0.53$) than the waitlist control. The ultra-brief treatment was non-inferior for anxiety at both 9-weeks and 3-months follow-up. Non-inferiority for depression was observed at 9-weeks.

Conclusions. The online ultra-brief treatment resulted in significant reductions in depression and anxiety that were non-inferior to a longer treatment course after 9-weeks. Remotely delivered ultra-brief treatments have the potential to provide accessible and effective care for those who cannot, or would prefer not to, access longer psychological interventions.

Introduction

Depression and anxiety are common and are recognized as leading causes of global burden and disability (GBD 2019 Mental Disorders Collaborators, 2022; Rehm & Shield, 2019). Cognitive behavior therapy effectively reduces depression and anxiety symptoms when delivered face-to-face or online, either individually or in a group format (Cuijpers et al., 2023). Despite the accessibility and efficacy of psychological treatments, many adults with mental health difficulties do not access or complete treatment (Bisby et al., 2022a; Harris et al., 2015). There are a range of possible reasons – the preference to self-manage their health, financial or time constraints, or the already considerable treatment burden of managing physical and mental health conditions (Andrade et al., 2014; Coombs, Meriwether, Caringi, & Newcomer, 2021; Heckman, Mathew, & Carpenter, 2015). It is critical for researchers, clinicians, and policy makers to support equitable access to mental healthcare by finding ways to overcome these barriers.

Low-intensity treatments are one treatment approach that is designed to reduce wait times, help individuals learn to self-manage their symptoms, and to be more cost-effective than traditional treatments (Bennett-Levy, Richards, & Farrand, 2010; Shafran, Myles-Hooton, Bennett, & Öst, 2021). Low-intensity approaches often mimic the timeframe or content of typical treatments by providing patients with a series of 'learning modules' focused on psychological skills (e.g. managing unhelpful thoughts, relaxation) over several weeks to months. These treatments can be guided or unguided, and may be accompanied by regular email or text message prompts. Low-intensity treatments have shown promise in reducing mental health difficulties; however, they have demonstrated mixed outcomes and lower uptake when delivered in routine care settings without therapist guidance (Bower et al., 2013; Gilbody et al., 2017, 2015; McDermott & Dozois, 2019; Proudfoot et al., 2013).

Ultra-brief treatments are another approach to the same goals of increased access, efficacy, and cost-effectiveness. As many adults only complete one or two face-to-face sessions or online modules, it is potentially worthwhile to consider how much treatment is needed and how treatment duration could be manipulated (Gilbody et al., 2017; Owen, Adelson, Budge, Kopta, & Reese, 2016). Ultra-brief treatments take significantly less time than standard-length treatments (Shafran et al., 2021; i.e., three or fewer sessions; Sperry & Binensztok, 2019). The rationale behind ultra-brief treatments is that clinically meaningful change can happen in a very short period of time for some people. Supporting this, some studies have observed large improvements in mental health symptoms after just one session, and in some cases, over three-quarters of the treatment effect occurs by halfway through an 8-week treatment (Bisby et al., 2022b; Robinson, Delgadillo, & Kellett, 2020).

The most commonly evaluated type of ultra-brief treatment is face-to-face single-session exposure therapy for specific phobias. One meta-analysis found no difference in efficacy between single-session and multi-session exposure therapy for specific phobia, further the single-session approach was less costly to deliver (Odgers, Kershaw, Li, & Graham, 2022). This meta-analysis also reported no significant differences in the efficacy of single and multi-session exposure therapy at up to 14-months follow-up (Odgers et al., 2022). There is also evidence supporting the feasibility of face-to-face single session therapy in outpatient mental health (Ewen et al., 2018), acute mental health (Le Gros, Wyder, & Brunelli, 2019), and primary care settings (Hunter et al., 2018). Despite growing research into brief psychological treatments, the field has yet to explore the potential of online ultra-brief treatments. In one pilot study ($n = 104$), an unguided online behavioral activation single session treatment was compared to active (mindfulness) and inactive (usual care) control groups. Although there were no differences in depression symptoms between the single session treatment and control groups after 4 weeks, the single session treatment was associated with a reduction in dysfunctional attitudes, suggesting some therapeutic action (Jelinek et al., 2020).

Rigorous evaluations of ultra-brief treatments, their components, and their comparative efficacy against longer treatment approaches are lacking. The available evidence for ultra-brief treatments is promising, however largely restricted to face-to-face settings and disorder-specific treatments. Considering that many adults report more than one mental health difficulty, transdiagnostic ultra-brief treatments which target the common maintaining factors across several disorders may be more widely applicable and generalizable. Furthermore, previous reviews have highlighted a distinct lack of adequately powered randomized controlled trials of ultra-brief treatments for adults with various mental health concerns (Bertuzzi et al., 2021; Dochat, Wooldridge, Herbert, Lee, & Afari, 2021; Odgers et al., 2022). Finally, there has been little research into remotely delivered ultra-brief treatments for adults, which is surprising given the potential to situate brief, low-intensity treatments within stepped care models.

We developed and evaluated an online transdiagnostic ultra-brief treatment for adults with depression or anxiety based on cognitive behavioral principles. The decision to create a transdiagnostic ultra-brief treatment was made to increase the generalizability and relevance of the treatment, considering the narrow, disorder-specific approach of the existing literature. We compared the novel online ultra-brief treatment to an online 8-week cognitive-behavioral treatment and a waitlist control in a three-arm randomized controlled trial. The 8-week standard-length treatment is an established evidence-based treatment for depression and anxiety which has demonstrated acceptability and efficacy in several randomized controlled trials and observational studies (Dear et al., 2011; Hadjistavropoulos et al., 2020; Titov et al., 2020, 2011). Changes in depression and anxiety symptoms were measured at 5-weeks, 9-weeks (primary endpoint), and 3-months follow-up.

Methods

Design

We conducted a three-arm randomized controlled trial at Macquarie University, NSW, Australia. Potential participants were recruited via online advertising via social media and our research clinic's website (www.ecentreclinic.org). Interested and consenting participants submitted an online assessment and application for the course, which was followed by a telephone assessment with a psychologist to confirm eligibility. Participants were randomly allocated (1:1:1) to the ultra-brief treatment, standard-length treatment, or waitlist. The randomization sequence was determined using computerized software (www.random.org) prior to the enrollment of the first participant and group allocations were concealed until applicants had been enrolled. The trial was approved by the Macquarie University Human Research Ethics Committee. The protocol was prospectively registered on the Australian New Zealand Clinical Trials Registry, ACTRN12621001617853.

Participants

Eligibility criteria included: being an Australian resident, aged 18 years or over, and experiencing self-reported difficulties with depression or anxiety. Participants were considered ineligible if they were: living outside of Australia, unable to read and understand English, actively suicidal, or unable to keep themselves safe.

Therapists

Two masters-level psychologists (TB, MB) completed the telephone assessments, and one masters-level psychologist (TB) provided support to participants during treatment. We have reported the number of reciprocal therapeutic interactions between the psychologist and participant (e.g. messaging exchange, phone call). Administrative interactions were excluded. The primary psychologist (TB) was only available 2 days a week due to funding limitations. BFD provided clinical supervision.

Treatments

Ultra-brief treatment

The treatment materials consisted of one lesson (45 slides), one practice guide, case stories, and one additional resource on problem solving. The lesson included psychoeducation about the nature of depression and anxiety (e.g. causes, prevalence, and symptoms), and referenced three skills for managing symptoms: challenging unhelpful thoughts, managing physical symptoms, and graded exposure. The lesson was provided in a slideshow format and the content was the same as Lesson 1 in the standard-length treatment (described below) with an additional three slides introducing each of the three skills and

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modified text on existing slides encouraging continued practice. Participants were given 1-month to complete the treatment, and 1-week to contact the psychologist after completing the lesson (note that therapist contact was optional and not required).

Standard-length treatment

The treatment consisted of five lessons, seven additional resources, practice guides, and case stories (Edmonds, McCall, Dear, Titov, & Hadjistavropoulos, 2020; Titov et al., 2015). The lessons included information and skills related to psychoeducation about depression/anxiety (Lesson 1; 42 slides), managing unhelpful thinking (Lesson 2; 31 slides), managing physical sensations (Lesson 3; 43 slides), managing unhelpful behaviors and graded exposure (Lesson 4; 36 slides), and relapse management (Lesson 5; 35 slides). Participants had the option to access a psychologist for the 8-week treatment period. Therapist support was provided via telephone and secure messaging and was initiated by the therapist within the first 2 weeks of treatment. A detailed description of the treatment content is provided in the online Supplementary Appendix S1.

Waitlist control

Participants in this group received access to the standard-length treatment after 9-weeks. There were no restrictions on the treatments that participants could receive during the waiting period.

Measures

Two primary outcomes (depression, anxiety) and one secondary outcome (disability) were administered at all timepoints (i.e. Week 1, Week 5, Week 9, and 3-month follow-up). Depression symptoms were measured using the Patient Health Questionnaire – 9-item (PHQ-9), a 9-item measure of depressive symptoms in the past 2 weeks (range 0–27) (Kroenke, Spitzer, & Williams, 2001). Anxiety symptoms over the past 2 weeks were measured using the Generalized Anxiety Disorder – 7-item (GAD-7) (Spitzer, Kroenke, Williams, & Löwe, 2006). Disability was measured using a three-item scale which asked participants how much their symptoms impacted their work/school performance, social/leisure activities, family/life responsibilities from 0 (not at all) to 10 (extremely). The questions were adapted from the Sheehan Disability Scale (Sheehan, Harnett-Sheehan, & Raj, 1996).

At the initial assessment and pre-treatment, participants also completed the six-item Credibility and Expectancy Questionnaire (Devilly & Borkovec, 2000). This questionnaire asks participants to rate the credibility and perceived efficacy of treatment. All participants were asked their treatment preference during the screening process (i.e. prior to randomization). Participants also completed a purpose-built Treatment Satisfaction Questionnaire that asked for feedback on whether they found the treatment helpful, whether the treatment was sufficient to address their difficulties, and how the treatment they received could be improved.

Statistical analysis

The sample size was powered *a priori* for both superiority (ultra-brief *v.* waitlist, standard-length *v.* waitlist) and non-inferiority (ultra-brief *v.* standard-length) at the primary timepoint (i.e. 9-weeks post-baseline). For superiority, a minimum of 64 participants per group was required to detect a between-groups effect size of $d = 0.50$ when power was set at 80% and alpha was set at 0.05. For non-inferiority, a minimum of 39 participants per group was required when power was set at 90% and alpha was set at 0.025 (Julious, 2004). To account for 20% attrition, we recruited 80 participants per group.

Analyses were conducted with the intention-to-treat sample using Multiple Imputation to generate replacement values for missing data. No interim analyses were conducted, and all analyses were done using SPSS (version 28). For superiority analyses, we used generalized estimating equations to examine change in symptoms over time according to group status. Due to non-normal distribution in the dependent variables, we used a gamma distribution with log-link function and unstructured working correlation matrix. Pairwise comparisons were reported in the case of significant time × group interaction. We reported Cohen's *d* (95% confidence intervals) and the mean difference (95% confidence intervals).

Our *a priori* approach to non-inferiority analyses used the reliable change index as the non-inferiority margin (PHQ-9 = 6.06, GAD-7 = 5.17). Non-inferiority was indicated when the estimated marginal means of the ultra-brief treatment group fell within 50% of the non-inferiority margin (PHQ-9 = 3.03 or $\sim d = 0.58$, GAD-7 = 2.58 or $\sim d = 0.53$). As our a priori approach is more liberal, we also report a post-hoc test of non-inferiority based on the recommendations of Cuijpers, Turner, Koole, van Dijke, and Smit (2014), who suggest a clinically relevant difference of $d \geqslant 0.24$ in depression symptoms as a non-inferiority margin (in our sample, PHQ-9 mean difference ~ 1.25). As there is no equivalent margin for anxiety symptoms, we also adopted the same non-inferiority margin (GAD-7 mean difference ~ 1.16).

We also reported the number of participants who showed clinical improvements and deteriorations using two methods. First, the reliable change index was calculated for the PHQ-9 and GAD-7 in our sample. Consistent with past work (Rozental, Magnusson, Boettcher, Andersson, & Carlbring, 2017), we entered test-retest reliability as the reliability coefficient. These coefficients were taken from a psychometric evaluation of the scales in an online research clinic (Staples et al., 2019). In our sample, the reliable change index was 5.33 on the PHQ-9 and 5.50 on the GAD-7. We report the number of individuals who experienced improvements or deteriorations which surpassed the reliable change index. Second, we used a percentage approach to attempt to account for non-linear change patterns (Karin, Dear, Heller, Gandy, & Titov, 2018). Clinical improvement was defined as reporting clinical symptoms at baseline and experiencing ⩾ 50% symptom reduction. Clinical deterioration was defined as a ⩾ 30% increase in symptoms.

Sensitivity analyses were conducted to examine the impact of baseline symptom severity on treatment efficacy. Change in depression and anxiety symptoms were compared between participants who scored above or below the cut-off score ⩾ 10 on the PHQ-9 (Kroenke et al., 2001) or GAD-7 (Spitzer et al., 2006) at pre-treatment. χ^2 tests were used to compare treatment satisfaction between the ultra-brief and standard-length treatments.

Results

Between 7 February 2022, and 16 August 2022, 335 participants were assessed for eligibility. Of the 242 successful applicants, 85 (35%) were randomized to the ultra-brief treatment, 80 (33%) were randomized to the standard-length treatment, and 77 (32%) were randomized to the waitlist (shown in Fig. 1). There were no group differences in baseline demographic or clinical characteristics. Participants were an average age of 48.56 years,

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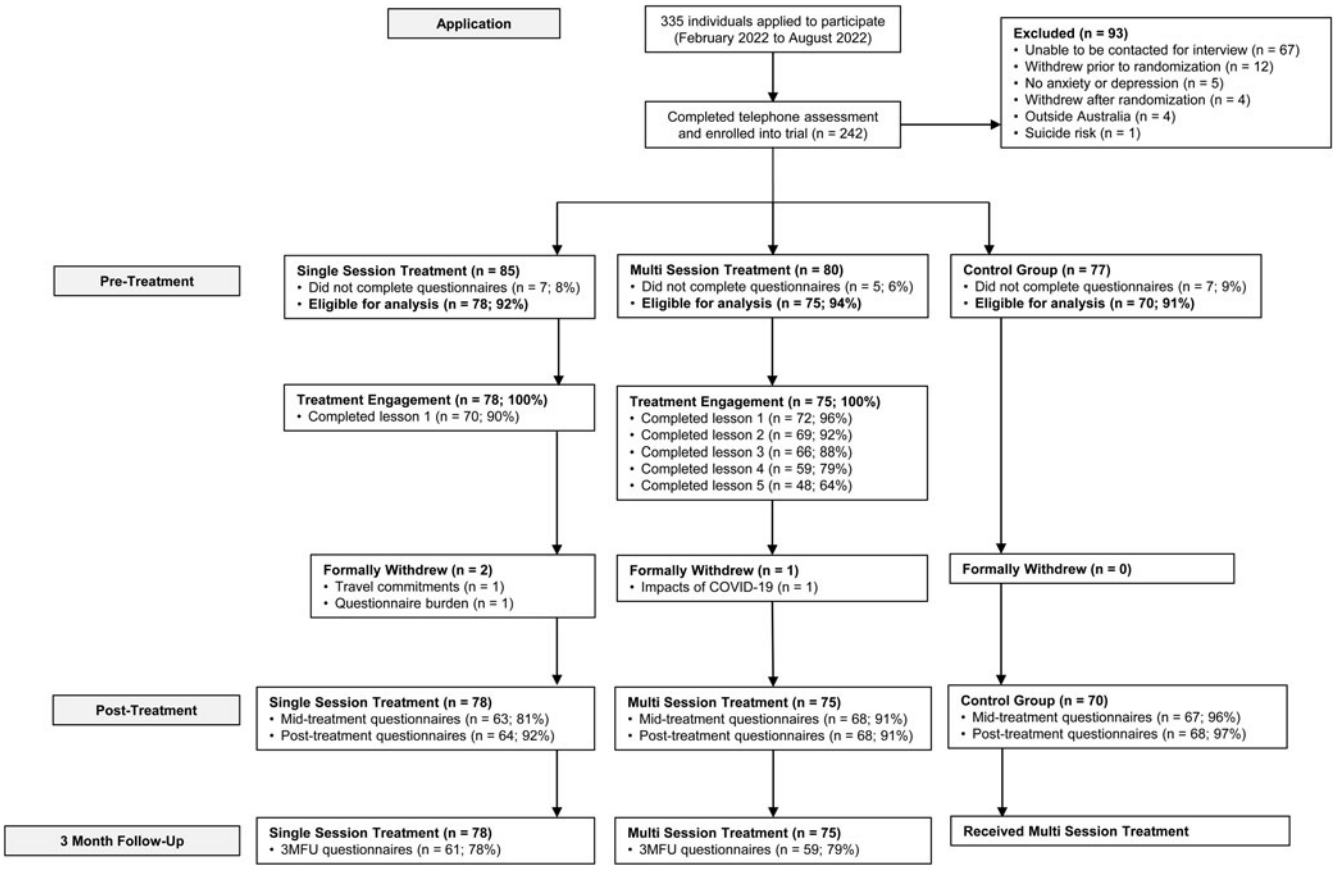

Figure 1. Participant flow from application to 3-month follow-up.

predominantly female, residing in a capital city, had received a tertiary education, and were employed in a full-time or part-time capacity (see Table 1). Most participants were not taking medication for their mental health, and the majority had received previous mental health treatment. Regarding baseline symptoms, 63 and 46% of participants reported symptoms consistent with clinical depression and anxiety, respectively (as indicated by scores of $\geqslant$ 10 on the PHQ-9 or GAD-7). There were no differences in credibility and expectancy ratings between treatment groups, and there were no significant differences in credibility and expectancy ratings pre- and post-randomization. During the assessment, 29% of participants reported a preference to receive the ultra-brief treatment, 35% reported a preference for the standard-length treatment, and 36% reported no preference.

Primary outcomes

At 9-weeks post-baseline, both treatment groups had experienced greater reductions in depression symptoms compared to the control group ($p < 0.0001$). There was a significant difference in depression symptoms between the ultra-brief treatment and waitlist (between groups $d = 0.41$), as well as the standard-length treatment and waitlist ($d = 0.52$; shown in Table 2). There was no significant difference between the ultra-brief treatment and standard-length treatment ($d = -0.09$). At post-treatment, the ultra-brief treatment was deemed non-inferior to the standard-length treatment according to both a priori and post-hoc methods. Significant reductions in depression symptoms were also reported at 3-month follow-up with no difference between treatment groups ($d = -0.24$). At 3-month follow-up, the between-groups difference was equal to the non-inferiority margin of $d \geqslant 0.24$. Within-group symptom change and effect sizes for depression symptoms are reported in Table 3.

Similarly, both treatment groups experienced greater reductions in anxiety symptoms from baseline to 9-weeks than the control group ($p < 0.0001$). At 9-weeks post-baseline, there were significant differences in anxiety symptoms between the ultra-brief treatment and waitlist ($d = 0.53$) and standard-length treatment and waitlist ($d = 0.59$; shown in Table 2). However, no significant difference emerged between the ultra-brief and standard-length treatments ($d = -0.07$). There was no significant difference in anxiety symptoms between treatment groups at 3-month follow-up ($d = -0.03$). The ultra-brief treatment was considered non-inferior to the standard-length treatment at both post-treatment and 3-month follow-up using both a priori and post-hoc methods. Within-group symptom change and within-group effect sizes for anxiety symptoms are reported in Table 3.

There were no differences in the number of participants who reported clinical improvements in depression symptoms between treatments when classified according to the reliable change index (ultra-brief $n = 14$; standard-length n = 15) or $\geqslant$50% improvement (ultra-brief $n = 13$, standard-length n = 15; $ps > 0.05$). Similar results were found for improvements in anxiety symptoms across classification by reliable change index (ultra-brief $n = 14$; standard-length $n = 9$) or $\geqslant$50% improvement (ultra-brief $n = 10$, standard-length $n = 11$; $ps > 0.05$). Very few participants reported

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Table 1. Baseline participant characteristics at initial assessment

	Overall ($n = 242$)	Ultra-brief ($n = 85$)	Standard-length ($n = 80$)	Waitlist ($n = 77$)	Significance
Age [a]	48.56 (12.79)	49.82 (11.53)	46.24 (13.58)	49.57 (13.10)	ns
Sex					
Female	210 (87)	77 (91)	64 (80)	69 (90)	ns
Male	31 (13)	7 (8)	16 (20)	8 (10)	
Other	1 (0)	1 (1)	0 (0)	0 (0)	
Location					
Capital city or surrounding suburbs	171 (71)	58 (68)	62 (78)	51 (66)	ns
Other urban region	39 (16)	16 (19)	9 (11)	14 (18)	
Rural or remote	32 (13)	11 (13)	9 (11)	12 (16)	
Education					
Year 12 or less	30 (12)	5 (6)	11 (14)	14 (18)	ns
Trade certificate or apprenticeship	17 (7)	5 (6)	6 (8)	6 (8)	
Undergraduate or associate diploma	25 (10)	12 (14)	8 (10)	5 (7)	
Bachelor's degree	125 (52)	49 (58)	33 (41)	43 (56)	
Masters or doctoral degree	45 (19)	14 (17)	22 (28)	9 (12)	
Employment [b]					
Full-time paid work	75 (31)	24 (28)	30 (38)	24 (31)	ns
Part-time paid work	51 (21)	24 (28)	15 (19)	18 (23)	
Casual work	25 (10)	12 (14)	9 (11)	11 (14)	
Student	11 (5)	5 (6)	4 (5)	2 (3)	
At-home parent	9 (4)	4 (5)	6 (8)	3 (4)	
Unemployed or seeking work	11 (5)	8 (9)	5 (6)	2 (3)	
Registered sick or disabled	8 (3)	5 (6)	3 (4)	4 (5)	
Retired	10 (4)	10 (12)	9 (11)	11 (14)	
At home not seeking work	30 (12)	3 (4)	2 (3)	5 (6)	
Medication					
No	137 (57)	48 (57)	48 (60)	41 (53)	ns
Yes	105 (43)	37 (44)	32 (40)	36 (47)	
Previous mental health treatment [c]					
No	29 (12)	9 (11)	12 (15)	8 (10)	ns
Yes	213 (88)	76 (89)	68 (85)	69 (90)	
PHQ-9 score ⩾10					
No	90 (37)	28 (33)	34 (43)	28 (36)	ns
Yes	152 (63)	57 (67)	46 (58)	49 (64)	
GAD-7 score ⩾10					
No	131 (54)	42 (49)	45 (56)	44 (57)	ns
Yes	111 (46)	43 (51)	35 (44)	33 (43)	
Do you have difficulties with depression?					
No	31 (13)	7 (8)	14 (18)	10 (13)	ns
Yes, very mild	23 (10)	9 (11)	7 (9)	7 (9)	
Yes, mild	57 (24)	21 (25)	23 (29)	13 (17)	
Yes, moderate	99 (41)	38 (45)	29 (36)	32 (42)	
Yes, severe	28 (12)	8 (9)	7 (9)	13 (17)	

(*Continued*)

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Table 1. (*Continued.*)

	Overall ($n = 242$)	Ultra-brief ($n = 85$)	Standard-length ($n = 80$)	Waitlist ($n = 77$)	Significance
Yes, very severe	4 (2)	2 (2)	0 (0)	2 (3)	
Do you have difficulties with anxiety?					
No	2 (1)	1 (1)	0 (0)	1 (1)	ns
Yes, very mild	13 (5)	5 (6)	3 (4)	5 (7)	
Yes, mild	40 (17)	8 (9)	17 (21)	15 (20)	
Yes, moderate	140 (58)	52 (61)	44 (55)	44 (57)	
Yes, severe	38 (16)	17 (20)	12 (15)	9 (12)	
Yes, very severe	9 (4)	2 (2)	4 (5)	3 (4)	
Credibility and expectancy score					
Initial assessment	24.36 (5.36)	24.22 (5.16)	23.84 (5.58)	25.06 (5.34)	ns
Week 1	23.63 (6.01)	23.70 (5.87)	23.57 (6.20)	–	ns

[a]Mean (s.d.) reported.
[b]Participants could endorse more than one employment option.
[c]If participant endorsed seeing a psychiatrist, psychologist, or counselor for their mental health.

a clinical deterioration in depression symptoms according to the reliable change index (ultra-brief $n = 0$; standard-length $n = 0$) or ⩾30% deterioration (ultra-brief $n = 1$, standard-length $n = 2$; $ps > 0.05$). Similarly, rates of deterioration in anxiety symptoms were no different between treatments according to the reliable change index (ultra-brief $n = 0$, standard-length $n = 0$) or ⩾30% deterioration approach (ultra-brief $n = 1$, standard-length $n = 3$; $ps > 0.05$).

Secondary outcome

Participants who received the ultra-brief or standard-length reported greater reductions in disability from baseline to 9-weeks compared to control ($p < 0.0001$). At 9-weeks, participants in the ultra-brief treatment had significantly lower self-reported disability than the waitlist ($d = 0.38$), as did the standard-length treatment ($d = 0.45$; see Table 2). There was no significant difference between the ultra-brief and standard-length treatments ($d = -0.05$). The treatment-related reductions in disability remained significant at 3-month follow-up. Within-group symptom change and within-group effect sizes for disability are reported in Table 3.

Sensitivity analyses

Sensitivity analyses examined the impact of baseline symptom severity on within-group symptom change. For both depression and anxiety symptoms, the pattern of change differed according to baseline symptom severity and treatment group ($ps < 0.001$). At 9-weeks post-baseline, larger symptom reductions were seen for participants who reported clinical levels of depression symptoms at baseline in the standard-length treatment (see Table 4). In contrast, larger reductions in depressive symptoms were observed for those with non-clinical symptoms at baseline in the ultra-brief treatment. Larger symptom reductions were also observed for participants with clinical levels of anxiety symptoms at baseline across both groups.

Clinician contact

The psychologist spent an average of 23.03 min (s.d. = 14.55) with participants in the ultra-brief treatment, compared to an average of 47.37 min (s.d. = 46.54) with participants in the standard-length treatment ($p < 0.0001$). The number of therapeutic interactions significantly differed between groups ($p < 0.0001$). The median number of therapeutic interactions in the ultra-brief treatment was one (62%; Table 5), followed by none (36%). Two participants initiated a second contact with the psychologist. The median number of therapeutic interactions in the standard-length treatment was also one (24%), followed by none (17%) and three (17%).

The time between completing the lesson and speaking with the psychologist was recorded for the ultra-brief treatment: participants spoke with the psychologist an average of 5.34 days later (s.d. = 3.52; range 1–15).

Satisfaction

Treatment satisfaction ratings indicated that a slightly lower proportion of participants reported being 'Satisfied' or 'Very Satisfied' with the ultra-brief treatment (62%) compared to the standard-length treatment (73%, $p > 0.05$). Most participants reported that the treatments were worth their time (ultra-brief: 79%, standard-length: 90%, $p > 0.05$) and would recommend the treatment (ultra-brief: 78%, standard-length: 88%, $p > 0.05$). Whereas 31% of ultra-brief treatment participants considered treatment to have been sufficient for their difficulties, 54% of standard-length treatment participants considered treatment to have been sufficient ($p = 0.01$). By 9-weeks post-baseline, 25% of ultra-brief treatment participants had sought further psychological treatment (note that the standard-length treatment participants were still in active treatment at this timepoint). During the 9-week treatment period, 7% of ultra-brief treatment participants and 10% of standard-length treatment participants reported a worsening of their symptoms.

Discussion

An online transdiagnostic ultra-brief treatment resulted in significant reductions in depression and anxiety symptoms that were non-inferior to an online 8-week transdiagnostic standard-length treatment and superior to a waitlist control after 9-weeks. Both active treatments resulted in moderate reductions in depression

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Table 2. Between-group differences in primary outcomes

				Ultra-brief v. waitlist			Ultra-brief v. standard-length			Standard-length v. waitlist		
	Ultra-brief ($n = 78$)	Standard-length ($n = 75$)	Waitlist ($n = 70$)	*p*	Cohen's d	Mean difference	*p*	Cohen's d	Mean difference	*p*	Cohen's d	Mean difference
Depression												
Week 1	11.75 (5.12)	10.73 (5.11)	10.43 (5.61)	ns	−0.25 (−0.57 to 0.08)	−1.32 (−3.06 to 0.42)	ns	−0.20 (−0.52 to 0.12)	−1.02 (−2.65 to 0.61)	ns	−0.06 (−0.38 to 0.27)	−0.30 (−2.06 to 1.46)
Week 5	8.93 (6.18)	8.68 (5.20)	10.28 (5.52)	ns	0.23 (−0.10 to 0.55)	1.35 (−0.56 to 3.26)	ns	−0.04 (−0.36 to 0.27)	−0.25 (−2.05 to 1.58)	ns	0.30 (−0.03 to 0.62)	1.60 (−0.16 to 3.36)
Week 9	8.14 (5.30)	7.66 (5.11)	10.30 (5.10)	**0.01**	0.41 (0.09–0.74)	2.16 (0.47 to 3.85)	ns	−0.09 (−0.41 to 0.23)	−0.48 (−2.14 to 1.18)	**<0.001**	0.52 (0.18–0.85)	2.64 (0.96–4.32)
3MFU	9.33 (6.09)	7.81 (6.58)	–	–	–	–	ns	−0.24 (−0.56 to 0.08)	−1.52 (−3.55 to 0.51)	–	–	–
Anxiety												
Week 1	10.37 (4.77)	9.16 (4.16)	8.59 (4.77)	**0.02**	−0.37 (−0.70 to 0.05)	−1.78 (−3.33 to −0.23)	ns	−0.27 (−0.59 to 0.05)	−1.21 (−2.64 to 0.22)	ns	−0.13 (−0.45 to 0.20)	−0.57 (−2.04 to 0.90)
Week 5	6.94 (4.95)	7.19 (4.68)	8.37 (4.94)	ns	0.29 (−0.04 to 0.61)	1.43 (−0.18 to 3.04)	ns	0.05 (−0.27 to 0.37)	0.25 (−1.29 to 1.79)	ns	0.25 (−0.08 to 0.57)	1.18 (−0.40 to 2.76)
Week 9	6.56 (4.68)	6.24 (4.85)	9.09 (4.85)	**<0.001**	0.53 (0.20–0.86)	2.53 (0.98–4.08)	ns	−0.07 (−0.38 to 0.25)	−0.32 (−1.84 to 1.20)	**<0.001**	0.59 (0.25–0.92)	2.85 (1.26–4.44)
3MFU	6.99 (5.12)	6.85 (5.98)	–	–	–	–	ns	−0.03 (−0.34 to 0.29)	−0.14 (−1.92 to 1.64)	–	–	–
Disability												
Week 1	15.40 (7.15)	15.15 (6.67)	13.80 (7.28)	ns	−0.22 (−0.54 to 0.10)	−1.60 (−3.95 to 0.75)	ns	−0.04 (−0.35 to 0.28)	−0.25 (−2.46 to 1.96)	ns	−0.19 (−0.52 to 0.13)	−1.35 (−3.64 to 0.94)
Week 5	11.69 (8.39)	11.95 (7.27)	12.85 (7.70)	ns	0.14 (−0.18 to 0.47)	1.16 (−1.47 to 3.79)	ns	0.03 (−0.28 to 0.35)	0.26 (−2.25 to 2.77)	ns	0.12 (−0.21 to 0.45)	0.90 (−1.56 to 3.36)
Week 9	10.40 (8.04)	9.98 (7.53)	13.27 (7.03)	**0.02**	0.38 (0.05–0.70)	2.87 (0.40–5.34)	ns	−0.05 (−0.37 to 0.26)	−0.42 (−2.91 to 2.07)	**0.01**	0.45 (0.12–0.78)	3.29 (0.89–5.69)
3MFU	11.86 (7.77)	10.76 (8.49)	–	–	–	–	ns	−0.14 (−0.45 to 0.18)	−1.10 (−3.70 to 1.50)	–	–	–

ns, not significant, significance values are in bold.

Notes. Mean (S.D.) reported. Effect sizes consider ultra-brief as novel and standard-length treatment as the reference group.

Table 3. Estimated marginal means, within-group effect sizes (Cohen's d), and within-group mean differences

	N	Week 1	Week 5	$p_{\text{week 1 to 5}}$	Cohen's *d*	Mean difference	Week 9	$p_{\text{week 1 to 9}}$	Cohen's *d*	Mean difference	3MFU	$p_{\text{week 1 to 3mfu}}$	Cohen's *d*	Mean difference
Depression														
Ultra-brief	78	11.75 (5.12)	8.93 (6.18)	**<0.001**	0.50 (0.18–0.81)	2.82 (1.02–4.62)	8.14 (5.30)	**<0.001**	0.69 (0.37–1.01)	3.61 (1.96–5.26)	9.33 (6.09)	**<0.001**	0.43 (0.11–0.75)	2.42 (0.64–4.20)
Standard-length	75	10.73 (5.11)	8.68 (5.20)	**<0.001**	0.39 (0.07–0.70)	2.05 (0.39–3.71)	7.66 (5.11)	**<0.001**	0.59 (0.27–0.91)	3.07 (1.42–4.72)	7.81 (6.58)	**<0.001**	0.49 (0.17–0.80)	2.92 (1.02–4.82)
Waitlist	70	10.43 (5.61)	10.28 (5.52)	ns	0.03 (−0.29 to 0.34)	0.15 (−1.71 to 2.01)	10.30 (5.10)	ns	0.02 (−0.29 to 0.34)	0.13 (−1.66 to 1.92)	–	–	–	–
Anxiety														
Ultra-brief	78	10.37 (4.77)	6.94 (4.95)	**<0.001**	0.71 (0.38–1.03)	3.43 (1.89–4.97)	6.56 (4.68)	**<0.001**	0.81 (0.48–1.13)	3.81 (2.32–5.30)	6.99 (5.12)	**<0.001**	0.68 (0.36–1.00)	3.38 (1.81–4.95)
Standard-length	75	9.16 (4.16)	7.19 (4.68)	**<0.001**	0.45 (0.12–0.77)	1.97 (0.54–3.40)	6.24 (4.85)	**<0.001**	0.65 (0.31–0.97)	2.92 (1.46–4.38)	6.85 (5.98)	**<0.001**	0.45 (0.12–0.77)	2.31 (0.65–3.97)
Waitlist	70	8.59 (4.77)	8.37 (4.94)	ns	0.05 (−0.29 to 0.38)	0.22 (−1.40 to 1.84)	9.08 (4.85)	ns	−0.10 (−0.43 to 0.23)	−0.49 (−2.10 to 1.12)	–	–	–	–
Disability														
Ultra-brief	78	15.40 (7.15)	11.69 (8.39)	**<0.001**	0.48 (0.16–0.79)	3.71 (1.24–6.18)	10.40 (8.04)	**<0.001**	0.66 (0.33–0.98)	5.00 (2.59–7.41)	11.86 (7.77)	**<0.001**	0.47 (0.15–0.79)	3.54 (1.18–5.90)
Standard-length	75	15.15 (6.67)	11.95 (7.27)	**<0.001**	0.46 (0.13–0.78)	3.20 (0.95–5.45)	9.98 (7.53)	**<0.001**	0.73 (0.39–1.05)	5.17 (2.87–7.47)	10.76 (8.49)	**<0.001**	0.58 (0.25–0.90)	4.39 (1.93–6.85)
Waitlist	70	13.80 (7.61)	12.85 (7.70)	ns	0.12 (−0.21 to 0.45)	0.95 (−1.61 to 3.51)	13.27 (7.03)	ns	0.07 (−0.26 to 0.40)	0.53 (−1.92 to 2.98)	–	–	–	–

ns, non-significant.
Notes. Mean (s.d.) reported. 95% CI for Cohen's d and mean difference reported.
Notes. Mean (s.d.) reported. 95% CI for Cohen's d and mean difference reported.

and anxiety symptoms. This finding is consistent with randomized controlled trials which directly compared single and multiple sessions of exposure therapy for specific phobia (Odgers et al., 2022). Treatment gains were maintained in the short-term, as indicated by sustained symptom reductions at 3-month follow-up. However, the ultra-brief treatment was not considered non-inferior at 3-month follow-up as the between-groups difference was equal to the non-inferiority margin of $d \geqslant 0.24$. This is the largest and first fully powered randomized controlled trial of an online therapist-guided ultra-brief treatment for depression and anxiety. The findings of the current study suggest that online ultra-brief treatments may represent another valuable approach for providing treatment and could hold particular potential for people who are unable or unwilling to take up or complete standard-length treatments.

Our findings provide preliminary evidence that different people may benefit from different treatment formats. We observed that symptom reductions appeared larger for those with clinical symptoms in the standard-length treatment, whereas symptom reductions appeared larger for those with non-clinical symptoms in the ultra-brief treatment. However, these comparisons were not tested, and the pattern emerged for depression symptoms only. On one hand, these results may suggest that individuals with more complex or severe symptoms require more intensive treatments and may benefit from a larger treatment dose. On the other hand, our results may suggest that individuals with non-clinical symptoms may have more motivation and a greater ability to work independently, which is something that ultra-brief treatments require. In any case, future research is needed to understand the optimal dosing of treatment across different symptom clusters.

It was interesting to observe the time course of symptom change in the current study. Although the ultra-brief treatment was not superior to the waitlist control after 5-weeks, the ultra-brief treatment did result in significantly greater reductions in depression and anxiety symptoms after 9-weeks. It may be the case that people who received the ultra-brief treatment experienced improvements in related cognitive or affective factors before symptom reductions, consistent with the findings of past research into brief treatments. In one pilot study ($n = 104$), an online unguided behavioral activation single-session treatment for depression did not result in greater reductions in depressive symptoms than the control groups after 4 weeks, the treatment was associated with greater reductions in dysfunctional attitudes (Jelinek et al., 2020). It is possible that changes in key cognitive processes preceded reductions in depressive symptoms, and that the treatment may have resulted in significant symptom improvements at a later timepoint. Similar results have been reported in other clinical trials of ultra-brief treatments – for instance, although no difference in changes in health anxiety symptoms were found between an anxiety sensitivity reduction single session treatment and an active control at up to 4 weeks follow-up ($n = 68$), the treatment group did show larger reductions in anxiety sensitivity (O'Bryan et al., 2021). In a sample of adults with panic disorder ($n = 28$), participants who received a single session of exposure therapy showed reduced hypervigilance for fearful stimuli compared to the waitlist control a day after treatment, even though panic and anxiety symptoms remained similar. After 4 weeks, reduced hypervigilance following treatment was associated with greater reductions in agoraphobic avoidance (Reinecke, Waldenmaier, Cooper, & Harmer, 2013). These results suggest that the therapeutic effects of ultra-brief treatments may

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Table 4. Estimated marginal means, within-group effect sizes (Cohen's d), and within-group mean differences in treatment groups according to baseline symptom severity

	N	Week 1	Week 5	$p_{\text{week 1 to 5}}$	Cohen's *d*	Mean difference	Week 9	$p_{\text{week 1 to 9}}$	Cohen's *d*	Mean difference	3MFU	$p_{\text{week 1 to 3mfu}}$	Cohen's *d*	Mean difference
Ultra-brief treatment														
Depression														
Non-clinical	26	7.27 (2.24)	5.16 (3.26)	**0.001**	0.75 (0.18–1.30)	2.11 (0.55–3.67)	4.54 (3.06)	**<0.001**	1.02 (0.43–1.58)	2.73 (1.24–4.22)	5.36 (3.06)	**0.002**	0.71 (0.14–1.26)	1.91 (0.42–3.40)
Clinical	52	14.00 (4.62)	10.82 (6.20)	**<0.001**	0.58 (0.19–0.97)	3.18 (1.05–5.31)	9.94 (5.34)	**<0.001**	0.81 (0.41–1.21)	4.06 (2.12–6.00)	11.31 (6.27)	**<0.001**	0.49 (0.09–0.87)	2.69 (0.55–4.83)
Anxiety														
Non-clinical	38	7.79 (3.95)	4.83 (3.45)	**<0.001**	0.80 (0.32–1.26)	2.96 (1.27–4.65)	4.62 (2.90)	**<0.001**	0.92 (0.43–1.38)	3.17 (1.59–4.75)	5.07 (3.27)	**<0.001**	0.75 (0.28–1.21)	2.72 (1.06–4.38)
Clinical	40	12.83 (4.17)	8.93 (5.06)	**<0.001**	0.84 (0.38–1.29)	3.90 (1.84–5.96)	8.39 (5.06)	**<0.001**	0.96 (0.49–1.41)	4.44 (2.38–6.50)	8.81 (5.63)	**<0.001**	0.81 (0.35–1.26)	4.02 (1.81–6.23)
Standard-length treatment														
Depression														
Non-clinical	32	7.03 (3.51)	5.57 (3.79)	**0.02**	0.40 (−0.10 to 0.89)	1.46 (−0.36 to 3.28)	5.93 (3.28)	ns	0.32 (−0.17 to 0.81)	1.10 (−0.60 to 2.80)	5.74 (4.30)	ns	0.33 (−0.17 to 0.82)	1.29 (−0.67 to 3.25)
Clinical	43	13.49 (4.33)	10.99 (5.11)	**<0.001**	0.53 (0.09–0.95)	2.50 (0.47–4.53)	8.95 (5.84)	**<0.001**	0.88 (0.43–1.32)	4.54 (2.34–6.74)	9.34 (7.08)	**<0.001**	0.71 (0.27–1.14)	4.15 (1.63–6.67)
Anxiety														
Non-clinical	41	6.93 (2.37)	5.06 (3.46)	**<0.001**	0.63 (0.18–1.07)	1.87 (0.57–3.17)	4.69 (2.95)	**<0.001**	0.84 (0.38–1.28)	2.24 (1.07–3.41)	5.39 (4.42)	**0.02**	0.43 (−0.01 to 0.87)	1.54 (−0.02 to 3.10)
Clinical	34	11.85 (4.26)	9.76 (4.72)	**0.003**	0.46 (−0.02 to 0.94)	2.09 (−0.09 to 4.27)	8.11 (5.89)	**<0.001**	0.73 (0.23–1.21)	3.74 (1.25–6.23)	8.61 (6.71)	**<0.001**	0.58 (0.09–1.06)	3.24 (0.52–5.96)

ns, non-significant.
Notes. Mean (s.d.) reported. 95% CI for Cohen's d and mean difference reported.

Table 5. Number of therapeutic interactions between treatment groups

Interactions	Ultra-brief	Standard-length
0	28 (36)	13 (17)
1	48 (62)	18 (24)
2	2 (3)	12 (16)
3	0 (0)	13 (17)
4	0 (0)	7 (9)
5	0 (0)	6 (8)
6	0 (0)	4 (5)
7	0 (0)	0 (0)
8	0 (0)	2 (3)

n (%) reported.

not be immediately evident and may instead be realized a few weeks to months later, potentially via changes in key cognitive processes.

The treatments in this study were both grounded in cognitive behaviour therapy and included the same core therapeutic information and skills, which the ultra-brief treatment delivered in a much briefer way. One outstanding question from this study concerns the mechanisms of ultra-brief treatment and why the current study found an ultra-brief treatment to be similarly effective as the standard-length treatment after 9-weeks. Past work suggests that increased skills use, changes in daily activities, and completing practice tasks are associated with symptom reductions (Bisby et al., 2023; Kazantzis et al., 2016; Terides et al., 2018). It is possible that participants in the ultra-brief treatment took up the recommended skills and continued to practice them, even after treatment ended. However, it is also possible that the ultra-brief treatment promoted symptom reductions through the engagement of 'common factors' (Cuijpers, Reijnders, & Huibers, 2019). Common factors are believed to be universal mechanisms of psychological treatment that can operate irrespective of treatment duration or content, and include insight and awareness (Høglend & Hagtvet, 2019), the therapeutic alliance (Baier, Kline, & Feeny, 2020), 'remoralization' and hope (Frank, 1974), and treatment expectancy (Zilcha-Mano, Roose, Brown, & Rutherford, 2019). It may be that the delivery of the ultra-brief treatment, being therapist-guided and delivered by a specialist research clinic, engaged these factors to a greater extent than other public health self-help online treatments (e.g. Gilbody et al., 2017). Future research is needed to understand how and why ultra-brief treatments result in significant symptom reductions, as this knowledge will support the development of more effective treatments.

Although the two treatments resulted in similar clinical efficacy, fewer participants in the ultra-brief treatment group felt that the treatment was sufficient in addressing their difficulties. Indeed, about a quarter of ultra-brief treatment participants sought additional psychological treatment after finishing treatment. Thus, there appears to be important differences between acceptability and efficacy, potentially highlighting the importance of participant-led outcomes such as satisfaction and perceived benefit as indicators. Of course, it should be noted that preferences for the ultra-brief treatment were slightly lower (29% ultra-brief *v.* 35% standard-length), and that approximately a third of ultra-brief treatment participants would have preferred to complete the standard-length treatment instead. Unlike the participants who had the option to engage less in the longer treatment if desired (e.g. lower module completion, less therapist contact), participants did not have the option to engage more in the ultra-brief treatment. This highlights the potential need to consider treatment preferences, and utilize research designs that account for participant preference in the evaluation process (Walter, Turner, Macaskill, McCaffery, & Irwig, 2017). Indeed, ultra-brief treatments may be more efficacious and acceptable in those who are specifically seeking briefer treatments and may not be endorsed by those seeking longer treatments. Future research trials carefully exploring the interaction of preference, treatment acceptability, and efficacy are therefore needed. There may also be a place for psychoeducation or promotion around the benefits of ultra-brief treatments, as they may be perceived as less effective due to the shorter timeframe. In any case, for some individuals, the therapeutic encounter provided by an online ultra-brief treatment was sufficient for managing their depression or anxiety. While for others, the encounter may have helped them build insight into their difficulties and prompted them to seek further intensive support post-treatment.

This study is the first to develop and evaluate an online transdiagnostic ultra-brief treatment for depression and anxiety in adults and therefore it is critical for our approach to be critiqued, replicated, and extended. Although there are calls to develop and deliver briefer treatment options for a range of mental health problems, there is no evidence base outlining for whom ultra-brief treatments are appropriate and helpful or the essential (or non-essential) components of ultra-brief treatments (Linardon & Fuller-Tyszkiewicz, 2023). Given this was a remotely delivered and therapist-guided ultra-brief treatment, the delivery of information and provision of therapeutic support (via telephone) happened on separate occasions. The therapist's role in the telephone call was to reinforce the therapeutic materials and answer questions without introducing new psychotherapeutic information or skills. However, the contribution of each treatment component (i.e. the lesson, the therapist) is unclear, and we do not know whether the ultra-brief treatment would have been less effective if provided in an unguided format. As such, the treatment delivery format lends itself well to future dismantling studies exploring the components driving the efficacy of the online ultra-brief treatment.

The findings of the current study should be taken alongside several limitations. First, the standard-length treatment used in our study appears to have resulted in smaller within-group effect size than in previous reports (Titov et al., 2020, 2015). This difference is likely due to a range of factors, including the current study recruiting a less severe sample and employing more conservative statistical analyses. Although future replication is needed to support non-inferiority of the ultra-brief treatment, such methodological differences would have impacted the treatment efficacy estimates to the same extent. It is also possible that the requirement for participants to be willing to randomized to either treatment attracted or resulted in a sample with different clinical histories, motivations, and needs. Secondly, our broad eligibility criteria did not require participants to experience clinical symptoms to participate, with approximately half the sample being in the non-clinical range at baseline. While our sensitivity analyses indicate that the ultra-brief treatment is still effective for people with clinical symptoms, it is important for future research to replicate our results in different subgroups to further understand which treatments work for whom. Indeed, future work using

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diagnostic interviews and minimum symptom thresholds are essential before firm conclusions are drawn.

This is the first fully powered randomized controlled trial to examine and compare an online therapist-guided ultra-brief treatment for depression and anxiety to an online therapist-guided standard-length and waitlist control. Evidence of efficacy and non-inferiority were found for the ultra-brief treatment after 9-weeks, suggesting that ultra-brief psychotherapies can result in meaningful improvements in mental health symptoms. It is important for future work to explore the long-term efficacy of ultra-brief treatments as non-inferiority was maintained at 3-month follow-up for anxiety, but not depression, symptoms. There are many outstanding questions about the efficacy of online ultra-brief treatments for anxiety and depression – particularly for whom they are effective, how, and why. However, the findings of the current study suggest that brief treatments may have significant potential as another treatment approach and may represent a particularly useful option for people unable or unwilling to engage in longer treatments.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S003329172300260X

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Ethical standards. All participants provided informed consent before applying for the study. This study was approved by the Human Research Ethics Committee of Macquarie University, Sydney, Australia, and was prospectively registered on the Australian and New Zealand Clinical Trials Registry. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

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